New Jersey Blacksmiths Association

NEWSLETTER

Volume 3, No. 1 Jun., 1998

Special "Double" Issue

This issue of the NJBA Newsletter has been filled out to 24 pages (instead of the usual twelve) with items gleaned from the newsletters of other ABANA chapters. Special thanks to Tim Suter for the help he provided in making these selections.

The News is Dues

Remember: Your membership dues are due *now*. Please make out your check for $15 to the New Jersey Blacksmiths Association, and mail it to Pete Engle, 47 Center St., Rumson, NJ 07760.

If you haven't yet paid your '98-'99 Membership Dues, then This is Your Last Issue!

June Membership Meeting

The June meeting will be held on **Sunday, June 28, at 10 am at the shop of Marshal Bienstock**. This meeting is later in the month than usual because many of the NJBA directors will just be returning from the ABANA conference in Asheville, NC, and they will report on the conference. We expect to have some videos to show of events at Asheville. Maybe some of the braver souls will attempt to demonstrate some of what they saw in Asheville.

We may also install two more forges in Marshall's shop. This will give Marshall three coal forges and two gas forges, quite an installation. There will definitely be an iron-in-the-hat (IITH) and a tailgate sale at this meeting. So, please **bring lunch and something (anything) for the IITH. Bring all your junk, scrap metal, tools and books to sell or trade** at the tailgate sale, and bring some cash so you can participate in the tailgate sale and IITH.

Marshall's farm is at **663 Casino Drive, Howell (Monmouth Co.), NJ**, which is about 1/4 mile east of Route 9. Casino Dr. is a few miles north of I-195, and a few miles south of Rte. 33. Either of these routes can be easily reached from the major north-south highways, including the Garden State Parkway, the NJ Turnpike, I-295, Rte. 18 or Rte. 34. Marshall can be reached at his shop at **(732) 780-0871**.

July Membership Meeting

The July meeting will be on **Saturday, July 18 at 9 am** at **Longstreet Farm (Holmdel Park, Monmouth Co., NJ).** David Macauley will be doing a demo along with the staff of the Longstreet Farm blacksmith shop, including Norman Nelson. The demo will be on traditional 19th century hardware such as hinges and latches used in the farm and the house. We may also have a demo of farrier work if one of their farriers is there. Bring lunch. No tailgate sale or IITH this time.

To get to Holmdell Park, take the Garden State Parkway to exit 114. Go west about 3/4 mile on Red Hill Road to Cranford Corner - Everett Road, and make a right turn. On your left will be Bell Laboratories, recognizable from its unique water tower. Either the first left (Roberts Rd.) or the second (Longstreet Rd.) after Bell Labs will take you to Holmdell Park. Find a parking spot and follow the signs to Longstreet Farm. For additional information, contact David Macauley (home: 732-206-1568; work: 732-949-8422).

Future Membership Meetings.

Be sure to mark your calendar for these NJBA meetings:

day	date	notes
Sunday,	August 16,	
Saturday,	September 19,	
Sunday,	October 18,	(correction)
Saturday,	November 14,†	
Sunday,	December 13,†	Holiday party

* Later in the month than usual due to the ABANA conference.

† Earlier in the month than usual, due to holidays.

Events Outside New Jersey

Sat., June 13, 9 am-4 pm, Westminster, MD, **Cabin Fever Hammer-In.** Featured demonstrator **Bruce Lewis** will demonstrate some "sellers" at craft shows, and Civil War and Revolutionary War items popular with reenactors. Carroll Co. Farm Museum, 500 S. Center St. Bring something for the iron-in-the-hat and something for the pot-luck luncheon. Call Marilyn Hughes (410-519-0653) or Janet Morris (301-253-2084) to coordinate food donations.

June 17th through 20th, Asheville, NC. **The 1998 ABANA Conference** will be held at the University of North Carolina, Asheville. (If you're an ABANA member you'll

already have received your registration form. If not, contact one of the NJBA directors for information, or visit the ABANA website: www.ABANA.org.)

Sat., July 11, Pennsylvania Artist-Blacksmith Association meeting at Tom Tyson's Forge, located at 1068 Fritztown Rd, Sinking Spring, PA. Main event: **Anvil Repair**. Bring a **welding helmet**, if you have one. Trade item: fireplace shovel. Also: **broom tying** demonstration by Barb Afflerbach. **Lunch will be provided.** Park behind the fire house next door to Tom's. Bring your ABANA 1998 Conference pictures. **Please bring something for the iron-in-the-hat.**

From Trenton or South Jersey, get onto the PA Turnpike from the NJ Turnpike, and exit at Denver (exit 21). Go straight from toll booths to right onto Rt. 272 towards the Adamstown area. (Go past Zinn's Diner.) At stop light, turn left onto Rt. 897. At first 4-way stop, turn right onto Fritztown Road. In Fritztown, Tyson's Forge is on the right at a sharp right turn. **From North Jersey**, take I-78 to the Allentown and pick up US Rt. 222, south. After Maidencreek (Rt. 73 intersection) take ramp to right at a sign for Sinking Spring. Stay on this road until Rt. 422 & Rt. 724 intersection. Go to the right (422 west) and immediately get into the left lane for a left turn at light, onto Columbia Ave. (which changes into Fritztown Rd.). In Fritztown, Tyson's Forge is on the left at a sharp left turn. **Look for "PABA" signs.**

Sat.-Sun., Sept. 12-13, Dover, DE. 1998 Early American Wrought Iron Conference. Featuring, **Peter Sevin** from Phoenix, AZ, and **William Wojcik** from The Plains, VA. Co-sponsored by Mid-Atlantic Smiths Association and The Delaware Agricultural Museum. Preregistration: $45 for both days. Call 302-734-1618. For more information, call Ray Noble: 800-220-3015 (days) or 410-651-0987 (eves.)

Blacksmith Workshops in NJ

Peters Valley Craft Education Center
19 Kuhn Rd., Layton, NJ (973) 948-5200
pv@warwick.net http://www.pvcrafts.org/

Beginner - little or no experience in blacksmithing.

Intermediate - prior experience and familiarity with forging techniques and processes.

Advanced - suitable experience and familiarity with forging techniques and processes.

("*" means that additional supplies will need to be acquired. A supply list will be sent prior to the start of the workshop.)

"The Soul of Form," Peter Joseph - June 26-30 (5 days) The foundation of this course will be fundamental forging, fabrication and metalsmithing techniques. Priorities will be: idea development, visualization, sound technique, design, simple tooling, efficient work methods, quality finish, career strategies and, most importantly, developing form out of the content of our own experiences. Beginner to intermediate. Tuition: $330.00, Lab Fee: $50.00 *

"Fold Forming for Blacksmiths," Charles Lewton-Brain - July 3-7 (5 days) Fold forming is a new, quick, easily learned way of shaping sheet metal with hand tools. Lewton-Brain invented fold-forming, which is now internationally recognized as a new way to work metal. Complex relief forms are made which resemble chased, constructed and soldered forms. Beginner to advanced. Tuition: $330.00, Lab Fee: $55.00 *

"Moving Metal," Paige Davis - July 10-14 (5 days) Students will learn a wide variety of techniques for manipulating steel. We will cover forging basics from tapering and twisting to more advanced skills, including welding, riveting, textures and finishes. Focus will be on process, design and problem solving while working through a piece in metal. Beginner to intermediate. Tuition: $330.00, Lab Fee: $50.00 *

"Basic Toolmaking," William Fiorini - July 17-21 (5 days) This course will cover the basic principles of tool making. Forging of tool shapes, discussions about steel types, and principles of hardening/tempering and finishing will allow students to make a variety of tools, such as chasing tools, chisels, hammers, tongs and punches. Covers the types of steel used for each tool and how to properly harden/temper the tools for their intended purpose. No prior experience necessary. Beginner to advanced. Tuition: $330.00, Lab Fee: $55.00 *

"Basic Beginnings," "Derek Glaser - July 24-28 (5 days) This workshop will encompass the forging techniques a beginner needs. Students will break away into their own small projects after learning traditional processes and fundamental problem solving. Beginner to intermediate. Tuition: $330.00, Lab Fee: $50.00 *

"Painting with an Iron Pallet," Warren Holzman - July 31 - August 7 (8 days) Wall-mounted pieces will be the emphasis of this class. Students will use iron forms to compose two-dimensional/low-relief visual statements: repousse' and chasing, flame cut steel shapes, joinery and forge work. Intermediate to advanced. Tuition: $420.00, Lab Fee: $65.00 *

"The Iron Barrier: An Exploration of Function and Design," Alice James & Japheth Howard - August 14-25 (12 days) A small garden gate or window grille will be the project for this workshop. Each student will design and make a piece that incorporates their individual style. Traditional and contemporary blacksmithing methods and tools made for the project will be covered within this intensive skill-developing course. Intermediate to advanced. Tuition: $600.00, Lab Fee: $110.00 *

"Mosaic Damascus," Robert Eggerling - August 28-31 (4 days) Create unlimited damascus steel patterns using the mosaic lamination method. We will discuss process, theory and material selection, then assemble and fuse our billets utilizing a hydraulic forging press. Beginner to intermediate. Tuition: $272.00, Lab Fee: $50.00 *

"Fire, Iron and Instinct," Gil Meeker - September 4-6 (3 days) Learn to build and maintain the forge's fire, allowing your hands and tools to bend, twist, scroll and shape

iron. Beginner to intermediate. Tuition: $214.00, Lab Fee: $40.00 *

Studio Time! John Rais - September 11-13 (3 days) This workshop is for the experienced student who would like some forge time to work on a project of their own design. Each participant must contact John Rais, Peters Valley's new blacksmithing artist-in-residence/program coordinator, prior to registration to discuss project feasibility and required materials. Intermediate to advanced. Tuition: $214.00, Lab Fee: (call)*

Historic Cold Spring Village Calendar of Events

We have had some contact recently with the program coordinator of Historic Cold Spring Village (720 Rte. 9, Cape May, NJ, 609-898-2300). As some of you may know, Jerry Goldman, the blacksmith at Cold Spring Village, is one of our members. We are hoping to hold a meeting at the village sometime next year. We'll keep you posted. In the meantime, here's their current calendar of events:

June 6-7: ..... Confederate Weekend
June 13-14: ..... Threads Through History
June 20-21: ..... Children's Days
June 27-28: Tools Through Time (featuring Al Stephens of the Pennsylvania Artist Blacksmith Association).
July 4-5: ..... Craft Show
July 11-12: ..... Antique Show and Sale
July 18-19: ..... Railroad Days
July 25-26: ..... Farmfest '98
August 1-2: ..... Discover the Cape
August 8-9: ..... Antique Show and Sale
August 15-16: ..... Country Corn Festival
August 22-23: ..... Antique Auto Show
August 29-30: ..... 19th-Century Harvest Days
September 5-7: ..... Craft Show
September 12-13: ..... Colonial Days
September 19-20: ..... Civil War Weekend
September 26-27: ..... Lumberjack Weekend
October 24: ..... Seventh Annual Pumpkin Festival

Report on the March Meeting

The March membership meeting was held at the shop of Marshall Bienstock. Folks started arriving at about 10 am and shot the bull quite happily until a little after 11, when David Macauley began a demonstration on the forging of candle cups from pipe. A few of us took particular interest, but there was a lot of discussion going on in parallel.

During David's demo, Marshall was setting up the iron-in-the-hat (IITH). After the demo, Bruce started testing his new IITH system, consisting of two forms and an instruction sheet, designed to make holding an IITH actually *easy*. Bruce sold tickets, tallying them as he sold them on one of the forms. Marshall used the other form to record the donors, set up cups by each donated item, and folks dropped tickets in the cups of the items they were interested in.

We paused for lunch, during which Marshall showed some videotapes he made at the 1996 ABANA conference in Alfred of the Williamsburg blacksmiths making a large weathervane.

Then we held the IITH. The donor got to pick a ticket from the cup, the winner was announced, and Bruce tallied the winners. Later Bruce checked the number of tickets sold the money collected versus the sales tally. He had made two errors in tallying sales (inattention) but these were easily corrected. Indeed the whole procedure proved as easy as he'd hoped it would be, and left us with a complete record of who donated, who won and how much money was raised. The total raised was $88, and NJBA extends its thanks to all donors and ticket purchasers.

Item	Donor	Winner
Several files	Marshall Bienstock	Hector Giumetti
2 pcs. S7 tool steel	Marshall Bienstock	Josh Kavett
Truck axle	Hector Giumetti	Josh Kavett
Leather gloves	Hector Giumetti	David Macauley
Leather gloves	Hector Giumetti	David Macauley
Leather gloves	Hector Giumetti	Bruce Ringler
Glove liners	Hector Giumetti	Marshall Bienstock
Glove liners	Hector Giumetti	Marshall Bienstock
Nissen metal marker	Hector Giumetti	Bruce Ringler
Nissen metal marker	Hector Giumetti	Nate Pettengill
Nissen metal marker	Hector Giumetti	Bruce Freeman
Nissen metal marker	Hector Giumetti	Josh Kavett
2 Hooks	Josh Kavett	David Macauley
Blacksmith's punch	Bruce Ringler	Hector Giumetti
Blacksmith's punch	Bruce Ringler	Nate Pettengill
2 Wire brushes	Bruce Freeman	Hector Giumetti
2 Wire brushes	Bruce Freeman	David Macauley

After the IITH, Marshal fired up his propane forge and demonstrated the making of a chisel from S7 steel. He used a saturated brine for quenching. The April meeting will be the gas forge-building workshop, and part of the purpose of this demo was elicit interest. In this we were quite successful. By the end of the meeting we had ten people signed up for a workshop that we'd only planned to accommodate eight. (Fortunately we were able to expand the.)

As the meeting started breaking up, a few of us hung around and discussed this and that. We went over the procedures of building gas forges and made some decisions what tools and workstations we'd need.

Report on the Gas Forge-Building Workshop

- by Bruce Freeman

Nobody bothered to take attendance, but Marshall's shop was crawling with about fifteen guys at the height of the workshop, and the noise of saws and grinders was incredible. I had grabbed a couple likely candidates early on and retreated to the (quieter) wood shop where we assembled and tested regulators and burner tubes. We leak checked each fuel tube, then each regulator + fuel tube, then we leak-checked again (outside) with propane, just to make sure we hadn't missed any leaks before. Meanwhile guys were assembling burner tubes, cutting and grinding the edges of the tanks we used for the outer shells of the forges, cutting and placing ceramic wool, welding on legs, cutting, folding and

welding back doors, and, as a final step, casting the solid bottoms of the forges. At the end of the day, we had three rows of forges and a row of burners. The cast bottoms of the forges had to dry overnight, so folks came by Monday to pick them up. All in all the participants went away with a pipe forge complete with a back door (with genuine Josh Kavett double-twist handles), ten firebricks for use as a front door and port, and a "Bienstock" burner complete with hose and regulator. It was gratifying how well the whole process went together, and there was considerable satisfaction at having participated.

Special thanks go to members who showed up only to help others build their forges: Dan Cruzan, and Hector Giumetti, who brought along some pipe fittings that proved useful. Of course, we owe a great deal of thanks to Marshall Bienstock who not only made his shop available for the workshop, but also spent considerable time and effort in pursuing materials and designing and making tooling for the burner and forges and generally in getting things ready for the workshop. Thanks are also due Andy Vida-Szucs, David Macauley, Norman Nelson, and me, who helped set up and do some of the prefabrication for the workshop. Kevin Hardy deserves mention as having contributed some scrap ceramic wool, which, though in lieu of payment for the forge, proved of greater monetary value and saved NJBA and the other participants some money.

When all costs were reckoned, the forges cost only $65 to put together. Each paying participant contributed $50 directly to the NJBA treasury, bringing in $600 free and clear to the treasury. Participants were promised a refund if the costs were less than $75, but the following participants graciously waived the refund, donating it back to NJBA: Nate Pettengill, Bruce Ringier, Larry Brown, Pete Bazakas, Bill Knudson, David Potts, and the Furnace Town Blacksmith Guild.

Report on the May Meeting

The May meeting was held at New Sweden Farmstead Museum in Bridgeton, NJ. Tim Suter brought a forge, two anvils, a post vise, stock, coal, tools and *lots* of slack tubs, which he distributed to the attendees. Bruce Freeman brought a forge, a post vise (borrowed from Marshall Bienstock, who couldn't attend), some stock, and tools. Pete Engle brought tools and refreshments. Turn-out was low, but interested, and one reporter showed up and photographed the activity at the two forges. The volunteers at the museum gave us a tour and even treated us to an excellent lunch. Tim showed us how he makes a rattlesnake out of an old rasp.

This was the elections meeting. In attendance were Pete Engle, Tim Suter, Don Harbert, Steve Rhoades and Bruce Freeman. (Bill Gerhauser had left early.) The business portion of the meeting was called to order in the late afternoon, when it was clear no others were going to show up and before anyone else could leave. Up for reelection were David Macauley, Pete Engle, Bruce Freeman, Bill Gerhauser and Tim Suter. No nominations were made from the floor. The slate of nominees were elected for two-year terms.

Report on the FTBG Joint Meeting -Clay Spenser's Treadlehammer

Marshall Bienstock, Andy Vida-Szucs and I took a vacation day Friday, March 29, and headed off for the Furnace Town Blacksmith Guild annual joint meeting with the Mid-Atlantic Smiths Association, the Blacksmith Guild of Central Maryland, and the Blacksmith Guild of the Potomac.

On the way we stopped at Fazzio's, which was well described by Tim Suter in the last newsletter. There we were joined by Hector Giumetti, who graciously brought each of us a pair of leather gloves to protect the fingers as we went through parts bins. We were principally seeking out parts for the gas forge workshop, but we let ourselves be greatly distracted. Marshall picked up some brass he hopes to forge (but may end up machining if he was unlucky in his choice). Andy picked up a couple of gears (for ornaments) and two grand air cylinders which may become an air hammer before long. I largely contented myself with miscellaneous nuts and bolts to restock my stores. I was quite unsuccessful finding steel rivets, though they have quantities of other sorts, especially aluminum. We did get some pipe, pipe couplings, and plugs for the forge project. and Tim was right about Fazzios. Look up his directions in the last newsletter and get yourself down there at your earliest chance.

We were at Fazzios so long going through this and that that we were all famished. We hit a local diner that Hector recommended and had our dinner at about 4 pm. During dinner we remembered a few things we'd missed at Fazzios, but by the time we were done Fazzio's was closed, so we hit one more store in Glassboro, where we picked up some hose for the gas forges, and I managed to find a couple sizes of rivets..

That was it for our Friday shopping spree. Marshall took the wheel and we made tracks for Maryland. We spent the night at a motel in Salisbury, MD. The next morning we breakfasted bright and early and drove the 20 miles to Furnace Town.

After lending a hand setting up for the IITH and auction, we moved on to the blacksmith shop where we ran into Mark Williams (FTBG chairman) and a slew of other familiar names and faces, including Albin Drzewianowski (editor, BGCM and instructor at the Carrol Co. Farm Museum), Jack Andrews (editor, FTBG and author of *Across the Anvil*, and other books), Don Plummer (who's has contributed to this publication, among other things), Al Stephens (editor and chairman, Pennsylvania Artist Blacksmith Guild), Ray Noble, and Andrea Pierson (both active FTBG members and sometime office holders, helping to run the meeting), and, of course, Clay Spenser (editor of Bituminous Bits, the newsletter of the Alabama Forge Council), who was our demonstrator for the day.

When things settled down and folks found their seats (or not -- it was a "standing room only" crowd) Clay got to work with his demonstration of treadle hammer work. The hammer he was using is his own design. (It is similar to the one in Marshall's shop.) He brought with him a good supplies of tools for it, and says he hardly spends a day in his shop that he doesn't make a new tool. He contrasted himself to Peter Ross, who, he says, brings only a hammer to demos.

Clay showed and described some of his tools. The chisels and punches he uses under the treadle hammer are very short and have enormously enlarged heads, like mushrooms. The arc of the head is roughly described by a radius from the point of the tool. These tools may be struck at an angle and not kick sideways out of the treadle hammer, as most tools would do if angled. However the blow is still vertical - which is fixed by the design of the treadle hammer.

To accomplish an angled blow, it is necessary to angle the work. This Clay does by use of bottom tools to hold the work at an angle. The simplest of these is a V-block. For light work, such as using punches and chisels to put patterns in hot steel, he uses a jig folded out of what looked like 2.5" x 1/4" steel. This would have had too much rebound for heavy work, but was fine for its purpose.

Among the things Clay demonstrated was making a hardy from a jackhammer bit, a bowl adze from a claw hammer (*sans* claws), and a "wizard" doorknocker from two railroad spikes. His *piece de resistance* was the forging of the "old rugged cross" (an elegant demonstration of forging a cross from one bar of iron). Bruce Freeman

Editorial

I was thinking of reprinting last issue's editorial in this issue to drive the point home. Rather than that, let me summarize it in a few sentences: NJBA needs YOU. We need you to come to meetings, to bring your friends, to make donations to the iron-in-the-hat, to demonstrate what you know or to bring examples of what you (or other blacksmiths) have done. We need help with the newsletter, the (moribund) Internet "web" page, running meetings and running NJBA itself. If you have any thoughts or ideas about helping, let me know. - Bruce Freeman

News from the Board

Officers. David Macauley will be assuming the chairmanship. Bruce remains editor, but Tim Suter now assisting Bruce with the newsletter (by reading and xeroxing materials from other chapters' newsletters). Pete Engle agreed to handle membership duties. Bill Gerhauser remains our treasurer.

Networking. NJBA continues to network with other groups. Three of the directors attended the recent joint meeting of the four "Maryland" chapters of ABANA, held at Furnace Town.

We're maintaining contact with Historic Allaire Village, thanks to the efforts of our directors Bill Gerhauser (who is on the board of trustees of Allaire Village, Inc.), Bill Ker (who is chairman of the Allaire Village Blacksmith Guild) and David Macauley (who puts in many hours at the AV blacksmith shop). Bill Gerhauser reports that AVI has a new executive director. Scott Peters remains as the Director of Interpretation of AVI. We are still working with AVI to get one of the Williamsburg smiths to give a workshop at Allaire Village. We'll keep you posted.

Norman Nelson, a volunteer at the Longstreet Farm blacksmith shop, has joined NJBA, and has been showing up regularly at Marshall's Monday-evening open forges.

We are also pursuing contacts with Washington Crossing (PA), Historical Cold Spring Village, and Peters Valley, and are interested in making contact with Millbrook Village, and Long Pond Ironworks.

Anvil repair workshop. We still hope to hold our "second annual" anvil-repair workshop sometime this year, but we have yet to identify an appropriate MIG wire.

Tailgate sales. Despite flagging participation the consensus of the board was we should continue holding tailgate sales at membership meetings. However, we will not scheduling tailgate sales or IITH's for meetings held at public venues. See individual announcements for details.

Bylaws. The amended bylaws were passed unanimously. (The revised bylaws are reprinted elsewhere in this issue.)

NJBA Directors

Marshall Bienstock (director until June, 1999)
663 Casino Dr., Howell, NJ 07731
H: 732-780-0871, mbienstock@worldnet.att.net

Pete Engle (director until June, 2000)
47 Center St., Rumson, NJ 07760
H: 732-219-6560; pgengle@aol.com

Bruce Freeman (director until June, 2000)
222 Laurel Place, Neptune, NJ 07753
H: 732-922-8408; W: 609-716-2827
freeman@monmouth.com, freemanb@pt.cyanamid.com

Bill Gerhauser (director until June, 2000)
415 Hutchinson St., Hamilton, NJ 08610
H: 609-394-1817 FAX: 609-394-7283

Bill Ker (director until June, 1999)
Box 14, Allenwood, NJ 08720
H: 732-223-4188, KemoKimo@aol.com

David Macauley (director until June, 2000)
4 Patricia Ct., Howell, NJ 07731
H: 732-206-1568; W: 732-949-8422
drm@anchor.ho.att.com

Tim Suter (Director until spring 2000)
1112 Ladner Ave. Gibbstown NJ 08027
609-423-4417

Andy Vida-Szucs (director until June, 1999)
13 Old Monmouth Rd., Freehold, NJ 07728
H: 732-308-9039; osan@netlabs.net

The Scrap Corner

by Tim Suter

- I had occasion to form a number of small cones, 3/8" x 1.5" x 4.5", from 18# for candle holders. I developed a pattern on poster paper, cut it out, traced it on the 18# and cut the pieces. To expedite the job I made this simple but handy bending brake. It worked very efficiently and requred only very little light hammer work to true up and close the seam.

- A nice dishing swage can be made from the bottom of a condemed 7"-diameter CO_2 cylinder. Cut it off at about 2.5", weld a bottom in or on it for a good bearing surface. finish up with a 4" grinder. A hardy post can be welded on for use on your anvil or in a vise. The concave will be about 5" diameter and 3/4" deep.

- Some dealers will let you have their condemned cylinders if you convice them tht you will make use of them safely. They are hard to dispose of. An oxygen cylinder can make a good anvil base.

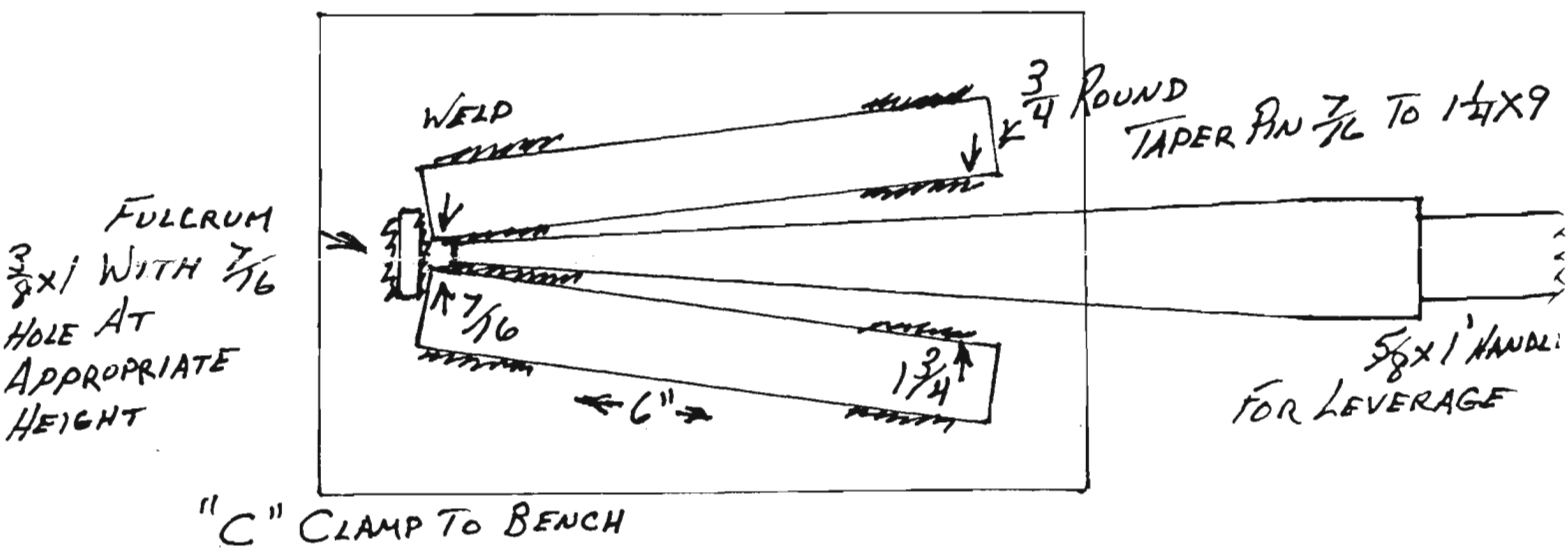
Thanks from Peters Valley

As you may recall, among the four anvils repaired at our workshop in April of 1997 was one belonging to Peters Valley. For a number of reasons, including Dan Radven's moving on and the post of Artist-Blacksmith being taken up only this May by John Rais, we didn't return the anvil to PV until this spring. NJBA member Bruce Ringier dropped it off, and it was received with great appreciation. (Your editor mislaid the letter of appreciation, so can't quote from it...)

There is interest on both sides in holding a hammer-in this year at Peters Valley, possibly in October. We'll keep you posted.

Where is My "Hammer's Blow"?

The winter issue (Vol. 6, No. 1) of the *Hammer's Blow* ran late for several reasons. The last in line was our good old post office that suddenly decided we were selling advertising under the nonprofit permit. Since we don't have display ads or charge for classifieds in the *Hammer's Blow*, you can understand the surprise. Seems they have decided to qualify our free-to-the-membership classifieds as commercial advertising. Don't let this stop you from sending in your classifieds. We will deal with the problem. by the time you read this you will probably have this Hammer's Blow. Editor George Dixon says future issues will be on time or early. Thank you, George. - Tom Clark



ABANA 2000

The Arizona Artist Blacksmith Association will be hosting the ABANA 2000 Conference in Flagstaff, Arizona, on July 12-16 of 2000. They have lined up several outstanding demonstrators for the Conference. They want to search out Blacksmiths who do unusual, creative and progressive forge work, and they need your help. Do you know of an outstanding smith who is doing creative work such as knives, traditional forging, contemporary and modern forging, organic forging (using various metals or glass and wood, etc.). and other unusual forge work? If they are good demonstrators, please encourage them to submit their names and resumes with description and photos or slides of their work for consideration to Joe Hernandes, Conference Demonstrator Coordinator, 4223 N. Paseo Rancho, Tucson, AZ 85745, 520-742-9032.

Need An ABANA Application?

An ABANA application was published in the March issue of this newsletter. By recent count, about 60% of NJBA members are also ABANA members, so I have chosen not to use valuable space in our newsletter *every month* for an ABANA application. However, if you need an ABANA application now, let me know and I'll get you one. **(Please note: ABANA membership does *not* include NJBA membership.** Please join NJBA using the separate application form provided on the mailing cover of this newsletter.) - Bruce Freeman

NJBA BY-LAWS

(As amended, April 1998)

Preamble

The New Jersey Blacksmith Association (NJBA) is an independent forum and voice for blacksmiths in the State of New Jersey. It was founded by people having interests in diverse aspects of blacksmithing, including the art, the craft, and the history of blacksmiths and blacksmithing and related crafts. Among those interested in the artistic aspect were members of the Artist Blacksmiths Association of North America (ABANA). Among those interested in the historical aspect were people involved in historical interpretation and in historical research, usually in cooperation with historical sites in New Jersey. Among the founders were blacksmiths of considerable experience, as well as novices. It was the intention of the founders that NJBA bring together and represent the interests of all such people, and to increase their number and skills.

NJBA is structured to be a vital group in which the most active, interested persons rise quickly to positions of responsibility. Accordingly, there are no elected offices, but only elected directors who divide all responsibility between themselves at every board meeting. To rapidly involve new people in the activities of NJBA, the board is authorized to add to its own membership. To keep the board beholden to the membership, directors are reelected annually by the membership. To provide stability and continuity of the board, a board member may serve up to two years between reelection by the membership.

In any case where there is apparent conflict between a statement in this preamble and a statement in an article, below, the Article shall take precedence.

Article I. Name

The name of this organization is the New Jersey Blacksmiths Association.

Article II. Purposes and Objectives

The NJBA is organized exclusively for educational purposes including the following:

- To actively promote the art, craft and historical significance of blacksmithing.
- To increase public awareness and understanding of the history and contributions of blacksmithing and blacksmiths, as well as of the vitality and potential of modern blacksmithing.
- To act as the point of contact in the State of New Jersey concerning the art and craft of blacksmithing.
- To disseminate information in printed and other media, including public or commercial media.
- To sponsor blacksmithing events and exhibits throughout the state of New Jersey.
- To support the activities of outside organizations whose objectives or facilities enable promotion of NJBA objectives.
- To provide a forum and meeting ground for members.
- To sponsor or conduct educational conferences, programs, demonstrations, workshops or training.
- To disseminate information concerning sources of blacksmithing related literature, material and equipment to the blacksmithing community.
- To advocate the art and craft of blacksmithing.

NJBA is not to act in the capacity of a trade union, commercial guild or business-advocacy group. None of these objectives shall be construed to promote lobbying or commercial activity by this organization for its own or its members' financial gain.

Article III. Tax-Exempt Status

The board shall ensure that NJBA achieves and maintains tax-exempt status under state and federal law. The organization and directors shall refrain from any activity which would jeopardize that status:

- The directors shall not be compensated for services in that capacity.
- NJBA shall not endorse candidates, lobby elected officials or participate in the political process.
- NJBA is not and shall not act as a trade union or in any other commercial capacity.

Article IV. Membership

Regular Membership Status. Any person engaged or interested in the art, craft or history of blacksmithing and accepting the purposes and bylaws of NJBA may become a member. A member in good standing shall be current in dues payment, except where the directors decide that a grace period, applicable to all members, is in the interest of the NJBA. In special cases, the board may waive dues for a regular member, but such waivers must be renewed annually. A member in good standing shall have the right to vote and to participate in any NJBA activity, except where excluded by skill level. In no case shall one person be allowed more than one vote in this organization.

Honorary Memberships. The board may bestow honorary memberships of an emeritus or ex-officio nature on a retired or practicing blacksmith. An emeritus membership would be one bestowed upon a person whose life experience and contributions as a blacksmith is considerable and worthy of recognition. An ex-officio membership would be one bestowed upon a blacksmith during his tenure in some office or capacity, such as the blacksmith at an art community or historical site. An ex-officio membership would not be automatically bestowed to each successive office-holder, but each successor has the right to petition the board for ex-officio membership. An honorary membership may be bestowed only when it will serve to enhance the NJBA. Honorary members will not have a vote in the organization. Honorary members may be elected as non-voting members of the board. An honorary member may also hold regular

membership, in which capacity he will have a vote as member or director.

Terminating Membership. Any member may withdraw from this association upon written notice of such intention to the secretary. A lack of payment of dues thirty days beyond the annual renewal (plus any grace period) will be considered a request for resignation and the member will be dropped from the organization. An ex-officio honorary membership will be terminated when the person leaves the office which entitled him to that membership.

Article V. The Board of Directors

Authority of the Board. The organization shall be governed in all aspects by the board of directors.

Size of the Board. The board must maintain its size at no fewer than five directors. There is no upper limit to the number of directors. The board of directors may increase its size at any time by electing as a director any active, participating member in good standing of NJBA. It must do so if the number of directors ever drops below five.

Quorum. A quorum shall consist of one-third of the board (rounding any fraction up), or five directors, whichever is greater. In the event that the number of directors drops below five, the remaining directors form a quorum; however their first item of business must be to elect additional directors to bring the number to at least five.

Qualifications of Directors. Any member showing leadership in or working on behalf of NJBA shall be considered by the board for election as a director, and by petition the board on his own behalf for such consideration.

Disqualification by Defeat in Election by Membership. A person who was defeated in election to the board at a membership meeting may not be reelected by the board, but only by the membership in a subsequent year's election meeting. (This provision assumes no limit to the number of seats on the board, and would not apply to a person defeated only because of limitations to the number of available seats.)

Election of Directors by the Membership. An annual meeting shall be held for the purpose of electing directors and announced to the membership by mail at least two weeks in advance. Nominations (with second) of candidates will be accepted from the floor. Any director elected by the board since the last election by the membership must be reelected by the membership in order to remain on the board. Since (as stipulated below) no director may serve more than two years without coming up for reelection, any director last elected by the membership two years previously must be reelected by the membership in the current year in order to remain on the board. The directors shall be elected by majority vote of the membership.

Term of Service. A director elected by the board shall come up for reelection by the membership at the next membership meeting that is called for the purposed of reelecting directors. A director may serve no more than two years without coming up for reelection by the membership. There is no limit to the number of terms he may serve.

Termination of Directors. The board of directors shall drop from its membership any director who resigns, who moves out of the area, who fails to participate in board meetings for a period of six months, or who fails to maintain his membership in good standing.

Frequency of Board Meetings. The board shall meet not fewer than six times per year.

Division of Responsibilities. At each board meeting, the directors shall divide among themselves the responsibilities of the organization in any manner they see fit. The manner of division shall be recorded in the minutes, and will be effective only until the subsequent board meeting, except as mandated by law, contract or business requirements of banks or other institutions. The responsibilities of the directors may be identified by the roles of the traditional offices such as President, Vice President, Treasurer, Secretary, Editor and Historian or the traditional chairmanships such of Ways and Means, Programs, Membership and Hospitality, but other responsibilities or alternative divisions may be defined at any meeting. Any of these responsibilities may be divided among directors.

Continuity of Responsibilities. Certain responsibilities of the board are best held by the same person or persons for extended periods of time. These include the duties of Treasurer, Editor and Membership. The board shall take care that these and similar tasks are not arbitrarily reassigned, and that ample overlap time is provide when responsibilities change.

Delegated Responsibilities. Clerical duties, such as taking minutes or bookkeeping, may be delegated to any member, or to any nonmember approved by the board.

Specific Responsibilities of the Board. The duties will consist of undertaking the daily business of this organization, including the following:

- Keeping a permanent record ("minutes") of all the business conducted at both board meetings and membership meetings, including elections, votes and resolutions. The minutes of board meetings shall record the names of all persons attending board meetings. The minutes of membership meetings shall record the names of all board members in attendance, as well as a count of all persons in attendance. (Minutes need not be taken at membership meetings if no business is conducted.)
- Issuing a newsletter not less than quarterly, and for appointing the editor of any periodical publication of the group.
- Maintaining a membership roster that will include the pertinent information for each member and director.
- Maintaining a complete history of NJBA, including all meeting minutes, newsletters and membership rosters, as well as such things as accounts of projects, scrapbooks of clippings, and the like.
- Establishing and maintaining liaison with other organizations where such liaisons are in the interest of NJBA.

- Making the bylaws available to any member upon request.

Article VI. Dues and Finances

The provisions of this Article are intended to avoid financial errors, mishaps and wrong-doing where large amounts of money are involved. Where transactions of more than one-hundred dollars or a treasury balance of more than two thousand dollars are involved, the provisions of this Article shall be followed explicitly. Where lesser amounts of money are involved, the provisions of this Article should be considered guidelines to be followed to the extent practicable; in this case the directors are responsible for ensuring that the procedures employed are proportionate to the money amounts involved.

Dues. The annual dues shall be set or changed by the board by unanimous consent at a board meeting or by a majority vote at a membership meeting called for the purpose. The board shall have the discretion of setting dues periods, of pro-rating dues, and of creating multiple membership (and dues) categories, and of admitting organizations as non-voting regular members. Receipts shall be given for all membership dues and contributions, and shall be recorded in the NJBA account books.

Cash. When a large amount of cash is received at meetings and events, at least two persons designated by the board shall receive and count the money. No such money shall be counted privately. It will be counted at the meeting or event and the amount will be announced publicly and recorded both in the minutes and the account books. Cash shall not be kept longer than overnight or weekends, other than a petty cash fund as allowed by the board.

Fiscal Year. The fiscal year shall correspond to the calendar year, unless otherwise defined by the board.

Account Books and Check Book. The board shall keep an account of all monies received and expended for the use of the organization and shall make disbursements only upon approval of the board. The funds, check book and account books shall at all times be under the control of the board and subject to their inspection and control. At the expiration of their terms the directors shall deliver over to their successors all account books, check books and other bank records, monies and other properties of NJBA.

Financial Reports. A financial report shall be presented orally at every board meeting, and shall be recorded in the minutes. A full financial report shall be prepared in writing annually, and shall be filed with the records of the NJBA. More frequent reports may be ordered by the board at any time.

Budgets. NJBA shall develop a budget for all its functions, and no amount over $25 shall be spent without the approval of the board of directors.

Audits. There shall be an annual audit at the end of each fiscal year, with a report back to the board and the membership. The auditors may go over the books with board members, but the full audit must be done privately.

Banking. The board shall deposit all funds received in a financial institution, approved by the board. Funds may be drawn only upon the signature of one or more directors who have been registered with the financial institution as having signing authority. The financial institution shall be informed that the policy of the NJBA is that no checks may be withdrawn to "cash." Nothing in this provision shall require the NJBA to open an account which, through its fee structure, will unreasonably deplete the NJBA treasury.

Article VII. Membership Meetings

Frequency and Preferred Arrangements. General membership meetings are to be held at least four times per year, and preferably in conjunction with demonstrations at shops volunteered by the membership.

Compensation to Host. Those members providing their forge for these meetings will be reimbursed for expenses incurred in the production of demonstrations and the meeting. The compensation will be set by majority vote of the board.

Quorum. In deciding NJBA business, a quorum of the membership shall consist of those attending the membership meeting.

Article VIII. Conduct of Meetings

Rules of Order. Wolfe's Rules of Order (by Joan L. Wolfe, *Making Things Happen*, (Brick House Publishing Co., Andover MA, c. 1981, or Island Press, Washington, DC, c. 1991) shall be the parliamentary rules employed by NJBA.

Informal Meeting Conduct. Where meetings are amiable and self-directing, and as long as participants have no objection, the traditions of parliamentary procedure will be observed only informally. As much as possible, decisions shall be made by unanimous consent.

Invoking the Rules of Order. If at any time the chairman of a meeting considers it appropriate, he may conduct the meeting according to the rules of order. If at any time any participant at a board or membership meeting feels the need, he may legitimately interrupt the proceedings ("rise to a point of order") and move to invoke the rules of order. This motion requires a second, but permits no discussion and requires no vote. The chairman continues the meeting under the rules of order.

Meeting Agendas. The board is responsible for writing an agenda for each board and membership business meeting. The agenda shall be distributed or shall be posted in a form readable by attendees. The chairman of a meeting shall have the discretion to depart from the agenda, but participants may legitimately interrupt ("rise to a point of order") to move a return to the agenda. Such a motion, once seconded, is open for discussion and vote.

Committee Meetings. Any committee functioning as part of or on behalf of NJBA shall follow the procedures of this article, but need not keep minutes. Committees need not prepare agendas for their meetings. Committees must report progress and expenditures to the board in person or in writing.

Article IX. Business Conducted by Polling the Board

Means of Polling. The board may conduct business requiring a vote at any time by polling the directors by telephone, mail, electronic mail, or other such means.

Business Subject to Vote by Polling. Any matter of business may be transacted by polling the board, excepting only amending these bylaws, which must be conducted at a meeting. Directors may be elected by polling the board, but there will be a limit of two directors elected by such means between any two meetings of the board.

Procedure. A motion will be made and recorded in writing by any director, who will then be responsible for polling every board member for their votes, and tallying the votes.

Passing a Motion. A majority of the directors must approve the motion by polling for it to pass. There is no lesser number that can be considered a "quorum" for a vote by polling. The motion becomes effective as soon as a majority of the board votes in favor.

Recording the Vote. The voting must be completed by the time of the subsequent board meeting, and the vote will be tallied in the minutes of that meeting.

Article X Amendments to these Bylaws

Normal Amendment Process. These bylaws may be amended by a majority vote at any membership meeting, or by a unanimous vote at a board meeting, called for the purpose at least thirty days in advance. The proposed changes shall be mailed to directors (for a board vote) or to the membership (for a membership vote) at least one week in advance of the date of the meeting at which the changes are to be considered. The amended bylaws will not go into effect unless approved by ABANA.

Special Amendments Provision to Maintain ABANA Chapter Status. These bylaws may be amended by a simple majority vote of the board if necessary to maintain ABANA chapter status.

Special Amendment Provision to Maintain Tax-Exempt Status. These bylaws may be amended by a simple majority vote of the board at a meeting called for the purpose at least two weeks in advance, if necessary to achieve or maintain tax-exempt status under state or federal law. The amended bylaws will not go into effect unless approved by ABANA.

Making Hardy Tools Fit Snug

Here is a way to increase the size of your 1" bar without too much work. It works great for all tools that don't twist much (like twisting forks, which will eventually loosen up.) Take a handy length of your 1", twist it up pretty tight, until ridges in twist are 1/2" apart or so. Then carefully flatten the ridges and square the bar up while checking for fit in hardy hole. When it gets close enough drive it into the hardy hole hot. I've got tools like this that have held up well for years. I used to change anvils and hardy hole sizes way too often.

- Steve White, Skunk River Forge, Monroe, IA

Blacksmith's Boot Dance

-an Advisory for the B.S.ing Tenderfoot

by Peter Fels, Cambria, Calif.

(from the California Blacksmith)

Surprisingly, your slake tub needs to be large enough to accommodate your entire boot. Space for two boots is seldom necessary. Be thankful.

You will realize the wisdom of this the first time some lonely chunk of hot iron nuzzles its warm way down that little gap in your boot top. So to save the beginner some very important seconds trying to figure out what to do when there is a sizzling siren going off in the footwear, the inquiring tenderfoot is urgently and rightly advised...

Plunge the whole smoking boot (be it right or left, his or hers) unhesitatingly into the quench tank!

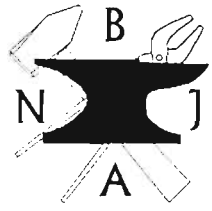
There is *no* suitable means of getting that boot off fast enough! Do not even consider hesitating! Plunk it, sock and all, right in there and never mind the laces or the laughter till it's under and *coooooling*!

This lesson can be burned into the student's memory more quickly by the wearing of cuffs, sneakers or shorts at the forge. Fingers may be used to assist the flow of water into the soggy shoe. A cold day can be worse than a hot day. The first time, I figured out the right move a little late; then my foot jammed in the bottom of the bucket.

While we're on the subject of burns, the novice smith is probably working with fire and iron as a matter of choice and thus is apt to be more than a wee pyromaniacal (in a socially acceptable tone, you bet). This is a condition that results in frequent burns for the enthusiast, as Mommy probably warned. Some practitioners of our art rely on butter for the burn; others lard or salves, aloe or what have you. More power to them. (Wait! do we really want to give burn victims more power?)

As for my own experience with burns (those that do not break the skin) -- the quicker you can quench that burn, the more you can limit damage and the less it will smart (we're smart enough that way already). Individual seconds of delay seem to make a major difference. Unless your slake tub is septic or salted, plunk the hot spot right in and leave it to soak there a while. Pass the first minute, perhaps, thinking about the nearest ice cubes (portable). To fend off boredom while swishing the burn around, contemplate explaining to your significant other why you have your elbow in the quench tank and your butt in the air, as I have done.

Now that you know where the pit falls, take heart. Even black heat is a fast teacher, and after a while you wont fry bits of your anatomy quite so often -- or maybe it's just that you don't notice as much.



Ceramic Wool Health Hazard

by Bruce Freeman

Shortly *after* the propane forge workshop in April, the vendor of the "Fiberfrax Durablanket" ceramic wool that we used to insulate the forges sent us the material safety data sheet (MSDS). After all the recent discussion on TheForge (ABANA's Internet newsgroup) about the hazards of this stuff, I was actually *relieved* to read this MSDS.

If any workshop participant, including those who only came to help, would like a copy of this MSDS, just let me know and I will send it out at NJBA expense. If anyone *else* wants a copy, send $1 cash, to cover my costs, and a self-addressed business-sized envelope with postage for 2-oz. (currently 55¢, but that could go up again soon).

After a large-type statement: "Possible cancer hazard by inhalation, etc.," the health hazard rating the stuff is given is "1" on a scale of "0" (no hazard) to "4" (highest hazard). [In the quotations that follow, I have had to edit a bit, but I believe that I have preserved the content. -ed.] The MSDS goes on to say,

> The International Agency for Research on Cancer (IARC) has classified ceramic fiber, fibrous glasswool and mineral wool (rockwool and slagwool) as possible human carcinogens ... based on sufficient evidence of carcinogenicity in animals but insufficient data in humans. In the National Toxicology Program's (NTP) 7th Annual Report on Carcinogens (1994), respirable glasswool was classified as reasonably anticipated to be carcinogenic.

All of this makes it sound like we have a potential time bomb on our hands with these durablanket-insulated forges. However, what is lacking here is perspective. Fortunately, later in the MSDS, there is what strikes me as a more rational discussion of the hazard:

> EPIDEMIOLOGY. At this time there are no known published reports which link refractory ceramic fiber [RCF] exposure to clinical disease in humans.... The evidence, obtained from employees in RCF manufacturing facilities, is as follows: (1) There is no evidence of any fibrotic lung disease (interstitial fibrosis) on x-ray. (2) There is no evidence of an elevated incidence of lung disease among RCF manufacturing employees who were exposed to RCF. (3) In the exposed population, a statistical "trend," as based on breathing tests, was observed between the duration of exposure to RCF and a decrease in some measures of pulmonary function. The observations are considered to be statistically significant, but clinically insignificant. In other words, if these observations were made on an individual employee, the results would be interpreted as being within the normal respiratory range. (4) The initial data indicates that the decrease in pulmonary function appears to be greater in employees who smoke. RCF exposure and smoking behavior seem to be negatively synergistic. In other words, RCF-exposed smokers seemed to show a greater decrease in respiratory function than would be produced by combining the average decrease observed from RCF-exposure only and smoking behavior only. (5) Pleural plaques, which are discrete areas of pleural thickening usually on the parietal pleura [the membranes that cover the lungs] or diaphragm, have been observed in a small number of RCF employees. There appears to be a dose-response relationship between the occurrence of pleural plaques on the chest radiographs and the following variables: (a) years since RCF production hire date; (b) duration of RCF production employment; and (c) cumulative RCF exposure. The best evidence to date indicates that pleural plaques are a marker of exposure only. There is virtually no evidence to suggest that pleural plaques are a precursor mechanism of respiratory conditions such as interstitial fibrosis, lung cancer, or mesothelioma. Under most circumstances, pleural plaques are not associated with pulmonary impairment. The pathogenesis of pleural plaques remains incompletely understood; however, the mechanism appears to be an inflammatory response caused by inhaled fibers transported via lymphatics to the subpleural area.
>
> TOXICOLOGY. Man-made vitreous fiber- (MMVF) based products, including RCF, contain fibers of different sizes, some of which are small enough to be respirable by humans. Scientists have been conducting tests since the 1950's to determine the potential risks for adverse human health effects which may result from fiber inhalation. ...
>
> To date, a number of toxicological studies have been conducted which utilize non-physiological exposure methods such as intrapleural, intraperitoneal and intratracheal implantation or injection. Some of these studies concluded that RCF is a potential carcinogen. Some experts, however, suggest that these tests have limited relevance because they bypass many of the biological mechanisms which prevent fiber deposition or facilitate fiber clearance.
>
> Other toxicological studies utilizing a physiological exposure method, inhalation, have produced findings of respiratory disease in rodents. [In the] most recent RCF-inhalation studies ... rats and hamsters were exposed, using a nose-only inhalation system, to the "maximum tolerated dose" of 30 mg/m^3 (200 fibers per cc) of specially-prepared RCF for six hours per day, five days per week, for up to 24 months. In addition, other rats were exposed ... to doses of 3 mg/m^3, 9 mg/m^3, and 16 mg/m^3 which correspond to 25, 75 and 115 fibers per cc. No acute respiratory effects were seen in the rats in the [lowest] exposure group. Some cases of mild parenchymal fibrosis and one mesothelioma were observed in the [next higher-exposure] group. Some cases of pleural and parenchymal fibrosis were seen in the [two highest-exposure groups]. In addition to a statistically significant increase in lung tumors, two mesotheliomas were also observed in the [highest-exposure] group. Hamsters, exposed to only the highest dose, did not develop lung tumors. However a moderate amount of interstitial fibrosis was seen, as well as a 42% incidence rate of mesothial tumors.
>
> These studies have found RCF to be a rodent carcinogen, under the conditions of lifetime exposure at high doses. These studies suggest that there may be a dose/response threshold below which irreversible respiratory impacts do not occur.

So, what does this all mean to us? Should we trash our forges? Not me. The fact of the matter is that *coal smoke* is *also* listed as a potential carcinogen (cancer-causing compound) by the IARC and other agencies. Notice that, in the inhalation study, the *no-effect* level was 25 fibers per cc. If I breathe 250 cc (about 9 oz.) per breath, that would be

over 6000 fibers per breath six hours per day, five days per week, with *no effect*. I plan to avoid breaking or crumbling the Durablanket liner (especially on the back door, where it's most vulnerable). There are products that purport to stabilize this kind of fibrous refractory, and one of them is touted as improving the insulative qualities as well. However, it ain't cheap. If we get sufficient interest, we could have a follow-up workshop to apply this material to our forges -- for a price.

Frankly I think the hazards from propane forges due to the heat, the fuel, and the carbon monoxide are much greater than that from the fiber insulation. Accordingly I have put together the following information, which I submit as suggestions and do not claim to be authoritative...

Propane Forge Safety

by Bruce Freeman, with contributions by Robert Grauman .

Facts about Propane

1. Propane is a liquid in the cylinder, but is burned as a gas.
2. Propane gas must be tapped from the *top* of the cylinder.
3. As the propane vapor (gas) is pulled off, evaporation of more liquid propane within the cylinder cools the cylinder.
4. As the liquid propane cools, the pressure of the vapor above it drops.
5. Overheating liquid propane will cause dramatic, and potentially catastrophic, increase in the pressure of the vapor above it. Most commercial cylinders have a pressure relief device. If this opens the cylinder will not explode, but it could vent the entire contents of the cylinder.
6. Liquid propane is not only flammable, it's an effective solvent. (The gas is not a solvent.)
7. A propane cylinder could leak, and it's best to assume it *does* leak.
8. Propane + air in a confined space (i.e., indoors) is a recipe for an explosion.
9. Propane is denser than air and can settle in basins or run along the ground to a source of ignition, then flash-back. It could also drain into a sewer and cause an underground explosion hazard. It can fill up a basement, ignite from a furnace or other appliance, and demolish a house.

Facts about Regulators

10. Every regulator has a diaphragm, a poppet valve and several fitting. Any of these could leak.
11. In particular, the poppet valve, the diaphragm and the pressure gauge contain mechanical parts. Any mechanical part is subject to failure with use, sometimes suddenly.
12. Regulators are pressure-control components, not shut-off valves. A separate shut-off valve should be located immediately upstream of a regulator. (This is always the case anyway when the regulator is directly connected to a propane cylinder, but should *also* be the case if the regulator is mounted remote from the cylinder on pipe or tubing.)
13. Regulators are typically designed to handle only gases. Solvents can harm internal components and cause dangerous breakdowns (e.g., of the diaphragm or poppet valve).

Facts about Refractories

14. Castable refractories require water to mix, set up overnight, and then must be fired slowly to cure. Too rapid heating the first time will cause spalling of the material. (This spalling can be a *dangerously violent* steam explosion.)
15. Any refractory that may have become wet should be heated slowly to dry it before it is exposed to full heat.

Facts about Combustion Gases

16. The two major combustion products of any carbon fuel (including propane) are carbon dioxide (CO_2) and carbon monoxide (CO).
17. Other combustion products may also occur, depending upon the fuel and the combustion conditions. For example, when methane is first ignited, considerable formaldehyde is formed. When coal is incompletely burned, many complex combustion products ("smoke") are formed. These products are generally more harmful than CO or CO_2, but are present at much lower levels. Propane, like methane, is fairly clean-burning.
18. Carbon dioxide is only slightly poisonous. It is the waste product of animal metabolism, so animals have a pretty high tolerance for it. While it is an odorless, tasteless gas, it does combine with water to form carbonic acid which has an odor and taste. Anyone who has drunk soda water (a solution of carbon dioxide, with no other flavors) and belched knows what carbonic acid tastes and "smells" like.
19. Carbon monoxide is another animal. It is a potent poison, with an action rather like cyanide. Apparently its action is somewhat less severe than cyanide, but since you are more likely to be exposed to CO than to CN, that won't comfort your next of kin much. Symptoms of mild CO poisoning include headache.
20. While both CO and CO2 are environmental pollutants, the quantities that a forge will produce is of no particular concern to anyone but you.

Therefore I suggest the following safety measures:

In General

1. Never allow a propane cylinder to tip while in use, as liquid propane may enter the regulator, possibly damaging the regulator and rendering it unsafe, and definitely resulting in a surge in propane flow.
2. If (during the cool months) your propane cylinder cools so much that you can't get the pressure you need, place it in a tub of *cold* water. Never apply artificial heat. (The tub-of-cold-water trick is not the best solution. Your propane cylinder is too small for the job, and you should consider using a larger one, or two cylinders in parallel, using an RV tandem valve for this application.)
3. Never allow the heat from the forge to heat the propane cylinder.
4. The regulator and hose are vulnerable components and should be treated gently, protected from heat and harm (watch where you wave that hot iron) and inspected before use. The hose can also be affected by solvents, sunlight, and other deteriorating influences.
5. The first time you fire up a forge, do so delicately. Leave the doors open and heat at a slow rate. This will cure the

refractory. Place the doors back in position after firing the body of the forge for a period of time.

6. Place the forge on a non-combustible surface. Keep combustibles away.

7. Have a dry chemical fire extinguisher ("ABC") handy.

8. Never leave a hot forge unattended, even if the fuel is shut off.

9. Never store a propane cylinder indoors.

10. Preferably operate a propane forge outside. If that is impossible or impractical, operate the forge *only* where *very* substantial ventilation is provided. This means, either *no walls* (roof only) or *forced ventilation*. This precaution is necessary both to prevent fire (propane leak) and to prevent CO poisoning. If you ever suffer a headache while working with any combustion equipment, *get out of there!*

Suggested Procedure for Lighting a Propane Forge

11. Inspect your propane cylinder (especially the valve), your regulator (especially the connector to the cylinder and its O-ring) and your burner (especially the hose) for any signs of wear or problems. Do not install the regulator if you see any sign of problem.

12. Install the regulator by hand, without tools, until the nut (left-hand thread, remember) is fully seated. *immediately* tighten the nut with a wrench. (If you wait, you might forget and have a *very* serious propane leak when you turn on the propane.) Do not over tighten the nut, as this will only ruin the connectors.

13. Make sure the forge is safely situated (no combustibles nearby), the burner is properly and firmly installed, and all is well before lighting the forge.

14. Before lighting the forge, ensure that there is proper ventilation. If you are outside or only under a canopy, no problem. If you are inside, provide forced ventilation. At a minimum, this should consist of a high-powered roof or window fan (preferably blowing out) and an open door or large window. *turn on the fan before* or *immediately after* lighting the forge. (The noise of a fan may interfere with your ability to judge the burning conditions of the burner. If so, be sure to turn the fan on within a minute or so of lighting the burner.)

15. Recheck the regulator connection to the cylinder, and recheck that the knob is loose (set to zero pressure). Then light a propane torch and hold it near the burner opening inside the base of the forge (off to one side so you don't blow it out when you turn on the propane to the forge). First turn on the propane at the cylinder valve, then slowly turn the regulator knob to bring the pressure up to an appropriate value. The forge should light easily and stay lit. If it doesn't, something is wrong.

16. If you even *think* anything has gone wrong, *turn off the propane at the cylinder valve.*

Use and Adjustment of the Forge

17. After the forge is lit and the flame is stable, make any adjustments necessary to the pressure to get a good stable burn.

18. If you haven't already done so, *turn on your exhaust fan.*

19. If there is a flame shooting out of the forge (i.e., between the bricks typically used as a front door), you have incomplete combustion in the forge. With the forge burner adjusted to this mixture, your forge cannot give you maximum heat, and, in addition, formation of toxic carbon monoxide may be greatly increased. Adjust the burner until the flame recedes into the forge.

Shut-Down of the Forge

20. Always shut down the forge by turning off the fuel at the cylinder, *then* backing off the regulator knob (as a safety precaution.)

21. When finished a forging session, remove the regulator from the cylinder and take the cylinder to its outside, storage area at once. Make sure you replace the plastic plug in the propane cylinder.

22. Remove the back and front doors (i.e., the firebricks) and set these aside on *noncombustible* surfaces. Remember that they are *easily* hot enough to start a wood fire.

23. Allow the forge to cool for at least a half an hour before you leave the area. This is to prevent accidental fires from going undetected.

I think you're going to enjoy using your new gas forge. Please keep safety in mind so you can enjoy it for a long time.

Iron vs. Steel vs. Iron

by Bill Hochella

1. Iron is an element found in nature. All irons and steels are iron based alloys.

2. Steel is an alloy of iron and carbon. The range of carbon concentrations for steel is from about 0.025% to 2%. This is not totally arbitrary. it is the range for the eutectoid decomposition of austenite (FCC) to Ferrite (BCC) and iron carbide (Fe_3C).

3. Irons are about whatever else is left; Carbon less than .025% and greater than 2%. Commercial usefulness ends at about 4% carbon.

4. Wrought iron refers to a very particular structure, composition and method of manufacture. The metallic portion of wrought iron is nearly pure iron, many times the carbon is less than 0.005%. The actual compositions may vary considerably. The slag within the wrought iron is there from maybe 0.5% up to 4% by weight. For the most part, it is iron silicate. It is purposely added or left in there depending on how it is manufactured. The slag exists as fibers and in high quality wrought iron there may be 250,000 fibers per square inch.

5. Iron with less than 0.025% carbon is usually called electrical or magnetic iron. It is made just like steel except that the carbon and all the other elements are burned out to a point well past that of steel.

6. Cast iron comes in a variety of forms: gray, pig, malleable, pearlitic, ductile, white, Ni-hard, austenitic, corrosion resistant, heat resistant, wear resistant, etc. All have carbon levels greater than 2% and less than maybe, 3.5% depending on the grade and application. All are cast, even malleable is first cast as white iron.

7. In both steels and cast iron other alloying elements may be added to enhance or create the desired properties.

Enjoyment

by Paul Quyle,
(from the California Blacksmith)

For me, enjoyment is trying a new technique. Having seen and read about the use of nickel as a contrasting material in damascus blades, I very much wanted to try it in a blade of my own. Nickel is a common metal except when you want some. I tried every source that I could think of and came away empty handed. Not even a hint of a possible supplier did I turn up. I know that it is out there, but where?

Finally, my little brain came up with something to try. I have Ni-Rod in with my welding rod for use with cast iron. Ni-Rod is high nickel. Will this work? I decided to try. First, clean off the flux coat from the rod; then sandwich it between the layers of steel and do a forge weld. The round rods did not want to cooperate and remain in place for the first weld. After I developed a new vocabulary and a great frustration, the faggot weld was successful. I found I could even do a twist on a billet without problem. Forged into a blade and polished and etched there was brilliant whit against darker steel. Success!

Well, almost. The thicker rods produced too much nickel to be really attractive. So for my next attempt I simply pounded the rod into a thin, flat ribbon. Ni-Rod is very malleable and flattens out with little effort. The flat ribbon makes everything a lot easier to handle and presents a far better result in the finished blade. so if you are like me and like to explore, try using Ni-Rod.

For Sale:

Canedy Otto pedestal hand blower	$200
Buffalo Forge hand post drill	$200
Niagara bench stake plate	$200
Cone mandrell	$500
Small bench vise	$25
Large bench vise	$100
Fly press eith stand - #2 Adams Bros., Prov. RI	$1000
Liftrite pallet jack	$200
3 shop stools	$5 3 ea.

Call Ken Kohut 203-744-3758.

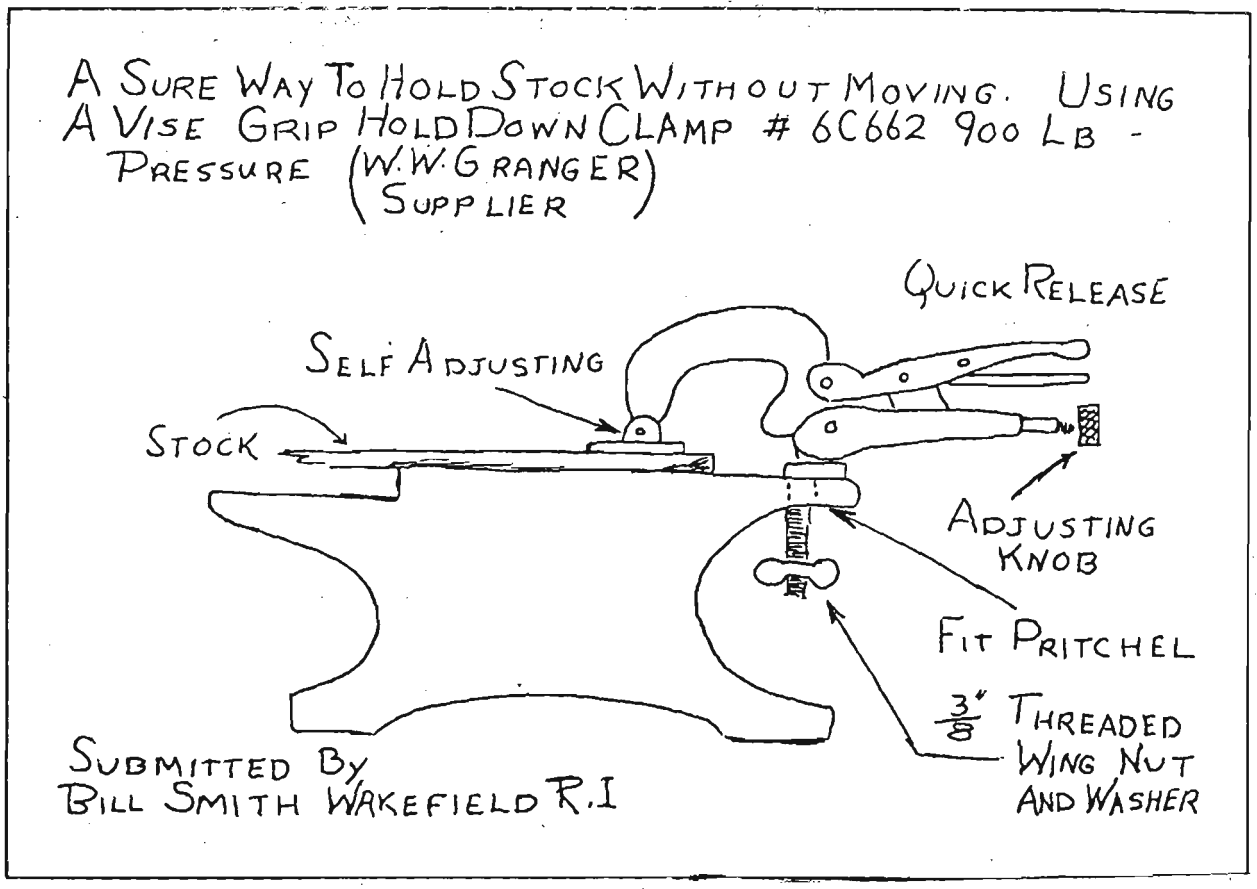
Leg vise, 100#, with 6" jaws that meet true, complete with all parts, good condition.

Call Don Heliker, 732-542-0771

"Blacksmithing" Books For Sale:

Your editor is an avid used-book collector. In fact, I do much better at finding books than at finding tools, etc., for the shop. So I'm going to be bringing books to all the NJBA tailgate sales. Some of these books are wonderful additions to any blacksmith's library (though not all of them are actually about blacksmithing). Be forewarned that you'll get a much better deal from me if you have something I want in trade. In other words, ***participate in the NJBA tailgate sales.***

Here is a Hold-Down from the New England Blacksmith's Newsletter:



THE HOME BLACKSMITH SHOP

Beginning blacksmiths are frequently looking for ideas on how to set up shop in limited space with limited resources. This article is focused on them, but may also have some ideas useful to more advanced smiths.

To start, you need a space to work that can safely accommodate your forge. In my first couple of years my forge was made of 3/4" slabs of insulating firebrick wrapped in aluminum foil and powered by a heavy duty propane torch on the standard 14 ounce propane bottle. Heat input was about 6,000 BTU/hour, but it allowed forging of a lot of small items, including tools. It was quite adequate for forging 3/8" and smaller stock, in a chamber measuring 2x3x9" inside. To do three-dimensional work and bends that could not be completed in one heat, I went to an open design, with a two or three-sided chamber, with the flame coming in the open side. The key to these approaches was low density insulating firebrick. High temperature ceramic fiber insulation could also be used.

In 1993, I upgraded the system with a new burner, running at 12,000-16,000 BTU/hour for forging up to 1/2" stock and fed from a 20# propane tank. This rig has been in use since then for much of my light work. Increasing gas pressure to give about 20,000 BTU/hr. (one pound propane/hour) has allowed forge welding of small stock. These two designs were described in detail in the November/December 1993 issue of this Newsletter.

Three safety considerations: First, be sure to work away from combustible materials. A metal work table and concrete floor are preferred. (Recycled panels from old kitchen/ laundry appliances make good tabletops.) Second, be sure to check propane connections for leaks. Keep a squeeze bottle of soapy water nearby for this purpose. Third, be sure to provide adequate ventilation if you are working indoors. A gas forge can give off significant amounts of carbon monoxide, especially if adjusted for a reducing atmosphere. A carbon monoxide detector (about $60) is a wise investment if you regularly work inside.

Working with coal is another matter. Unless you have an adequate flue to carry off smoke and fumes, you will be working outdoors. Even then, you need to consider your neighbors, as well as the keeper of your household. Learn to minimize smoke by gradually coking small quantities of green coal toward the bottom of your fire. Always save a supply of coke to start your next fire.

To avoid the coal smoke, you may want to consider using industrial coke or charcoal for fuel. Industrial/metallurgical coke is much denser than that made in the open fire, is harder to light and requires a continuous air blast to keep it burning. Hardwood charcoal (not briquets) is the traditional blacksmith fuel which was used all over the world before the use of coal. It burns up much faster than coal or coke. It does not give clinkers, but a lot of sparks, and requires a bigger fire for welding heats.

Hardwood charcoal is available from Washington Roofing Products, with multiple locations in the DC/VA/MD area. We are still researching sources for industrial coke.

One way of dealing with a coal forge and anvil, if you have a garage or carport for storage, is to mount them on a heavy-duty wheeled platform, with bench, vise and tool racks included. Then you can easily roll the assembly out and block it up with wedges when you want to use it.

For an anvil, almost any piece of heavy steel will do to get started, such as a short length of railroad rail or I-beam. One problem with these is that they ring rather loudly when struck with the hammer. Firmly fastening to a wood stump, preferably with a layer of lead or heavy rubber underneath will help significantly. Another silencing technique is to set the piece halfway into a box of sand. That advantage of the rail stock is that it work hardens.

If you can get a real anvil, so much the better. Your best buy would a used, old anvil at $1-2 per pound from a flea market or blacksmith tailgate sale. Low cost new anvils are usually cast iron or steel with a soft face that will not satisfy for very long.

A light duty bench vise will do for holding stock for twisting, bending jigs, etc. For heavy work, including a lot of hammering, you will want either a heavy bench vise or a leg vise. Aside from being able to hammer on it, a special advantage of the leg vise is the spring loaded jaw, which allows precise control of the jaw opening.

For hammers, a 1½ to 2# cross peen is ideal, but you can do a lot of work with an equivalent ball peen. A smaller ball peen, say 12 ounces, is handy for light work.

You will also need tongs. A pair of long handled pliers or lever jaws will do to start. You can use them, if necessary, to forge your first pair of real tongs. Otherwise, buy used tongs at flea markets or blacksmith tailgate sales.

For stock, you can buy A-36 hot rolled steel or A-108 cold rolled steel at local steel suppliers. The hot rolled normally comes in 20 foot lengths, cold rolled in 12 ft. There is nothing wrong with reworking old fence bars, large nails or other steel scrap. **One caution: Do not heat galvanized or plated material.** Fumes of zinc, cadmium and chromium are toxic, cadmium especially so.

The bottom line of this discussion is that you do not need a huge investment to get started. Get a small forge, some kind of anvil, a hammer or two and begin forging. Add to or upgrade your equipment as you learn more about your real needs. Forging is a great life!

- Ken Zastrow

The Newsletter
The Blacksmiths' Guild of the Potomac
November/December 1997

History of the Anvil

By: Ernie Dorrill **Part 2 of 2**

From the 12th to the 17th century, smithing all over Europe reached a stage bordering upon perfection, but no attempt was made to standardize the anvil shape. The reason being that, as a rule, every smith was his own anvil-maker and an anvil being a piece of equipment that lasts a lifetime or over, it seems reasonable that there were few if any expert anvilmakers in the Middle Ages.


Fig.4

Anvilmaking, as an industry, was first started at the *Mouse Hole Forge*, Sheffield, England beginning in or near 1650, which, for a time, was the only works of its kind in the world. The first recorded operator of *Mouse Hole Forge* was the family of Sir John Burgoyne. Then Cockshutt & Armitage, and following them came M. & H. Armitage, who operated the forge for over 100 years. The last recorded owners between 1850 and 1900 were Brooks & Cooper who had run the forge for approximately 40 years and at that time, were still making anvils that were hard to beat either in quality, shape or workmanship. Although there were at this time, a number of concerns making anvils, both in England and America, The *Mouse Hole Forge* is unique in several respects. They were the first to specialize in anvilmaking, they were the first to make any attempt at standardizing the shape of anvils and they operated the forge until this time with no other power than that developed by an old-fashioned waterwheel.

For well over a century there was practically no change made at the *Mouse Hole Forge*. The same old-fashioned helve hammer, or "metal helve" as it was locally termed, was still performing tasks operated by a waterwheel. *Mouse Hole Forge* had old-fashioned solid stone walls and low arched windows and narrow doorways, and at this date, showed but slight signs of the ravages usually worked by time, and are apparently still good, barring misfortune, for centuries to come.

Originally Mouse Hole anvils were made by the building-up process, that is the corners of the base or feet, the horn and the tail or heel, were welded on to a centerpiece. After this building-up, a steel face was

welded on in sections. The anvil was then trimmed and finished to the desired shape by use of hand tools. The face was then ground and hardened and, after hardening, the face was again ground and the anvil received finishing touches. Some idea of the finished products are seen in Fig. 4, which shows a group of standard patterns of *Mouse Hole* anvils.

The following is a general guide regarding Mouse Hole anvils. **1)** If the anvil does not have a step, has an even smaller horn than the small one on other Mouse Hole anvils, and is attached directly under the end of the face; then the anvil would have been made in the 1750-1775 time frame. It may or may not have a steel face. **2)** If it has a step, and is made by Armitage, marked as an *Armitage Mouse Hole*, then the face is hard steel. **3)** If there is no pritchel hole, it was made before about 1790-1795. **4)** If it has a PUNCHED pritchel hole, it is in the 1795-1850 manufacture range. Some of the older Mouse Hole anvils had pritchel holes drilled in them, to bring them up to a more "modern" configuration. The punched hardy and pritchel holes leave a slight bulge on the bottom, as they seem to have been through punched from the top, with no counter punching from below. **5)** some of the Mouse Holes had no horn. This indicates it is older, from the early 1750 period, but is not conclusive. **6)** If there is a steel face, judicious grinding or filing on the side of the anvil may reveal a weld line, and different colors of metal, between the steel face and the wrought iron body. These anvils were hand forged with a drop hammer, and some still show a faint line where the horn was welded on, and/or where multiple pieces of iron were welded together to make the body. **7)** With an *Armitage Mouse Hole*, and other anvils of the period, the hardy hole is usually small. The hardy on older anvils was hand punched, and a smaller hole went easier. The holes on a 118 pound and a 138 pound are about five-eighths of an inch. Most of these anvils were in the 100 to 150 range with the average being 120 - 125 lbs.

For many years, piling or building up was the only known process of making anvils, and it was not until *Peter Wright*, an anvil manufacturer of Dudley, England (at one time a workman at the *Mouse Hole Forge*), conceived the idea, and patented it in England, of making anvils in two pieces. This happened around 1850 and proved an epoch in anvilmaking. Under the new process of making anvils, a great deal of the fame and business that had for so long centered around the *Mouse Hole Forge* was diverted to the works of Peter Wright, and the result was that the *Peter Wright* anvil became the most popular in the market and is still well known throughout the world.

The *Peter Wright* process, which was almost invariably used in the manufacture of anvils, may be described as follows: The base or bottom part was formed by piling up scrap iron and welding it into a solid mass. While still hot it is placed in a die and blocked to shape; the power used was steam. The whole of the upper part, including the horn and tail, are forged in one piece from scrap iron, the greater part of shaping being done at the same heat at which the scrap was welded. Next, the steel face was welded on, the hardy and pritchel holes punched, the tail or heel squared and the horn finished to shape. The two pieces, base and upper part, are then about the shape shown in Fig. 5 and are ready to be welded together at the waist. This was accomplished by "jumping". The two pieces are heated in an open fire; when the welding temperature has been reached the two pieces were placed as near as possible in alignment under a steam hammer and a few blows join them solidly. The steam hammer was then used as a vise to hold the anvil while rough burs around the edge of the weld were hammered in. The anvil was then thrown on the floor where it could easily be turned in any position or direction and finished, as far as forging goes, with hand tools.

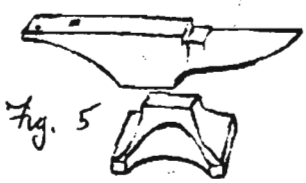


Fig. 5

For all previous anvils and even under the Peter Wright process, the steel faces were welded on in sections of about 6 inches in length. Thus, usually two and sometimes three pieces of steel were required for an anvil face. Note that in the early 1900's, the whole face regardless of size was welded on in one piece which was an American innovation.

A sketch of a standard pattern Peter Wright anvil is shown in Fig. 6; a glance shows that it differs in several details from the Mouse Hole anvil. The face is longer and narrower and the corners of the base or feet are shaped differently.

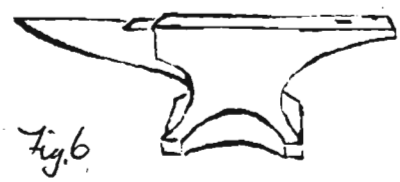


Fig. 6

From 1850 to 1910 *Peter Wright* anvils, forge welded from two pieces at the central block with a top plate and included "*Peter*

Wright Patent-Solid Wrought" as the trademark. After 1910, while still the same construction, the word "*England*" was added to the trademark.

There is still another English anvil, namely, Wildeyson's, that should be mentioned, but it is almost a duplicate of the Peter Wright and manufactured by the same process, therefore, details are needless.

Up to 1886 these three English concerns mentioned did practically the whole of the anvil business in the world, and kept large forces of anvilsmiths, helpers and finishers employed.
In the late 1850's there came to New York an Englishman by the name of James Case, a smith who had been in the employ of Peter Wright at Dudley, England. For several years Case was employed at the Novelty Iron Works, "Allen Stillman" Dry Dock, New York. On their going out of business, Mr. Case started in for himself, as a repairer and maker of vises and anvils, on East 15th St., New York. In 1864 he produced his first batch of two-piece American wrought anvils - a half dozen. Mr. Case might have done a prosperous business and made himself independent, but it was said that, with him, religious fervor took the place of business and he, (with the golden opportunities of a virgin field), failed, and died poor.

At this point, it should be noted that all English anvils of this period were marked with a three digit number. Anvils were weighed according to the British system of measurement. The first digit indicated the number of whole hundredweight's, the second indicated the number of quarter hundredweight's and the last number indicated the number of pounds remaining. A hundredweight (abbreviated cwt.) is actually 112 pounds. A quarter cwt., is twenty eight pounds.

To calculate the weight of an anvil in pounds: multiply the first number by 112, multiply the second by 28, and add the two results to the third number. A 1-2-6 anvil is 174 lbs. ((1x112)+(2x28)+6=174).

In 1886, two enterprising young men, namely James Hay and Frederick C. Budden, both blacksmiths (Hay a Scotsman, Budden an Englishman), began making anvils on Front St., Brooklyn, New York. These young men, under the firm name of *Hay-Budden* Mfg. Co., did well. When they began the business in the early days of their anvil-making they were beset with many difficulties, not least of which was ingrown American prejudice against home products. Even then, this prejudice in many respects flourished when popular belief was that anything really worth having had to come from abroad. That attitude slowly began to die in the early 1900's and everything American, with the exception of sons-in-law, was becoming good enough for Americans.

From the very beginning, the *Hay-Budden* Mfg. Co. Demonstrated the fact that they could make anvils as well, if not in some respects better, than the old-established anvilmakers of England. Needless to say, their process of manufacture is essentially that of Peter Wright, but with some improvements, one of which was the welding on of steel faces, regardless of size, in one piece. Later, they still improved their anvils by making the whole top, from the waist up, of one solid piece of high carbon open hearth steel. Advantages of this is at once obvious. Besides improving old methods, and devising new mechanical appliances for the manufacture of anvils, Messrs. Hay and Budden were able to make many minor improvements on their anvils.

References:

Cran, James, **The American Blacksmith**, September & October Issues, 1914

Greig, Ron, Editor, **VIBA Forge**, Vancouver Island Blacksmith's Association, Victoria, B.C.

Inland Northwest Blacksmiths Ass'n. Newsletter

Northwest Ohio Blacksmiths Newsletter

The Blacksmith's Compendium, <www.mcs.net/~frnklyn/compendium/anvil.html>

Thomas, Page, <pthomas@post.cis.smu.edu>

Wallace, Jim, National Ornamental Metal Museum, Memphis, TN

How High the Anvil? – Three Views

by George Dixon, Guy Garey & Joe Delisimunovic

First View

by George Dixon
1992 ABANA Conference

For balance, the horse position (boxer stance) is assumed for practical forging. This position requires that feet are a little apart, about shoulder width, and one foot is a little farther forward than the other. Usually the foot on the same side as your tong hand is slightly forward, and the foot on the same side of your hammer hand is back slightly. When forging, if the body weight is shifted to the forward foot, you will have a tendency to only shove the hammer towards the anvil. This will soon become very tiring, and hammer control becomes more difficult. When weight is shifted to the back, you will find that the back muscles will relax, and the hammer will fall more gracefully and more accurately towards the anvil. You will also be able to see your work better. Very rarely will you forge with weight distributed evenly on both feet at the same time.

Anvil Height: Anvil height is proper when your hammer handle is parallel to the face of the anvil at the end of your hammer stroke. Too low, it causes a tendency to make forward hammer marks. Too high, it causes back-type hammer strokes. Leaning against the anvil will cut the ring and will also help to relax you when forging. It is also a very good way to find out if an anvil is the right height for you when you first start using a strange anvil. Your own anvil will hit in a certain place against your leg, and when you walk up to a different anvil, it will hit you in another place on your leg. Thus, you can check for correct height.

Second View

by Guy Garey
from the Artist Blacksmiths of New Zealand

Place the surface of your normal working anvil (some say) at knuckle height when arm is down, at any height comfortable, etc. Here's a thought – the top surface of your anvil should be no higher than your crotch. Make this mental picture: you're splitting or punching a bar, or any job for which you need three hands. If you're like me, you'll hold the work between your thighs to allow hands for hammer and punch. Now smack that bar with a good hard swing . . . with the inside edge of the anvil acting as a pivot point, and . . . (await the arrival of the medics?).

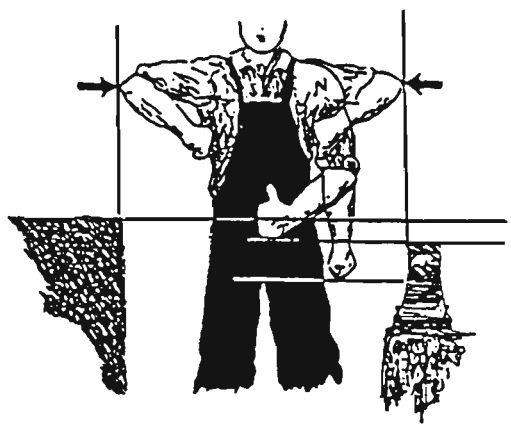
Third View

by Joe Delisimunovic
reprinted in part from The Traditionalist, Vernon, BC

The way I was taught in Europe advised not cutting the block so that the height of the anvil is at your closed fist height when hanging down at your side (some books on smithing favor this height, though it makes the upper body have to lean too far forward to keep the arms and body in the effective power range for a decent strike). Personally, I can't see anyone's back and elbow staying healthy for too long (these people with the low anvil height are usually the ones with the bandage on the hammering arm up by the elbow, having to change hands when one arm becomes sore, or using some fancy anti-shock or shock-absorbing hammer handle).

You should cut the block so that the height of the anvil face is at the height of your closed upright fist, with the thumb stretched up and touching the bottom of your navel; your knees and legs should be slightly flexed, but not much. Keep this height to within an inch or so above or below this level. This height is essential to keep you from bending over too far or staying bent over too much.

The distance from the edge of the forge table to the edge of the anvil is to be the same as the distance from your elbow to elbow with your fists tucked into your armpits, thus allowing the right amount of room to move back and forth. You can still maneuver your project with



California Blacksmith

or without tongs, and it is still close enough that if you have an extremely long piece in the forge, you can rest it on the anvil.

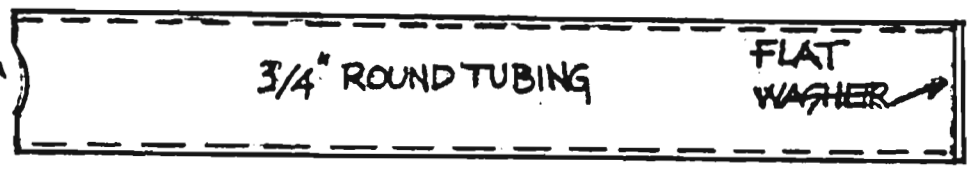
CBA Editor's Note: Looks as though the second and third methods assume your arms are average length. But if you buy extra-length long-sleeved shirts, as I do, perhaps you may want to try a slightly lower anvil. ♣

Tool Holder

Design by: Ray Robinson
Drawings by: Ray Robinson

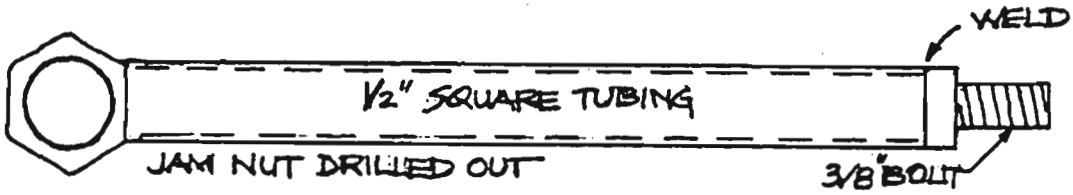
This tool holder can be made for various sizes of chisels, punches, etc. as long as round stock is used on the struck end. A completed tool holder can be made in approximately one hour; therefore, several of one size can be made easily and quickly to avoid having to change tooling.

File a radius or "V" in the end of the 3/4" tubing to grip tool.



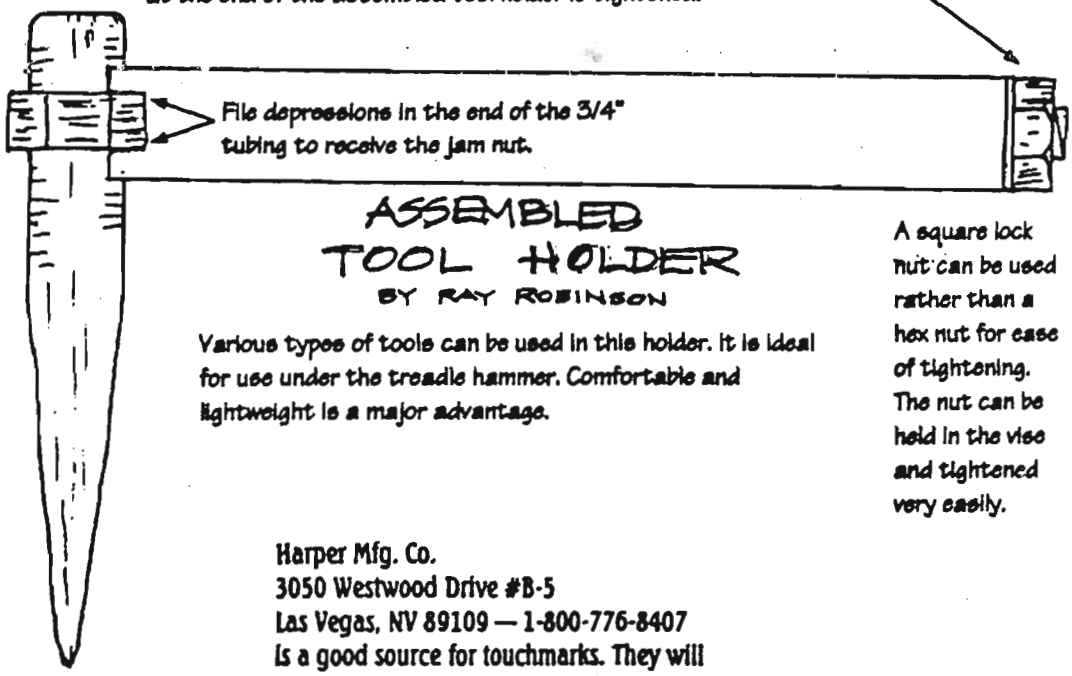
The jam nut is drilled out to allow passage of a round tool (punch, chisel, touchmark, etc.).

The jam nut is welded or silver-soldered to the square tubing.



The square tubing assembly slides inside the 3/4" round tubing. With tool passed through jam nut, the tool is gripped when the lock nut at the end of the assembled tool holder is tightened.

If making a holder for 3/8" or smaller tools, the jam nut is not required since the hole can be drilled through the square tubing. The same grip mechanism is accomplished.



ASSEMBLED TOOL HOLDER
BY RAY ROBINSON

A square lock nut can be used rather than a hex nut for ease of tightening. The nut can be held in the vise and tightened very easily.

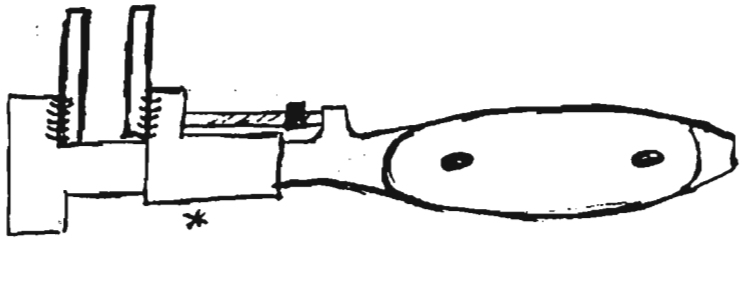
Various types of tools can be used in this holder. It is ideal for use under the treadle hammer. Comfortable and lightweight is a major advantage.

Harper Mfg. Co.
3050 Westwood Drive #B-5
Las Vegas, NV 89109 — 1-800-776-8407
is a good source for touchmarks. They will produce any design, no matter how complex, at a very reasonable price. Price is based on size of touchmark desired (3/8, 1/2, etc.)
Approx. $75-$100 with camera ready art.

THE MISSISSIPPI FORGE COUNCIL NEWSLETTER
July/Aug 1997

GREAT TOOLS TO RECYCLE

THE STEEL MONKEY WRENCH APROX 12" TO 15" LONG

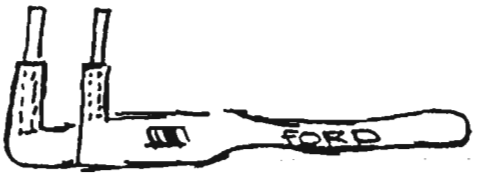


Hand held scroll or vise mount bending fork

WELD 1/2" TOOL STEEL RODS APROX 4" LONG
* IF WRENCH IS LOOSE SPLIT AND REWELD

THE CAST MONKEY WRENCH (Smaller 8" to 10")

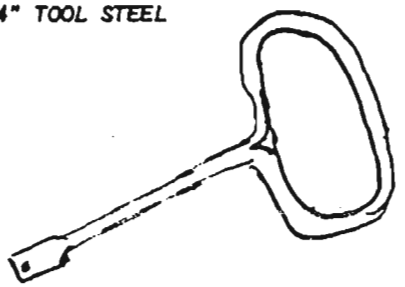
Smaller hand held scroll fork



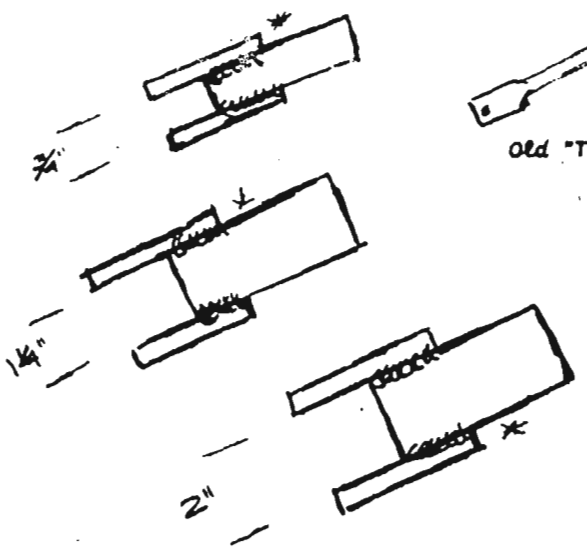
DRILL AND INTERFERENCE FIT 1/4" TOOL STEEL RODS

OLD STYLE 1/2" DRIVE DEEP SOCKETS

Various twisting forks



Old "T" style



*WELD JOINTS

Smaller dia. sockets 1/4 rod medium 5/16 large 3/8 (works best)

HOPE THESE SUGGESTIONS WORK AS WELL IN YOUR SHOP AS THE DO IN MINE.
JIM COKEWELL THE REPAIR SHOP

Thanks Jim for the tips.

The Upsetter - Michigan Artist Blacksmith Association - Mar - Apr 1998

TWIST OF THE MONTH

For this month's twist I have chosen the cube twist. It's a really neat twist that makes folks ask, "How in the world did you do that?"

The first step is to mark off the section of the bar that is to be twisted into segments the same length as the size of the bar. To get a realistic cube, it helps to add the width of the saw cut to each section, so that they are perfect cubes **between** the cuts.

At each mark make a saw cut about one eighth of the thickness on all four sides. You can cut a little deeper at the corners so that you get something like this:

Figure 1

If square is 1/2" then circle should be about 3/8"

Note: In order that the material above the twisted section will be on the same plane as the material below the twist, you will need to have an **odd** number of cubes and therefore an even number of saw cuts. (Notice figure 6.)

Shop tip:

Let's take a moment out to talk about twisting wrenches. Any wrench that fits the stock can be a twisting wrench, but it is much easier to keep the stock straight if the wrench has two handles. Many of us have taken an old flea market monkey wrench and welded a handle onto the other end.

Figure 2

Francis Whitaker designed a twisting wrench that looks like this.

Figure 3

One loop of the "S" fits 1/2" stock and the other loop fits 3/8" stock. Other combinations of sizes are possible.

OK, so now we have our twisting wrench, we'll want to put the stock in the vise so that only the first saw cut is sticking out.

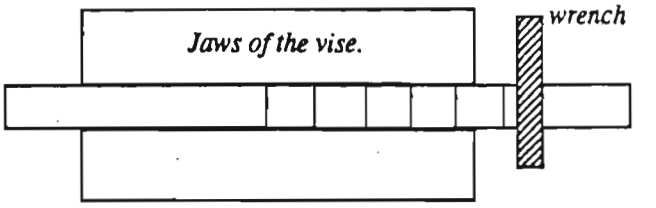


Figure 4, first twist

Before we start twisting we had better talk about heat. The twist can be heated in a forge but I have found it much easier to use a torch for this twist so the heat can be **concentrated** at the saw cut we are preparing to twist. It usually isn't necessary to resort to a rosebud; a large size tip will be adequate. In using a torch, you can heat the area after you have placed it in the vise. Each twist is exactly 45 degrees. After the first twist is made you move the stock forward one cube.

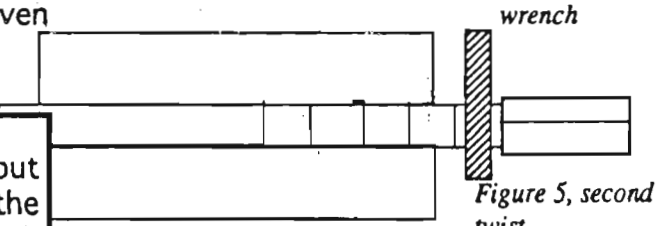


Figure 5, second twist

You can make all twists in the same direction, but I usually reverse the twist each time, it matters not!

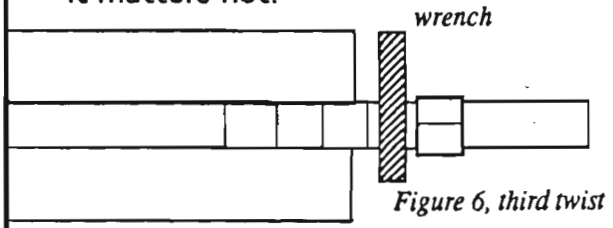


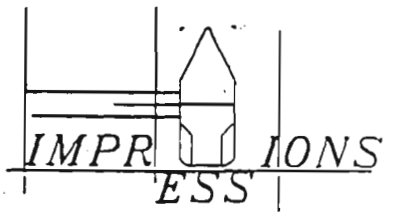
Figure 6, third twist

Once when I was using this twist, Nol Putnam commented that the cubes looked like alphabet blocks. That gave me the idea to spell my grandchildren's names in a downward spiral in the railing picket I was working on.

This twist makes an interesting contrast with the other types of twists.

BTS

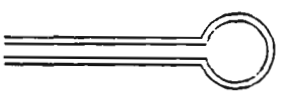
N. C. ABANA -- The Hot Iron Sparkle Vol. 15, No. 1



There was a third demonstrator for the November '96 meeting. This was Dan Tull. He showed us how to do a square knot and use this design to make a decorative wedding knot hanger (some folks call it a heart hanger).

It is possible to do this with any size rod, but the larger the rod, the more skill and effort is required. Start with two lengths of 1/8" diameter rod approximately 12" long. Taper both ends of both rods. The exact taper is not important as long as they are pretty. Small rods are easy to work with, heat up quickly, but also cool down quickly. If they are small enough, and it's intended use is more decorative than strong, it is possible to do some of the work at a very low heat-essentially cold.

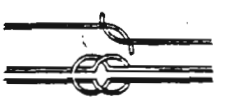
Find the middle of each piece and mark. Don't mark with a chisel or it will show. Instead of using a ruler, Dan put a cutting hardy in the anvil and balanced the rods on the hardy. The balance point is the "middle".



Bend the rods in an identical manner. They should look like the picture to the left. If they are slightly irregular, this irregularity should come out later when the knot is tightened. Remember though, that it is best to always have the pieces as perfect as possible. By the time it becomes obvious that something is not quite right, the work may be past recovery.

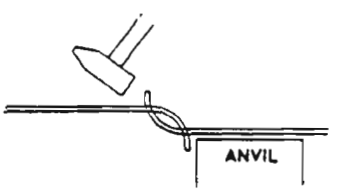
Then add an additional bend perpendicular to the first ones. The horn of the anvil is useful for this gentle bend.

After both pieces are bent, they need to be "woven" together. Place one loop down, and the other loop up, and run the legs together. Pull the knot tight.



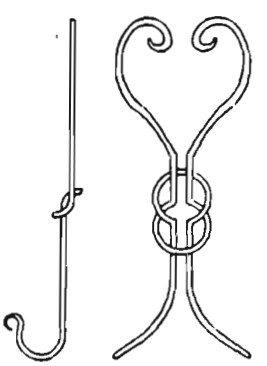
Use the forge, or a torch, and heat both knot loops evenly. Even heat is the key to an even knot.

If the rods are small enough, one end may be placed in the vice, and the other held with a vice grip, and the knot tightened by pulling very hard. If the rods are not that small, some careful and skillful hammer work is necessary. Another way to tighten the not is by placing the work on the edge of the anvil and squeezing/hammering the knot tighter together. Sometimes this is easier with an extra pair of hands.



Hammering the knots together usually causes the knots to flatten. This requires hammering the sides of the heart in order to get them to close.

If there are too many hammer marks, use a half round file to remove them.



When the knot is sufficiently tight (and not loose enough to move), it is time to work on the legs.

Heat one pair of legs and use scrolling pliers to work them into a heart shape. You may use any kind of needle nose style pliers without teeth. Teeth will mark the work. The exact shape of the heart is a matter of taste. Dan had his closed at the top (unlike my picture).

Heat the other pair of legs. Again use the scrolling pliers to make a gentle hook. At the end of the hooks should be a small loop. This prevents a sharp point which could injure, and the decreasing radius compliments that of the heart. The idea is to have the heart be decorative against the wall. The hooks will be used to hold anything that they will support.

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TULLIE SMITH HOUSE BLACKSMITH
GUILD January 1997

How to Join or Renew your Membership in NJBA:

NJBA dues are $15 per year. Please make out your check to

"New Jersey Blacksmiths Association."

Please mail checks to

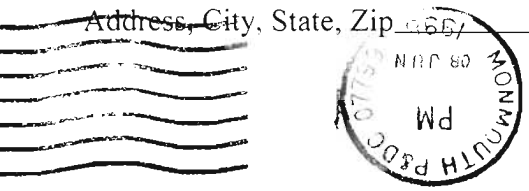
Pete Engle, 47 Center St., Rumson, NJ 07760,

along with the following information. You will receive the most recent newsletter as an acknowledgment of your membership. Annual dues are due on June 1. If you join in April through June, you will not owe renewal dues until June of the following year. If you join at another time of year, your will owe dues the following June, but you will receive any back issues of the current volume of the newsletter.

(This information will be listed in a roster available to other members.)

Name_____ Home Phone_____

Address, City, State, Zip_____



New Jersey Blacksmiths Association

Newsletter

222 Laurel Place
Neptune, NJ 07753