This Issue...
Francis Whitaker
Best of the Chapter Newsletters
Next Issue...
The Power Hammers' Blow
And More!

For decades Francis Whitaker has shared his experience and skills with countless artist-blacksmiths through classes as well as demonstrations. His fidelity to traditional process is legend, his technical abilities are too. His focus is not style or motif, that is covered by his designs, the issue with Francis Whitaker has always been process. That is, the steps and tools required to achieve a result that is qualitative and, most importantly...consistent.

If there has ever been anyone in ABANA who epitomized the concept of 'discipline before creativity,' it is Francis Whitaker. The discipline in this case is the development of control and the learning of sequence before the application of personal creativity to the hot iron. It makes sense that one cannot realize a vision, especially in a medium as demanding and unyielding as iron, without the ability to manipulate both the tools and the metal first.

In design, there is a constant and necessary 'reinventing of the wheel'. In process, there are masters of the craft such as Francis Whitaker to whom we turn for the education needed to achieve that design in hot iron.

Francis Whitaker at the anvil.
Ready to strike a hammer's blow.
1998 Conference Update
June 17-20, Asheville, North Carolina

1998 ABANA Conference Web Site
http://www.ioa.com/home/abana/

The following list of Motels and Campgrounds represents accommodations within at most 15-20 minutes of the site. In many cases they are closer than that. The '98 Conference does not recommend for or against any local establishment.

Camping:
1) Arden RV Park and Campgrounds
   704-684-4791
2) Azalea Country Campground
   704-299-7232
3) KOA Asheville East
   704-686-3121
4) KOA Asheville West
   704-665-7015
5) Miles RV Center
   800-982-5315

Motels:
6) Best Inns of America
   704-298-4000
7) Best Western of Asheville-Central
   704-253-1851
8) Best Western of Asheville
   704-298-5562
9) Budget Motel-West
   704-665-2100
10) Comfort Inn (3 different locations)
    704-298-9141 665-6500 669-6666
11) Days Inn (3 different locations)
    704-254-4311 298-5140 667-9321
12) Holiday Inn East
    704-298-5611

There are many others as well.

If you plan to stay OFF CAMPUS...make that reservation NOW!

---

1973 - 1998
25th Anniversary of ABANA

Next Deadline: February 1
Out: March 1

Address all material for publication to:
E-Mail: METALSMITH
Internet: GDixon@ioa.com

The Journal of the Artist-Blacksmiths' Association of North America, Inc. (ABANA, a non-profit corporation) is published and mailed to members on a quarterly basis by ABANA, P.O. Box 206, Washington, MO 63090, 314-390-2133. Membership is available to anyone interested in the art of blacksmithing at the regular membership rate of $35 per year. Matters related only to membership, magazine or journal subscription should be addressed to Janelle Gilbert, ABANA Office, P.O. Box 206, Washington, Missouri, 63090. PÖSTMASTER: Send address changes to ABANA, P.O. Box 206, Washington, MO 63090. Artist-Blacksmiths' Association of North America (ABANA) its staff, directors, officer, editors and members specifically disclaim any responsibility or liability for damages or injuries as a result of any construction, design use or application of information contained in this newsletter. The use of any information is solely at the users risk.

---

THE HAMMERS' BLOW FALL 1997
New Edge of the Anvil
Jack Andrews
Skipjack Press, Inc. Berlin, Maryland
Reviewed by George Dixon

The *New Edge of the Anvil* is more than just a reissue of a work that has been a standard for beginning blacksmiths ever since it was first published over a decade ago. The first aspect of change that is apparent are the new drawings. They are excellent. Information is conveyed far more readily in illustrations when they are done well, and this book abounds in them.

The point of this and every review here is how much technical information is contained in the book and how easy it is to understand. The "New Edge" is packed with the kind of information anybody starting their journey into blacksmithing wants to find. Tools, process and projects are all well represented. Beyond this is a section on metallurgy, so you can understand what is happening to the metal in heat treating and forging. There is one on design basics, so you can begin to explore the rules of proportion and rhythm in a visual sense and a series of tables that cover weights and sizes of materials. The last part of the book has examples of artist-blacksmith's work. This section ranges from Samuel Yellin to contemporary artists.

With the inspiration of the varied work in the portfolio section for energy and the chapters on tools and how to use them for direction, The *New Edge of the Anvil* comes as close to required reading as is possible. If ever there was a first book to start a **Blacksmith's Bookshelf** with then this is it. As an aside, if anyone wants to get a feel for what good drawing looks like, get this book.

The *New Edge of the Anvil* can be ordered from Bookmasters at 1-800-247-6553 for $25.00.

---

Letters

George,

I worked 32 years in a steel mill as a blacksmith. They gave us a formula for computing ring size (material length) that was so simple you could do it in your head. The formula was 3 times the inside diameter plus 3 times the thickness of material plus 1/8" per inch of outside diameter.

Wilbert Knecht

George,

Thanks for showing the steps in the making of Samuel Yellin's square knot (The Hammers' Blow, Summer 1997). I am curious to see what the finished piece should look like.

William Trowbridge

(Editors Note: The Yellin knot was taken as-is from a past issue of The Anvil's Ring and here is the finished 'knot').
Shop Notes

Theforge, ABANA's E-Mail based informational round table generated the following inquires and responses from among its over 400 members. This growing service which is made possible by your support of ABANA's educational outreach efforts.

To join theforge send an e-mail to: listproc@wugate.wustl.edu and in the message put subscribe theforge and (your name). The parentheses around your name are important.

Topic: Anvil

Question:
I have a couple of questions about anvil repair:
1. If I want to just build up the edges a little, can I weld relatively short beads and let them cool a little, and then weld another short bead, without preheating?
2. Someone mentioned a technique for building up the edges. Clamp a piece of flat brass against the side (or top, depending on which side of the edge you are building up) and weld against it. You could get a relatively smooth and flat weld, and the weld metal would not stick to the brass. Has anyone done this before?
How thick does the brass have to be?
Doesn't the brass melt?
3. What welding rods are recommended?
Phil Rosche

Reply from Theforge:

You need a buildup rod, such as Stoody 1105. Preheat isn't too hard to do with a weedburner. Note that the temperature of 400F is chosen so that you do not lose any of the hardness in the rest of the anvil. This means that you don't need to reharden and temper your anvil. The Stoody rod works well. Don't exceed 450F if you want to not lose your temper. Insulate the anvil when done so it cools slowly.
Steven O. Smith

I suppose that brass would work, but I've always used copper with good results. It doesn't have to be all that thick, 1/4 inch ought to do it.
Jack Geisler

Yep. Works great. I fixed the wallowed out edges of my hardy hole this way by using a piece of brass about 3/16" thick and 3/4" wide. I used 7018 low hydrogen rods. They work harden a little but not enough to become brittle. It will ding a little if you hit with the edges of the hammer but holds up well enough as long as you don't do any forging of cold iron on it.
Donnie Fulwood

Question:
Does anyone know of a welding wire suitable for anvil repair that could be sold in quantities of 10 to 12 pounds?
Dave Mariette

Reply from Theforge:

Yes, the dual shield wire is the same as 7018-11018. I believe it can be bought in 10lb. rolls. Preheat is good and it runs with 75% argon and 25% CO2 @ 25-27volts and 180-210 amps with .045 wire.
Ralph Sproul

Question:
Last weekend, I found a "Peter Wright" anvil in an antique store. I haven't bought it yet -- because I wondered if it was genuine. It's of modern design, i.e. has both hardy & pritchel holes and a relatively narrow horn. The anvil is marked Peter Wright in circular *stamped* letters. Are there further tricks to identify the real thing?
Phil Langefeld

Reply from Theforge:

On mine, the "PETER" and "WRIGHT" are one above the other, not on the same line. Also, there should be weight stampings below, mine read: 1 1 23 with quite a bit of space between the numbers.
George Watts

Look for weight markings. Also a Peter Wright is a solid wrought iron anvil and that is also stamped in the side in circular fashion.
Phil Langefeld

THE HAMMERS' BLOW FALL 1997
Wrought Metalwork

Originally printed in the Summer, 1983 issue of The Anvil's Ring (Volume 11, Number 2). The work is from the November, 1933 issue of Pencil Points.

SOME COMPARATIVE INTERPRETATIONS OF DESIGN IN IRON & MONEL METAL

Doors & other work of this type may be carried out in sheets of forgeable or non-forgeable metals.

SOME CHARACTERISTIC TREATMENTS OF METALS IN SHEETS

In heavy work, two hammers of different sizes are used. If the work were left rough evidence of the use of both would be apparent.

In welding a collar to a spindle the use of swages lends to eliminate evidence of the use of the hammer.

After certain welds in straightening work the flattener is the last tool in contact with the metal.

The use of flatteners in making "tracks" etc. renders illegal the appearance of hammer-marks in such places.

THE LOGIC OF HAMMERMARKS.
Motif:

Wear Your Safety Glasses

Cruciform
Stock: 3/16" X 1" X 7" steel.
Tools: Hammer, slitting chisel.

1/2"
5/8"

This form is split from one piece of flat bar stock. As in so many effects, the complex look comes from carefully developing the sequential, basic steps of the motif. All that is involved is applied fundamentals of blacksmithing and accurate layout.

Layout the bar as shown. Note that the unsplit center is (at 5/8") 25% wider than one half the width of the stock (at 1/2"). This ratio holds true as the effect is scaled up. The extra material in the middle keeps the forging action that moves the 'arms' into opposition from thinning the middle.

Slit the bar hot. The beveled edge will forge back into the bar as the 'arms' are straightened and squared.

Straighten the arms and begin to drive them into opposition. Work progressively around the motif. This helps keep the effect even.

This shows the actual center line and how the arms must be forged, pushed, sideways until the centerline of each arm and the master center line merge. A set hammer is used to both align the arms to the centerline and to square up the corners.
Use the hardy hole of the anvil to back the forging as the arms are moved and the corners are squared. It works well to drive the cruciform down with a hand hammer, keeping tight against the shoulder of one side of the hardy hole. Then follow with a struck set hammer to refine the junction of the arms as it squares the corners. Rotate through the arms evenly until they are in opposition.

Once the cruciform shape is done, draw a taper on the end of each arm. Do not get too thin.

Layout the taper as shown and hot chisel cut each layout. Remember to cold chisel the layout in with the slitting chisel to be used in the subsequent hot operation. This way, no matter how bright the piece is, the chisel will "feel" the layout line before you can see it.

**Chalk Jig:**

When it is not practical to make a metal form or jig then use a "chalk jig". Forge one of a series of effects accurately. Lay it onto a sheet of steel and trace it with chalk or a silver pencil. Now the run of pieces can be visually compared and "tweaked" until they match the "chalk jig" and one another.

When a spit bar with each of the spit pieces tapered is needed, it is far easier to taper the bar, then split it. Both sides will be tapered and even in length. Once all the tapers are split, dress the splits as needed and scroll the tips as shown.

THE HAMMERS' BLOW FALL 1997
I made notes of Francis Whitaker's demonstrations at the Rocky Mountain Smiths conference at his school in Carbondale, Colorado last summer. What follows is an interpretation of those notes.

"Blacksmith's helper"

Tenons:
Set up a 'blacksmith's helper' stand to hold the bar to be tenoned level with the top if the hardy set in the anvil. The hardy should be one with a "butcher" configuration and its vertical face should be towards where the shoulder of the tenon will be set.

Set the stock, at a forging heat, so the required amount of material for the tenon's length extends past the hardy with the flat face of the stock on the cutting edge. Drive it down. Rotate the bar so the corner now sets on the hardy, use the last cut to align this cut and drive it down. Repeat this cycle, flat then corner, until the cut girds the iron. Make sure to cut to an even depth from all sides and to stop the cut just short of the intended diameter of the tenon. The latter prevents a nick at the tenons base that results from cutting too deeply.

The drawing out and final sizing of the tenon is done in a tenon swage of the appropriate size. Allow 1/16" of extra stock at each tenon for upsetting and cleaning up the shoulder with a monkey tool.

Francis at his 25lb Little Giant power hammer forging out a horse head fireplace poker.
Slit and Drifted holes:
There is a progression of tools used to take a slit in a bar to a square hole. First calculate the length of slit required to form the desired hole. Francis Whitaker's "Blacksmith's Cookbook" contains a chart which specifies this slit length.

The first tool is the slitting chisel. Cut from both sides, meeting in the middle. Although you could cut most stock from one side, the deformation that results from driving a chisel (which is a wedge no matter how thin it is made) into hot iron is better controlled by dividing it between two sides. The result is more even. Upset the slit somewhat before the next operation.

Next use a tool that is like a thick, blunt chisel to open the slit. All of these operations are done at forging heat. As with the chisel, work from both sides. Upset again if necessary.

Now take a round drift that is under the size of the square hole you are making and drive it through. Again, work the tool from both sides until it will pass through the now rounded slit.

The final tool used is the square drift. This is the tool that gives the slit its finished shape and size. At a forging heat, drive the tapered square drift into the round hole from both sides. This develops the hole evenly.

Forge Welding Tip:
Touch the tips of the scarfs together in the fire. If they are ready to weld they will stick....
"If they won't stick in the fire they sure won't stick on the anvil", Francis Whitaker.
I asked Francis Whitaker to describe the process that was used to make this rosette. It was one of his first blacksmithing tasks at Yellins. In his own words:

"Here is how I remember the rosettes. One of the smiths helped me for a while, the material was 14 gauge cut out as shown. I had a striker help with cutting out the blank. It was then cleaned up with a file. The tapered twisted scrolls were forged out. Then the repousse was done on a form then the scroll ends were turned back towards the center."

It was held in place on the project with a decorative headed rivet. (Editors note: To forge the scroll material down it is necessary to bend it forward so that it will lay on the anvil. Once it is forged down, bend it back into place and bend the next 'tendril'.)

"Another shop tip:
My student this week broke off a 1/8" drill in a piece of 3/4" A36. To remove it, a method I have used for years. I place a small washer over the end of the drill, held it in place with a short piece of stock and welded it to the end of the drill. Allow it to cool somewhat, spray it with WD40 and unscrewed it using the short piece of stock as a handle."

A sketch by Francis Whitaker of the layout for chisel cutting the rosette blank.

From the Francis Whitaker grille project at the ABANA conference at Alfred, NY in 1996. A Rosette in the Yellin style similar to the one Francis did for much of his year at Samuel Yellin Metalworkers in 1922.
Quatrefoils: (A compilation of several letters written by Francis).

"Finding the exact length for the material for a quatrefoil to fit an exact dimension has been a problem. At my final workshop at the Campbell Folk School, the answer to the length of material in relation to the size of the quatrefoil was resolved. We had four sizes to work on, 7", 8", 9" and 16". The ratio remained the same for all of them, 4.75 times the diameter of the quatrefoil."

One of the tools I saw in Francis' shop was a simple but very effective "blacksmith's helper" that fit into the pritchel hole of the anvil. It was made in such a manner that it was easy to use and swung out of the way when you were done, leaving the anvil unobstructed.

It is worth showing below as a project just about any smith can both accomplish and use.

"Draw a full sized layout" Francis Whitaker
Product Review

Patinas are a mystery to some. Which patina should be used for which metal and how to apply the proper one when it is found are all questions everyone getting into patination of metal asks. Unless you have a product line that involves regular patina use, it is likely that your patina needs will be project specific and intermittent. That means you will want a patina that is easy to get, easy to use, consistent and safe. The latter, safety, is obviously important and unless the patina you use comes with documentation on its application, safety and disposal you could get unwanted outcomes. The Birchwood Casey patinas reviewed here all came with extensive use and safety information. The step by step instructions for metal preparation (cleaning) and patina application were clear and well written. Cautions were included in the step where they applied. An example can be found in the instructions on Cleaning, they not only tell what to use but they also indicate what to avoid using. There are trouble shooting points interspersed throughout the instructions as well.

In the product tests that were conducted no special equipment was used. It was Birchwood Casey, Tupperware and metal. All safety parameters were adhered to and safety glasses were worn. Clean up was as described under each product but it mostly consisted of Dawn dish-soap and/or Scotch-brite abrasive. Commercial degreasers and shot-blasting are options that are listed in the Birchwood Casey literature but, as in the previous Product Reviews, the conditions were kept decidedly low-tech and simple. The goal of this section of The Hammers’ Blow is to find and review products that work as well in the garage-shop as they do on the factory floor (because a lot more of us have garage-shops than have factories).

Product: Antique Brown M38 Oxidizer

As with all of these individual patinas, this one came with good documentation and instructions. A safety data sheet was also included. It is referred to as "an instant-acting chemical conversion finish for brass, bronze and copper. Applied at room temperature by immersion or brush-on techniques". The instructions call for diluting the solution at 1 part of patina to 4 parts of water.

This patina stays in the browns, unlike some that blacken and only show brown when the metal is highlighted with abrasives. On the test pieces, 1" X 2" strips of naval bronze and copper, the results were uniform and as fast acting as described. Each sample was washed in strong detergent, they all had a reflective mill finish. In both cases, one of copper and one of bronze, a sample strip was abraded to a matte finish using red Scotch-brite. As expected, the latter pieces were darker after the same treatment.

After the patina is applied the piece is rinsed in clean water and dried. Forced air drying is recommended, my wife’s blow dryer worked in the pinch (don’t tell her though). The coloration was very nice in all cases. The brown shades, which ranged from tan through chocolate. Hand highlighting with fine grades of Scotch-brite produced good results.

The instructions suggest that the final step be to coat the piece with "a protective topcoat such as clear lacquer, wax or other suitable sealant". I used paste wax. It slightly darkens the finish as it adds a rich sheen to the patina.

Product rating: 3

Product: Antique Black M20 Oxidizer

This is described as "an instant acting chemical conversion finish for brass, bronze and copper". It is diluted prior to use depending on the desired coloration and time factors involved. This allows the user to change either the time it takes to reach a given color or the color achieved in a specific time. More chemical in the mix will give darker browns to black (and these are uniformly darker than the Antique Brown described above).

The same test strips, 1" X 2" were used in both mill and matte finish. This patina seemed to me to be made to highlight. Its darker spectrum of browns give bolder contrast between high and low textural areas. Hammered bronze shows this very well when patinaed and highlighted.

The big difference between this and the patina described above is the darkness of the color this patina renders. They compliment on another well giving a pallet of browns between them that is very large.

Product rating: 3
Product: Antique Black M21 Oxidizer

This is described as "an instant acting chemical conversion finish for brass, bronze and copper, silver and bright nickel plating". It gives colors from light brown to black. It too is diluted prior to use. Varied ratios are given of patina to water that will result in the range of browns described.

The test strips of bronze, copper and a smaller strip of silver were washed in strong detergent and dipped into the patina. The ratio used was 1 part Antique Black to 4 parts water. A dark shade of brown was obtained. The test strips were rinsed in cool water and blown dry.

The colors achieved were very satisfactory and they highlighted well using a fine Scotch-brite pad. The pieces were then waxed and buffed with the result being a soft luster over a warm brown color.

Product rating: 3

Product: Patinas
Manufacturer: Birchwood laboratories, Inc.
7900 Fuller Road
Eden Prairie, MN 55344-2195
Contact: Richard Faulkner (Sales Manager) 704-662-6440

Product: Presto Black BST4 Brush-on Blackener

This one is described as "an instant acting chemical conversion finish for all iron alloys except stainless steel". It not only produces gray through deep black coloration, it can be used (according to its literature) as layout fluid.

The sample pieces were each 1" X 2", one was cold rolled (no mill scale) and the other hot rolled (with gray mill scale) and the third was forged steel that had been wire brushed to remove lose scale. All three strips were washed in strong detergent. The solution was brushed on with a soft-bristle brush. Color change was as advertised; instant. Gray shifted into black in about a minute and when rinsed and dried it was very uniform.

The literature recommends coating the finished piece with Birchwood Casey Sheath oil, not having any I used wax. As I would expect from the oil visually, the wax darkened the color and gave it depth.

Product rating: 3

Summary: Each of the Birchwood Casey patinas did a good job. The colors were very good. It was well documented and easy to use. The companies attention to safety and proper handling and disposal was well received. The even included an 800 number for technical questions.

The prices are somewhat more expensive than some patinas, but being able to dilute it and the quality of result makes this less of an issue. Complete literature and prices are available through the companies representatives.
Apprentices Notebook

Tong or Stock Rest
From an example by Tom Clark and Tsur Sadan
Materials: 3/4" X 2" X 8" steel.
Tools: Hammer, fuller.

Draw the bar down to a wedge that is about 15" long and which tapers from the 2" stock size down to 1" evenly. Maintain the 3/4" cross section.

Measure and mark every 1 1/2" down one narrow face.

Use a set-fuller and either a striker or a treadle hammer and make a cold indentation on each layout mark. Set the fuller as shown.

Now, take a forging heat and, following the marks made cold, sink the fuller at each increment. Be careful to lay the fuller on evenly and watch to maintain the vertical as well as curved aspects of the wedge.

Curve the tapered bar at a forging heat. This can be done hot into the hollow gouged into the top of a hardwood stump. Use a wood mallet to avoid distorting the fullered metal.

This tool is used on the top of the forge hearth to rest stock or tong handles at various angles into the fire.

Fullering in the depressions for the tong/stock rest.
Spiral Finial and Tooling

Text and illustrations: Dave Mudge

There are always at least three ways to do anything, your way, my way, and the right way. This is about my way of making a spiral finial. These can be used as design elements in a panel, or as finials for such as bed posts, coat racks, and so on.

In order to do this my way, you'll need to make a couple of simple tools. First you'll need a tapered mandrel (special tool #1). Mine is made of mild steel, its about 2" diameter at its widest point and has about a 10" taper to 0". It's bent to mount in a vice or hardy hole. You can forge the shape or turn it on a lathe.

The Tooling:

The second small tool that you need to make (special tool #2) is very simple, 3/8" round mild steel, 4" long. Draw a 1" taper on one end and flatten about 2" of the other end. Bend 90 degrees in the center, fit the flat side to your mandrel.

Two examples of ways to mount the 90 degree taper tool to the larger bick.
Spiral Finial and Tooling

Start with a piece of 3/8" round mild steel 32" long (+/-). Draw a 15" long taper to a very small point, your piece should now be 36" (+/-).

The finished size of your piece is less important than making them all the same, if you are doing more than one. So make them all the same size. Mark half the length.

Now heat the tip of your 3/8" piece very carefully in the forge and start a very small circle (1/4" id) on the sharp horn of your anvil. Is this spiral going to be left or right? Think about that. Try the circle over the very tip of the mandrel. Fit it to the very end. Adjust your smallest vice-grips to hold the tip of the piece to the tip of the mandrel.

Now re-heat the tip of the piece carefully in the forge, move it quickly to the mandrel. Clamp it in place, and make one wrap around the mandrel. Whew! Did it work? Or did it slip? If it slipped, try again.

Using your torch, heat and wrap in a tight spiral around the mandrel until you reach the half way mark. Now remove the spiral from the mandrel. You may have to tap and un-screw it to remove. I like to quench the mandrel at this point (fig. #1).

Replace the spiral on the mandrel and mark where the wrap ends. This will be the starting place for the return wrap. Next clamp the special tool #2 on to the mandrel so that the spike aligns with the mark that you just made. Your
piece should look like this (fig. #2).

Your set-up should now look like (fig. #3) mate the spiral to the spike with the long straight arm at right angle to the mandrel on the small taper side. Think, you are now going to taper the other end of your finial from large to small. With the torch, heat the finial where the last wrap turns straight. Make a smooth curve back to the mandrel and continue to heat and wrap down the taper. Stop when you have about 2" of rod remaining.

Unclamp and remove the finial. It should resemble (fig. #4). Clamp the end in your vice heat and adjust the finial until it looks right. Bend the stem straight down to make an attachment.

At this point I like to heat the whole thing up to a light forging temperature and adjust its shape on the anvil. You can get a more consistent shape that way.

Now make another one that wraps the opposite way. Have fun.

Dave Mudge
From "The Upset"
Newsletter of The Mississippi Forge Council
Tong Clips
Idea demonstrated by: Tom Clark
Procedure and Drawings by: Ray Robinson

Using approximately 4" of stock, heat and bend over the edge of the anvil.

Cut each end to the desired length. With loop flat on the anvil, forge a taper and round over the end on the tip of the horn to fit the reins of the tongs.

Close into tight loop (no hole in the middle) using the edge of the anvil.

Forge weld the loop and square up the remaining stock.

Optional is achieved by the same process except place loop vertically when forging the tapers and rounding the ends.

Try these clips - they are quick & great to use without discomfort to your hand.

Editor's note: About 1/2 of ABANA's membership does not belong to a chapter. Of those who do, most do not get the many other chapter newsletters. This section will select the best tip available from a chapter newsletter and share it with all ABANA members.
Commercial

**KA-75 Hammers:** New KA-75 air powered striking hammers. 75lb ram, 12" stroke, 2 1/2" X 5" Dies. $3850 Video available, contact: Bob Bergman 608-527-2494

**Kayne & Son Custom Hardware:** Air hammer: "Old Blue" Air Hammer. 75lb ram, rugged frame, large tool steel dies - $3395.00 Also... hammers, tongs, fullers, flatters, cutters, chisels, punches, swages & blocks, cones, firepots, hand vises, pliers, coal, fluxes and more. The finest 'smithing tools in the world. Tool list available on request. We ship and accept Visa & Mastercard. Steve Kayne, 100 Daniel Ridge Road, Candler, NC 28715. (704) 667-8868 or 665-1988 or fax 704-665-8303. Email: kaynehdwe@ioa.com

**Heavy duty frying pan blanks:** steel, approximately 9" in diameter with 2" sides. 12 gauge thickness. Available with or without two 3/16" diameter holes for handles. $7.75 each; $7.00 for 5 to 9; $6.00 for 10 or more. Shipping $2.50 plus $.50 for each pan. Contact: Bob Tuffee, 3855 Aspen Hills drive, Bettendorf, IA 52722.

**Fold-Forming:** Papers and video now available. Fold-forming was recently demonstrated at the 1996 ABANA Conference. This new process, invented by Charles Lewton-Brain, is a series of techniques which allow rapid development of three dimensional surfaces in thick sheet using simple tools. Introduction to Fold-forming $15.50, Fold-forming Introduction video $23.50. Add $3.00 for shipping. Brian Press Box 1624, Ste M, Calgary, Alberta, T2P 2L7, Canada 403-263-3955 Email brainet@cadvision.com

---

For Sale

**25lb Little Giant:** 25lb Little Giant trip hammer, completely machined and rebuilt. New dies, arms spring, clutch yoke and blocks, belt and 2hp motor. "Better than new". $2700.00 Contact Roy Norris, 806-794-8441 (leave message) or 806-781-8441 (mobile).

**Power Hammers and More!** 100lb Drop Hammer, "good condition" - $900.00/OBO. 150lb Bradley Upright, "excellent condition" - $3500.00/OBO. 100lb Little Giant, "excellent condition", with many extras. Call for price. Also; portable coal forge, vises, hydraulic cylinders. Pictures available. Contact Robert Oberlander 814-833-7896. 7180 Millfair Road, McKean, PA 16426.

**Industrial Hacksaw:** Industrial duty reciprocating hack saw. Approximately 40 years old, manufactured by Racine Tool and Machine Co. Cast iron frame. Throat opening 8"W x 7"H. Best offer. Contact David Dannenberg 215-844-6727 fax 215-844-0867.

Help Wanted

**Position Available:** Junker Studio is looking for a self-motivated person to run the historic Grafton blacksmith shop in Grafton, Vermont for the 1998 season (June through October). Write to: Junker Studio, RR1 Box 306P, Chester, VT 05143

**Position Available:** Fast growing blacksmith shop needs journeyman level or advanced apprentice to do forging. We specialize in high grade ornamental work. San Francisco location. Fax resume to 415-285-3365

**Position Available:** Blacksmith shop seeking foreman/fabricator experienced in layout, fabrication, forging and managing people. Salary and profit sharing available. Minimum 5 years experience. San Francisco location. Fax resume to 415-285-3365

---

The ABANA Traveling Teaching Station is now available. It contains 10 forges, 5 anvils several post vices as well as fire tending and hand tools. Any ABANA Chapter may schedule this trailer for their Chapter hammer-in or workshop. For details contact: Lou Mueller, 314-225-3252

THE HAMMERS’ BLOW FALL 1997
Conferences & Events

"Hammerin' on the Hooch", Columbus, Georgia
March 20-22, 1998

"Blacksmith Week in Georgia" proclaimed by Governor Zell Miller in celebration of the 25th anniversary of the founding of ABANA at Westville Village, site of Alex Bealer's shop, on March 17, 1973. Proceeds from this event will benefit the preservation of the work of blacksmith Otto Schmirler at The National Ornamental Metal Museum.

Demonstrators include Jerry Darnell, George Dixon, Doug Hendrickson and Jim Wallace. Registration of $50.00 includes the Saturday night banquet.

Make checks payable to "Hooch" and mail to:
"Hooch" c/o David Cornett
PO Box 1173
Pine Mountain, GA 31822
706-663-4896

Historic Cold Spring Village presents "Tools Through Time"
June 27-28, 1998
This event will feature 19th century handcrafts. The weekend will include experts in blacksmithing and other crafts. Contact Clare Juechter at Historic Cold Spring Village, 609-898-2300 ext. 12 for general information.

The River Bluff Forge Council
Forging on the River V
28-29 March 1998
National Ornamental Metal Museum, Memphis TN. Demonstrators are Alice James of Seattle, Washington and Toby Hickman of Petaluma, California and Paul Hubler of Minneapolis, Minnesota.
Contact Doug Lear: 3037 East Glengarry Rd.
Memphis, TN 38128 901-358-1192
cjfdlearn@pop.mindspring.com

Northeast Blacksmiths Hammer-In
May 1st, 2nd, and 3rd
Ashokan Campus, NY
Demonstrator- Micheal Sarri
Contact Carl Davison
112 North Putt Corners Rd.
New Paltz, NY 12561
CarlRD@worldnet.att.net

Wear Your Safety Glasses

To join The Artist-Blacksmith's Association of North America, and get The Anvil's Ring and The Hammers' Blow, call 314-390-2133.