



# N.J.B.A. Newsletter

**NJBA Volume 10, Issue 4 02/01/05**

## Editors Soapbox

Hi to all and a happy and prosperous new year. We don't have a lot of events listed below, but we have some things in the works and I don't want to list them until they are confirmed. Look for an email and or post card with new events as the next month rolls around. The next meet at Eric Cuper's Shop is promising to be a very good demonstration and workshop. Make sure to sign up for the workshop right away as the seats are limited.

## Upcoming events for 2006

Get your calendars out and mark these events down. Please bookmark our web site and check for meet information. Remember most of our meets have an "Iron in the Hat" drawing, so be sure to bring something.

**February 4-5** — Meet at Eric Cuper's shop in Easton, PA. Demonstration on Saturday the 4th and workshop on Sunday the 5th. Details on this page and page 3.

## February Meet at Eric Cuper's Shop With Rick Smith

On Saturday February 4th there will be a demonstration by Rick Smith on Sheet forming and repousse. Rick's method of sheet forming is not like Latane or Renzetti, it's not the classic fine repousse. Rick moves more volume creating more abstract shapes and forms. It involves creating volume while the metal is hot then defining form and edges cold with stakes and planishing. On the following day, Sunday February 5th there will be a workshop which will be limited to about 16 participants and will cost \$30 plus materials each. Contact Eric to sign up for the workshop. The workshop will be to explore and try the techniques demonstrated the previous

day under the direction of Rick Smith. Please bring items for the Iron in the Hat on Saturday and some donations may be auctioned. Attendees may tailgate if you are so inclined. I would recommend getting here early and parking in front of shop doors or on the pavement to the right of the office.

I should have folding metal chairs available but since I have no clue how many to expect I would recommend bringing a comfortable chair if you have one.

Cuper Studios  
1301 Lynn Street  
Easton, PA 18042

### Directions:

Assuming everyone is coming from the east. Get to 78 or 22 west from wherever you are coming from. 78 and 22 merge for a while. Take the last exit in NJ, which is 22 into Phillipsburg. Take 22 all the way through Phillipsburg, through the toll (75 cents) into PA. You are taking the very first exit immediately off the bridge so stay to the right out of the toll. Exit right and stay to the right on the exit ramp and pass under 22 until you come to a stop sign at Larry Holmes Drive. Turn left onto Larry Holmes Drive. You pass McDonalds and WaWa on your left. Take the first left onto Lehigh Drive immediately after the WaWa strip mall. My shop is on the corner of Lehigh Drive and Lynn Street. It is the first white building on the right, my shop may be entered through the green door. Parking is available in front of my entire building and all up Lynn Street but please do not park in the driveway on the left side of my building, it is an active driveway for a delivery company.

You may also take 78 west into PA (also a toll) and take the first exit in PA. I do not know the street names but turn right at the end of the exit and follow the signs for the Crayola Factory/ Canal Museum/ or Attractions. These signs will bring you to a light with McDonalds on your left. Turn left at this light and take the next left onto Lehigh Drive as above.

**Continued on page 3.**

## New Jersey Blacksmiths Newsletter

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### **The NJBA Web Site!**

The NJBA Web Site is up and running at:

<http://njba.abana-chapter.com/>

The Newsletter is at:

<http://members.bellatlantic.net/~vze25jcc/index.htm>

### **Official NJBA Address**

**NJBA**

**P.O. Box 761**

**Mt. Laurel NJ 08054**

**Rather than use room in the newsletter,  
All correspondence between  
ABANA and NJBA is now being posted  
on the NJBA web site.**

**If you cannot access it there, contact me  
and I will send you copies**

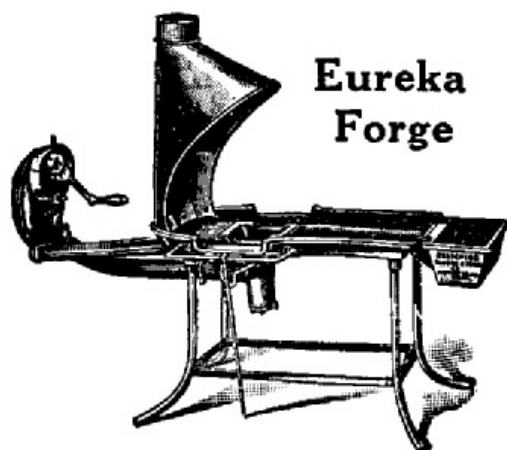
### **NJBA Board of Directors**

# New Jersey Blacksmiths Newsletter

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For you cheap skates there is a free bridge. Take 22 west through Phillipsburg. The last exit is for Main Street (I think) and bears right downhill immediately after a High School. Follow this until you reach a stop sign. Turn left and follow to the first light. Turn right at the light to go over the free bridge (3 ton weight limit). Turn left off of bridge onto Larry Holmes Drive and follow above directions.

Please call 908-642-6420 for directions if you get lost.



## RICK SMITH

### Artist Statement:

My work is a direct reflection of strong visual observations and experiences. Certain concepts such as time, stability, order, disorder, technology, or mathematical concepts are a part of the visual information that becomes the palette from which I work. I choose to work with simple, stable forms. Often these forms are made using a combination of materials or the forms themselves are broken up by intermittent structural or patterned details. These breaks and the choice of materials make reference to the built world. The use of deeply rusted steel implies the presence of time and the relationship of structure to the order of nature.



### Artist Biography:

Rick Smith received his MFA in blacksmithing in 1990 from Southern Illinois University. He has taught classes at many prominent crafts schools including: Penland School of Crafts, Haystack Mountain School of Crafts, and Peters Valley Craft Education Center. His work has appeared in Smithsonian, American Craft, Metalsmith, and Anvil's Ring. Smith was a resident artist at Penland School of Crafts until accepting a position on the faculty at Southern Illinois University at Carbondale (SIU-C) in 1997. Currently, Smith is overseeing the blacksmithing program at SIU-C, while maintaining his status as a producing artist.

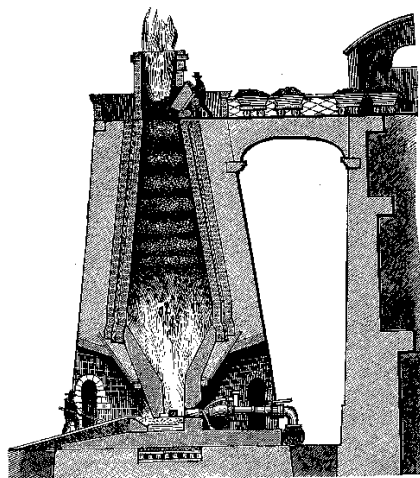
Artist Fellowship Crafts Recipient 2001

## CUPER STUDIOS

Eric Cuper, Artist Blacksmith

Cuper Studios specializes in architectural, functional, sculptural, hand-forged ironwork and restoration.

Eric Cuper, the founder of Cuper Studios, holds an MFA in Blacksmithing from Southern Illinois University at Carbondale. While at SIU, Eric won the prestigious Rickert-Ziebold Trust Award, a senior competition in art and design. He was also the First Place winner at the James Renwick Alliance student competition. His work *Odyssey* was auctioned to benefit the Renwick Gallery of the Smithsonian Institute. Eric's work is exhibited and collected nationally. His art has been published in Dona Meilach's books, *Architectural Iron Work* and *Fireplace Accessories*.



# New Jersey Blacksmiths Newsletter

## Happy New Year from Little Giant!

We have recently set the date for our annual Little Giant Rebuilding Seminar. The class will be held March 17-19, 2006 at our shop in Nebraska City, NE. The Friday through Sunday seminar is a hands-on opportunity for people to learn how to rebuild, repair and adjust their Little Giant power hammers. The cost is \$95, and we limit the number of participants to 25. Contact us for more information or a registration form.

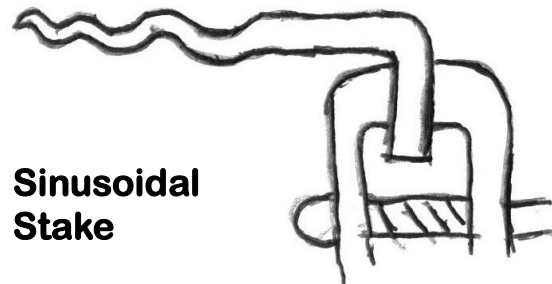
Keri Hincker Phone: 402-873-6603

<http://www.littlegianthammer.com>

Or write

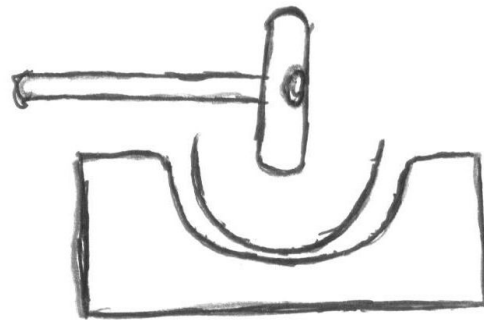
Little Giant Power Hammer  
Attn. Harlan "Sid" Suedmeier  
420 4th Corso  
Nebraska City, NE 68410

Using a large heavy hammer he works the center into a sinking ring, which he follows by using a smooth faced hammer over a stake. He feels that by using a heavy hammer the hammer is doing most of the work. He then works the edges over a sinusoidal stake to give them the curves he desires.



**Sinusoidal Stake**

### Sinking



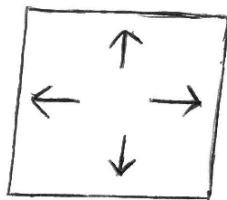
### Raising



## Reports

### Meet at Tim and Rachel Miller's Shop In Long Island

The Meet was held on November 12, in the Spirit Iron Shop run by Tim and Rachel Miller. Tim was the first demonstrator. He started his demo by forging a freeform copper bowl. He uses copper buss bar pieces he gets from the scrap yard for the stock. Starting in the center of the piece he uses the power hammer to work out from the center of the piece. This gives a variation of the edge thicknesses as the piece develops. He has a clamp-on die holder to hold his drawing die for the hammer.

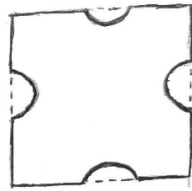


Tim uses muriatic acid dip as a cleaner for the bowl after working it. It is a weak solution with a small piece of iron bar in it which helps to accelerate the cleaning action. He also uses hot shearing with a lever shear to cut the copper bars.

**Tip:** When upsetting, straighten it when it bends or you will just continue bending it.

# New Jersey Blacksmiths Newsletter

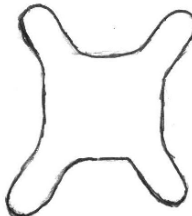
## Fullered in from edges



## Different size fullers and anvil horn



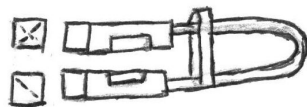
## Draw out edges



Tips;

- Quench copper to anneal
- Hammering refines the grain making it smaller and tougher, causing to become work hardened
- Heating copper and then quenching it forms large softer crystals.
- Re-anneal as the piece work hardens

## Cutter for bronze nails

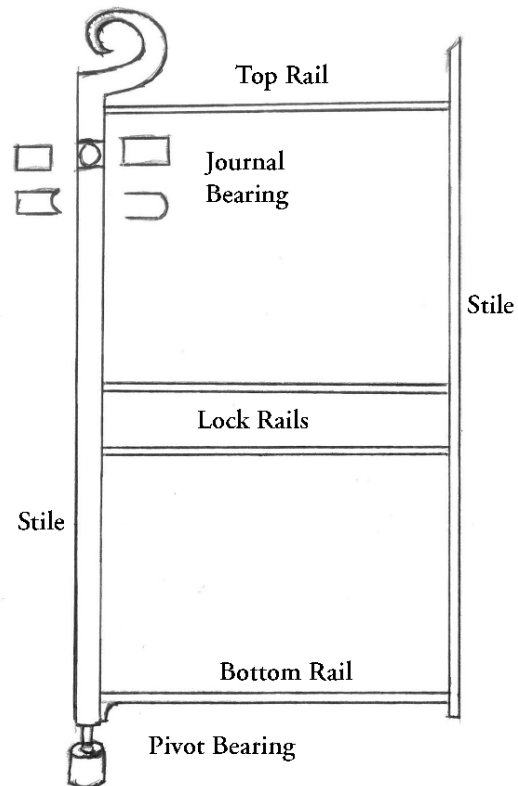


Tim then showed a project he has been working on using forged silicon bronze nails

Recommended book by Tim;  
Form Emphasis for Metalsmiths

The next demo was by Tom Ryan, Tom gave the next demonstration, starting with showing shop drawings and describing how they are presented to clients and this led into discussing other business practices.

He then described a basic gate layout for a garden gate.



The layout was traditional and simple.  
He demonstrated how the top strap and bearing section on the bar are formed.



**Swage to dish strap so it flattens when bent**



**Spring swage to round stile for the top journal and bottom pivot**



**Tool to keep bottom strap in shape for the top journal**



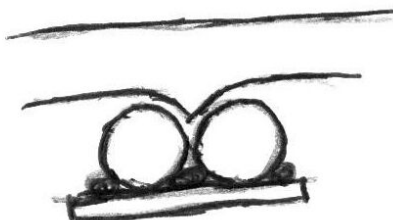
**Worked into an swage to even out journal strap**

# New Jersey Blacksmiths Newsletter

Tom then showed how he was working out the test pieces for an up coming job by doing them there (Without a previous dry run)



**Drawing**



**Tool to make center point**

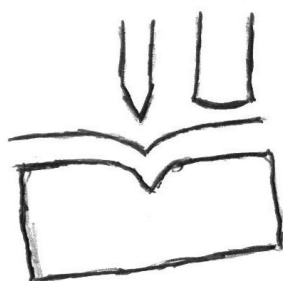
Rachel Miller was the next demonstrator. Tims partner and sister Rachel showed photographs of several pieces and had some on display that had been made recently using large forged leaves. She then demonstrated the forging of the leaves  
Her steps were to ;  
Chisel veins

Define veins over swadge



Work from the back to bring out the front

Redefine the leaves



Planish over a ball stake.

Many thanks to Tim Rachel and Tom for an excellent meet and great demonstrations .



## December Holiday Party

Once again Marshall and Jan hosted the Holiday Party in their home. The party was a success with about 20 people attending. The food and camaraderie was excellent and enjoyed by all. The drawing was held for the inverter welder and it was won by Tim Suter (See write up below).

Many thanks once again to Marshall and Jan for their hospitality.

## BELATED WELDER RAFFLE

First I would like to say thank you to everyone involved with the welder raffle, those who bought tickets and especially those who spent time selling them. As you know the drawing was postponed from its original date of our picnic/tool swap to our annual Christmas party at Jan and Marshall's. Tom Eden's son Christopher drew the winning ticket, and I am happy to announce that Tim Sutter was the lucky winner. Maybe we can do this again next year, with a different prize.

Thanks again  
John Chobrd

## ABANA Katrina Disaster Relief

ABANA is collecting donations to assist smiths who suffered losses due to Hurricane Katrina. The smiths do not have to be ABANA members. To date about \$15,000 has been collected. For more information check the ABANA Website or call them, **706-310-1030**

Donations should be by check, US Postal Money Order or Canadian Postal Money Order made out to "ABANA Relief Fund". ABANA will provide a receipt for all donations of \$250 or more.

Please address your donation to:  
ABANA Relief Fund  
P.O. Box 816  
Farmington, GA 30638

# New Jersey Blacksmiths Newsletter

## Blacksmithing Workshops and Classes:

**Peters Valley Craft Education Center**  
19 Kuhn Rd., Layton, NJ 07851 (973) 948-5200  
pv@warwick.net www.pvcrafts.org

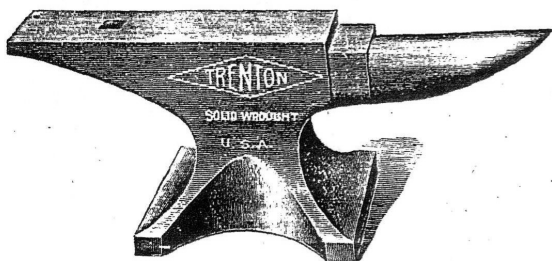
**Academy of Traditional Arts  
Carroll County Farm Museum**  
500 South Center St. Westminster, MD 21157  
(410) 848-7775 (410) 876-2667

**Touchstone Center for Crafts**  
R.D.#1, Box 60, Farmington, PA 15437  
(724) 329-1370 Fax: (724) 329-1371

**John C Campbell Folk School**  
One Folk School Rd.  
Brasstown, NC 28902  
1-800-365-5724 www.folkschool.com

**Red Mill Forge**  
Contact Adam Howard about workshops and per diem  
use of the shop (908) 735-4573

TRENTON BLACKSMITHS' PATTERN.



### BLACKSMITH TOOLS FOR SALE!

**John Chobrda**

Has a large selection of tools for sale.  
Anvils – Forges – Leg Vices—Blowers  
Tongs – Hammers  
Will also repair and/or resurface Anvils  
Call John for prices and availability  
Evening (609) 443-3106

### Business Members

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

#### Marshall Bienstock

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

John Chobrda, Pine Barrens Forge  
231 Morrison Ave., Hightstown, NJ 08520  
609-443-3106 JChob@earthlink.net

Eric Cuper Artist Blacksmith  
109 Lehman Lane, Neshanic Station, NJ 08853  
908 642-6420 ericuper@msn.com

Bruce Hay, Jr.  
50 Pine St., Lincroft, NJ 07738  
Jayesh Shah Architectural Iron Design  
950 S. 2nd St., Plainfield, NJ 07063  
jay@archirondesign.com

## Open Forges

We are looking for members who are interested in opening their forges up to members as a open forge. This does not have to be a weekly forge as is Marshall's the others can meet once or twice a month. Please contact, Larry Brown, Editor.

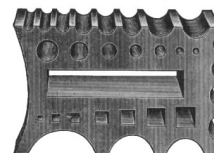
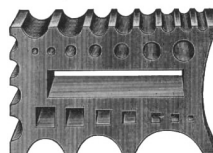
*We want to encourage all to join us at*

### Monday Night Open Forge in N.J.

Marshall Bienstock is hosting an open forge in his shop at 7 pm almost every Monday night ( Please call ahead on holidays to make sure , (732) 780-0871 )

### Open Forge in Long Island

Sunday from 10:00 am to 6pm.  
Starting the 1st Sunday in November until the end of April. Please call ahead to confirm and get directions.  
Ron Grabowski, 110 Burlington Blvd. Smithtown, NY  
(631) 265-1564  
Ronsforge@aol.com



## MUZZLE LOADER MAGAZINE

### Article About Jeff Morelli

While at Dixon's Gunmakers' Fair last summer, I was fortunate to meet a young man who is a fine craftsman in the blacksmith's art. I was pretty busy at our table taking sales of our new *Flintlock Fowling* book, but when my friend Buford said I needed to look at this guy's work, I made it a point to go up the hill on Sunday. I was very impressed with Jeff Morelli's work. Most of the work I see of this caliber is made by the older guys who have seen a lot of original pieces and have a real eye for reproducing them. It turns out that Jeff does too, as you can see in the photos.



What I appreciate about the cooking utensils shown here is the amount of whitemithing and file-work done on each piece. I think of it as buying a finished piece. That's the way quality work was done in the 18th century. I also noticed that these pieces are made from solid stock. There are no rivets holding the working ends to the handles.

The first photo shows some of the fanciest pieces Jeff had on his blanket. From the left is a Spanish turner, circa 1600–1900. It's a reproduction of one found at Washington's Crossing Historic Park and sells for \$75.00. The fork in the middle is an interpretation of a fork from the Winterthur collection. It is finished on both sides and sells for \$150.00. On the right is an 18th or 19th century spatula from the Sorber collection that sells for \$100.00.

The second photo contains the more basic models—still great craftsmanship, but simpler decoration. The ladle has a 3-1/2 inch bowl and a rattail hanger (unseen) on the back of the handle. It sells for \$40.00. The





# New Jersey Blacksmiths Newsletter

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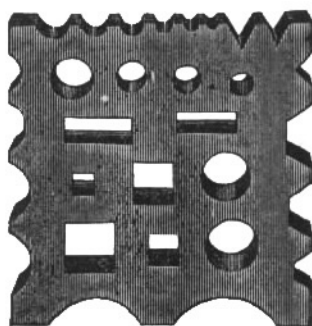
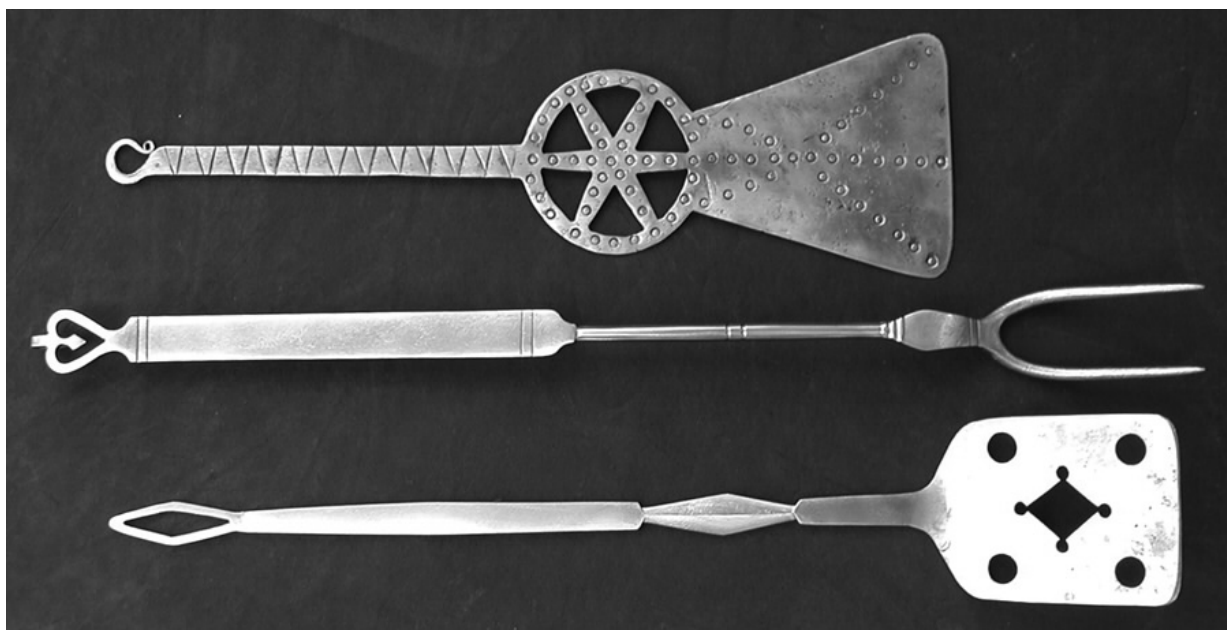
fork is a typical 18th century type with round copper inlays in the handle, and it's priced at \$50.00. The moon-and-stars, breadloaf spatula has a plain tapered handle and sells for \$35.00. All of these utensils and prices are just examples of Jeff's range. The variations—handle length, style and ending; ladle bowl size; punched or filed decoration—are all options that can affect the price.

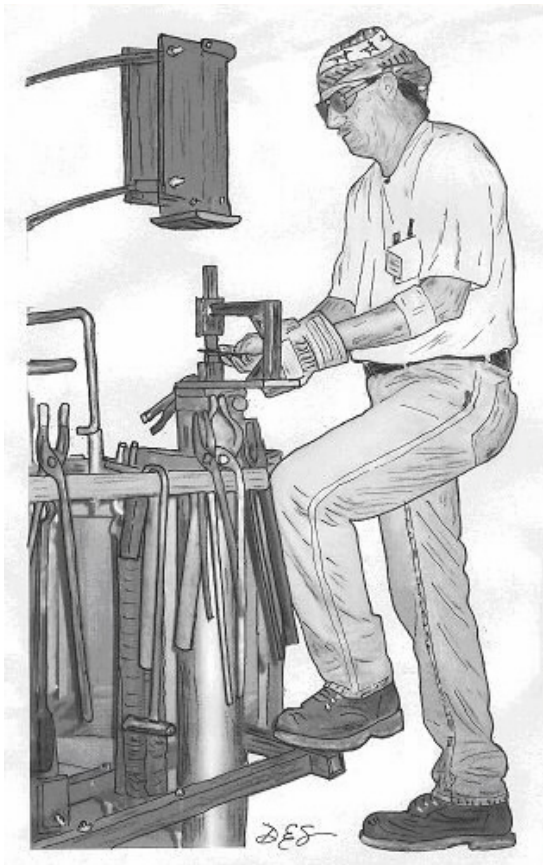
To order a piece or for more information, contact Jeff Morelli, 234 Rahilly Road, Wrightstown NJ 08562, phone 609-723-5990, email <masonicsmith@aol.com>. Morelli's card says he offers "an ever-evolving line of eighteenth century items, individually forged of iron or steel." He pointed out to me that he doesn't really have a "standard line" but rather makes up items to order or items that interest him for carrying to events. He will reproduce an original from a picture provided by the customer or work with a customer designing one that's faithful to the originals but totally new. The shipping price will vary with each order, so contact Jeff before ordering.

—Bill Sartak

**Mary Thanks to Muzzleader Magazine for permission to reprint this article about one of our members. To find out more about Muzzleader Magazine**

To submit your order by mail, Contact: Scurlock Publishing, 1293 Myrtle Springs Road, Texarkana, TX 75503. Orders also may be faxed to 903-831-3177 (24 hours) or call 1-800-228-6389 (Mon.-Fri., 9:00-5:00 Central time). Order form available on the web site <http://www.muzzmag.com/>





He puts a simple double twist in each element of the center cross, making the center of each a flat bar rather than a vertical bar. These two flat bars can now pass over each other and easily accept a hole for the master rivet that attaches the acanthus leaves and the center cross itself.



This view of the total piece shows the center cross behind the leaves where the cross members appear to go straight through each other.

## Forging for a Living

*the methods and tools of*

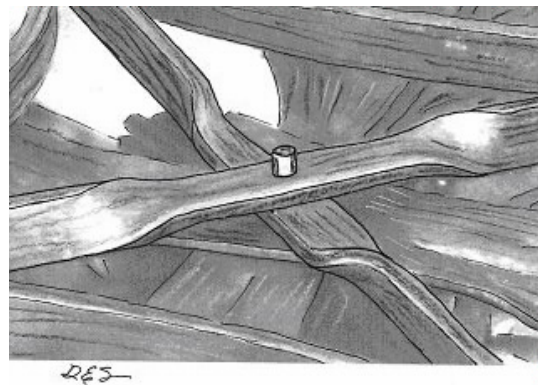
## Ray Spiller

*article and illustrations by*

*Dave Smucker*

### Part II

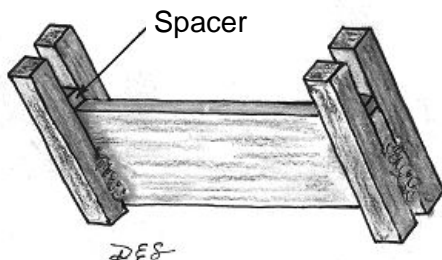
In Part I of Forging for a Living - we left off with the forging of the end wiggles or end flames of the center cross of the architectural element Ray demonstrated. Now this center cross has the appearance of two vertical elements that pass through each other at the center of the circle under the acanthus leaves. If this were the case, it would require a rather complex center joint that also has to contain the "rivet" that joins the acanthus leaves to the total piece. Instead of a complex design, Ray uses a neat little trick to make the assembly.



In the above sketch, we see a close up of the center cross and the master rivet from the "backside". The acanthus leaves are below the center cross and hide it when viewed from the front of the piece. Also shown are very small portions of the C scrolls. Now that you have the idea of the bends for the center cross, how do you make them? Well, since they are really just a simple quarter twist you can make each one, one at a time with careful layout and measurement. But remember Ray is in this as a business so producing

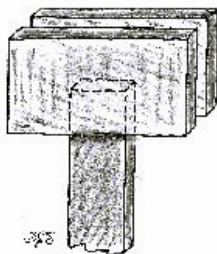
# New Jersey Blacksmiths Newsletter

uniform bends at a commercial pace is important to him. What does he do? He uses a simple bending jig and bending wrench to make two uniform bends at once - with correct positioning, without measuring each time.



The jig is made from a length of 1/4 by 2 inch stock and four lengths of 1/2 square stock. Plus the addition of two 1/4 x 1/4 spacers to allow free bending. Ray used the 1/4 by 2 inch stock because he is bending material that is 1/4 inch thick. This jig is easy to clamp in your vise.

Weld the 4 uprights to the center bar. Then tack weld those little spacers in the bottom of each set of uprights. They hold your hot stock off the bottom and allow free bending.



Ray's bending wrench is even simpler to make. It's just two lengths of 1/4 x 2 inch stock with a 1/4 x 1 inch bar welded between them. You should make the length of the 1/4 x 2 inch stock enough shorter than the distance between the uprights in the bending jig to allow for the two twists to take place.

Since in this case we are bending 1/4 x 3/4 stock used for the center cross, we need to leave about 3/4 of an inch for each twist. I would make the wrench about 1 - 1/2 inches shorter than the space between the uprights on your jig. If you want a tighter twist that make the wrench somewhat longer.

To make the double twist just heat your cross piece, drop it centered in the bending jig and place the wrench down from the top. Now give it a 90- degree bend and

you are done. Follow up by making the same double twist on the other cross member. You do not have to worry about offsetting these two cross members at assembly. They will move enough to allow assembly without problems if you make your bending jig long enough so that the double twists are not too close together. We have now finished the 4 C scrolls, the center cross and all of the collars.

If you have not made the outside ring to fit the pattern you developed up front you need to complete that ring. Ray did not show the making of this ring in his demo but a few comments about making rings might be in order. It is also made from 1/4 x 3/4 stock and Ray hammer textured the edges before forming into a ring. I calculate the length of stock I need for making a ring based on the diameter times Pi. What diameter to use? Measure the inside diameter of your pattern and add one thickness of your ring stock, 1/4 inch in this case. (1/8 inch for each side) This gives you the diameter to the center-line of the ring. Now form the ring or hoop. There are many ways to do this from using a ring roller (who has one of those?) to hot bending around a large round object such as a tire rim, section of large pipe etc. The method I like to use is to hot bend around a form. If I don't have the right size in my "junk" I make a section of the circular arc just as I would make a scrolling jig. I then tack weld it to my welding table and form around this jig.

To make corrections to a large ring I hammer between two fixed bars to make the radius smaller and on the flat of the tail of the anvil to make the radius larger. I have several short lengths of channel (3, 4 and 5 inch) that have a hardie stem welded on the bottom so that the legs of the channel face up when placed on my anvil. Then, using your hammer, work your stock over the gap between the channel legs to correct your ring. Some smiths just set an open gap on their vise and use that as the two fixed bars.

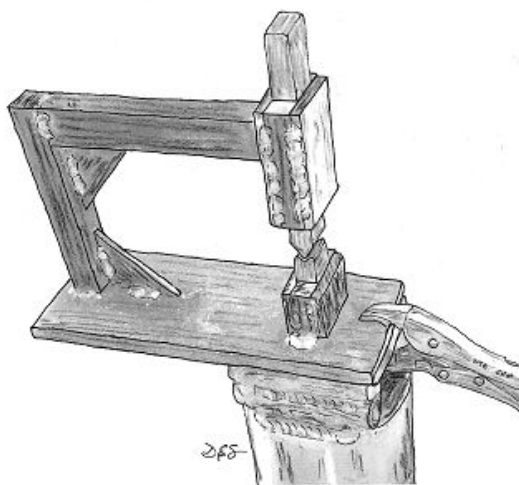
Now that you have the ring formed, weld the ends together. For this piece I would arc weld them and I am sure that is what Ray did. Ground down, the weld can be hidden behind one of the collars.

Now it comes time to make the acanthus leaves themselves. Before we cut them out and start shaping them, let's look at some of the tools Ray has developed for this kind of work.

# New Jersey Blacksmiths Newsletter

One of the major tools that Ray showed and demonstrated at Tannehill was his "veining tool setup" for using under the treadle hammer. Ray is shown using this tool on the cover of this issue and lead drawing of this article.

I have seen some drawing of similar tools before but Ray's design is straight forward and easy to build. It can also be mounted in the hardie hole of your anvil and you can use a hand hammer to strike. This limits you to holding and positioning the leaf with one hand unless you are using a striker.

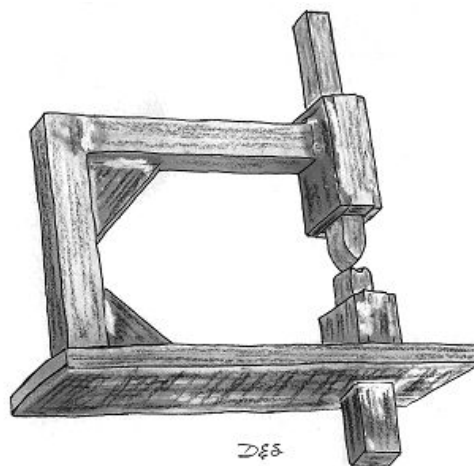


In the view above, we see the veining tool set up clamped to the anvil of the treadle hammer.

I am going to give you general dimensions for building this tool - but leave exact dimensions up to you, as many of you will be able to make a similar tool out of material you have on hand.

The tools themselves are made from 1/2 x 1 inch stock so we will be building around this size. The base or bottom of the "C-frame" is made from 1/2 x 4-inch stock about 8 to 9 inches long. Both the vertical portion and top leg of the C-frame are made from solid 1 x 1 inch stock about 6 inches in length. Both the top and bottom guides are made using 1/4 x 2 inch material for the front and back with 1/2 x 1/2 inch bar stock used for the "spacing". The 45 degree gussets at the back of the C-frame are made from 1/4 material. The bottom guide is about 1 and 1/2 inches tall and the top guide is about 3 inches tall. The open area between these two guides is 2 to 2 - 1/2 inches. It is nice if this open area is tall enough that you can remove the bottom tool without taking it through the top guide.

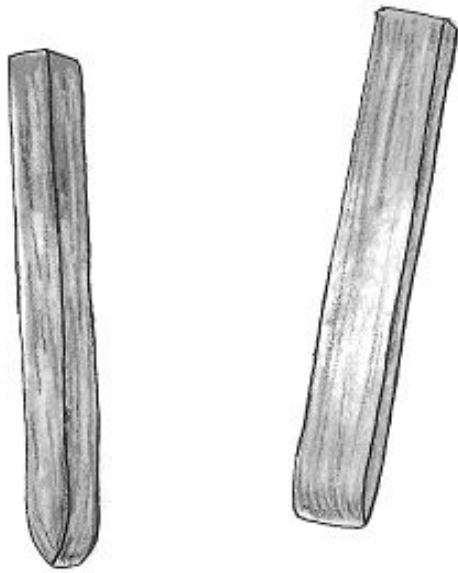
OK, what is the best way to jig and weld up this tooling? First, cut and position all of your pieces to make the C-frame without the top and bottom guide. Tack weld these parts, then check for general squareness and position before finish welding the basic C-frame (still without the top and bottom guides).



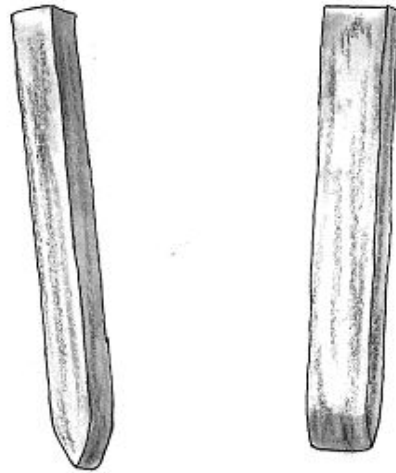
Another view of the veining tool set up - this time showing it out of the treadle hammer where you can see the hardie hole stem welded to the bottom.

Take this whole assembly and position it on the base and against the top of the C-frame. Having a solid piece of the tooling stock - 7 to 8 inches long is very helpful here because it insures the top and bottom guides are aligned with each other. The top guide may want to slide down the tooling stock but you can put in a simple spacer to maintain the distance between the top and bottom guides. Now weld it in place - leaving that tooling stock in place while you do the welding. Let it cool, then remove the length of tooling stock - if it is tight, (unlikely) heat it with the torch and burn out all of the paper.

To make the working tools we use the same 1/2 x 1 inch stock for both the bottom female tool and the top male tool. I would use cold rolled mild steel for this but hot rolled will also work well if you take a little time to clean it up. Since hot rolled stock tends to vary in exact size from run to run I would set some of the bar aside to use for making future tools. With cold rolled material it will be the same size within a few thousandths from bar to bar. This is an example of a tool that you could make out of tool steel if you are going to make miles and miles of leaf veins - but for most of us mild steel will work just fine and you can dress your tools when necessary.



Top and bottom cold work tools



Top and bottom hot work tools



Ray showed and used two different sets of top and bottom tools at Tannehill. He had one set of tools for working thinner material cold and another set of tools for working heavier material hot. In general, he uses the cold tools to work material about 0.060 inches (16 gauge) and thinner at room temperature. Above this thickness, he uses the hot tools to work the material hot. He demonstrated working on 1/8 inch material hot for the large acanthus leaves.

What's the difference between the hot and cold tools? Basically, the hot tools have a smaller radius to their shape or you can think of them as having greater edge relief.

The first sketch shows two views of the cold top and bottom tools. (These are the same top and bottom tools, just sketched from different positions based on some photos I took.) The next sketch shows the hot top and bottom tools. (Again the same top and bottom tools, just sketched from different positions.)

In both sketches shown, the top tools are in their approximate working position but the bottom tools are lying on their sides (editor's artistic license).

Why have the greater edge reliefs on the hot tools? It does three things: One, it keeps the edges of the tools from digging into the softer hot material. Second, it helps keep the hot material hotter longer because only the center contacts the tooling and third, it concentrates the force on a smaller area in the case of the thicker (hot worked) material.

How do you make these tools? Here is one way and it assumes you are using mild steel. First, cut your stock to the lengths required for both the top and bottom tool. Make sure you can install the bottom tool without dropping it down through the top guide. Then shape the top tool (male) by grinding and filing to the desired form. (You could forge the nose down some but this tool is so blunt you might as well just use a grinder and file.) Now heat the blank for the bottom tool (female) to a good forging heat. Place it in the bottom guide, drop the top tool in the top guide and give it several strong blows.

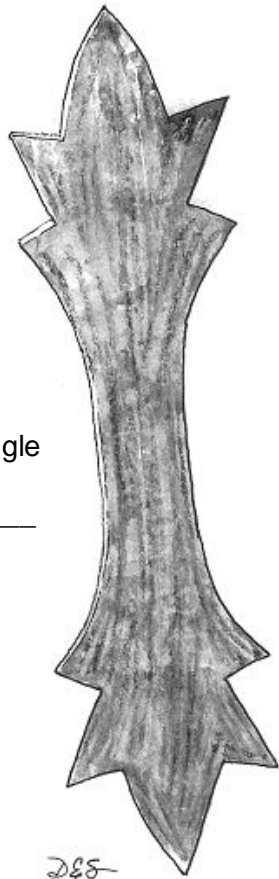
This will forge a V slot in bottom tool that is the reverse shape of the top tool. Let it slow cool. Do Not Quench. If you followed the advice to make sure you could remove the bottom tool without taking it through the top guide you will be happy J if you didn't L you will not be happy because you will have to file and grind the mushrooming to get it out of the veining setup. Now take the bottom tool (after it is cool) and file / grind



# New Jersey Blacksmiths Newsletter

both edge and end relief. The idea is to have no sharp edges on the top surfaces of the bottom tool that will mark the stock you are working on. Remember that for the set of tools used for hot working you want a smaller radius to the tool itself and greater edge and end relief. One other suggestion - match mark your top and bottom tools - that way if the shape of the top tool is not perfectly symmetrical it will still be OK because it matches the shape of the bottom tool.

Try your tools out on some scrap and see how they do. If necessary, you can dress both the top and bottom tools to refine their operation. Note that none of these tools has a sharp edge - you want them to form, not cut.



Note right angle cuts define shape \_\_\_\_\_

We now have our completed veining tools and set up so let's look at how Ray Spilling makes acanthus leaves. What are acanthus leaves anyway? Acanthus spinosus, common name bear's breech, is a small shrub native to the Mediterranean. It has a lobed leaf with spiny edges with spikes of white or purplish flowers. The Greeks first used it in architecture as a design pattern on the

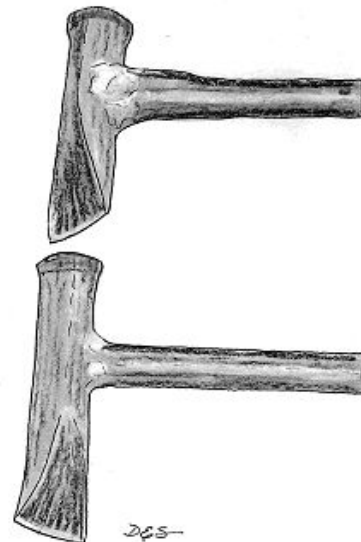
Capitals (tops) of the Corinthian columns. In the Greek form, the design had pointed leaf edges. Also widely used by the Romans in their architecture, they widened and broadened the leaf with vigorous curves.

The acanthus leaf was reproduced in many other art forms, and became a favorite of wood carvers. It has often been used in the carved details of furniture. In made its way into ironwork in the French repoussé of the 16th century and then was widely used by others throughout the 17th century.

Ray uses a simplified form of the acanthus leaf that I find very effective. It also meets his need for something that can be produced at a commercial pace.

The sketch to the left shows Ray's blank for the large acanthus leaf at about 1/2 size. He cuts this leaf from 1/8 inch thick material. This is another example where Ray has defined his design and uses his shop equipment to rough out the shape quickly. He makes use of his ironworker and a notching feature it has. This lets him cut notches that have a right angle corner. He in effect uses the notcher feature to rough out the whole shape including the sharp inside corners and then cleans it up with a belt sander or grinder.

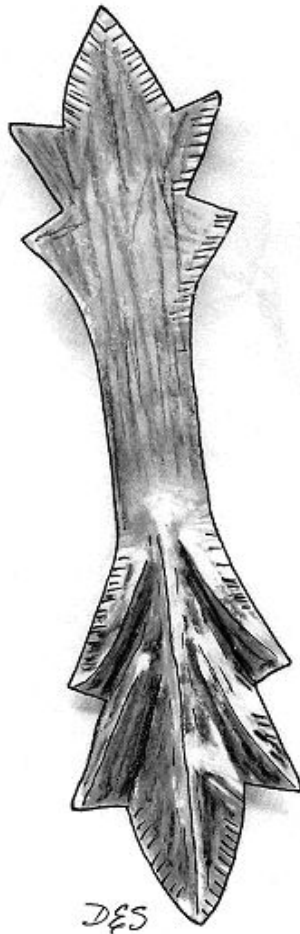
Ray's next operation is to put a large number of texture marks along the edge of the leaf using a hot cut.



He makes these hot cuts short in height with welded steel handles to use under the treadle hammer. The handles are about 14 or 15 inches in length and have a simple hook on the end for hanging on a tool bar.

# New Jersey Blacksmiths Newsletter

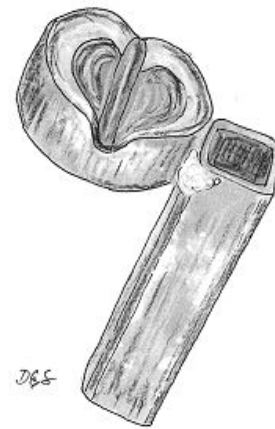
Only a portion of the handle is shown in the sketch below. Ray has both "right hand" and "left hand" hot cuts with the cutting edge turned 45 degrees from the handle. One turned right and the other turned left. This makes positioning the hot cut under the treadle hammer much easier. This is another place we see the usefulness of the treadle hammer. You have the work piece in one hand, the hot cut in the other and you control the hammer blow with your foot.



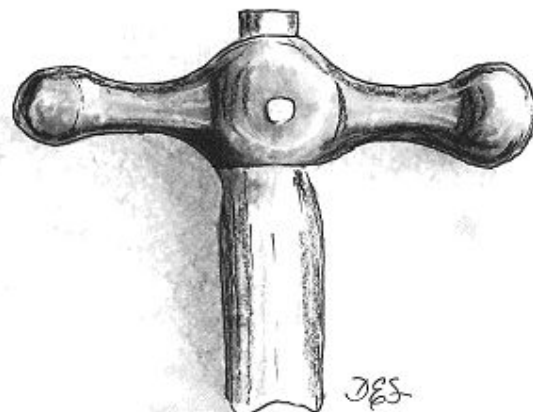
Once Ray has textured the edge, he is ready to put the vein into the leaf and does this hot (on thick stock) working from the backside of the leaf. It is a good idea to lay out the vein positions with soapstone or silver pencil on the backside before heating. It will take a number of heats to put in well defined veins as viewed from the front of the leaf. Watching Ray do this operation, he uses a vibrating or shaking motion of the work piece to

advance it between the top and bottom tools while he strikes repeated blows with the treadle. Now flip your work piece over and go back and but in the valleys in the spaces between the veins you defined from the back. The following sketch shows a sample leaf that Ray had made for the demonstration with just the texture effect on part of the top of the leaf and the ridges and valleys formed on the bottom of the leaf using the veining set up.

We are not quite done with the leaf yet; Ray has one more operation that really makes the leaves look "real". For that he uses a very simple tool but one that has a neat feature.



Most of us have seen and used a "dishing" tool, but Ray's design has the special feature of a deep groove running down the center of the bowl. This groove allows Ray to place the acanthus leaf face down with the ridge of the vein in the groove and add a final curvature to the leaf giving it a true feel of depth. This makes the leaves take on a real look of nature.



# New Jersey Blacksmiths Newsletter

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Ray has a favorite hammer he uses for the repoussé operation. You should be able to make or find similar hammers. If you want to make your own, an old ball peen hammer is a good starting point.

How do you make one of Ray's "dishing" tools? Start with a round bar of mild steel, about 1- 1/2 to 2 inches in diameter and cut off a slice about 1 inch long. Find and mark the center of one side with a center punch. Now start a drill in the center (use say a 1/2 inch dia.) but you want to make only a very shallow cut using just the point of the drill. You now need a large ball bearing or a very large ball peen hammer as a top tool. Heat your "hockey puck" to a good yellow forging heat, place the ball on the center depression, and forge it down into the stock to form the center spherical depression. Do this on the treadle hammer or a power hammer. It may take several heats to get the depression you want.

You are not done forging quite yet. Now take a 1/4 to 3/8 inch rod and with your "hockey puck" back up at a good forging heat place the rod across the width of the bowl and using the treadle hammer drive the rod down into the rim of the bowl until its top surface is flush with the top of the bowl. This will give you the side lips of the "groove". To cut the groove through the rest of the bowl you can use your angle grinder. Now you know why you save those almost used up grinding disks. Dress the edge to a nice round curvature and use the grinder to carefully sink the groove in the bottom of the bowl. Clean up and round all of the remaining surfaces of the dishing tool and then weld on a hardie stem or "tang".

You will note that on this tool too, Ray welds his stem on the side rather than the bottom - works great and is easier to do. Again - no sharp corners - you want to shape with this tool, not cut or leave marks.

The smaller leaves in Ray's example piece were made from thinner material - about 0.060 inch (16 gauge). Ray cuts this thinner material on his Beverly Shear and then adds small right angle cuts to add detail. The rest of the operations are the same as the larger heavy leaves but done cold.

You should now have all of the parts to assemble the total architectural element or piece. (I leave the details of making the master rivet to your own imagination.) The assembly is straight forward but Ray has a few key suggestions. Start with the center cross and the 4 C scrolls. Use a dummy rivet or pin to position the two cross elements and then place all of the C scrolls inside

the outer ring. No leaves are in place at this point.

Place your collars all in place and arrange the whole assembly on your worktable. Make sure you are happy with the arrangement of all of the parts, and remember you will be looking at the back as you make the assembly by setting the collars. Ray sets all of his collars cold. This came as somewhat of a shock to many at Tannehill but worked very well and is fast.

One important thing is making sure that you get a tight fill in the collar. Make sure it is all of the way on before setting the collar. Ray places small steel blocks under the collars being set to make sure he presses the parts full into the bottom of the collar. Ray likes to use the ball end of a ball-peen hammer for setting collars because it gives good directional control. Set the collars between the cross elements and the C scrolls first and then set the C scrolls to ring. Now use the master rivet to attach the leaves and you are done.

The example that Ray demonstrated at Tannehill is what I would call "single sided". In other words it is primarily made to be viewed from a "front" side. Ray also makes this type of architectural element in a "double sided" form. To do this you need to forge and add a second set of acanthus leaves on the "back" side. Your collars will still be lapped on this backside but the piece will look great from either side.

Ray showed and talked about more things at Tannehill but they will have to wait for some future articles. I would like to express a special thank you to Ray Spiller for a great job at Tannehill and for sharing his methods and tools with all of us. One of the great things about blacksmithing today is the sharing of knowledge and Ray did a great job of this.

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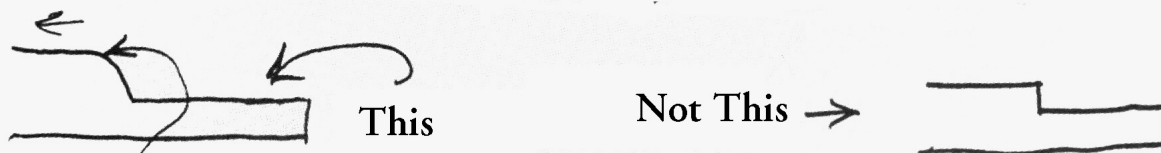
# New Jersey Blacksmiths Newsletter

Letter to the Blacksmith Association of Missouri Editor from Walt Hull, 7/24/04 Lawrence, Kansas

Dear Editor,

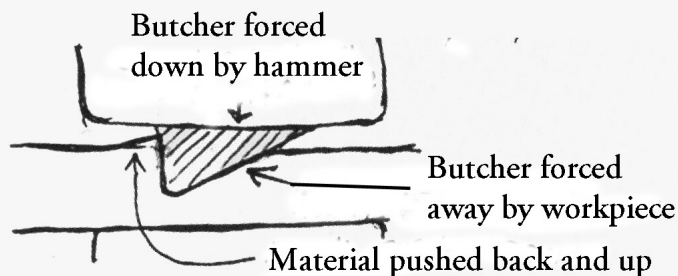
Just a quick technical note on Doug Hendrickson's scholarship report in the May- June issue:

If you use a set tool to make a lap joint, the tool might not bounce if you have a hammer with very good control, the work is very hot and you hold the tool down very tightly. But you still need to use a butcher because as the tool forges the material down it also draws it, so you will still get;



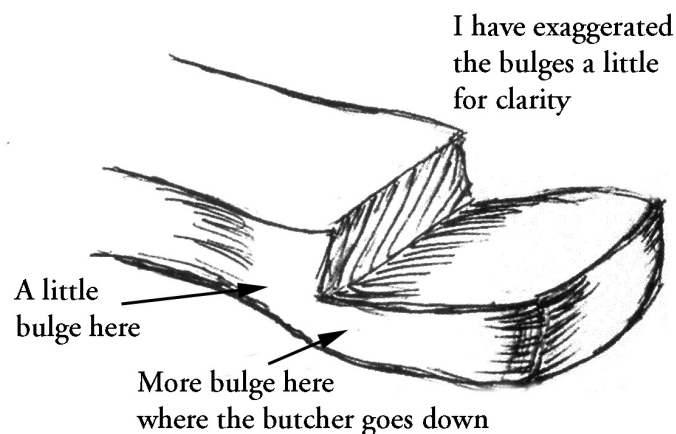
This material moves  
away from the tool

The butcher actually upsets the metal a little;

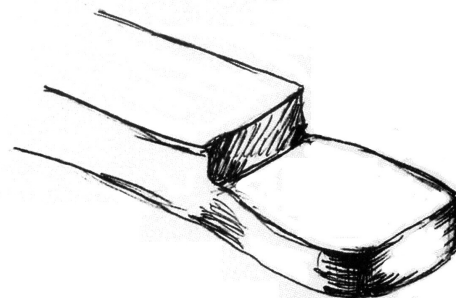


This upset is pushed back into the bar when the hammer die hits it.

Also the material is not simply pressed down under the butcher and then the set tool, but away in all directions,



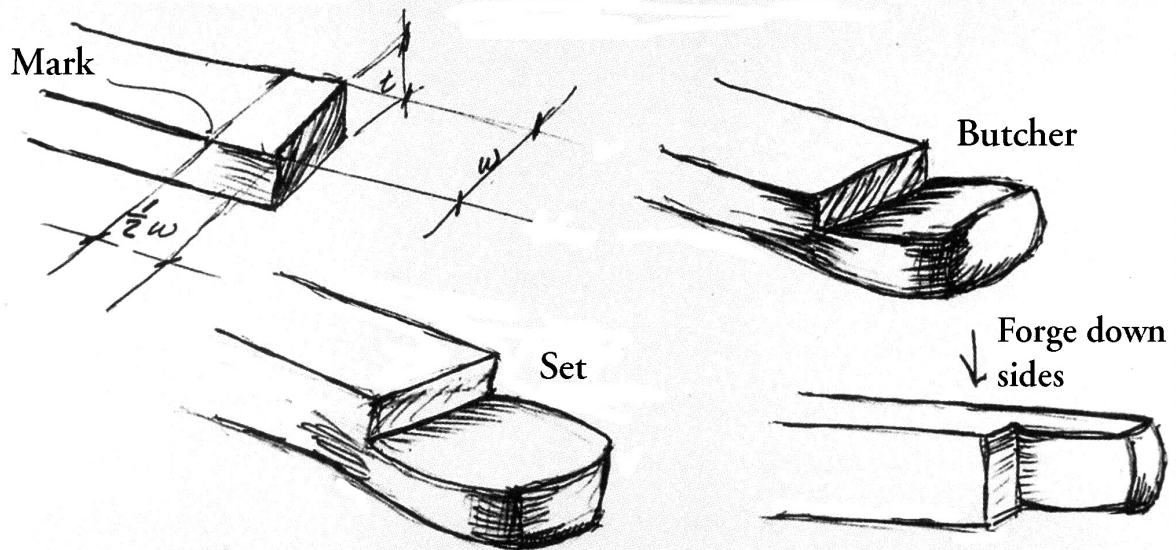
The results being something like this after butchering



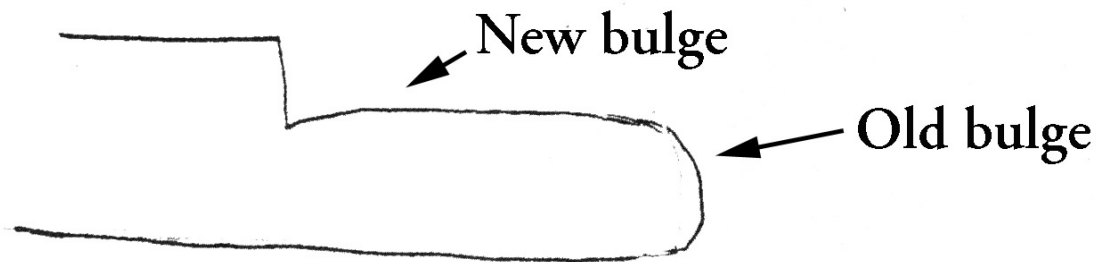
And like this after using the set tool

# New Jersey Blacksmiths Newsletter

So the procedure is like this;



Note that after you forge down the sides, you'll need to go back in with the set tool, because some of the bulge from the sides has gone back into the area you just forged down. From the side it now looks like this;



Finally, square up the end with the hand hammer hitting first the end, then the sides, then the end till it all comes out even. Hopefully this will happen just as you run out of heat and you'll leave a nice smooth surface

From Blacksmith Association of Missouri



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Index For NJBA  
Volume 10, #4  
02/01/06  
Meets and Reports  
Pages; 1—6  
Ad Page; 7  
Jeff Morelli  
Pages 8—9  
Forging for a Living 2  
Pages 10—16  
Butchering and Setting  
Pages 17—18

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