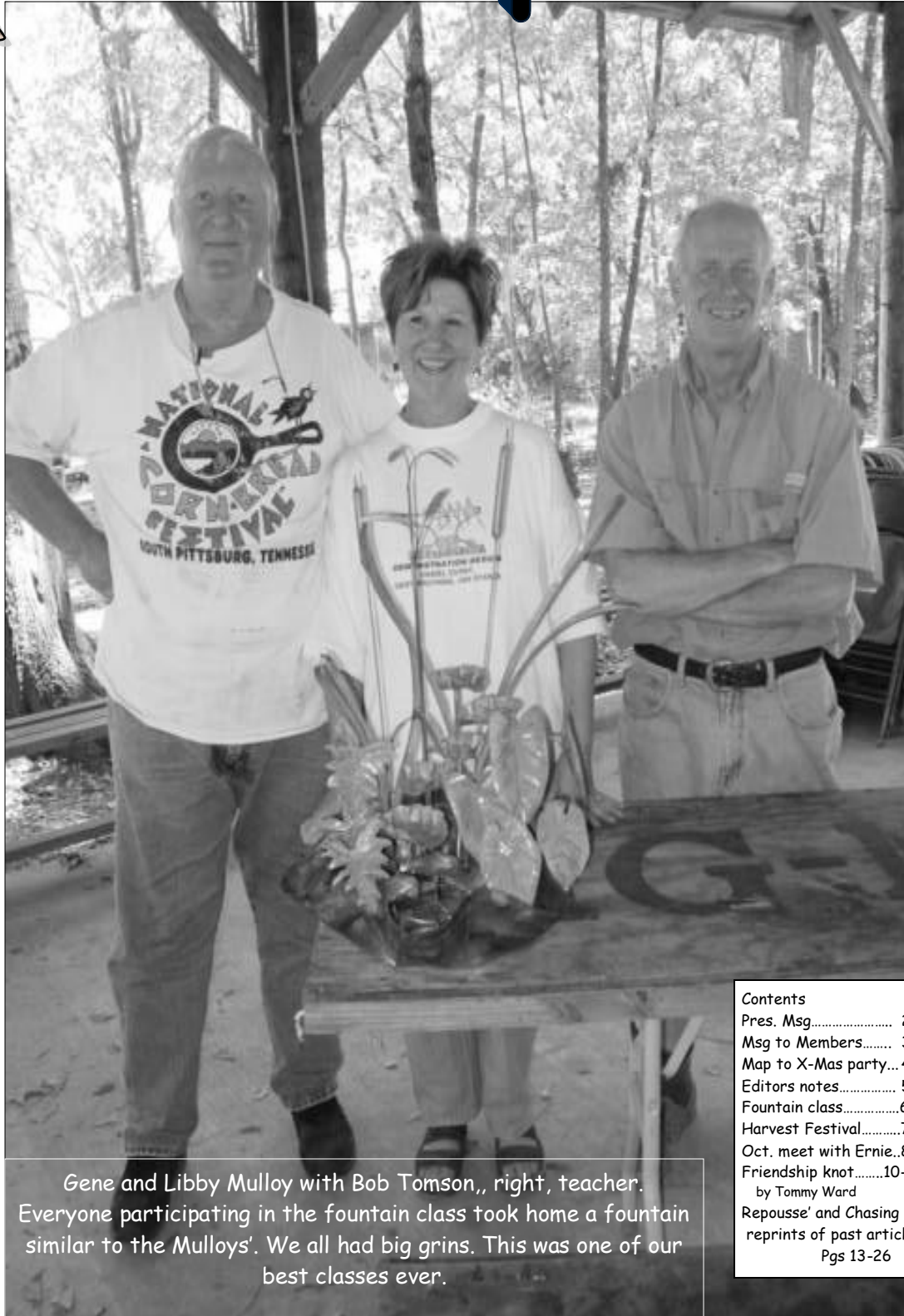


The Upset

MISSISSIPPI FORGE COUNCIL



Gene and Libby Mulloy with Bob Tomson,, right, teacher.
 Everyone participating in the fountain class took home a fountain similar to the Mulloys'. We all had big grins. This was one of our best classes ever.

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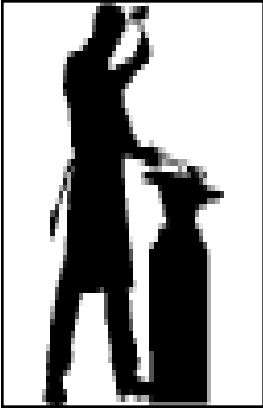
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Steve Norquist

Magnolia Iron Works

Here is some of the fine ironwork by Steve Norquist for a new home in the Jackson area. Steve has been a member of the MFC for several years and never hesitates, much, to share his knowledge of the craft with members.



Message to Members

It is time to make some changes in what we are doing. We are obviously not making things interesting enough to get you to the meetings. We have pleaded for input from membership and yet still receive no indication of what you want from the MFC. What do you want to learn? Which demonstrators would you like to invite here to teach classes? What can we do to make the MFC more responsive to your interests.

DO WE HAVE A PROBLEM?

Actually, I think not. If we stop for a minute and think about where we are now, things are cool. We have a good bit of money in the bank, we now have ten forges and enough equipment to have larger classes and we have some very, very talented blacksmiths as members, active members.

SO, WHAT AM I SAYING

My point is this, the active members are in a great position. We can choose what we want to do, what we want to learn, who we want to bring in to teach, expand our blacksmithing skills to whatever level we aspire and we have to money to do it. That 's not a bad place to be.

WHAT HAPPENS NEXT?

Here is the plan. We are going to take a focused approach for the next few months, leading up to the conference. Our focus will be on learning the techniques of repousse', chasing, embossing and making the tools-chisels, hammers and stakes- so we will be ready for the experts to come and teach.

SAY WHAT?

Ok, we started with Ernie Dorrill's demonstration at our October meeting. We saw then that there is a real interest in the gothic and renaissance decorative work. The artists that apply these techniques set themselves apart from the average metal artist, it validates their credibility and expands their appeal. Would you like to be described that way? You can be.

HOW?

Come to the meetings. Starting with the January meeting we will start by making the chisels

you will need to get started, enough to be able to produce some beautiful work. Then we will learn to make the hammers, for those so inclined, and the stakes used to form the work. Then we will do some actual work of our own, some introductory level work to get us past level one experience. With this in mind we will bring in the best we can find to teach a two-day class prior to the conference then they will demonstrate the expert level work at the conference. By the time the conference is over there should be a few more 'highly skilled' smiths in our group.

THEN WHAT?

We do it again, the focused approach, I mean. This is where you should be getting interested. You tell us what to do next. Will it be traditional joinery, forge welding, handrails, animals, ogres, yard art, sculpture, whimsical, functional? We start the process all over again, we have introductory classes, make the tools ahead of time and are ready, really ready for the expert demonstrator.

AND WHAT IF I STILL DON'T ATTEND?

Actually, that's your loss. We will just be choosing what we want and the classes will just be smaller. Eventually we will run out of money, shut down the MFC and go our own ways. Just kidding, just kidding.

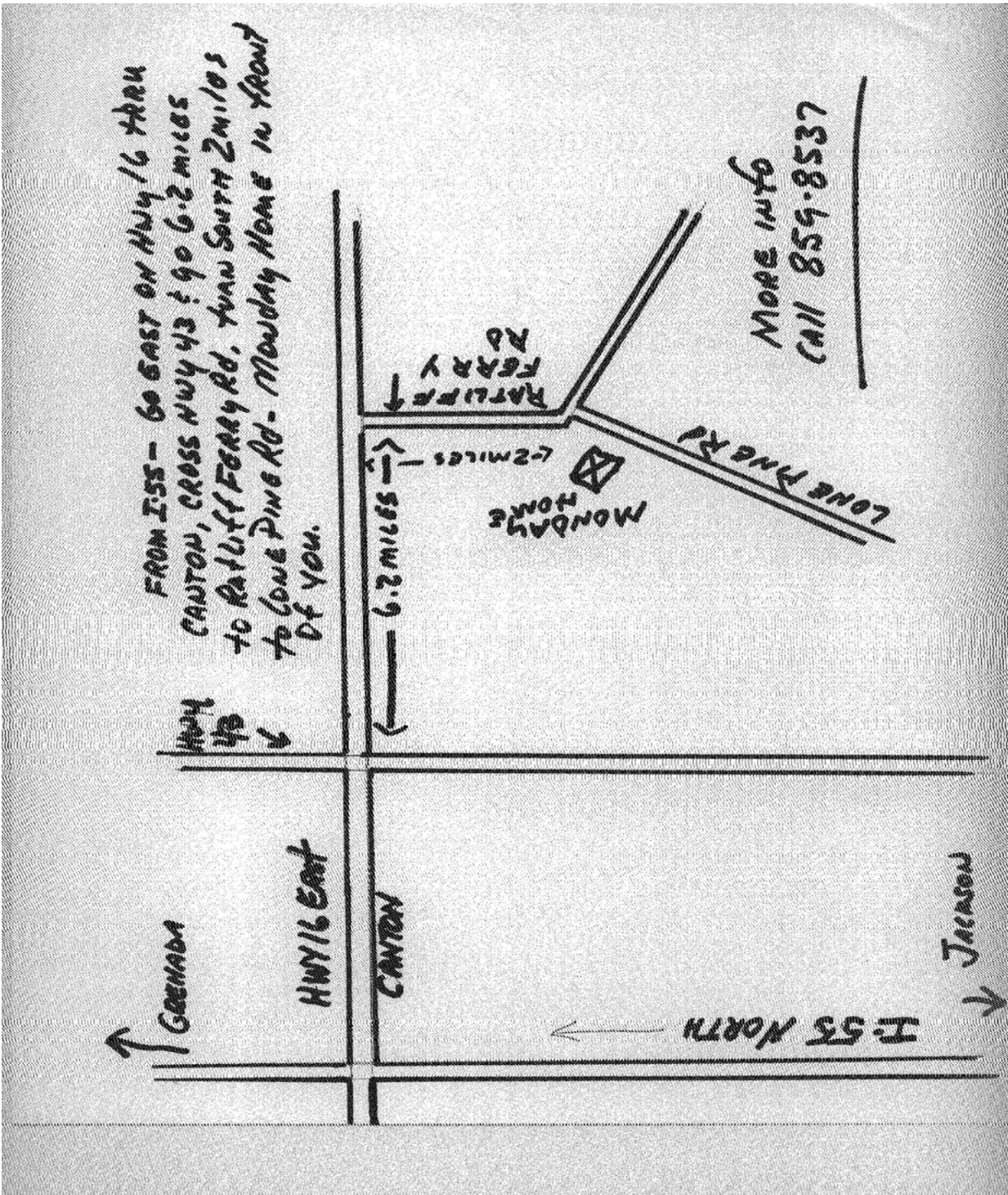
WHAT DO YOU THINK WILL HAPPEN?

I look at it this way, if what I am doing makes me happy, others will be attracted. If we are having a good time learning and making new friends we will attract others with the same interests. You are receiving this newsletter because you have an interest in blacksmithing. It does take a lot of effort to maintain an active, progressive group, the more people helping the less pressure on the few. Being mildly entertained by our endeavors is fine, but if the iron 'just grabs you' this is your opportunity to set yourself apart. It starts with this issue. Check out the reprints from past articles on repousse', it's a good place to start.

JP

MFC SCHEDULE

December 11, Christmas Party at the Monday's in Canton. This is the event of the year for the MFC. There is always plenty of food, fellowship and forging. There is no scheduled demonstrator but the forge is open and we always have a good bit of 'how to' going on. Call Ardell Hinton to see what we need for the party (601-856-2314)



Meetings

As the demonstrating schedule for our meetings evolves we will post it on the web site www.msforgecouncil.com **Unless otherwise noted we will meet on the second Saturday of each month at 9:00am at the Ag Museum.** It will be a good idea to check the web site, www.msforgecouncil.com, before any meeting or class. Sometimes things change too late to be able to contact many folks. I will do my best to keep the site updated properly.

January 8- Meeting at 9:00 am with Ernie, teaching chisel making class.

February 12- Meeting at 9:00 am then a hammer making class

March 12- Meeting then a beginners class on repousse' and chasing.

VISIT WWW.MSFORGEOUNCIL.COM FOR SCHEDULES AND EVENTS

ATTENTION PLEASE

Membership Dues

Stacy Stegall, Treasurer, is announcing a change in how, or when, we pay our dues. Trying to keep up with expirations and additions on a monthly basis is really too much when it can be made much simpler. Beginning January 1 2005 all membership dues will be due. It would be nice if everyone just donated any remaining months left on their membership and sent a check for \$25 in January. If this is not palatable then calculate the number of months between your expiration date and the end of the year and send \$2 and change for each month. If you don't know your expiration date, just send \$25, you're being punished. This will take you to the end of 2005, so, on January 1 2006 everyone's dues will be due. If you aren't aware of this, the membership dues fund the newsletter. Communication is a fundamental key to success, we need the newsletter. As it stands now we are almost breaking even on the newsletter costs, any help you can give would not only be appreciated but would be contributing to the preservation of the MFC.

Thank you for your support.

DID YOU KNOW?

In 2005 The Mississippi Forge Council will celebrate its 18th birthday.

Got anything for sale or trade?

Advertise in our sale barn, on the web site and in the Upset, it's free.

Contact the editor at jpigott@jam.rr.com

I would appreciate it if you could run this ad in your newsletter and/or on your website.

Thanks,

Dan Nibbelink

Member of Rocky Mountain Smiths and ABANA

LITTLE GIANTS: 50lb, overhauled, new spring, dies, etc. w/motor, \$3500. 25lb, good condition, 3ph motor, \$1800. ANVIL: 186lb INBA, new \$975. Farrier's portable coal forge w/elect blower \$100. www.nibbelink.net/bs/forsale, 970-532-4387, smith@nibbelink.net, equipment is in Colorado.

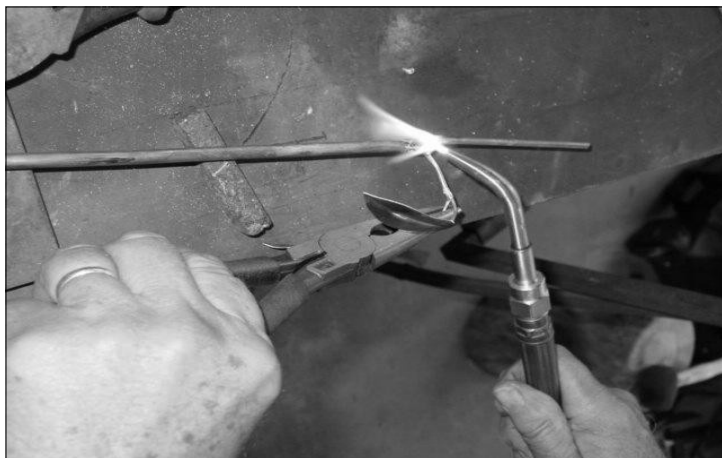
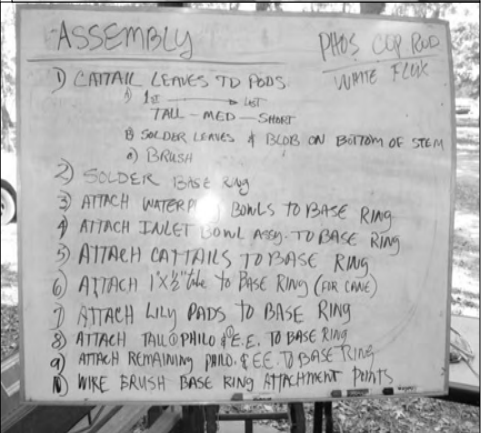


EDITOR ALERT!

Editors, give this to the scheduler of your classes and demonstrations.

Classes don't get any better than this.

There were 10 of us in this fountain class taught by Bob Tomson. He is thorough, organized, highly skilled and enthusiastic. In two and a half days everyone of us had a beautiful fountain of which we are extremely proud, see front cover at the smiles on Gene and Libby's faces. He taught us valuable techniques in brazing, patinas and metal shaping. His instructions are clear and written out, makes it real easy to progress. The comments from the participants made it clear that we have a winner here. "The best class we have had". Even if copper work is not your first interest, you will learn techniques that apply to other metal work that this would be worth your time. Bob is the man that created the 10" oak tree from sheet brass. You can see the process at our web site www.msforgecouncil.com in the gallery in Jackson Oak He is ready to start a 20" tree now. Want to help? You can reach Bob in Florida at 386-749-4236 or call this editor.





Harvest Festival

Many thanks to Stacy Stegall, Bill Pevey, Steve Paulson, Carroll Ellis and Duke Baker for taking the time to demonstrate at the annual Harvest Festival at the Ag Museum. This is the most important function sponsored by the Ag Museum and by demonstrating during time we show our appreciation to the folks there for all they have done, and do for us. The MFC has come a long way since we made our home there. This year there were almost 6,000 visitors, mostly school children, during the festival. It is really a treat to see how the children and adults react to the hot iron on the anvil. This year the knifemakers demonstrated at the pavilion on Saturday. We got a lot of good exposure to the bladesmiths which made things more interesting at our shop.

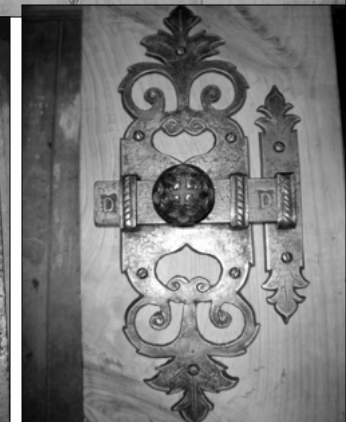
Thanks again guys, you did great.

October Meeting with Ernie Dorrill

This is the meeting that set the ball in motion to focus on repousse' and chasing up to the conference. Ernie has worked hard to be able to do his museum quality work and he is willing to share his knowledge with anyone interested in learning. The next few months will present a unique opportunity to learn from one of the best without having to travel or incur major expense. I can't imagine missing this.



Left
Ernie on
treadle torch.
Right
Ed Wozniak
on treadle
hammer



Above is Ardell Hinton on the treadle hammer and left is Julia Allen with her whimsical Venus Fly Trap. The candle holder, center, the bolt latch and the lions head escutcheon plate are just a small part of Ernie's work. By participating in our meetings and classes for the next few month you will know the techniques and have the tools to be able to do this kind of work. No matter what type of iron work interests you the skills you will learn will enhance your work for the rest of your life.



Long time MFC member Benny Crevitt recently performed a public demonstration in the original industrial blacksmith shop of the Soule' Steam Feed Works/Mississippi Industrial Heritage Museum at Meridian. Benny always draws a crowd when he demonstrates, and folks were two deep around his area for a good part of the day. Linda Crevitt also held the interest of a steady stream of onlookers at her broom making operation in another part of the facility. This was their second annual open house and live steam festival, and the volunteer staff has made much progress in cleaning up and arranging displays since the museum's debut last year. More information on the museum can be found at: www.soulelivesteam.com.

Tommy Ward

REDUCING THE SIZE OF A HOLE

by: Tommy Ward

Here are a couple of tricks for reducing the size of a drilled or punched hole that is found to be slightly larger than desired.

One method is to find a ball bearing with a diameter larger than the hole and drive it against the opening with a hammer to push the metal around the lip into the hole. This technique can be done cold, but may require heating the piece to a forging temperature if more material is to be moved or if the work is particularly hard. Repeat the process on the reverse side.

Another approach is to heat the area around the hole to a bright red and then carefully quench the "bottom" side of the work (the hole should be perpendicular to the water) while leaving the "top" part outside of the water. The submerged area will cool rapidly and shrink somewhat, but the portion of the metal remaining outside of the water will be drawn in more as it slowly air-cools - resulting in the "top" half of the hole being reduced in size. Reheat the piece and repeat the process on the opposite side. I have found it easier to hold the work precisely half-submerged by bending up some coat hanger supports that span my slack tub. Make a couple of dry runs to get things adjusted, and then quenching will be a simple matter of laying the heated material on the hangers that have been preadjusted for the correct depth. If you're really curious about how the shrinkage of the metal can be influenced, play around with the leaving the piece in the water until it cools to room temperature, or taking it out of the water and allowing it to air-cool after the initial quench.

Both of these techniques work better, of course, on thicker pieces of metal, and with a little practice can reduce the size of a hole by a surprising amount.



THE FRIENDSHIP KNOT

By: Tommy Ward

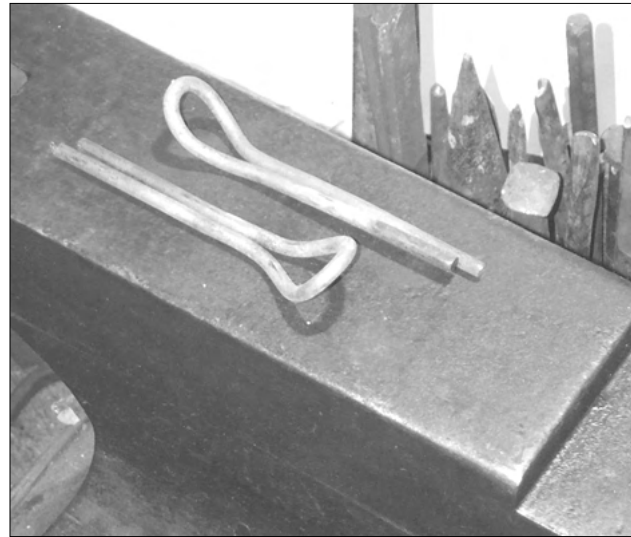
The blacksmith's bag of tricks includes techniques intended to impart metal with the illusion of being something else and give the observer cause to wonder. A perfect example is this simple bending exercise that suggests the appearance of a rope knot. The knot theme can be further developed into a useful accessory such as a hook for hanging a coat, hat, or what have you. The knot makes for a nice little gift - particularly when the recipient is told the story of its tradition. Walt Scadden performed the knot during his demonstration of nautical ironwork at Tannehill this year, and I was intrigued as much by his account of the knot as I was of the procedure for making it.

Walt's shop in Connecticut is near Mystic Seaport, an area renowned for traditional boat building. For years Walt has supplied authentic iron work to the wooden ships that come to the port for outfitting or repairs, and he has made a habit of presenting a visiting vessel with one of his metal knots as a gesture of good will and friendship. Hence, the "Friendship Knot." Walt is passionate about preserving and furthering the craft of blacksmithing, and what better way to honor the tradition than by making a "Friendship Knot" for a friend. And don't forget to share the story with them.

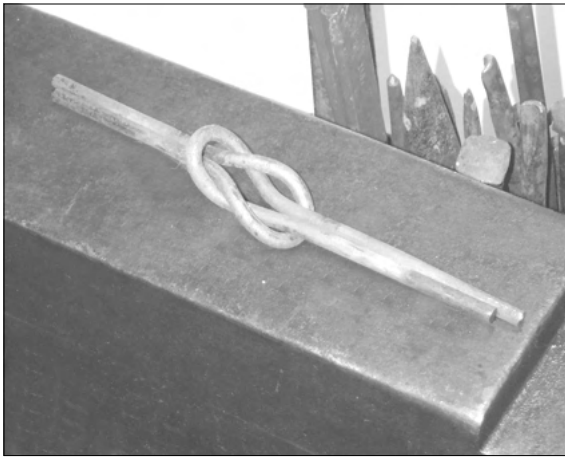
Note: thanks to Jim Pigott and Ernie Dorrill for helping with photos and set-up.



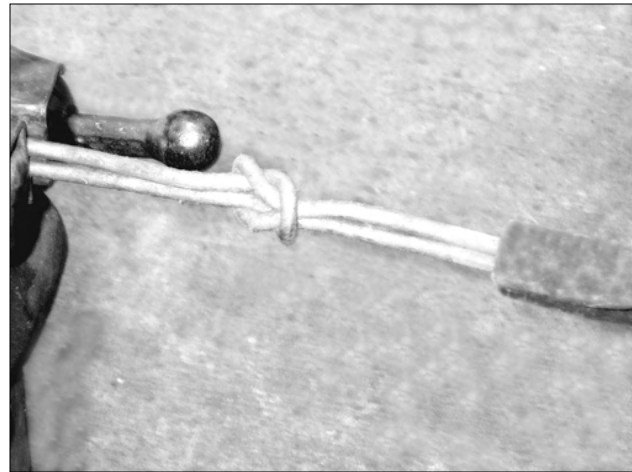
(1) **Forming eye**
Starting with a piece of 1/4" rod about 12" long, form an eye resembling a big cotter pin. The inside diameter of the eye should be a smidgeon over 1/2" to allow both legs of another pin to pass through it.



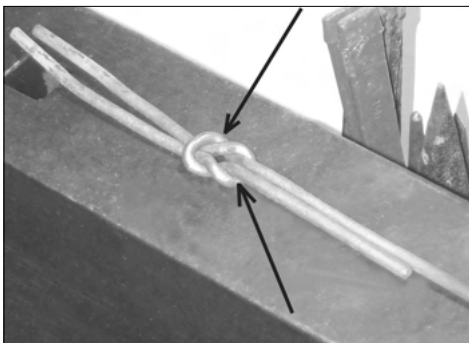
(2) **Two pins**
Make two identical pins with the eyes bent up twenty degrees or so. Try to keep the eyes as compact as possible to improve fit



(3) **Loose knot**
The legs of each pin are slipped through the opposing eyes as shown.



(4) **Pulling knot**
Take a bright heat on the center of the assembly, place one end in the vise, grasp the other with a heavy set of tongs, and give the "knot" a quick, heavy tug to draw it tight. You may want to put soft jaw liners in the vise to prevent marring the legs. Quenching the ends of the legs before clamping may help isolate stretching to the knot area. With some practice you should be able to get a fairly tight knot in one or two heats.



(5) **Tight knot**
This is how the finished knot should look. The tighter the fit, the more "rope-like" the joint will appear. You may improve the fit somewhat by working the loops and necks of the eyes with a light cross peen hammer in the areas indicated by the arrows, but be aware that working the knot cold can loosen it.

**(6) Trim ends**

Trim the ends of the legs even, and adjust them on the anvil as needed to achieve a straight and parallel condition. Reheat the legs for working, but be careful not to flatten or mar them.

**(7) Curve & flatten ends**

Splay the "top" legs sideways to whatever degree of curvature you find pleasing (this is the end that will fasten to the wall, so select the "back" set of legs to insure that they will lay flat). Next, flatten the ends of the upper legs with a large flat punch. You can also use thepeen end of a small ball peen hammer as a punch to add a "dished" look to the ends. Now punch or drill a hole in the center of each flat to receive mounting screws.

**(8) Form hook ends**

Flatten the ends on the opposite (bottom) legs and form small lamb's tongue scrolls on each. The two legs are then bent sideways and outwards to create the hooks at the bottom of the knot (see photo of finished knot).

**ACME PRINTING**

After talking to several printing companies, who thought our newsletter was too small a job to deal with, I was referred to the Wagner brothers at Acme Printing. With them there was no question about the size of the newsletter or the quarterly printing. Not only did they give us a good quote but they referred us to Dearing Addressing who takes the printed newsletter and labels and bulk mails the issues for us. All this not only saves us a huge amount of time but they do it for what it was costing us to do it the hard way. Support those that support us. For your printing needs contact

Acme Printing
601-856-7766

Volume XI Issue 5

The Upset

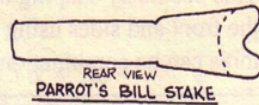
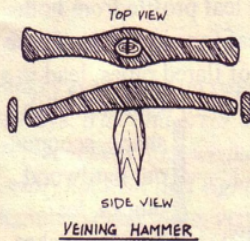
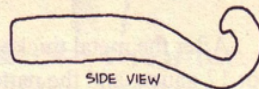
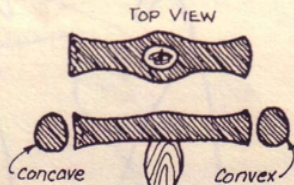
May/June 1997

CONFERENCE '97

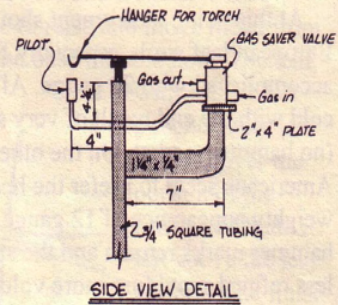
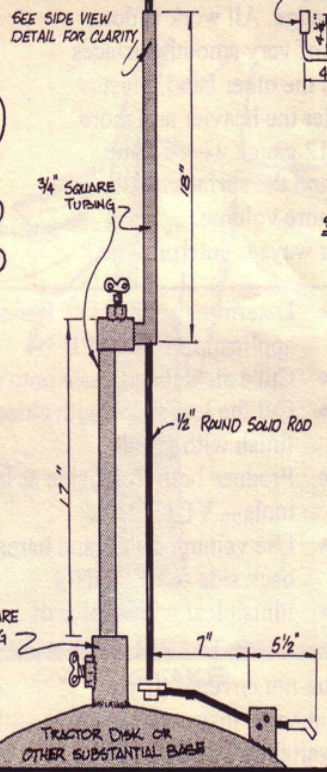
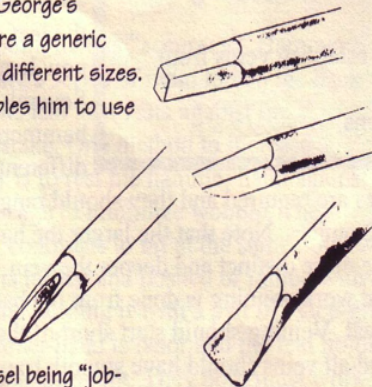
Wendell Broussard & George Dixon

Wendell Broussard and George Dixon are two of the finest demonstrators of the "blacksmith art". The repousse' and chisel work of these two men is absolutely incredible. The sample pieces brought by both men showed that they are masters of their art. Words cannot express the softness of the iron and the gracefulness of the lines. The followings articles are but a glimpse of the knowledge obtained from our "Conference '97". I hope that they encourage you to put hammer to iron and plan now for "Conference '98".

Various hammers and stakes were used by Wendell to produce the repousse' acanthus leaf that he demonstrated. These tools are primarily hand forged and not purchased from a supplier.



In the same respect, George uses a variety of chisels and butchers to produce the European Motifs. George's chisels are a generic shape of different sizes. This enables him to use the same chisel for many tasks, rather than each chisel being "job-specific".



Both demonstrators used a treadle torch stand. This made heating a small, specific point easier. This is a drawing of Wendell's. It is designed for quick breakdown, is very compact & light.

THE MISSISSIPPI FORGE COUNCIL NEWSLETTER

Wendell Broussard — Acanthus Leaf

Text by: Ernie Dorrill
 Drawings by: Dean Foster

Processes...

First, leaf design, its configuration and scale must be determined. A working knowledge of the acanthus leaf and its history is a good beginning. **The Anvil's Ring, 10th Anniversary Issue**, is a good start to develop patterns for your work. **The Hammer's Blow** also has excellent examples in past issues to provide ideas. Once the design is developed, it can be copied and glued to the selected metal for cutting. The pattern is then cut with aid of a metal cutting band-saw and a belt sander to smooth edges or the pattern can be cut with the use of chisels with varying radius.

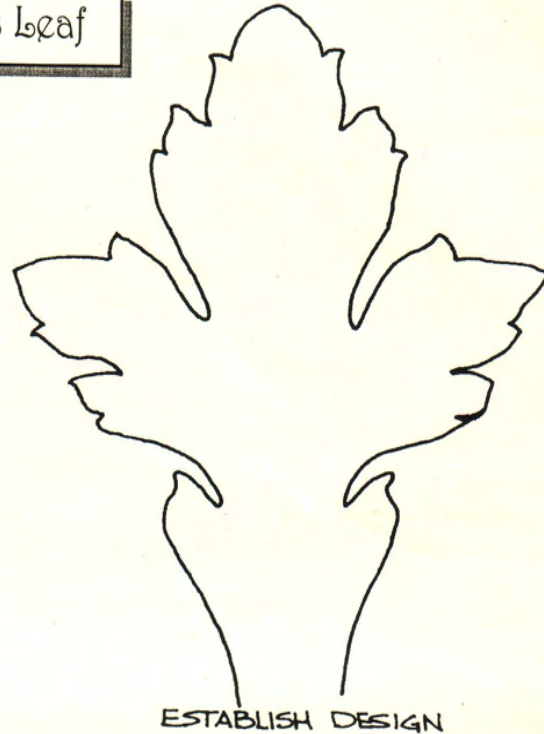
At this point, a comment should be noted that European leaf work, especially French, is accomplished with 20 gauge. All work is done cold with the end result of very smooth surfaces (no hammer marks). On the other hand, most Americans seem to prefer the heavier and more weighty appearance of 12 gauge where some hammer marks remain and the surface texture is less refined providing more volume.

There are a variety of ways to interpret the form of the

acanthus leaf and some illustrations are included in Max Maezer's "Modellbuch Fur Kunstscholsser, Einfaches Akanthusblatt". Text is in German but the illustrations are very good.

"How-to" instructions are not covered (if you cannot read German), but some instructions are explained in Ernst Schwartzkopf's "Plain and Ornamental Forging".

If 12 gauge is selected, the use of a treadle torch is imperative for localized heat and to save gas during hammer operations.



After the metal thickness is selected, either 20 or 12 gauge, and the pattern cut, forming begins. This occurs by shaping the leaf profile from both the front and sides using leaf forming tools. These tools can be combinations of flared pipes, lead in a

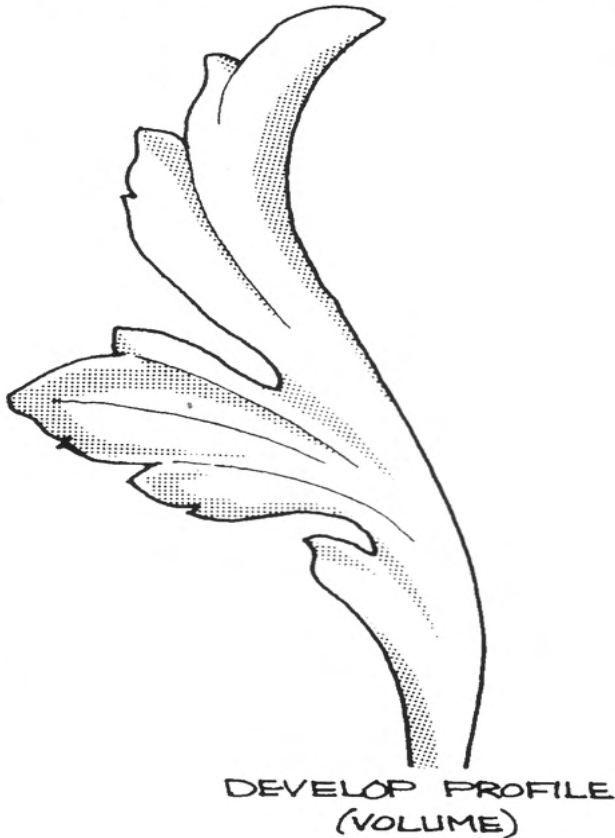
- ◆ Determine appropriate leaf shape and scale for the application -- **SHAPE**
- ◆ Cut a stencil and paste onto material chosen
- ◆ Cut the leaf shape with chisels or metal cutting band-saw, finish with grinder
- ◆ Produce both front, side & lobe profiles with sinking tools -- **VOLUME**
- ◆ Use veining stakes and hammers to establish veins from back side -- **VEINING**
- ◆ Finish leaf with choice of applications

saucer or dish shape, scooped-out hardwood blocks, leaf-forming stakes, etc.

Veining of the leaf surface now begins.

Several hammers of different shapes

and sizes are required and they should range from 11 to 12 ounces. Note that the larger the hammer face, the more distinct and deeper the vein. For hot and cold work, veining is done from the back-side of the leaf. Veining should start short of the leaf edge and all veins should have smooth transitions when converging. Hammers used with veining



stakes are shown on pages 5 & 8. As always, *trial and error* are sometimes the best teachers. For we learn by *trial and error*, not *trial and rightness*! All hammers, leaf tools, veining stakes, etc., can be made from jack-hammer bits that should be normalized rather than heat treated.

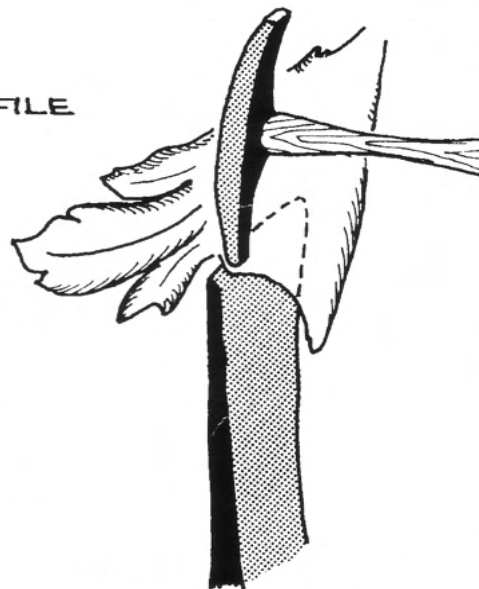
One point here is "accuracy". Hammer strokes are a series of rapid tap on the back side of the leaf as it rests against the veining stake. One method to increase accuracy is to rest the hammer hand against your rib cage to minimize wobble. The hammer continues to hit at the same point while the leaf is turned and pushed or pulled with the other hand holding it with a pair of "vice-grips". The hammer hand is labor and the leaf holding hand is management. They both must work together to produce efficient and effective results.

Again, it takes practice but this learning curve is rewarded many times over.

Regardless of different processes, there is a definite set of steps to follow in order of importance.

Once the leaf is completed, finish with a coat of bee's wax, Johnson's paste wax or your preference. Much of this repousse' work is used on the inside, such as window grills, stair railings, candles sticks, etc.

Last is the attachment of the leaf to the scroll or other base form in which it is to be used. This attachment is done utilizing a blind rivet. (*See page 8 for detail drawing.*) A pilot hole is drilled in the base to which the leaf is attached, large enough to accept a six to eight-penny finish nail. The head of the nail is inserted into the hole and a chisel is used outside the hole to raise and move metal from the surface of the base into the hole. The leaf,



VEINING PROCESS
OVER STAKE

with a drilled or punched hole is then set over the portion of the finish nail that is left above the leaf surface. The finish nail is then heated and peened down over the leaf locking it in place to the base.

Summary:

A substantial amount of planning is required in leaf development as well as time to develop leaf tools, hammers, and

stakes. These tools are not readily available and therefore, they can either be made, or purchased if a source is located. Even considering all the time involved, the addition

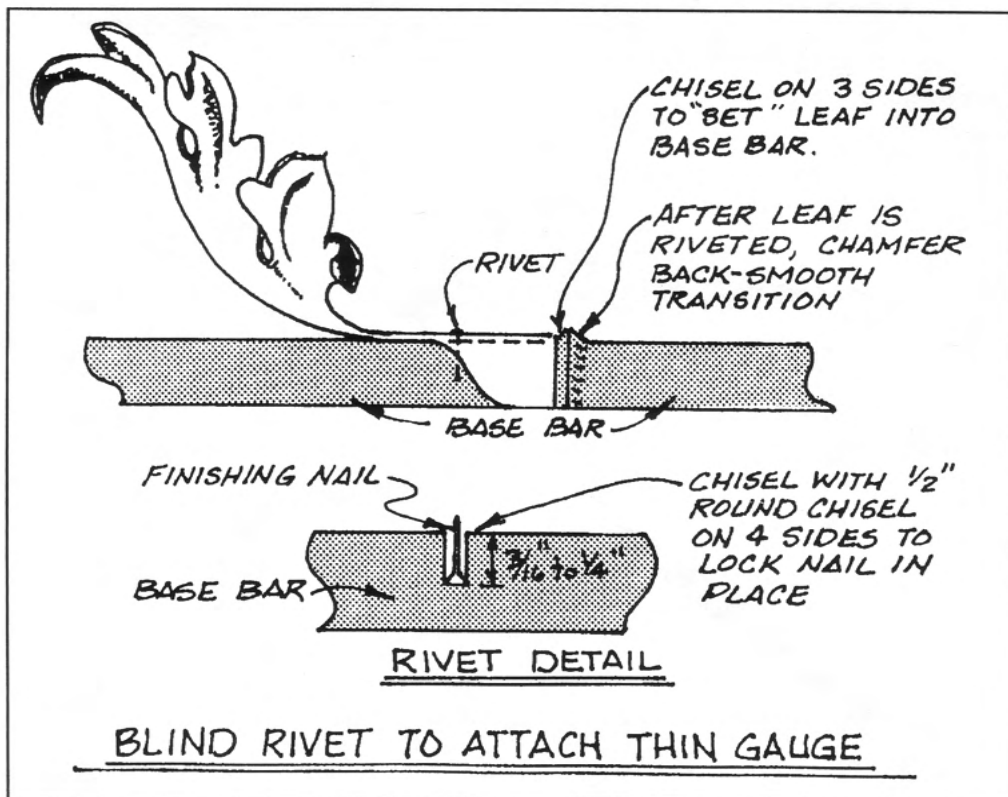
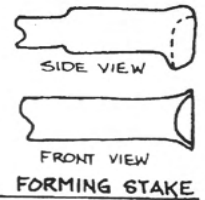
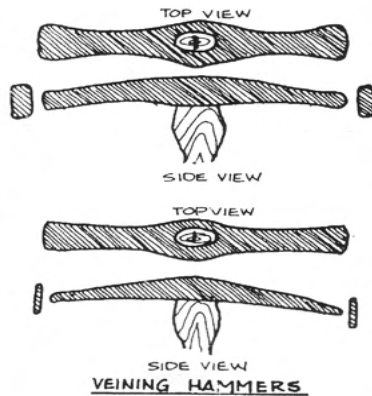
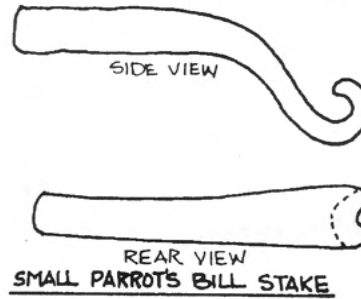
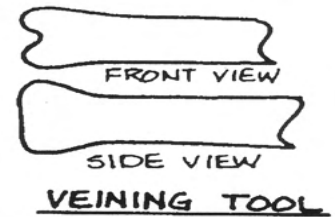
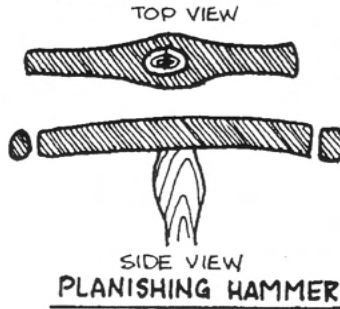
(Continued on page 8)

(Continued from page 7)

of acanthus leaves to work in a tastefully designed manner can make all the difference between good presentation and exceptional presentation of a piece of iron work.

Continue to check the **Hammer's Blow** for other details on leaf work, chiseling, chasing, repousse', etc. It is one of the best "real-time" sources of techniques and processes regarding execution of masterful iron work design.

It picks up where other books and information describing this process end. Good examples of finished works are the Yellen Portfolio and the work of Cyril Colnik as well as several others.



Volume XI Issue 5

The Upset

May/June 1997

George Dixon — Techniques for European Motifs

Text by: James Jolly

Drawings from: "The Hammer's Blow"
Spring 1995 & 1996 Issues

For all
chisel

work, do layout cold, then work hot using the same chisel(s) for both. This way, the chisel will track and there is no guess work. A "rock & drag" motion is used rather than "pick-up & set-down". This makes the tracking of the cold-chiseled lines easier. Light strokes are used rather than heavy blows. With lighter blows, progressively, errors can be corrected.

- ♦ Lay-out cold
- ♦ Then develop
- ♦ Maintain control
- ♦ Plan work

Stock — Blank — Decorative work

When you begin a project, such as a sunflower, you must keep in mind what your original stock will need to be, what the blank (rough forging) will need to be, and what decorative work will be used to get the desired outcome. The blank will be slightly oversized, and after the chisel work (decorative forging) it becomes the finished size.

Detail work is important because:

- ⇒ It is your work, take pride
- ⇒ The customer may only see it for 10 minutes, but it will be when he cuts the check
- ⇒ Someone who knows forged work can appreciate your time/work.

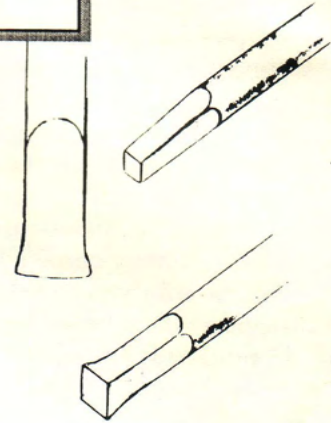
For period work, the smith must hand forge the iron hot to remove the mill stock. If this is done cold, it will look as if it was done cold. The key to period work is the hand-forging. Always hot-cut rather than using a band-saw for large pieces. Remember, no square edges. Traditional process is quicker, easier, and looks better than "faking it" with bandsaws, files, etc.

When hot-slitting, the ends should be double struck to increase depth. This way the center of the

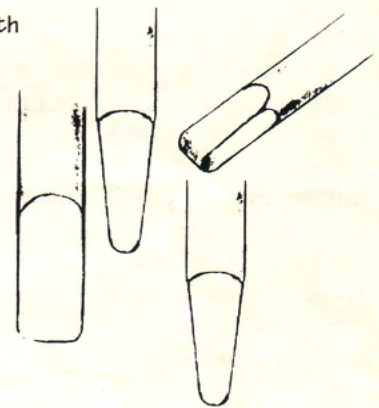
(Continued on page 10)

Small, hand-held FLATTERS.

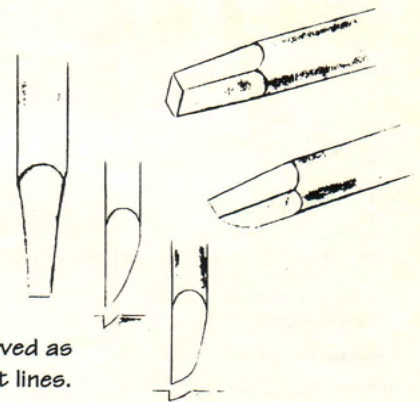
A very slight crown on the face to prevent edges from making contact.



FULLERS with radiused ends will track along a line without leaving tool marks.



BUTCHERS are used to depress material to one side of a layout line. A narrow butcher can be used for curved as well as straight lines.

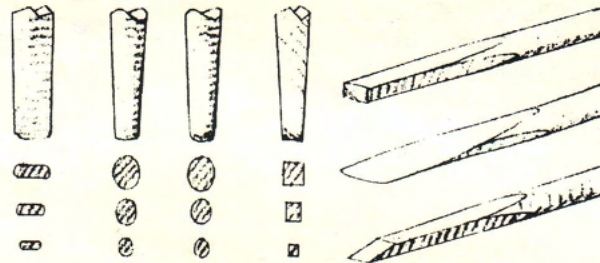


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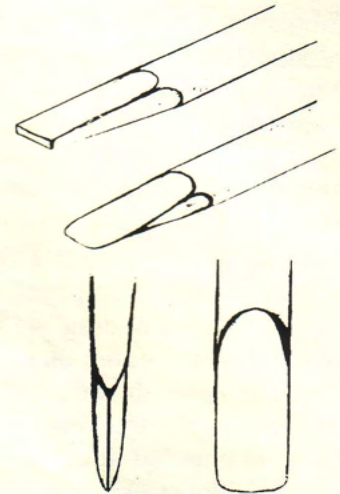
slit will cut through last. That will keep the slit the proper length. Repeated, multiple passes when slitting hot will give a clear cut rather than a ragged tear. Use overlapping strokes with your chisel. Straighten the piece being slit as you go. If you cut a straight line in a piece that has curved, then straighten the piece, the cut will be curved. When chiseling on the diamond, break the edge of the bar slightly (hammer corners lightly). This will give a flat surface for you chisel to follow. The flat will disappear when the slit is made.

Control and consistency are the key to good work if multiple pieces are to be a matched set. The layout is a vital part of this puzzle. Also, do all pieces at the same time. Do a master piece, then work the total number of pieces sequentially. This way you have a piece that can be presented to a prospective client as an example of your work.

Jigs are a more specific tool in the shop. About the thickness of a business card will provide the clearance needed for removal of stock. If a jig is for spreading a slit, chisel the dimension of stock required on the jig for future reference.



SLITTING CHISELS are made so the cutting edge comes around and up the sides. This keeps the end of the cut clean.



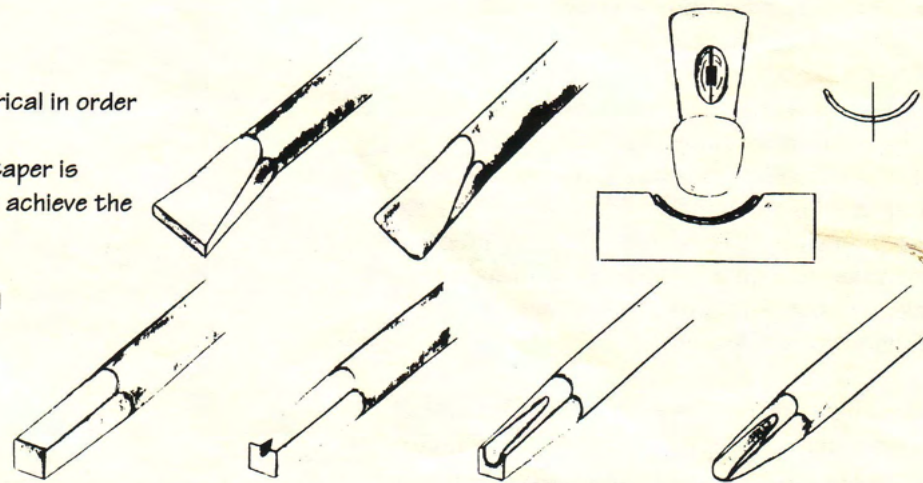
SIZES of chisels should be graduated to give a good selection. Using the generic shapes of graduated sizes, you

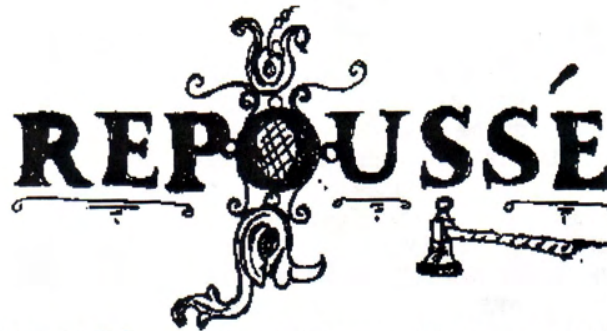
can chisel practically follow any line of any shape.

CURVED CHISELS must be symmetrical in order to cut a clean circle.

On large curved chisels, the taper is forged then a swage is used to achieve the desired curve.

This is the progression George uses to achieve a small curved chisel. He uses files to form the inside curve. Then, a sander to form the outside curve.





PART 1

CARL CLOSE^{JR}

While demonstrating at the Fall Meet in Manchester, N.H., I was asked to write a short article on the art of Repoussé for the beginner. In thinking about it, I realized that it would be better if I wrote the article in two parts because there is a lot of information that the student needs in order to get started. However, with that information, it is pretty easy to get good results on a first project.

Repoussé is an ancient metalworking technique that uses punches and chisels to model sheet metal in high relief from the back of the metal. Chasing is the term for lining and modeling from the front of the metal. This skill of metalworking can be seen in artwork from the Bronze Age all the way up to present day, where it is enjoying a rebirth in interest and application.

To start, let's consider different types of backing material. When you perform Repoussé you need some sort of support to keep the metal from collapsing when you start to model your design. There are many different types of backing material to use. You can start with a soft white pine board, or you can use blocks of lead—just wash your hands after the pro-

cess. Many of Samuel Yellin's pieces were done in lead backing. You can also use pitch which is highly recommended, but takes a little practice for the beginner to get satisfactory results.

The backing I use and recommend is a type of Italian sculpting clay called plasticine. This is not the type of clay children use, but is a graded type used by sculptors and for architectural models. I use #4 which is very hard. The good thing about the clay is that you can flip your work from front to back without heating each time you want to remove it from the backing, as you need to do when using pitch.



2 pound blocks #4 Roma Plasticine.
Found at most art stores for about
\$5.00 per block.

When you use this clay there is a need to contain the stuff somehow. One way to do this is to use an old frying pan. Just hammer the block of clay into the bottom of the pan and you

are ready to go. One word of caution: please ask your spouse first before borrowing that family heirloom cooking vessel!

The type of metal used depends on your design and experience. I recommend 18 or 20 gauge hot rolled pickled mild steel sheet. The advantage to the metal being pickled is that there is no mill scale on the surface making it easier for you to glue your design to the surface.

Assuming you have picked your designed pattern and have made photo copies of it for future reference, you are ready to glue it to your workpiece. I use Spraymount Adhesive Spray by 3M Co. It is an artist glue for graphic design use. Be sure your metal is clean and dry, then spray the back of your paper pattern and stick it to your metal work piece.

So far, you have your backing material and your sheetmetal with your selected pattern applied to the surface. Great! Now you need to make some tools. Don't let this frighten you—I'll help you. Relax! First, you need material for your punches and chisels. I use mostly recycled materials like

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By Carl Close, Jr. Reprinted from New England Blacksmiths

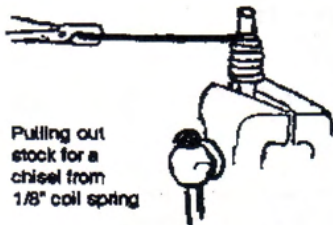
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Repousse (cont.)

coil springs and allen wrenches. You can use new material if you like, but recycled is less expensive. I found that 1/8" coil springs work very well. Heat up the coil, drop it over a piece of round rod held firmly in a vice, then pull out enough material for your tool and cut it off.



Pulling out stock for a chisel from 1/8" coil spring

The forming process of the business end of the tool depends on the shape. For ball shapes you can grind them to shape, but for tear drop shapes and other configurations you may need to forge them to shape, then finish shaping them on a grinder.

I use tool blanks about 3-3 1/2 long. A punch should be long enough to fit comfortably in your hand, but not too long or the tool will sway back and forth when struck with your hammer.

The process of making tools could fill many pages, so I'll try to keep it simple and give you some techniques I use. First, we will make a lining chisel which is a very small chisel for scoring the surface to transfer your design on the metal. Forge the end of your stock to a short chisel shaped taper approximately 3/4" long. Normalize your blank by letting it cool slowly after forging. File

one end to a chisel edge and round the edge slightly. After you have achieved the desired shape you must harden the tool. To do this, heat the end to its critical range, or until a magnet no longer sticks to it, then quench it in oil. I use linseed oil. Now you have to temper your chisel to relieve the brittleness and make it useable.

Polish the end of the tool with sandpaper 'till it is shiny and bright. Heat the shank about 1" above the working end with a propane torch. Watch your oxidizing colors. Once the chisel end has reached a straw color then quench it again in the oil. Now you should have a useable tool!

In Part II I will go over tool configurations and the chasing hammer. Also, I'll describe how you can start modeling your flat piece of metal into something you can be proud of.

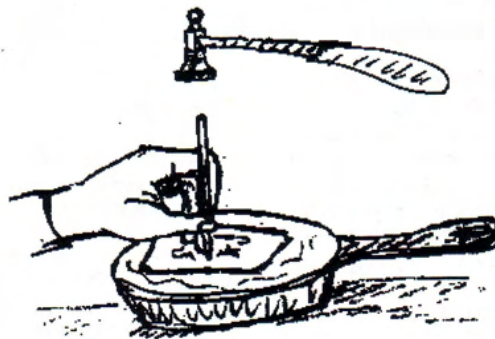
Recommended Books
Chasing: Ancient Metalworking Technique With Modern Applications, by Marcia Lewis.



Enlarged view of liner chisel (top) and actual size of working end of liner (bottom).

Spiral bound, 72 p. \$19.95*
Metalworking, by Paul N. Hasluck. hc, 780 p. \$29.95*
Metalwork: Bent Iron, Repousse, Cut-Work, by Chas. G. Leland. pb, 112 p. \$9.95*
The Hammer's Blow, which is sent to ABANA members along with The Anvil's Ring, has a wealth of information on Repousse.

*Prices from Norm Larson Books, 5426 E. Hwy.246, Lompoc, CA 93436, (805) 735-2095 (Evenings). Postage is \$1.35 for the first book plus \$0.45 for each additional book.



Proper hand position for chasing & repousse

REPOUSSE 2

CARL CLOSE

Well, we're back, and you're ready to get started on that masterpiece we talked about in the December issue. But wait a minute, we don't have an assortment of punches. And you think that you need at least 101 punches to do anything worthwhile. Right? Wrong! You will only need about 6 or 8 to do good work.

To get started, you will need a lining chisel which we made last time. One down, 7 to go. Now you will need a square-shape punch which we will use as a flatter. Most of these tools can be ground to shape or they can be forged and then finished on a belt sander. Also, you will need a rectangle shape, a triangle shape, one circle shape, and a half circle shape which can be made by grinding a circle shape in half. Since these tools have flat faces you will also need round or ball shape tools which I

make in graduated sizes from 1/4 in. up to 1 in. I also make these by grinding them on a bench grinder and finishing them with a file and emery paper and finally heat treatment. I make my tools out of Allen wrenches and coil springs.

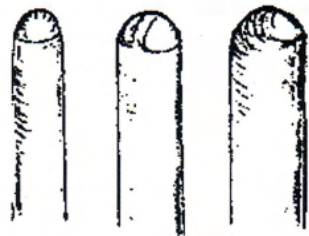
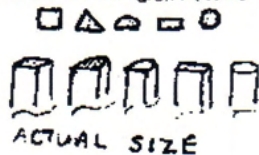
Now, everything is set except the hammer. You will need some sort of a beating device with a wide face. The hammers used in the art of Repousse are called chasing hammers. They come in a variety of weights from 3 to 6 oz. I prefer a 4 oz. hammer for general work. The hammer is designed with a wide face so you can concentrate on the work and not worry about smacking your fingers every time you deliver a

blow to your punch.

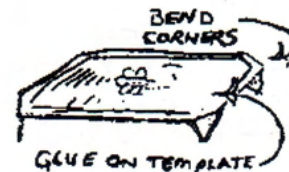
The peen side of the hammer has a ball to use to form hollow depressions in your work. But the handle is the most important part of the hammer. Most chasing hammers have a pistol grip for easy handling and the neck is very thin for flexibility because you actually slap the punch with the hammer by delivering rapid short blows. You do not drive the punch as you would when you drive a nail into a piece of wood. Chasing hammers can be purchased from jewelry supply houses or you can make one out of an auto body hammer. I just cut the point off the back and grind it into a ball, and then thin down the handle for a good flex action. These hammers are a little heavy for light work, but work great for heavy forming.

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TOOL CONFIGURATIONS



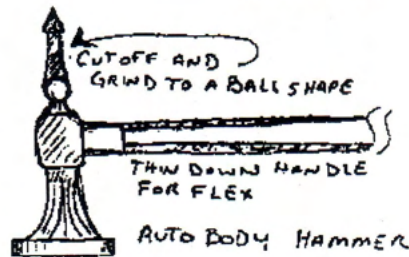
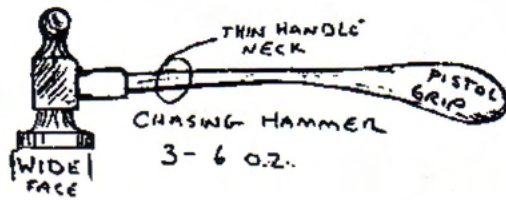
BALL TOOLS IN GRADUATED SIZES 1/4 - 1"



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I am ready to get started. How about you? First, take your annealed sheet metal with the paper template glued to it facing up and bend the corners down so the piece won't slide around on you. Now, stick it down in the clay and be sure that it is level with the surface of the clay.

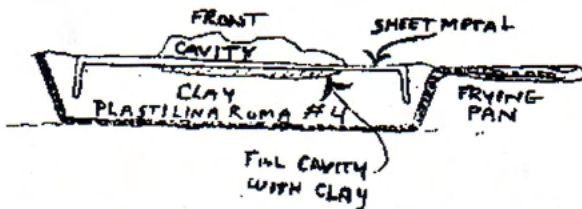
Use your lining chisel and lightly trace your design by tapping your chisel with the hammer. As you tap the chisel, move your chisel along the template lines until you have completely traced your design. Make sure that you have done this completely because once you have removed your template the design is lost forever. And you will have to pencil in the parts you missed. Next, remove the paper. I put the metal in the forge and burn it off. It comes off easily this way and anneals the metal at the same time.

Now, think about your design and decide what parts will be the highest parts of your piece. For instance, if it is a face, the nose will be the highest part, or if it is a scene, the main focal point will be raised first.

So turn your piece over and look at the back. You should see the latent line of your tracing which helps you locate the parts to start raising. Now, sink the metal into the clay face down and use your ball tools and hammer them into the places that will be your high areas. Every once in a while remove your piece and look at it. See how you are doing.

When the metal stops moving for you it is time to anneal it. Once you have the high areas raised it is time to do the modeling from the front, use a spoon to scoop some of the clay from the sides of the frying pan and push the clay into the cavity of the sheet metal on the

back and push it back into the frying pan. Now this is where your creative juices really start to flow. Using your punches such as the flatter and other chisels, start pushing down the areas that need to be lower than all the rest. It may take several cycles of refining with different tools to bring it to the desired shapes and depths you are looking for. As you work, stop to observe your progress. Don't be discouraged if your piece doesn't come out perfect, because each piece is a learning process. Believe me, I have a box of learning processes that I laugh at every time I see them. Repousse takes a little practice. So start with an easy design, then move up to more complicated designs. This skill is fun to learn and can keep you amused for many hours. Good luck. □



By Carl Close, Jr. Reprinted from New England Blacksmiths

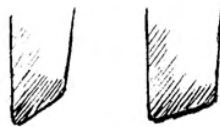
TOOL SHAPES REPOUSSE & CHASING



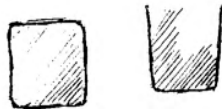
SLITTING / LINING CHISEL



CURVED CHISEL



BUTCHER / 1st & 2nd PASS



FLATTER



BALL TOOLS



TEAR DROP














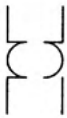
OVAL



RECTANGULAR

NOTE: ALL TOOLS ABOVE WILL RANGE IN SIZES AS FOLLOWS: 1/2", 3/8", 1/4", 1/8", ETC. ADDITIONAL SHAPES & SIZES WILL BE MADE FOR UNIQUE APPLICATIONS. 10/09/2004 ERNIE DORRILL

Taxonomy of chasing tools

	end view	side views	comments
Chisels:			straight and curved lenticular-make thinner for slitting chisel
Butchers:			make various widths, sharpness of point, and angles
Balls:			make many diameters, these two styles
Flatters:			make 1/8 to 1/2", maybe triangular also face should be sl. crowned (not shown)
Fullers:			various radii, straight and curved
Under cut chisels:			shown thinner than actual
Egg shapes:			round all edges
Miscellaneous:			grooving tool—radius outside edges
			forms rounded areas, such as on a bar:
			bird's eye punch
			

Gothic and Renaissance Ironwork

1 week class taught by George Dixon at The John C. Campbell Folk School

January 28 – February 2, 1996

Tamlene ap Guidgen
Steve Smith

Not all of the handwritten notes are included here, mostly due to artwork constraints. This is reorganized a bit from my class notes, but still jumps around, as the actual discussion did in class.

Push any process to extremes. By finding the limits of a process, you will understand it much better and discover new processes. George Dixon.

Making Tools (see "Tool Taxonomy" later)

Keep your tools as generic as possible. Make curved chisels and fullers portions of a circle (less than half). Properly made, they will cut a full circle. Use tool steel. It lasts much longer than carbon steel or mild steel tools. With the right forming and hardening process, a tool should not take any longer than half an hour to make. Keep tools short if you will be using them under a treadle hammer. The shorter they are, the steeper the angle they can be used at. Mark your tools so you will know what type of steel they are made out of.

Heat tool steel slowly. Allow it to warm up to just a visible glow slowly, then you can heat it faster. You may get lengthwise cracks otherwise. Remember to rotate the steel while heating. Once forging is finished on a tool, you need to soak it at forging heat to normalize the stresses in it. Soak a tool for 5-10 minutes after you are done forging. Do not take tool steel above orange.

George prefers S1 for his tools. S7 works also, but air hardens a bit. If you use a steel that is not air hardening, you don't need to anneal the tool before filing. (Personally, I thought that the S1 was pretty hard to file after air cooling. I would probably anneal it anyway.) Either S1 or S7 may be hardened by quenching in brine. The tool does not need any tempering if quenched in brine.

A curved chisel must be symmetric, or it will hack and not track around a circle. This is why you make the inside by filing with a round file, instead of fullering. A round file is a much more accurate shape than a fuller. Give the round file a start by making a cut in the middle of the tool blank with a triangular file. File the inside curve as far along the chisel body as possible. This will give the chisel a longer life, allowing many resharpenings. Once the inside is filed to the desired size, shape the outside on a belt sander to match. Test the symmetry by cutting a perfect circle in lead or other soft material. Do this before heat treating so you have a chance to fix problems.

One edge of a curved chisel or a butcher should stay aligned with the edge of the body of the chisel to act as a registration edge. This edge becomes the vertical part of the butcher, or the concave part of a curved chisel. When forging the basic shape of the chisel, only forge on three sides, forcing the fourth side to be the registration edge.

Two other useful tools are ball shapes. One is a half sphere, and the other is shallower, sort of elliptical from a side view. Make these for every diameter of tool steel you get. The elliptical is especially useful. A good source of many precision diameters of tool steel can be found in water

(brine) hardening drill rod. You do need to temper this to a straw color. Temper at 550 F in kitchen oven, watching color carefully.

Flatters from 1/8" to 1/2" square are also useful. Slightly crown the face, making sure to round all edges and leave no sharp edges on the tool.

Start making a tool by forging the rough shape. Forging is the fastest way to your basic shape. Leave room to grind off 1/64" to 1/32" of material, as the surface of the steel will be decarburized by its trips through the forge. Refine the shape on the belt sander or with a file. A belt sander is much more accurate than a grinder. Finish the shape on a wheel charged with a light abrasive or tripoli. You need to remove the scratches that the sander put in or your tool will break along the scratches.

Heat treat the tool, heating slowly to begin. For treadle hammer use, you need to harden the entire body of the tool (excepting the top 1/2" or so) so that the tool doesn't bend. Heat the body, with the tip and the top 3/8" sticking out of the fire. You need to get the entire body orange hot (no hotter). When the body is up to temperature, heat the tip and get it to the same temperature. Quench the tool in brine, plunging the tip in first, and agitate to break up the steam layer. Remove while it is still steaming, and plunge in plain water to remove the salt. It is better to be a little cooler rather than hotter than orange. You can always reharden a tool which is too soft; fixing a chipped tool is harder. Try the tool as a cold chisel to make sure it will not chip (assuming you have done any tempering that the type of steel needs).

Brine can be made several ways. Two containers of table salt in 3 gallons of water, or enough salt to float a potato, or make a saturated solution. You need a lid on a brine solution, or the salt crystals will crawl out of the bucket and get all over your shop!

Butchers are used by first tracing the line you are butchering with a narrow, steeper angled butcher, and then go back over the line with a broader, flatter butcher.

Small tools such as narrow chisels may chip at first. This is because the tip cools very rapidly when hardened, and becomes harder than the body of the chisel, hard enough to chip. After the tool is sharpened a few times, you will be out of the extra hard area and the chipping should stop. It seems to me that a little tempering here might help a bunch.

Your forging hammer should have a peen on it which is flattened. The face of the peen should be no narrower than the width of your little finger. Crown the face slightly, and remove any sharp edges.

A bird's eye punch should be made in oversized stock, so you don't need to worry so much about centering the ball punch. After the center is formed, belt sand down the outside rim.

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The Traditional Metalsmith
Blacksmithing: Illustrated & Explained
 By George Dixon, former Head Blacksmith
 Samuel Yellin Metalworkers

Volume 1, Number 3
 July 2000

The Traditional Metalsmith

Blacksmithing is an ancient but ever useful blacksmithing is critical to our lives.

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Motif: Floral, Folded Sheet, pg. 9

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Tooling: Split Picket, pg. 8

Architectural Iron: Rails #2 of 4, pg. 12

Gallery: Pickets & Panels, pg. 16

Panel Detail: French, 14th century.

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