New Jersey Blacksmiths Association
"EAGLE"

N.J.B.A. Newsletter

Volume 5, issue Number 3

Its Fall already!

I don't know where the summer went. A little of this, a little of that, a few days away here and there, throw in a vacation or two, a little demonstrating for some, the Smithing Magician workshop for others and the summer was gone! We don't have a lot of events finalized so we all need to get out there and help fill in the calendar. I also want to take the time to thank all the members who have contributed articles, reports on events and other things to the newsletter, It's our newsletter so lets keep up the good work and keep the members we don't see often, in touch with what's going on! We have a new feature for Beginners called Foundations reprinted from the Anvils Ring. I would like to thank; Marshall Bienstock, Bruce Freeman, Josh Kavett, Doug Learn, David Macauley, Jeff Morelli and Tim Suter for their contributions to this newsletter.

Upcoming events for 2000 and 2001

Remember most of our meets have a "Iron in the Hat" drawing, be sure to bring something. If your not sure what "Iron in the Hat" is see the article by Doug Learn on page 3.

December 17; The holiday party will be held at 2 pm at Marshalls home. See details this page.

January 13; Meet at **Alex Parubchenko's** shop in Trenton, NJ. Directions on page 2.

February; To be announced

March 24: The annual Joint meeting at Furnace Town in Snow Hill, Maryland. Lou Meuller is scheduled to be the demonstrator.

June; Possible meet at Cold Spring Village in Cape May, NJ. To be announced.

July; Monmouth County Fair. Details to be announced.

August; Joint meet with NJBA/ PABA. Details to be announced. Also we possibly will be involved with the NJ State Fair (Sussex County Fair)

November NJBA Field Trip: Campbell Foundry, Harrison, NJ

NJBA member John **Chobrda** (609-443-3106, jchob@earthlink.net) is now taking sign-ups for a tour of the "Campbell Foundry" in Harrison, NJ. The date will be some **WEEKDAY** in November, because the point of the trip is to see a foundry in operation, pouring molten iron. This trip will be limited to the first 20 people to sign up. (If you have limitations what day you can attend, let John know when you contact him.) You will be notified of the final details by phone (or email, if you prefer).

December Holiday Party

Marshall Bienstock and his wife Jan have once again graciously offered to host the **December Holiday Party on December 17th.** Marshall and Jan will be hosting the **party and pot-luck** in their home located at **301 Casino Drive, Howell, N.J.** The party will be starting at **2 pm** (ph# 732-938-6577). Please bring a covered dish (enough for 6-8 servings), drinks and some of your work to show off. This meeting we will skip the "Iron in the Hat"

Directions; Take any N-S route to Rte. I-195 or Rt. 33 and from there to Rt. 9. Go North from I-195 or South from Rt. 33 to Casino Dr.

January Meet at

Alex Parubchenko's Shop In Trenton

The meet will be on **Saturday, January 13** starting at **10 am**. The topics for the meet have not yet been confirmed as of this time. Alex usually has something interesting going on in his shop, "The Blacksmith of Trenton." His #2 Nazel power hammer will probably be used for some of the demonstration. Alex also has anvils, coal and leg vises for sale. Bring something for the "Iron in the Hat"

Directions; To Alex Parubchenko's shop in Trenton, NJ

Directions: You can get to 334 N. Olden Ave., Trenton, from US Route 1 (Trenton Freeway) or from Interstate Route 295 or via Arena Drive from Interstate Route 195. From US 1, go SE about 1/2 mile to the shop. From I 295, go NW about 2 miles to the shop. From I 295 go NW about 2 miles, where Arena joins Olden, and then about 2 miles NW on Olden to the shop. The shop is at 334 N. Olden Ave. There is a vacant lot next door where you can park. (Phone: 609-396-9583)

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Iron in the Hat!

What is it, why and how does it work?
A commentary by **Doug Learn**

Iron in the Hat (IITH) is a standard feature of NJBA meetings, indeed most ABANA chapter meetings and the biennial ABANA meetings. However, members may not be clear on what IITH is and what IITH does for the chapters or ABANA. Simply put, IITH is a raffle where members donate items for the purpose of raising money for the chapter. For NJBA, IITH funds many of the services for the membership, including the newsletter, food for meetings, and underwriting the cost of supplies for workshops and meetings, keeping membership costs down. For ABANA, IITH funds the scholarship program. Other chapters designate IITH proceeds for these and other purposes.

The mechanics of IITH is simple. Members donate items to IITH at each meeting. The items can be forged items, shirts, materials, food, or almost anything with some value. Each donated item is marked with a number and placed on a table with a note identifying the item and the donor. A cup with the same number is placed with the item. IITH tickets are usually sold during lunch and the drawing is held right after lunch. One or more members sell two part, numbered raffle tickets. Price is $1 per ticket, 6 for $5, 13 for $10 or 28 for $20. The purchaser places one part of the ticket (the part with a space for writing name and address) in the cup of any item that they are interested in. The other part (the part that says Keep this Ticket) is retained until the drawing. The member can place as many tickets in a cup as they wish, increasing their chances to win the item.

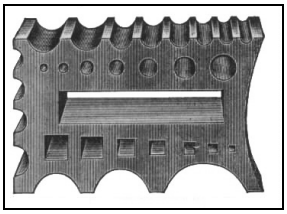
For the drawing, the tickets for each item are placed in a hat or other container, and a single winning ticket is drawn. The drawing can be done by the person who donated the item, a child, or anyone else. The winning number (or person's name or initials) is read out loud and they claim their prize. If no one claims an item, another ticket is drawn. If more than one of an item is donated (Tim Suter's steel barrels being an example), multiple tickets are drawn for the items.

IITH, while simple to plan and to hold, is a very important part of the financial success of NJBA and many other chapters. So when someone calls out "Buy your Iron in the Hat tickets" remember where the proceeds go. And bring at least one item for IITH to each meeting.

A commentary on the subject by **Bruce Freeman**

To the best of my understanding, IITH "raffles" are perfectly legal and consistent with the rules governing fund-raising by nonprofit organizations in NJ. This is because they raise money only from the members of the organization. If, instead, we attempted to sell IITH tickets to any Joe on the street, we would probably be running afoul of the rules of what a nonprofit can do, and would probably need some lengthy permits to do it at all, legally. Hence, for NJBA to run IITH is NOT compromising our standing with the law.

IITH's have been well received by NJBA members, providing a much-needed source of funds that has allowed us to provide lunch at meeting remote from food concessions, as well as to finance other activities of the group. We encourage greater participation still so that NJBA can afford greater benefits (newsletters, workshops, demonstrators...) for its membership.



January and February Events Outside of N.J.

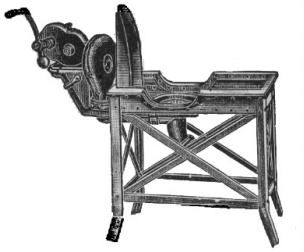
January; The Gichner Hammer-In will be **Jan 6 & 7** at the Hutchison Brothers Farm in Cordova, MD
February 10; PABA workshop at Ernest Frederick's shop in Kutztown, PA - Paul Huf (1-717-768-0197) southpaw@epix.net
February 24; Dan Boone¹s 5th annual Hammerfest

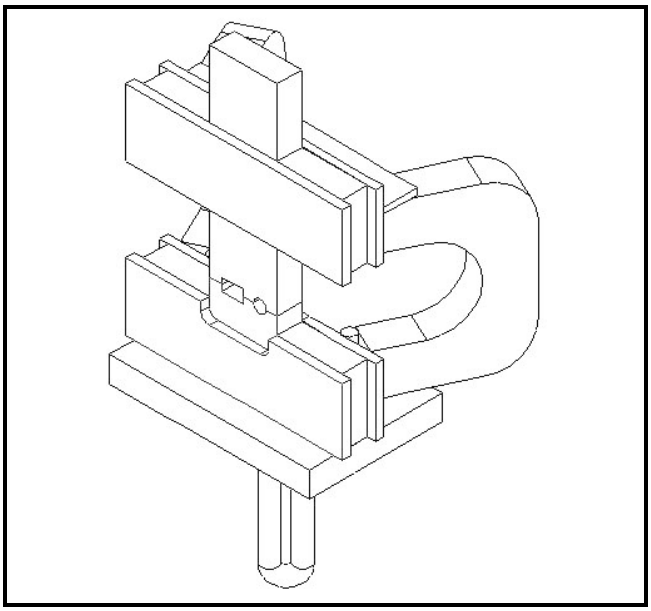
August Smithing Magician Workshop

Report by **Marshall Bienstock**

On Sunday, August 27 approximately 20 NJBA members gathered at the shop of Marshall Bienstock with the goal of completing twenty five blacksmith tools variously known as the "blacksmiths helper", "Smithing Magician", or perhaps most descriptively called a "guillotine tool". This tool consists of a fabricated steel frame that holds two steel 3/4" by 2" flat stock of suitable material, one directly over the other, the bottom one being stationary in use and the top one sliding in its railing upwards so that the workpiece can be inserted between the two dies. The top die, which projects above the rails, is then struck with a hammer, forging into the workpiece whatever useful shape has been imparted to the dies. This tool then allows the smith to do work alone that formerly required an assistant to do . Just about any kind of blacksmithing operation can be done with this tool: fullering, swageing, chiseling, veining, punching or whatever your imagination can come up with.

The day began a bit before 9 am when people started to arrive. The biggest challenge is always to make the most effective use of the available manpower, and after a bit of a "shakey" start most people were soon busy with there respective tasks. Holes needed to be drilled and deburred, pieces of flat steel had to be notched with a torch and then ground smooth, pieces needed to be set up in jigs for welding and then removed for the next steps. One sticking point [literally] was removing the jig that lined up the completed railing assembly. But our resourceful crew improvised methods [including a lot of sweat!]





to remove them.

By the time we broke for lunch, we were well over the "hump" in completing the project. After feasting on five or six pizza pies [no one ever did find any with the "works" on them] we had a nice iron in the hat and went back to work to finish our projects. One of the last details was for each participant who purchased a "helper" to decide what size hardie stem to attach, or not put any hardie on at all, which many people chose. After "quality control" adjustments and a final tally of completed pieces was taken we managed to complete 23 "helpers", which gave one or two extra for future sales.

Special thanks to the following people: Dave Macauley cutting and deburring on Saturday, Greg Phillips for a great deburring job with that neat tool he brought, Doug Learn for mastering and directing the flow of materials from station to station and making sure the jigs were set up properly, Larry Brown, John Chobrda and Anton Holstrom for sweating over a lot of welding, and especially to Bruce Freeman for creative design brainstorming, prototyping and sawing pieces, and especially to Josh Kavett for doing the MIG welding [in full leather welding gear] and cutting hundreds of pieces prior to the workshop.

September meet at Tim Millers' Shop in Bayport Long Island

Report by L Brown

The weather was nice and cool as about a dozen members gathered at Tims' shop. Mike Schermerhorn of Pure Iron was the featured person for the day. Mike started by giving the history of Pure Iron as having the need for a better material than commercially available steel, new wrought iron from England with its high cost or reused wrought iron from scrap with its varying qualities.

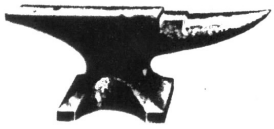
Mike explained that this has been a six year effort to find a manufacturer that could supply material to these specifications and a way to distribute it. He has found a manufacturer in Europe that supplied pure iron for electrical transformer plates. By getting them to cast a different size ingot and then having it rolled to large sizes there, he then splits the order with a group in Belgium and ships the rest here. Then it is shipped to mills here that will roll small quantities and then stocked at Art and Metal in Massachusetts.

Tim Miller pointed a piece of ¾ by 1" wrought iron which split at the tip, he then pointed the piece of 1" pure iron with what appeared less work and the upset it back into itself with a hammer. I pointed a 1" steel bar most of the way in one heat, then pointed a pure iron bar and up set it back to the original shape in one heat (Moves nice, makes you look good). Myself with Tim striking shouldered down a rough tenon, cut it off and then punched a 5/8 hole through the 1" bar in one heat.

Marshall made a spoon out of 4" of ¼ by 1" bar, he usually uses wrought for this and was impressed with the quality of the iron. Throughout the rest of the day various members tried the iron and it met with very good reviews. John Vecchio gave a talk about a fire brick forge he made to heat long bars for straightening. Jon Folk gave a talk and demo on the handles for Norfolk latches he made for a house recently. The day was finished by Tim giving a talk and a demo on some of the tooling he has made for his power hammer and other jigs in the shop.

Coal

Coal is now available through Alex Parubchenko at his shop in Trenton. Please contact Alex or John Chobrda at the shop, Phone # (609) 396-9583.



Unclassified Ads

For sale;

Champion 400 Blower, runs great, $100
Contact Jeff Morelli.
234 Rahilly Road, Wrightstown, NJ 08562
609-723-5990

PABA Meet, Saturday, Oct 7, 2000

By Josh Kavett

Bruce Freeman, Bill Ker, and I set out early (6:05 am) from my place to the PABA meet. I turned out to be a perfect fall day for a blacksmithing event. We made the drive in just over two hours, which is no further than we travel to some NJBA events.

The PABA event was held at Eric Greene's house. He had a great lawn to set up the two forge sites. There were half a dozen tailgaters selling, however the one that attracted the most interest was Mike Schermerhorn selling the pure iron. He had a large selection in the back of his pickup. I personally had never used it, but had seen it forged at Flagstaff. I proceeded to buy one pile, then later, another bunch. I did not find much else of interest from the other tailgaters, although they had some neat stuff.

The event started with world renown bladesmith Rob Hudson forging out a blade from 0-1 steel. He gave a most impressive demonstration. (He said he had a seven year waiting list for his knives.) His morning demo had him forge the rough blade shape, then anneal in vermiculite during lunch. At about 1:30, he started to do the grinding and shaping with files and a belt sander. He got the blade mostly finished. He explained that typically he forges out a blade in about two hours, then after annealing, spends two to three days grinding and polishing the blade. The heat treating is done over three days, then further polishing and work on the handle. The samples of his work shown were impeccable. He hardened the blade and did a rough forge tempering. The blade was then auctioned off at the end of the meet. We left before it got sold.

At about 10:00 am, Peter Ross, Master of the Williamsburg Shop, began his demo. He demonstrated forming various elements of a wall bracket. His hammer control was amazing. Not a wasted hit. Also impressive was that he was using pure iron for the first time, and he never missed a beat. If anything, the pure iron made what he did seem even more amazing.

After lunch, he demonstrated forging a pair of compasses with a three interlocking two leaves on the joint. Again, the master made it seem easy. (He typically can do a complete pair, including filing in an hour.) He made all of the parts, but did not file and finish them. They were sold along with his morning components after we had left.

It was a most enjoyable day. The only problem was it was too much of a good thing with two great demonstrators. Either one would have been more than enough for this meet.

I also left all of Eric's Fisher anvils there. Couldn't figure out a way to borrow a few. They had a great "Iron in the Hat" with almost 80 items donated. Also had a silent auction of about a dozen pieces. PABA is to be congratulated on this fine meet. The weather provided a perfect day. A good time was had by all.

Pure Iron Impressions

By Josh Kavett

I had seen this material worked and praised at Flagstaff, and had heard on the Forge and the Junkyard about how great this material is, but I hadn't tried it myself. I bought about $125 worth on pure hearsay. I can report that all the praise is correct. I have forged several items using my school Forge (only an orange heat), and I only have praise for the material. It draws out easily, and is malleable such that twisting small (1/8") square doesn't shear. I hammered a piece of plate into a ladle and put on an iron handle. If my school program continues, I will be ordering lots of this material for the students to use. It definitely spoils one over using mild steel. I will continue to use this material at my home forge for any items that require material with these characteristics. A couple of weeks ago, there was a thread on the Forge about using this material and pricing of items. I am definitely sold on this material for highly forged items, and am able to do forging that I couldn't do with mild steel, and all forging with less effort and frustration.

Mike Schermerhorn said that is the near future he would get heavier stock than he has now. The biggest section now available is 1 1/2 " square. He said he is getting it up to 4" square. It will be interesting to see what smiths around the country do with this material.

Longstreets' Annual Country Fair

Article contributed by **Jeff Morelli**

One of the jewels of the Monmouth County Park System is Longstreet Farm, Located in Holmdel, NJ. It is a living history farm in the setting of around 1890 when the labor was done without the help of electricity or the internal combustion engine. Man and animal work together as they have done previously for centuries. Workers are dresses in period costume and educate the public about life on the farm before the industrial revolution changed the pace and methods of work for the common man.

NJBA members were invited to man the forge at Longstreets' Annual Country Fair on October 7th. This was a great 19th century event for the whole family which included potato sack races, pie eating contests, hayrides, quilting, corn shelling cider making, blacksmiths, tinsmiths, branding, a magic show and much more. Norman Nelson and I hammered away inside the farms own blacksmith shop.

Norm has been working at Longstreet for a number of years. His life experience and knowledge of farming, smithing, machinery, etc. makes him a true resource of rural American history and know-how. Always eager to share what he's learned Norm is an asset to Longstreet Farm and to our club.

Through out the day I forged flint strikers from files, letting folks play with them and take some home. Norm started off making hooks and tools, but the continuous "Oh, look, he's making horseshoes!" eventually convinced him to give in and forge a few. Phil Andrus had dozens lined up at the rivet forge as he branded wooden shingles and gave them out. We kept our forges going for over seven hours and had the clinkers to prove it!

Due to excellent weather and advertising, thousands came through. Hours were 10 am to 5 pm. At its peak Park Officials estimated an amazing one thousand people on the farm at one time. We burned 75% of our work up in the fire while trying to answer the hundreds of questions.

I encourage more NJBA members to help out in 2001, even if just for an hour or two. Bring some of your work and your business cards if you have them. It's also a great event to try to recruit new members.

October/November Meet at Peters Valley

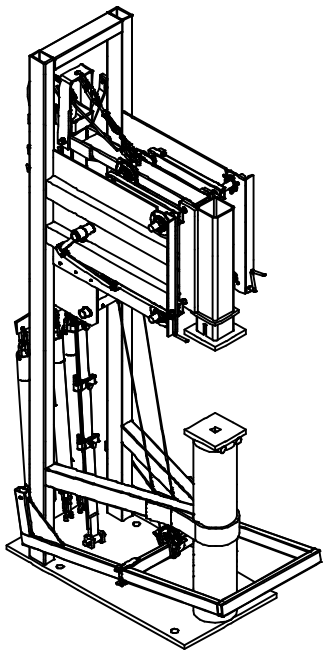
Report by **Doug Learn**

A small but committed group of members met at Peters Valley Craft Center on 28 October to lend a hand to the Center and John Rias. After the requisite introductions, coffee and donuts, the group broke up and set to the tasks that John had prepared. Over the course of the day four swinging guillotine fullers were forged and fabricated from mild and spring steel and a selection of fullers, drifts, and punches forged from L6 and W1 tool steel for general use in the shop.

After a fast lunch, Iron in the Hat was held, $130 was separated from the attendees on the chance that the large selection of items would go home with the attendees, including Tim Suter's ever-present barrels and Bruce Freeman's Super Quench kit, and Greg donated the mystery box that may prove to become an IITH tradition. Two t-shirts were sold. And Bruce unveiled the final draft of the Grasshopper treadle hammer plans.

Overall, a good day of blacksmithing fellowship and gave some much-needed assistance to Peters Valley. Thanks to all that attended and hope to see more of you next year, as this will become a yearly event. The Center is a gem of a venue for smithing instruction very close to the membership, and John is an asset to the Center and NJBA, as he helped in obtaining three Peters Valley scholarships for NJBA members this year. Look for more cooperation between NJBA and Peters Valley in the coming years.

Plans for the Grasshopper Treadle Hammer Now Available



Bruce Freeman is please to announce the "beta" release of plans for the Grasshopper Treadle Hammer. Readers of this newsletter will recall previous articles describing this treadle hammer, which uses only pivots to achieve a vertical motion of the ram. Bruce and Marshall Bienstock completed a working prototype of the treadle hammer earlier this year. Come out to any Monday evening open forge at Marshall Bienstock's shop to see it and try it out.

The hammer of the new plans is functionally identical to the prototype, but has some computer-aided design changes to make it simpler and easier to build. The plans themselves consist of over 100 engineering drawings of the parts and assemblies, plus parts and stock lists and instructions, plus a multi-color rendering of the finished hammer, all in a loose-leaf binder. "Beta" plans are available from Bruce Freeman for $25 postpaid. Order by sending your check for $25 made out to "Bruce Freeman" to 222 Laurel Place, Neptune, NJ 07753. Please allow 6 weeks for delivery.

Bruce also welcomes participants in a feedback-reimbursement program. Contact Bruce (freeman@monmouth.com, or at the above address) if you would be interested in providing corrections, photographs, and other feedback to help improve the plans and the design of the Grasshopper Treadle Hammer. A cash incentive of up to $20 would be available, at Bruce's discretion, to persons constructing a hammer and providing substantial feedback. Participation is limited, both in the number of participants and the time in which reimbursement will be available.

The Grasshopper Treadle Hammer is a vertical-motion hammer that uses no sliding or rolling parts to achieve the vertical motion, only pivots. The vertical motion provides accurate striking of the work or tool, regardless of its height or thickness. This is in contrast to the more traditional swinging motion, which strikes a different point in the horizontal plane, depending upon the height of the tool or work. The principal advantage of using only pivot joints is to enable a longer stroke than can be easily achieved by other means, since designs employing rollers or sliders must keep those devices "engaged" with the ram throughout its stroke.

In addition, the Grasshopper Treadle Hammer has been designed with both utility and ease of use in mind. The anvil is free of obstructions in all directions for at least 15 inches, and more in most directions. The stroke of the hammer is 34", and any portion of this stroke may be used effectively because the height of the treadle can be adjusted to accommodate for different "work heights." Furthermore, through most of the hammer stroke there is no "return force" exerted upward against the foot; only at the bottom of the stroke does a sudden increase in return force provide a "kick-back" to bring the hammer up for the next stroke. This kick-back is adjustable to accommodate different work heights. Both the treadle height and the kickback adjustments are made by means of cranks mounted at the front of the hammer, where the user normally stands, so the user is not exposed to undue hazard (as by reaching under the hammer mechanism).

2001 Blacksmith Calendars

Gill Fahrenwald has donated 2—**2001 Blacksmith calendars** to our group. We probably will offer them in the next IITH or two (Iron in the Hat). This is the first time I've seen one of these and I'm impressed. These calendars are very nicely done with clean pictures of Blacksmith shops and events from days gone by. The calendar part has good size boxes to write information concerning your life in. Some important things are prelisted, such as Valentines day and Mothers day (ever forget one of these?) plus all the regular holidays. I'll be buying my tickets for the IITH and if I can't win one I'll order one.
To order one write ;
Gill Fahrenwald,
PO Box 2323, Olympia, WA 98507
or Email him at <anvilman@orcalink.com>

Advertise with us!

Rates for photocopy ready advertisements

Photocopy ready advertisements must not contain photographs, solid backgrounds, etc. and NJBA cannot be responsible if submitted copy does not reproduce well when photocopied. A 25% discount is given for a year paid in full ad. There are 4 issues a year.
Send all copy to Larry Brown (see directors list)

Size	Measurements (W x H, less margins)	Price
Full page	7" x9"	$50
Half page, Vertical	3.4" x9"	$30
Half page, Horizontal	7" x 4.4"	$30
Quarter page	3.4" x4.4"	$20
Business card	3.3" x 2" overall	$10
Business card (NJBA members)	"	$ 5

Rates for unclassified advertisements

Unclassified advertisements must be legible, preferably typed text or sent by e-mail

Type and size of ad	Price
12 lines (about 100 words)	$15
6 lines (about 50 words)	$10
NJBA members, 12 lines	$ 5
NJBA members, 6 lines	Free

Business Members
We would like to thank those who joined with our new Business Membership category
Please show them our support

Ginty's Welding Service, Inc
2 Lee Mack Ave.,Danbury, Conn, 06810

Timothy Miller, Artist Blacksmith,
Bayport, Long Island, NY (631)419-1185

Marshall Bienstock
663 Casino Dr., Howell, NJ 07731
(732) 938– 6577, (732) 780-0871

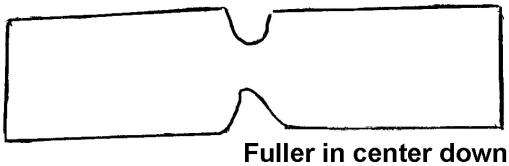
Attention! Demonstrators Needed!

NJBA receives requests at various times for demonstrators for events. NJBA has decided to form a list of people who can be contacted. If you are interested in doing demonstrations please contact; **David Macauley**,
4 Patricia Ct, Howell, NJ 07731
(732)206-1568 <drmacauley@att.com>

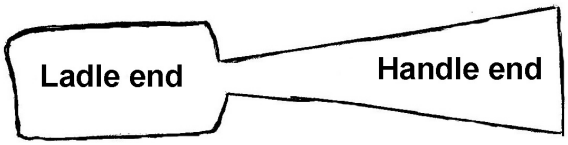
18th Century "Tasting Spoon"

By Marshall Beinstock

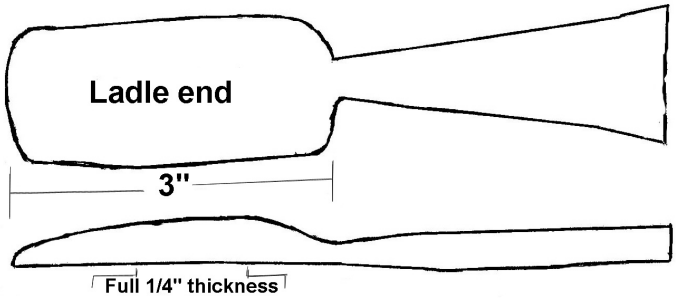
Start with 1" x 1/4" flat by 4"



Fuller in center down to sbout 1/2 original width
maintaining 1/4" thickness



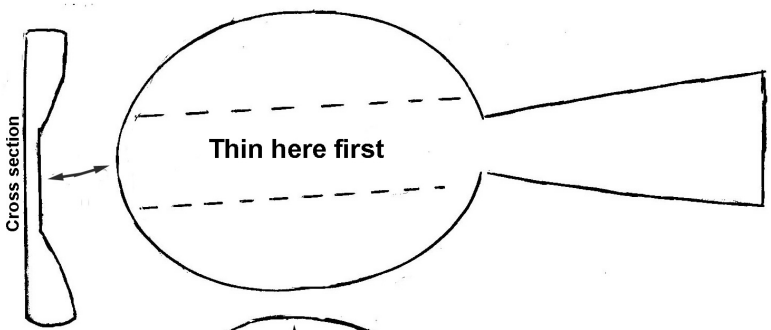
Draw out handle end as shown



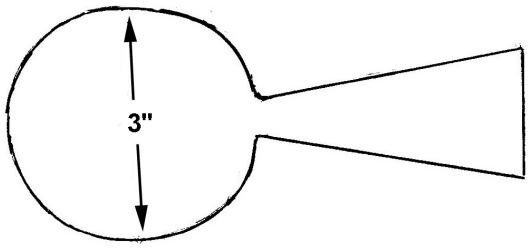
With a cross pien
hammer, taper and stretch
ladle end as shown,
maintaining the 1" width

thinner here

Slightly thicker
here than tip

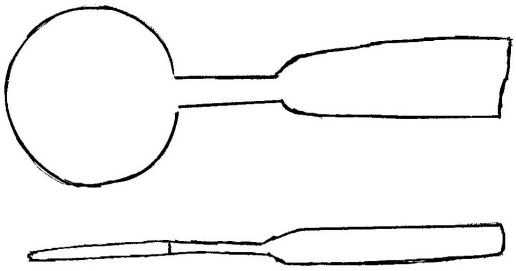


With the cross pien, start
in center, fuller to not quite
the finished thickness



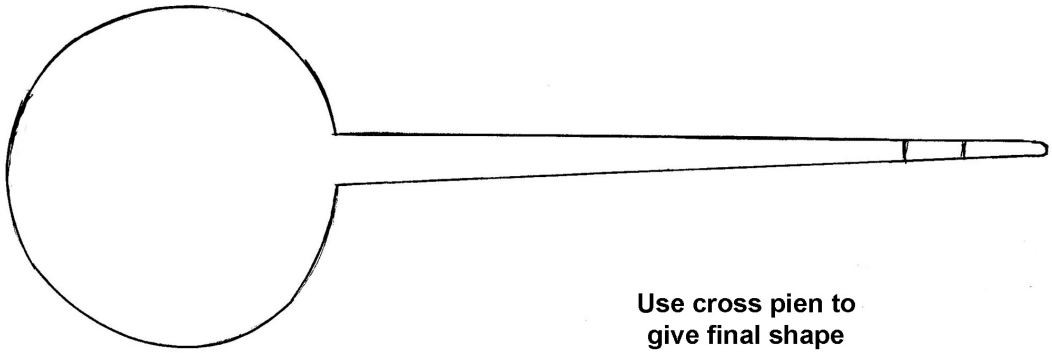
Then, keeping thick edges down in
fire, draw out two edges as shown,
use face of hammer to smooth out
fuller marks

18th Century "Tasting Spoon" Continued



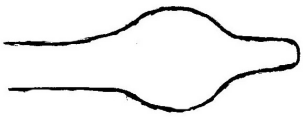
Next, start drawing out handle as shown, to a long straight taper in both planes.

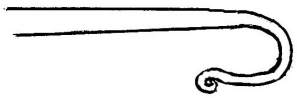
Leave enough mass on end for this detail



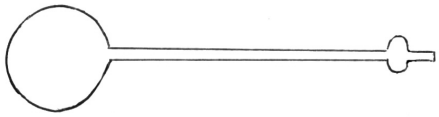
Use cross pien to give final shape

File edges to 3" round





Sink ladle at a red heat into a half round spoon form or a wooden block.

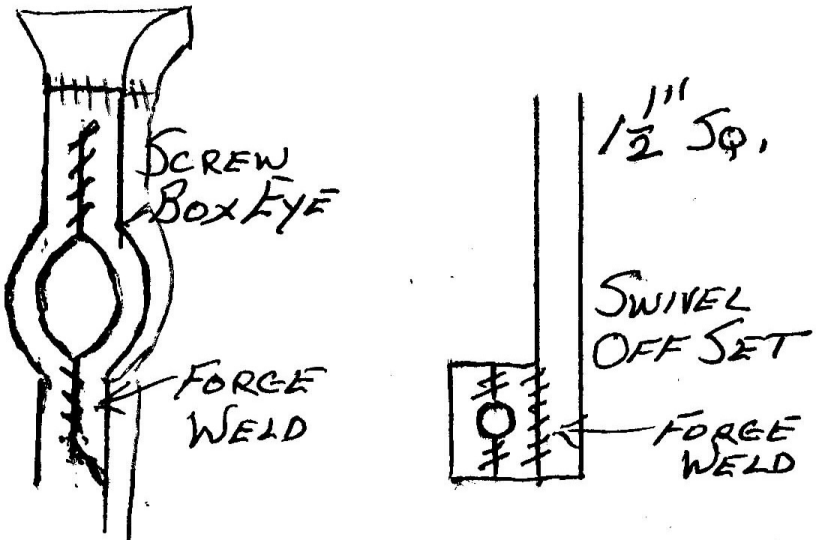


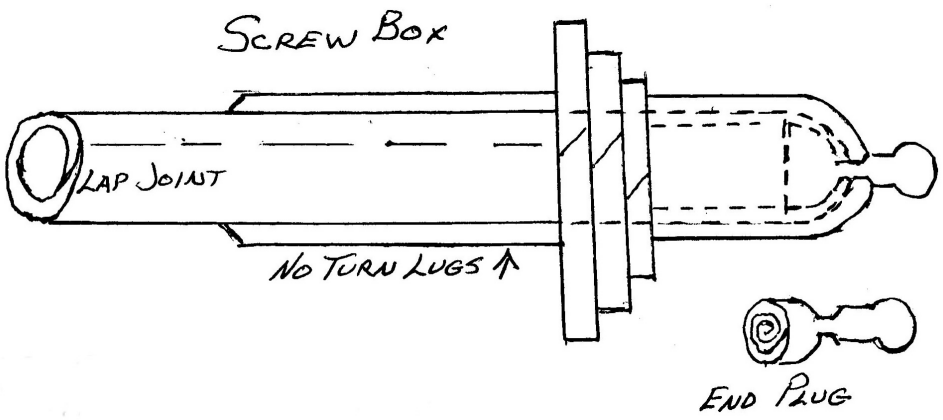
An Adventure in Leg Vise Rebuilding

Article written and contributed by Tim Suter

I happened upon a very old leg vise at a garage sale, that attracted my curiosity. Naturally it was ridiculously high priced, which I questioned and received the standard qualification that "it is old". (So am I but I'm not worth more.) Tactfully I explained that I doubted that it would bring that price as I had seen others in much better condition at venues where there were interested buyers who would never pay that much. Looking it over, it had no spring, the handle was a piece of 3/4 bar, bent over at each end and the screw moved erratically. Leaving. I decided that I would like to have it for the challenge, if the price was right. I kept my eyes on it for the next three weeks and it hadn't moved. I felt the time was ripe so, approaching the seller with tempting green in hand, I boldly asked him if he was ready to part with it for a realistic price. He asked what that would be, I said $25, he said $30. Quick as a hootie owl snatching up a June bug I slapped the green in his hand and the good, stout, young fellow even lifted it into the pick—em—up truck for the congenial old gentleman.

Getting it home I promptly tore it down for clean up and closer inspection. This was indeed an old and very interesting vise. It appears to have been made by hand, hammer and anvil, without the use of a mechanical hammer. The screw box eyes were formed by the leg stock (1 1/2" X 1 1/2") being forged out to 5/8 X 3 X 16 inches, folded over at about eight inches, the eye formed around a mandrill and forge welded back into itself, then forged to octagon to round and with the usual upset at the bottom. The jaws themselves are a separate forging, forge welded onto the top of the legs. At the bottom of the movable leg is an offset for the pivot bolt hole. It appears to have been made with two pieces of the 1 1/2" square stock 3 1/2 inches long stacked at the inside bottom of the leg and forge welded together. A possible explanation for the 1 1/2" square stock is that it was a common bar stock size produced by wrought iron finery forges before various standard rolled bar stock shapes became readily available late in the nineteenth century. It was not uncommon for iron bars such as this to be transported to market from remote Pennsylvania mountain forges by being bent to conform and carried over the backs of pack horses. The pivot bolt is 7/8 but tapered for a solid fit into the hinge side plate, the nut was blacksmith made.



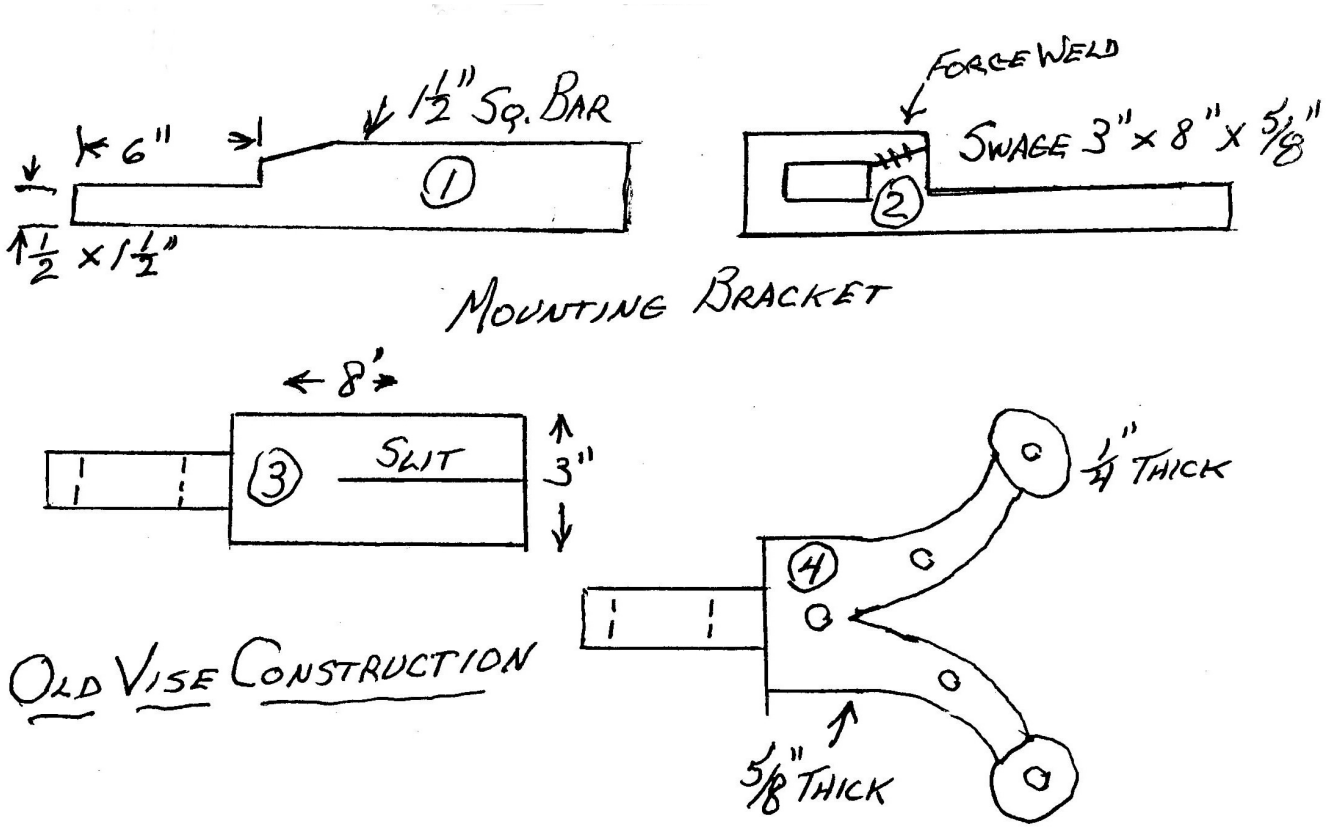


The screw box itself was made up of nine parts. The barrel was a rolled tube 1 1/2" ID X 2" OD with a lap seam, the bell at the back was made the same with a 2" ID. These two pieces were then forge welded together at the end and forged over into a recess in the end plug. The plug itself appeared to have been made with a roll up of thin plate and simultaneously welded as it was forged to shape. The three thrust rings were forged of 5/8" square bar with a lap joint. This joint was not welded. I think the purpose was to have a tight fit but one that could be forced onto the barrel. This was all brazed together as a unit along with the female screw thread inside, and no turn lugs.

I put the screw box assembly in my gas forge and brought it up to bright orange to melt the brass, expecting to easily extract the worn and damaged screw thread. Not so, the thread was distorted and tangled and refused to come out easily, so I bumped it on the pavement several times which promptly distorted the tube to a point of no return. Now I had to take it apart to salvage the thrust rings, end plug and no turn lugs. This was more difficult than you might think. It seems to me that things that have been together a long time like it that way.

To make the screw helix, I formed that with 3/16" key stock, the dimensions came out compatible with the screw thread depth and 1 1/2" ID pipe for the barrel. I wrapped the key stock into the screw threads, carefully correcting a twist that wanted to develop as I progressed. This was done cold so the helix could spring open a bit to have a more comfortable clearance with the screw. Six foot of key stock yielded about eight inches of helix. Next I made a sleeve of .040" brass that fit snugly around the screw helix. (When soldering or brazing remember mothers admonition "cleanliness is next to Godliness") I thoroughly cleaned the inside of the pipe and the brass sleeve, fluxed them with a paste flux and put the thread helix into the sleeve.

I wanted to put the screw into the helix in order to assure a proper thread alignment. The problem would be, how to keep the brass from fluxing onto the screw. This was solved by coating the screw liberally with high temp 1500° spray paint. I cured the paint according to the instructions and ran the screw into the helix. Then the brass sleeve, helix and screw were coaxed into the pipe as a unit, it was a very snug fit. The four foot length of pipe was not cut as I wanted a good handle on a piece that would, otherwise, be awkward to handle with tongs. The eight inch depth of my forge was just right for the heat zone I needed, with the screw excess through the back door. The piece was put in the forge, the forge lit and brought up to heat along with the piece. As it came up to heat I could observe,



at the end, the flux get fluid then the brass, next the helix come to color and finally the brass flow to the helix. This happened at a bright orange approaching yellow. I rotated the piece slowly arid soaked it at this temperature for several minutes before turning off the forge. (I wouldn't hesitate to try this in a coal forge at another time.) When it returned to a black heat, I took it from the forge and put it in my vise.

Now for the moment of truth, would the screw be free? I tried to turn it with a bar, no movement, don't panic! I bumped the bar with a hammer, again, again, a barely perceptible movement, again, more movement, a sigh of relief. Continued teasing and the screw was out. After fully cooling the screw was teased in and out several times and as the flux residue was broken up the action became increasingly smoother. The pipe was cut to length and the end forged over and into the groove of the end plug, using a torch and localized heat. A short piece of 2" ID tail pipe was forced over the 1 1/2" pipe to form the bell, forged over and gas welded to the 1 1/2" then planished to a nice transition into the contour of the end plug. The thrust rings and no turn lugs were brazed individually to the assembly with the screw back in place to assure preserving thread alignment.

I used a 3/4 X eighteen inch piece of 5160 for the new screw handle. A band of 1/4" X 1/2" was arc welded with a generous fillet at both sides then forged into a suitable ball at each end. The purest could do this in his forge by making a half round with 1/4" X 1" in a swage for the bands. Some jaw mis—alignment was corrected with heat and hammer work at the hinge lugs. The jaw spring of course was no challenge to make.

I had an educational experience, I have a good post vise from virtual junk
and best of all I had fun. **Tim Suter.**

Foundations

A Resource for Beginners... by Bud Oggier

Part 1. The Anvil's Ring/Spring 1986

Foundations is a new column designated for the novice and we are fortunate to have Bud Oggier as its' author. While this material is not geared for the experienced smith, I think anyone who has tried to teach the craft to a beginner will appreciate and profit from Bud's words. For the person who is attempting their first time at the anvil, let Bud guide you along. It doesn't get any clearer than this!

Well, Jean, so you'd like to learn to be a blacksmith. Let me show you around the shop a little and then we'll get started.

"In order to do any serious forging you need at least four tools:

- Something to heat with-a forge
- Something to hold the iron-tongs
- Something to hit on-the anvil
- Something to hit with-the hammer.

"This is my forge. It has a 1/2" plate for a base, with a fire pot close to the chimney. A supply of air comes from an electric blower underneath. Notice the forge is set up so I can put a long bar into the fire with plenty of room on each side. I can heat the middle of a twenty foot bar if need to.

"My anvil is set two steps away so I don't have to walk much, but with plenty of space all around it to manipulate a piece. The anvil is set up with the horn at the left. In some shops the horn is set to the right. I don't see much advantage either way, so I guess it's all in what you get used to. The height of the anvil needs to suit the smith working on it. A good rule of thumb is that the knuckles of the smith should hang just about at the top of the anvil face. Here, at the right of my anvil, is a rack and table that holds my hammers and stools to be "struck". My vise is mounted at the end of the forge and the tong rack is on the wall beside the forge. As you can see, there are a lot of other things around here, but we'll talk about them when we get to them. Right now, let's talk about fuel for our fire.

"Soft or bituminous coal is used for blacksmithing. Any soft coal that has the following qualities is suitable: low in sulphur, low in ash content, high fusing point of the ash, and it must convert to coke readily. Sulphur in coal causes the iron to become 'hot short'; that means that the iron breaks easily when at forging heat. A high fusing point reduces the amount of "clinker" that forms in the bottom of the fire. Clinker is really solidified molten ash. If you find a coal that meets all of the above, don't be concerned if it contains a fair amount of "fines"; this will coke up and be fine. In fact, some smiths prefer to use a pulverized, soft coal. If the lumps of coal are larger than an egg, break them up with your hammer. I like nothing larger than a walnut.

"How about we make a fire and get started.

"Jean, you'll see as we work along that I'm pretty set in my ways and I never work or watch without safety glasses.

"Each day when I'm down here at the forge, I separate the 'green' coal from the coke, put the coke over here at the side of the forge, and clean out the fire pot completely, I like to start out the day with a new fire that I know has no ash or clinker in it. To start a fire I use three, full sheets of newspaper wrapped up in a ball (leaving a small portion loose for lighting), light the tag end, hold it in the chimney hole for a few seconds to get the draft started, drop it into the firepot or "tuyere", add some small coke from the pile, and turn on the blower enough to make it burn briskly. Put on more coke as soon as the fire is burning well. Build up a pile about three to four inches above the fire pot. Now add green coal to both sides and the back. Don't be stingy. You don't burn coal in the fire, but convert it to coke by heating it on the sides of the fire and driving the gasses out of it. Coke burns much hotter than coal. Coke is what you actually burn.

"Well, it looks like the fire is burning well, so we can shut back the blower. Always try to work with the smallest fire you can that will do your job. Too large a fire only uses up more fuel and makes clinker faster. It the fire gets too large, put a little water along the edges and cool it off.

"Okay, Jean, let's get started. In forging, all you can do is make a piece longer and thinner, or shorter and thicker. All forgings are variations of these two functions.

"Jean, the way I like to teach is to tell you what we're going to do, show you how to do it and then have you try it.

"To start with, let's take two pieces of 1/2" round, mild steel and forge one of the ends flat. We'll heat the portion where we will forge until it is about orange, then put it on the anvil and forge it fiat. Other types of steel may require different temperatures. Notice when I put the piece in the fire, I push it straight in, not down toward the bottom. The reason is that the air blast enters from the bottom and I want most of the oxygen consumed before it reaches my work piece. Heat plus oxygen causes scale (ferrous oxide) and the more scale, the smaller the piece becomes. Sometimes you will get as much as a 10% reduction in size. When you work at the anvil take a comfortable stance. Try not to bend over too much; it gets tiresome. Hold the hammer close to the end of the handle and strike firmly.

"Well, my piece is hot enough to work. Notice that my hammer blows start at the end and work toward me. Try to hit with the hammer face parallel to the anvil. I'll forge this down to about ¼" thick. Okay?"

"Now you try it".

"Hold it, Jean. You've done well, but now the piece has cooled off so it won't forge well. No one ever made any money pounding cold iron. Once your piece has reached a "blood" red it's time to reheat. Notice that your piece is not uniform in width; that's because your blows were not uniform in force.

"Now, let's work on the other piece of steel and make one end square. In forging a square we'll do everything we did before, with one addition. Between each hammer stroke rotate the piece a quarter turn.

"I like to let my fire develop a large bank of coke on either side and pull coke from the back end to feed the fire. I think it keeps my fire smaller and the side banks of glowing coke act as an oven which intensifies the heat in the middle.

"Well, let's make a square on the other end. Remember to do everything as before, plus turn the piece between hammer strokes.

"Now my piece is hot enough. I hit it once, turn my hand a quarter turn to the right, hit it, turn to the left, hit it, turn it back to the right, hit it, turn, hit, turn , hit. See how that works?

"Okay, you try it. Good!

"Now, let's take the piece we are working with and make the square end round again. To make a square piece round or to reduce the diameter of a round piece: first forge a square, then knock down the edges to make an octagon, and then forge it round. Remember to put your piece straight into the fire, not down into it. Pull some coke over it, adding more from the back if you need it. Set the heated piece on the anvil on its edge, not on one of its flat sides. As you forge this edge flat you will be simultaneously flattening the opposite edge as well. This is because when you hit a piece on the anvil it is really getting hit twice; once on the top by the hammer, and also on the bottom side by the anvil. After you have forged those two edges flat, turn your piece and forge the other two until you have an octagon with sides of equal size.

"Fine, Jean, but try to make each blow with the same force. Good, that's better! Let me heat up and I'll show you how to complete rounding it up.

"Notice my blows are lighter now because I don't have to move as much metal. Try to keep your hammer face parallel to the anvil. Roll the piece after each blow and don't hit the same place twice. The less forging you do while rolling the piece, the better. Do just enough to round it up. See how that came out? Your turn.

"Don't be afraid to let your piece get hot enough — bright orange to yellow is a good heat for this steel. Now you're ready — remember, don't hit hard and turn after each blow.

"Great! Notice your piece is longer now than when we started. The stock had to move somewhere and the only place it could go was to get longer and thinner.

"Well, Jean, let's make this piece shorter and thicker. The process we are going to do is called 'upsetting'. To do this, heat the piece, keeping the heat contained in the area to be made thicker or upset, but strike it on the cold end.

"1 want to take two heats this time to show you what happens before you try.

"Now that the end of my piece is hot, I put the hot end on the anvil with the piece vertical and strike the cold end. It's not so much how hard you hit it as

how often. See, now the hot end is starting to swell out. Watch your piece carefully. If it bends, straighten it out before you go any further, then continue.

"Jean, the length of the section in this bar we're trying to upset is about 3" long and is less than 1/2" thick. If we try to upset the entire length at once, we would have a lot of bending problems. To overcome this, I'm going to reheat the piece to just beyond the upset portion, cool off about 1 1/2" of the end with water, and then upset further by striking from the same end as before. One other thing that will help is to first forge a short, blunt, four-sided taper on the end we want to upset, to concentrate the force in the center.

'I'll upset it the way it should be done. Once the piece is hot I forge the point — nothing fancy — then cool it off in this tank of water known as the 'slack tub' or 'quench tank.' Next, I put the other end in the fire, get it up to a bright yellow, and start the upset. Notice, if it's starting to bend, it needs straightening. Now I can upset more. This time when I take it out of the fire, I'll cool off the first portion of the upset I just made. The objective is to have only the portion I want to upset at a working heat.

"To cool the first portion of the upset, I pour water from the slack tub onto the far end of the iron with a can and then dip the other tip of the iron in water to cool it. Now I can upset. See — the heat, and therefore the swelling, is all contained between the two cool places. One more heat to upset the tip; this time I have to cool almost all that has been upset before with my water can so that only the end gets brought up to size.

"Now that it's all been upset, I'll round it up a little. There, all the work we did on it has disappeared and it's back to its original size.

"Your turn, Jean. Remember, point the end, cool off about half the length, heat about 1 1/2" of the other end, and upset. Watch for bending, and straighten if necessary.

"Watch out, Jean, it's starting to bend — you had better straighten. That's better, now upset some more. Now, another heat. Cool off both ends. Go for it! One more heat for the tip. Great! When you cool, it's not necessary to get the piece cold, just cool enough to get most of the red out of the area you don't want to upset. With some practice you'll learn how much heat the piece can stand. Generally, it's easier to forge down than to upset, so don't be afraid to upset a little more than you need and then forge it down to size.

"Jean, let's forge a square taper of a given length and point size. In this case, let's make a taper 2" long with a ¼" square end.

"First, forge a blunt taper on the end down to ¼". Use the same technique you used to make the square. Hit! Turn! Hit! Turn! Okay? We'll use ½" square, mild steel. The only thing different from the making of the square is to raise your hand holding the iron up so the angle between the anvil and hammer form a taper.

"Here we go. End up! Hit! Turn! Hit! Turn! Your turn. You're doing well, but try to keep your holding hand at the same level so the taper is the same on all sides. That's better.

"The size of the end is established. Let's put a chalk mark 2" back from the end of the anvil; that will be our mark to tell us when the taper is long enough. When you get an anvil of your own, it's a good idea to learn the dimensions of the anvil so you can use it as a rough and ready ruler. For instance, the face of this anvil is 18" long x 4¾" wide, the hardie hole 1 1/8" square, the hardie hole to end of anvil is 4", etc.

"Time to finish this taper. Start almost at the far end and work the taper down same as before. Hit! Turn! Hit! Turn! Check against this chalk line a little more. Hit! Turn! Check! There, that's okay. Your turn.

"That's fine, Jean. Good job. "Notice the iron is starting to move a little easier? Your blows show more confidence and uniformity. That's good.

"You may want to get a copy of one of the many instruction books available. In my opinion, one of the best is The Blacksmith's Craft, published by the Council for Small Industries in Rural Areas (COSIRA). It can be obtained from the book sellers that advertise in the Anvil's Ring. If you get it or any other, I'd like to go through the exercises with you before you try them alone for awhile.

"See you next time!"

Bud Oggier is a blacksmith from Cushing, Maine. He presently serves on the ABANA Board of Directors.

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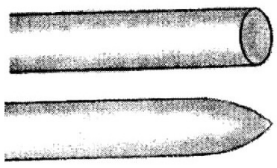
A Simple Leaf

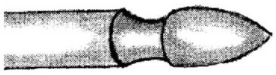
George Dixon, Metalsmith
www.traditionalmetalsmith.com

Stock: 1/2" round steel or bronze.
Tools: Hammer, anvil, tear-drop punch, chisel, top and bottom fuller.

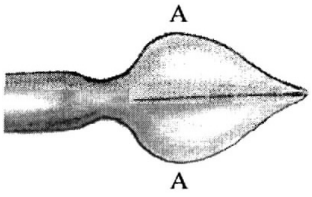
Take a forging heat (orange to orange-yellow) on one end of the stock. Forge a blunt point. The longer and thinner you forge that point the more narrow the leaf will appear. As with all blank forms, leave this one thick.



Fuller in the shoulder of the leaf blank. Either use a top and bottom fuller or a spring fuller and rotate the stock as you set the shoulder. Do not get the fullered area, which will become the stem, too thin at this point. If it is too thin too soon, it is liable to break off during the forging and decorating cycles that are to follow. When all of the leaf-work is done, the thick stem will be forged down and refined into a graceful stem.

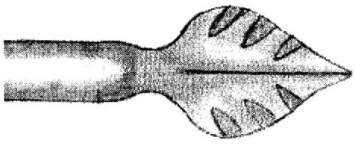


Cross-peen and spread the leaf blank. Take it down some and then flip and finish spreading it. This approach helps keep the forging symmetrical. Use the rounded edge of the hammer face to develop a ridge down the center of the leaf blank. Again, keep the leaf blank thick (3/32" to 1/8" at the side edges) to allow for sinking the tear-drop punch.

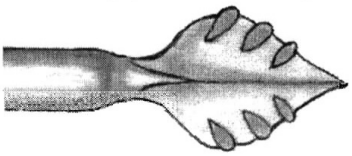


Refine the shape on edge using the horn of the anvil and a well configured hammer face. The hammer face should be slightly crowned in the center with a seamless transition from face to side.

Layout the leaf blank, cold, with the tear-drop punch. Use the tapered leading edge (toe) of the tear-drop punch on up to the entire tool, depending on the size of the leaf blank and the desired effect. Angle the layout towards the stem.

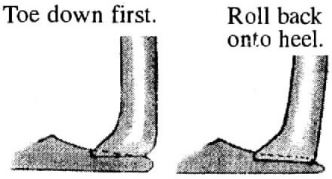


At a forging heat, sink the tear-drop punch into the layout marks on the leaf blank. Since the tool is the same for layout and hot work, it will 'feel' the layout positively even when the blank is too bright to see the layout.



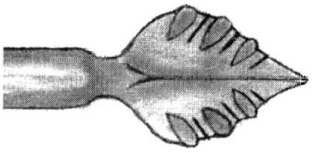
Set the toe of the tear-drop punch down into the hot metal first. As it is struck with steady and moderate strokes, rock it back onto its heel, This will push the metal under the tear-drop punch both down and out towards the back of the tool (heel) and thus outward from the edge of the leaf. This gives the finished leaf a scalloped silhouette and more visual interest.

This tool action moves the hot metal down and outward.



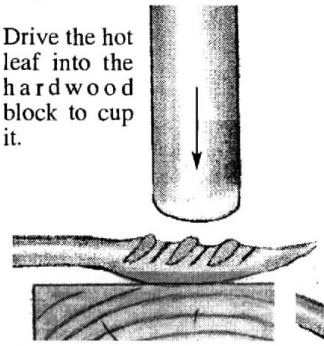
Another surface effect can be achieved by using the chisel to incise a line between each tear-drop impression.

This chisel cut will contrast and enhance the tear-drop effects.

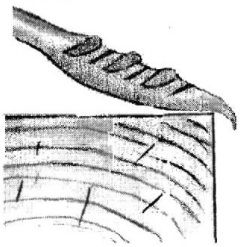


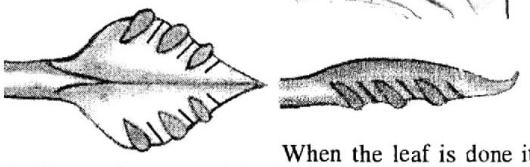
Finally, take a heat and place the leaf, face side down, onto a block of hardwood. Set a ball-end tool centered on it and drive the tool down, cupping the body of the leaf.

Drive the hot leaf into the hardwood block to cup it.



The hardwood gives under the tool pressure while it, being softer than hot chased metal, protects the surface work in a manner that a metal form can not. As the final effect on the leaf, extend the tip past the edge of the wood block and lightly hammer the leaf's tip back over the leaf's face.





When the leaf is done it is time to draw out, thin, the stem. Do so with care to avoid marring the shoulder of the finished leaf.

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Northeast Blacksmiths Association

Northeast Blacksmiths holds its meets twice a year at the Ashokan Field Campus in New York State.

The Ashokan campus is located in Olivebridge, N.Y., several miles west of Kingston, N.Y. The meets are held the first weekend in May and in the first weekend in October every year. The main demonstration is in the blacksmith shop and there is a "Hands On" workshop for beginners. A main demonstrator is brought in for each meet, food and bunk-house style lodging are provided as part of the cost of the weekend long meet.

Contact : Tim Neu
to register for hammer-ins
or subscribe to the newsletter;
Tim Neu, Ashokan Field Campus,
447 Beaverkill Rd.
Olivebridge, N.Y. 12461 [914]657-8333
For more information check out the web site; <http://nba.abana-chapter.com/>

Join The Pennsylvania Blacksmiths Association!

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ABANA Member? O **Yes** O **No**
Can you host a PABA meeting? O **Yes** O **No**
Are you willing to demonstrate at a PABA meeting? O **Yes** O **No**

_____
Suggestions for PABA demonstrations

What is your skill level?
O Beginner O Intermediate O Advanced O Professional

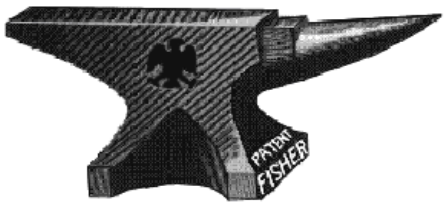
Send your completed application with $ 10 (one year dues) to;
Treasurer Gene Degenhardt
271 Stoney Lane
Lancaster, PA 17603

PABA Membership Application
Membership is from
Jan. 1 — Dec. 31

PENNSYLVANIA Artist BLACKSMITHS' ASSOCIATION

New Jersey
Blacksmiths Association
90 William Avenue
Staten Island, New York 10308
Attn: Larry Brown, Editor

New Jersey Blacksmiths Association



"EAGLE"
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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:
NJBA, 222 Laurel Place, Neptune, NJ, 07753

Please include with the information requested below. 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.

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

Name_____ Home Phone_____

Address_____ Day Phone _____

City, State, Zip_____

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Electronic Mail Address_____