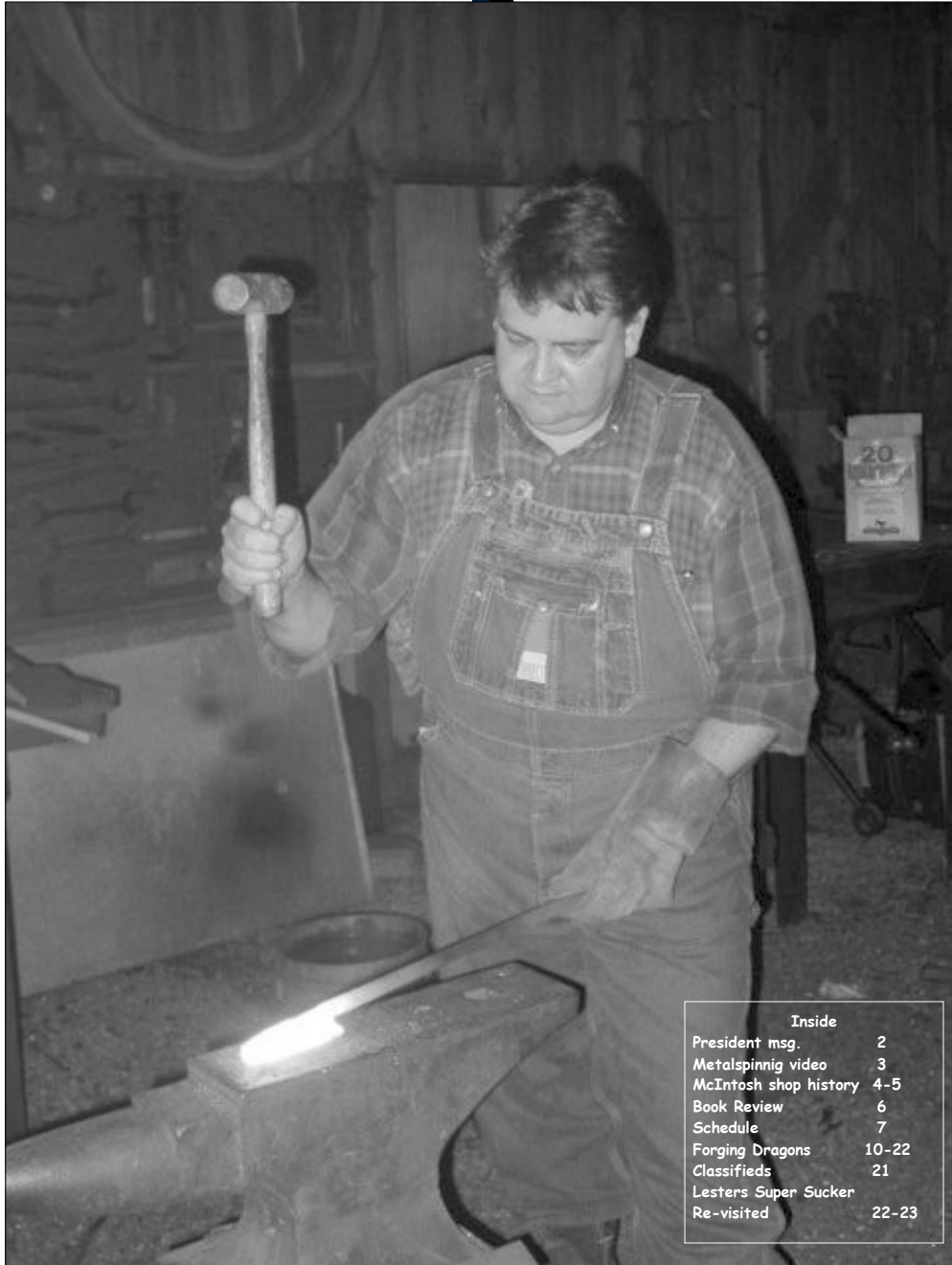


The Upset

MISSISSIPPI FORGE COUNCIL



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MFC Treasurer-elect Stacy Stegall doesn't mind putting a lot of energy into the MFC. He is shown here demonstrating for the children at the Ag Museum Halloween Party. Stacy is becoming one of the better public demonstrators of our group. Thanks for being there Stacy.

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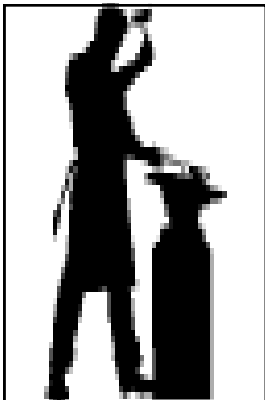
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Presidents Message

We had a good time at the Halloween festivities at the Ag Museum October 30 and 31. We could have had more participation from our group but those of us who were there enjoyed two nights of entertaining the little ghosts and goblins as well as a bunch of moms and dads. We had a new member that participated with us, and we had a chance to talk with him and learn what he might be interested in gaining from membership in our organization. I am sure each of you will make Jerry Stevens welcome when you meet him.

By the time you read this, the Harvest Festival will have come and gone, and I feel like we will have a good turnout as we usually do. Thanks go to each of you who took time out from your other pursuits to help us demonstrate at this most important event.

At this time we do not have many suggestions as to our program for next year. The questionnaire that we sent out did not get very much response. This is your organization and I would like for you to tell me what you want. What about another knifemaking class? An advanced class? You come up with the ideas and I will do my best to make it happen if there is enough interest. Let Ardell Hinton know what you are thinking about. Call her at 601-856-2314.

The February lock class being taught by Ernie Dorrill is full as of now but things might change so put your name on the list. Call David Williams (601-957-2455).

All of us are certainly looking forward to the December meeting at the Monday's in Canton. See the map elsewhere in the newsletter. Contact Ardell on what to bring.

We have got to have a serious workday at the shop. We have some hoods and pipes to replace as well as some general maintenance. Since we don't have anything planned for the January meeting, that may be a good time to take care of these necessary tasks. We can talk about this at the Harvest Festival.

We have had a good year in 2003 because of the participation of our members, our demonstrators, and our member teachers. Thank you again for all of your help. Let's work together and make next year even better.

Best regards
Bill Pevey



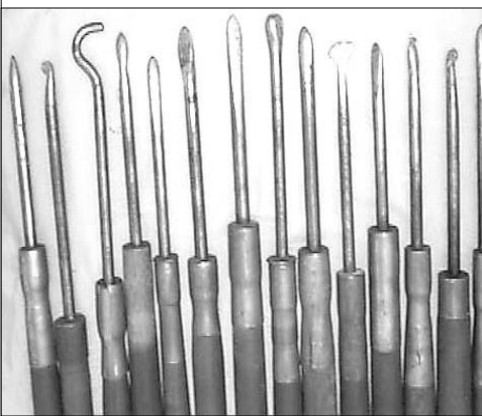
REVIEW: AN INTRODUCTION TO METAL SPINNING

by James P. Riser



Although currently enjoying a revival of interest, metal spinning has always been somewhat of an obscure art. Sources of information that approach the subject in terms of modern equipment and materials have been virtually nonexistent, and those wishing to explore the tools and techniques of the craft have generally been relegated to texts originally published in the early 1900's. Apparently, James P. Riser saw a need and after three years of effort has just released a new CD-ROM entitled "*An Introduction To Metal Spinning*".

A man of many talents, Mr. Riser also has a background as an educator, and as might be expected his presentation of metal spinning is organized and thorough. The CD contains ample text with hundreds of high quality color photographs. A number of digital "mini-movies"

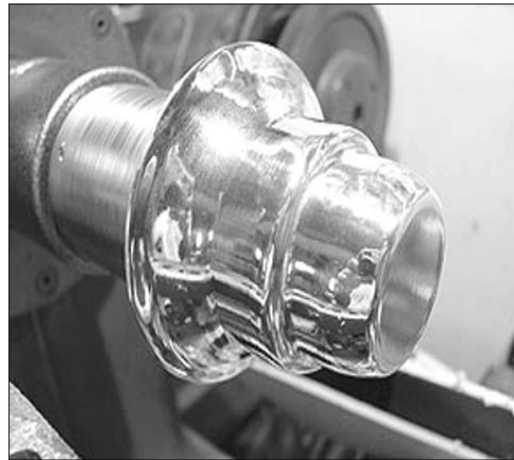


illustrating various related operations are also included. "*An Introduction To Metal Spinning*" is loaded with useful information, and should be invaluable in getting you up and running if you have been thinking

about trying metal spinning.

"*An Introduction To Metal Spinning*" is presented on a CD-ROM formatted for Windows. Priced at \$25.00, plus shipping/handling, the CD can be previewed on Mr. Riser's website, and copies ordered online via the following link:

http://www.jamesriser.com/CD_Preview/Intro.html



- Tommy Ward

The MISSISSIPPI FORGE COUNCIL (MSFC) is a state affiliate of the Artist Blacksmiths Association of North America ([ABANA](#)) a non-profit organization. MSFC is dedicated to excellence in the art of old-world craftsmanship using metal as the basic medium. Techniques employed are many of the same used for two thousand years providing timeless tradition and enduring quality.

The MSFC is comprised of all levels of expertise from beginner to the advanced and uses education as its primary objective to promote and exemplify artistry and craftsmanship to the finest blacksmithing.

The Chapter is organized exclusively for educational purposes, including the following: to encourage and facilitate the establishment of training programs for aspiring smiths; to disseminate information about sources of material and equipment; to expose the art of blacksmithing to the public; to serve as a center of information about blacksmithing for architects, interior designers, other interested groups and the general public.

No part of the net earnings of the Chapter are to the benefit of, or be distributable to its members, trustees, officers, or other private persons, except that the Association shall be authorized and empowered to pay reasonable compensation for services rendered. . .

We, in the MISSISSIPPI FORGE COUNCIL, extend to you an invitation to become a member and share with us the excitement and adventure of using hammer, fire and raw iron to produce the finest quality handmade iron products, treasured in the past by kings, and in the future by generations to come. Membership is open to ALL for a small annual membership fee.

The Mississippi Forge Council (MSFC) is a non-profit organization and prohibits discrimination on the basis of race, color, national origin, sex, religion, etc.

ABANA Chapters are your best place to find other people interested in blacksmithing, to learn about blacksmithing and to find sources of tools and supplies. <http://www.abana.org/>

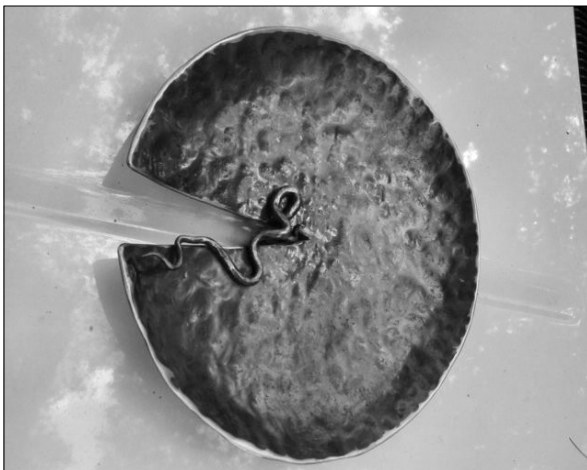
ABANA Chapters maintain libraries of hard to find books on blacksmithing and related subjects.

Membership has the advantage of making it easier for people to identify you as a blacksmith.

ABANA was established on the premise that information about the trade *must* be shared in order to preserve it. That tradition of sharing and friendship is the most unique aspect of ABANA and the blacksmithing community it represents.



This is a prototype of a 15 foot sculpture that Ed Wozniak is hoping to build if he gets the approval from the architect. Ed seems to have his creative energy flowing constantly. It is always fun to see Ed coming, you never know what he has to show next. Good luck Ed.



This platter was designed and fabricated by Ardell Hinton. The photo on the right shows the underside details of the dish. Ardell donated this for the Wells Fest Auction. Nicely done, Ardell. Sold for \$150.00



This chain was seen at the Soul'e Foundry in Meridian. The individual links separate to make the chain any length necessary.



Iron bench by Steve Norquist. Donated to Wells Fest Auction. Sold for \$750.00



Ogre Forge is still cooking.. Max Goodman is making some really beautiful knives. These were shown at Soul'e Foundry in Meridian.

THE HISTORY OF THE McINTOSH BLACKSMITH SHOP

Lee Roy McIntosh and his father Daniel White McIntosh, or "Dannie," were sharecropping in Jasper County, MS, near Bay Springs, in 1933-34. Dannie had been the master mechanic for the Eastman and Gardner Lumber Company at the Cohay Logging Camp near Raleigh, MS. As the master mechanic, Dannie was a blacksmith and a good one. He was descended from three generations of blacksmiths. He was trained to blacksmith and veterinary work. As the master mechanic he kept the tools and equipment in good working order and doctored injured or sick logging horses. He earned good wages and his work was satisfying and fulfilling. As is often the case, all good things come to an end. During the Great Depression work was hard to find so Dannie and Lee Roy took the job of sharecropping. They were so unhappy as share croppers they had begun thinking about their own shop.

Dannie went to Taylorsville, MS to see if he could rent a suitable building for a blacksmith shop, with purchase rights. He found an old building with a dirt floor. The building was perfect for a blacksmith shop and in the perfect location. He rented the building and rented a house. He moved his family and set up the shop. Business was so good that Dannie asked Lee Roy to be his partner. By the fall of 1934 Lee Roy rented a house near Dannie: he moved his family and became a partner with his father, Dannie. The shop was named D.W. McIntosh and Son.

Dannie was continually called out to doctor sick or injured livestock. He had an excellent reputation as a veterinarian; he was referred to as Doctor Dannie McIntosh. His work as a veterinarian was so demanding he had to make a decision whether to try to continue with the blacksmith shop. At about the same time he had the opportunity to buy a farm with a good house, barn and smokehouse. He decided to purchase the farm. He did some farming and did his veterinarian work full time.

Dannie sold his part of the blacksmith shop to Lee Roy. Lee Roy added on to the front of the shop and poured a cement floor, then added a gristmill for grinding corn into cornmeal. On a regular basis he delivered meal to the stores in Laurel.

Lee Roy had his hands full doing blacksmith work and grinding corn. His days were twelve hours long as a rule, but the good Lord gave him strength and allowed him to prosper, after all, he and his wife were rearing eight children. During the depression years, the people that could find a job only earned about a dollar a day but Lee Roy was earning five to six times more, as a rule. There was always plow points to sharpen, mule drawn plows and planters to be rebuilt, stalk and weed cutters to sharpen, wagon wheels to be refilled, wagon bodies to be rebuilt and some truck wooden bodies to build.

In addition to farming implements, there was heavy logging activity in Smith County and adjoining counties. The loggers always needed logging tongs made. Some of the loggers told Lee Roy he made the best tongs they had used. Some of the tongs would open to thirty inches or more. There were saws to sharpen, axes needing handles and sharpening, cant hooks with broken handles. Lee Roy, a master at shaping horseshoes and putting them on, but it was never easy to shoe huge logging horses. As a rule the animal had to be thrown with a nose twist and tied to a power pole. Not many people would tackle such a dangerous feat. Lee Roy was a powerful man and knew no fear however he was a God fearing man and trusted the Lord.

Since Lee Roy was the only person out of a long line of McIntosh family working as a blacksmith he was given two wooden trunks full of three generations of hand made tools. Some of the tools in the Agriculture Museum, in Jackson, are over a hundred years old.

Lee Roy was an innovative man. He needed a method to cut large hot iron so he built a unit. He could place the red hot iron between the upper and lower blades, pull down on a long handle with his other arm and the hot metal was cut in two at the length needed.

Lee Roy needed a heavy duty drill press, so he took an old "T" model burn-in-stand for a table base. He then took an old automobile axel and then slipped a long heavy duty spring down over the vertical down over the burn-in-stand. He mounted the large drill motor, with sleeves, to the axel above the spring. By using a metal plow handle, he could pull the drill motor down to the table for drilling the item that was fastened on the table.

A customer asked Lee Roy if he could make a device for lowering and pulling ceramic well curbing. Lee Roy took the challenge and a week later the device was completed. Another customer was working on a perpetual motion machine. The man would come to the shop and tell Lee Roy what he wanted. This went on for sometime before the man gave up on his machine.

Lee Roy used an old "A" model engine to power the grist mill. On the other side of the shop another "A" model engine was used to power a large table saw, two emery grinding stands and a small drill press. A long shaft was connected to the "A" model drive shaft; flat pulley wheels on the shaft powered each unit by wide belts.

After his father sold his interest in the shop Lee Roy never had a helper, he did all the work by himself. When WWII came along in the early 1940's men were needed to build military installations. While Lee Roy was helping build Camp Shelby and Keesler Field, Dannie McIntosh and Mr. Preston Atchley ran the shop. For the most part, Lee Roy never returned to the shop, except for short periods of time. Since the late forties the shop remained closed.



Preserving the Legacy

This picture of Lee Roy McIntosh was found in the rear of the McIntosh Blacksmith shop. The shop is located on the grounds of the MS Agricultural and Forestry Museum in Jackson, and is the home of the Mississippi Forge Council. It is the center for the preservation and teaching of traditional blacksmithing techniques in Mississippi and a tribute to the generosity of the McIntosh family.

Book Review

Bill Pevey

Title: The Wonder of Knifemaking
 Author: Wayne Goddard
 ISBN : 0-87341-798-4
 Copyright 2000 Krause Publications

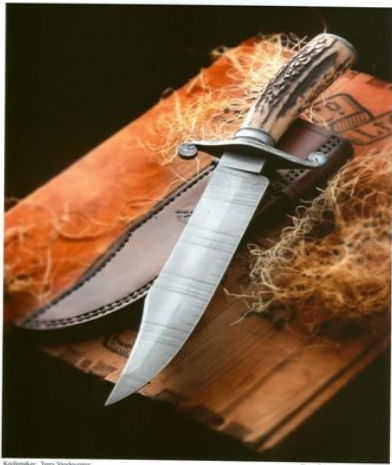
I have several books on knifemaking, but this one by Wayne Goddard is by far the best. The other books cover most aspects of the subject but not with the completeness that Wayne does.

In addition to being complete in his descriptions of certain operations necessary to put a knife together, he gives us background information on things such as the history of iron and steel making, heat treating, edge geometry, knife sharpening and knife testing. Much of this information is absent in other books that I have read.

The general format of the book is question and answer. The questions came from readers of "Blade Magazine," and Wayne was assigned the job of answering them. I think that you will find quite a few answers to questions that you might have had but never asked anyone.

Wayne has been making knives for 29 years and has approached his art as a scientist might study his profession. Determining what works and why is his method of operation, and he has gained a lot of truly great experience and expertise. This fact shows through in this 157 page book.

Those of you that are seriously interested in knifemaking can not go wrong with this publication. With the price of \$20.00, this book is quite a buy for amount of information that you get. Any bookstore can get it for you.



American Bladesmith Society's 2003 Journeyman Knife of the Year

Forged by Mississippi's own, Terry Vandeventer
 It is an American Bowie forged from 300 layer interrupted ladder-pattern Damascus (15N20 & 1095). The handle is Sanbar Stag and the fittings are deeply etched wrought iron. It was donated to the ABS and sold at auction at the Blade Show in Atlanta last June.

CONGRATULATIONS TERRY

MFC Schedule

December 13– It’s “POT LUCK PARTY TIME” again. Our annual Christmas party and open forge will, again, be held in the shop of Laura and James Monday in Canton, MS. This is my favorite meeting of the year. If Laura gets James into the woods soon enough we will be feasting on those glorious deer steaks with biscuits and gravy. We always have an overabundance of good food. Chili, soups, casseroles, sausages, veggies and deserts galore fill the tables in the shop. Don’t miss this one. Contact Ardell Hinton 601-856-2314 to see what you can bring

1 CHRISTMAS PARTY DIRECTIONS

DIRECTIONS to the Monday home

From I-55 take the Hwy 16 exit (Canton) go east through Canton when you cross Hwy 43 you will go 6.2 miles to Rattiff Ferry Rd - go rt - south about 2 miles. When you get to Lone Pine Rd you are looking at the Monday place.

From the Natchez Trace go west on Hwy 16, between mile markers #123 and #124 you will see Rattiff Ferry Rd on your left.

*James & Laura Monday
543 Lone Pine Rd.
Canton, MS 39046
601-859-6527*

For directions you can also call 601-540-6030

NOT EVEN CLOSE TO SCALE

January 10, 2004– This will be a workday. We need to replace some rusted stacks and finish the gate and fence around the shop. Call Bill Pevey and find out what you need to bring. We will have an open forge day to work on fire maintenance in the forge.

February 14th– nothing planned in the forge yet. If anyone wants to see or learn something special now would be a good time to let us know. Otherwise it may also be a workday and open forge

March 13– We will be meeting in the shop of Walter Neill in Oxford MS. The agenda will be announced along with a map to his place.

THIS IS GOOD TO KNOW, YOU TOO ALABAMA

O'Neal Steel, in Pearl MS is making life a lot easier for blacksmiths in this area. The 'Express' department, run by Nicky Wynn, closely related to the famous Wynn brothers, 'Lyle the thin' and Ricky, is actually allowing people to browse their 'drops' and buy steel by the pound. The supply is constantly changing, there is always a variety of materials available, there is no minimum order and they are friendly. You can't ask for more than that. You can find Nicky by going to 700 N. Biere-deman Rd, off Hwy 80 in Pearl. Don't go to the main office, turn down Gulfline Rd and enter where you see O'Neal Express. The phone # is 601-939-4132. This is a valuable service for the dabblers in iron, let's support them. For you Alabama folks, they have the same service available there too, call them at 205-599-8000

Robb Gunter's "Super Quench"

Robb Gunter's "Super Quench"

5 gal water

5 lb Salt

32 oz Dawn (blue) dishwashing liquid (28 oz if it says "concentrated" on the label)

8oz Shaklee Basic I* or **7oz UNSCENTED Jet-Dry** or other surfactant (like **Simple Green**) of appropriate quantity for 5 gal mix (wetting agents)

The Jet-Dry (or whatever you use for a rinse agent) does something chemically to the surface of the steel. It allows the salt in the mix to start attacking it as soon as it hits the air - make sure you have a LOT of clear water to rinse in ready at hand. These surfacants are wetting agents. They break down the surface tension of water allowing it to make contact with a material. We've all dipped a cold piece of metal in water and seen a bubble-like "skin" form with dry metal under it. This is surface tension trapping a layer of air, it makes a fair heat shield. In a quench, steam will form a similar surface "skin" and prevent full contact with the water, insulating the steel from a proper chill. Wetting agents prevent the "skin" from forming. Detergents do a somewhat similar job, they're emulsifiers allowing oils and water to mix. This prevents any oily residues from the fire from forming a "heat shield" surface layer. The salt in the water raises the specific heat of the water and draws the heat from the steel faster.

Stir it up to get it moving before you quench. Don't quench anything with more than 45- 50 points of carbon. Will harden mild steel to Rockwell 42-45 (in spite of common wisdom that says you can't harden mild steel).

It's color coded - when you've exhausted the usefulness of the quench, it'll shift color from blue to green.

www.shaklee.net

MFC website

If you haven't heard, we have the beginnings of a web site up and running. This is a primitive start but should improve with age. The key thing here is we have a schedule that can be updated whenever necessary. Your suggestions, ideas and submissions will be appreciated.

WWW.MSFORGEOUNCIL.COM



Soule' Foundry Museum
 Benny Crevitt lead the team that restored the blacksmith shop in the old Soule' Foundry in Meridian. The open house in October was a nice outing for the members of the MFC that attended. The city of Meridian hosted an arts festival and bands played downtown making this a very entertaining trip. If the same thing happens next year, my wife and I will spend the week-end there so we won't miss anything. We should make this trip a permanent part of the MFC schedule. Benny and some of his art work are shown in the first four pictures .



Iron Lilly by Ed Wozniak



Some of the knives by Max Goodman shown at the Soule' meeting.

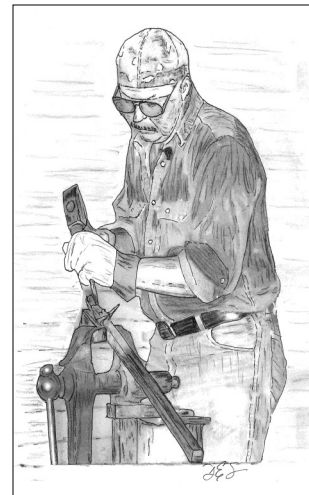
Harvest Festival

Many thanks to the members that worked so hard to make this harvest festival such a success. Bill Pevey and, new member, Jerry Stevens were there for 4 days. Pictured below are, Bill Pevey, Erik Kreyling, Ed Benton, Bob Kitchens, Carroll Ellis, Don Cornellison and Jerry Stevens. Thanks guys, you did a great job.





Part I

Steve Williamson, as sketched by
Dave Smucker

Forging Dragons

An article on Steve Williamson's methods of forging dragons.

by Dave Smucker

In this multi-part article I will review the methods Steve Williamson uses to make his dragons. The material covered in this article is based on the demonstration that Steve gave at the 2002 Tannehill Conference of the Alabama Forge Council.

If you follow the details of the methods in this article you should be able to forge a copy of Steve's dragons. What you will have when you are done will not be a Steve Williamson Dragon – but rather a copy of one. I would suggest that a much better result would be for you to use these methods as a starting point to develop a dragon that is of your own design – not a copy of Steve's. There are lots of places to look for ideas about creating your own concept of a dragon. Steve's has the head of a "beast", wings of a "bat", talons of an "eagle" and the body of a "serpent". You could get ideas for many artist drawings of "dragons". Also, more ideas could come from looking at the bodies and layout of dinosaurs, lizards, insects, and many other "animals". Some dinosaur types to look at would be the Tyrannosaurus Rex, Velociraptor and the Quetzalcoatlus just to name a few. You would be surprised at the ideas you might find in your kid's or grandkid's books, Greek and Roman Mythology and, of course "Hollywood".

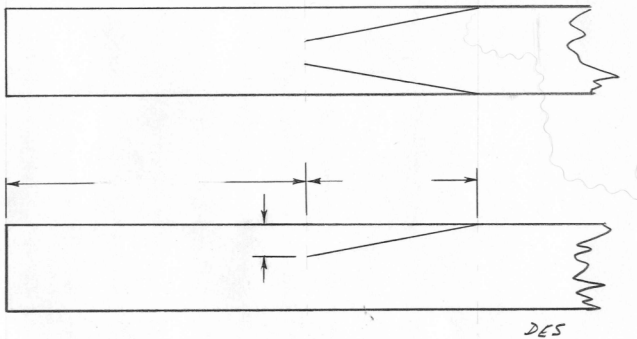
A little about Steve Williamson before we look at his methods of Forging Dragons. Steve is a Master Millwright / Welder working in the equipment maintenance side of a major automotive plant. He became interested in "blacksmithing" about 15 years ago because he wanted to learn to do two things – forge weld and make dragons. He has learned to do both well, along with many other aspects of the blacksmithing art. He is past president of the Appalachian Area Chapter and he and his wife Vicky have both been very active supporters of the AAC. Steve has taught at both John C. Campbell Folk School and the Appalachian Center for Crafts. Next fall along with Clay Spencer he will teach a class at the Folk School on forging Dragons and Wizards.

Steve starts with square bar stock about 26 inches long. He mainly uses sizes of 1-inch square, 3/4 square and 5/8 square. At Tannehill he showed dragons made from both the 1-inch and 5/8. Steve says he has used as small as 3/8 square stock and once and only once used 1 – 1/2 square. Commenting on the large size – "it would take a whole lot of money for me to ever try material that big again." The problem with the large sizes is that by the time you finish the dragon in the form that Steve likes – it becomes a very long and awkward piece of material with which to work. Steve's basic advice – "Stay with 1 inch and smaller". For this demonstration Steve used a 1-inch bar.

Steve Williamson makes quite extensive use of a treadle hammer for some aspects of his dragons. This doesn't mean you have to have one to make dragons but it no doubt makes it much easier. I will not assume that you have a treadle hammer in describing Steve's methods but will discuss forging this dragon both with and without one. If you have a power hammer, it can be useful for some operations, but may not have the control necessary for others. Most likely if you have a power hammer you will know when and how you can use it in these operations.

The first operation on your bar is to cut the dragon's horns. Start by laying out the location of the horns.

You will want the horns to start between 3 to 4 inches back from the end of the bar and to be about 1-1/2 to 2 inches long. At the base the horns will be about 3/8 of an inch wide and taper to a point over the length of the horn. Steve first lays out the horns using a hot cut to mark their shape on each side of the bar. He does this work by eye, under the treadle hammer. If this is your first attempt at something like this I suggest first marking the bar cold with a silver pencil that can be seen when hot or making a shallow outline with a cold chisel.



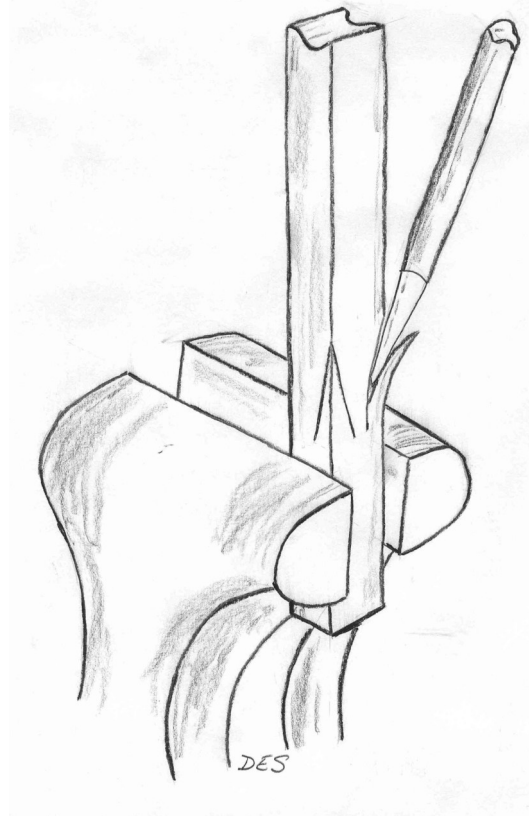
Layout of the "horns" stock is 1 x 1 x 26 inches

If you use the cold chisel method, then when you come out of the forge "hot" your hot cut can feel the line and you can make it deeper. If you don't have a treadle hammer to do this work, lay your stock on the anvil and outline the horn with your hot cut chisel. The idea here is not to cut deep into the bar with your hot cut from each side, but rather to make a good outline that you can follow as you cut the horn with the stock in the vise.

If working with a hot cut chisel, hammer and the anvil and you don't have three hands, then some method to hold the stock is a big help. Some folks do just fine holding the stock between their legs. Another idea that works well for me is a very simple hold down made from a length of chain anchored on one side of your anvil with a weight on the other side. Just slipping your bar stock under the chain holds it well enough for you to cut the outline.

You are now ready to cut the horns – bring your stock up to a good yellow heat and then clamp it head down

with its head in the vise. Since you have outlined the horns on two sides you can now cut them by cutting into the bar while cutting down. Keep the hot cut pointed into the sock – it is very easy to be too vertical with your hot cut and slice the horn off: Not something you want to do. If you do cut the horns off – rest assured you will not be the first to have done it. I was very frustrated several years ago in one of Clay Spencer's classes on Wizards because I kept cutting the whiskers off. Same problem – getting the chisel too vertical, and not having first outlined them. If you do fail on your first attempt – not all is lost. Let the bar cool, then grind out the damaged area and turn the bar around and start from the other end. The cleaned up area will be drawn out anyway to make the tail of the dragon and only you will know that you screwed up one set of horns. If you do it again – get another bar of steel and try again.



Cutting the horns with "head" clamped in the vise. Keep the hot cut point into the bar; it wants to go vertical on it own.

Finish the base of the horn with a rounded chisel. What is a rounded chisel? Just that, a chisel that rather than having a cutting edge it has a radius or rounded cutting edge. Kind of like a very very dull chisel. The purpose of this is to forge a radius at the bottom of your cut. This radius will stop the "crack" (your cut) from growing during later operations. If you don't do this you may find that you lose a horn when you are working on finishing details of the head. You can do the same thing with a file that has a radiused cutting edge, but I suggest you do this cold.

The next thing that Steve does is to clean up the horn with a disk sander. As a professional welder Steve is very much at home using a 4-1/2 or 5 inch grinder and isn't a bit afraid to use it as a "power file" for cleaning up work. He likes to use a sanding disk backup up with a flexible sanding pad. Steve says that sometimes he is a little hard on them because he tends to use them on hot metal – not a problem - you just have to replace them more often.

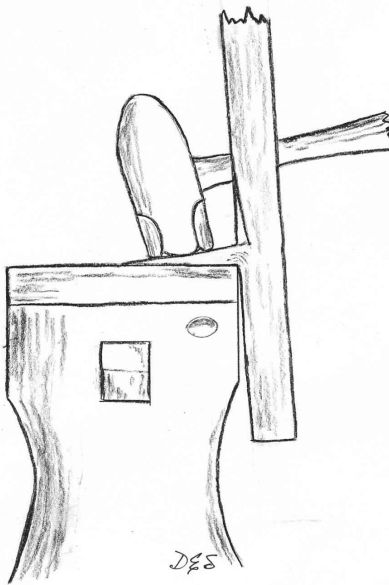
It is really important to do this clean up at this stage. If you leave "rags" or a torn surface on material from your hot cutting these will develop into cracks as you draw out the horns. Some folks call these "cold shunts". I am not sure where the term comes from. It's maybe a steel industry term for defects that come from ingot cracks that were not scarfed out and ended up in the finished product. In blacksmithing they are cracks or folds that just

continue to grow the more you work the material. No matter what you call them – you've got to get rid of them or they will cause you major problems as you work the piece further. Grind them out or file them out, but take them out.

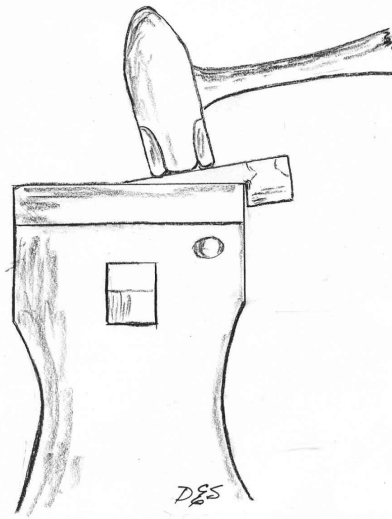
Now you are ready to draw out the horns. Steve does this on the anvil much as you would the tines of a fork. First heat your stock to a good heat and partially bend one of the horns out from the body. Now you can work that horn on the anvil, in fact taking it to a near 90-degree angle from the body. What you start with is a triangle section – work it to a square section. Continue to draw it out as a square section. Your hammer forges one side; the anvil forges the other. Frequently rotate back and forth so you work two adjacent faces. You can use the back of the anvil to straighten your work. When you have one horn the length you want you can then round it up. Be careful as you reheat the horn for more forging. It is really easy to burn it at this point. It doesn't take much time to reheat the horn – so be careful.

Now do the same process with the second horn. When you get it to an equal length with the first, round it up too.

Steve likes to let the piece cool some at this point and then do a final clean up with the "power file", a sanding disk in his 5inch grinder.



Drawing out the horns – work with square cross section – first one side then rotate 90 degrees and work the other.

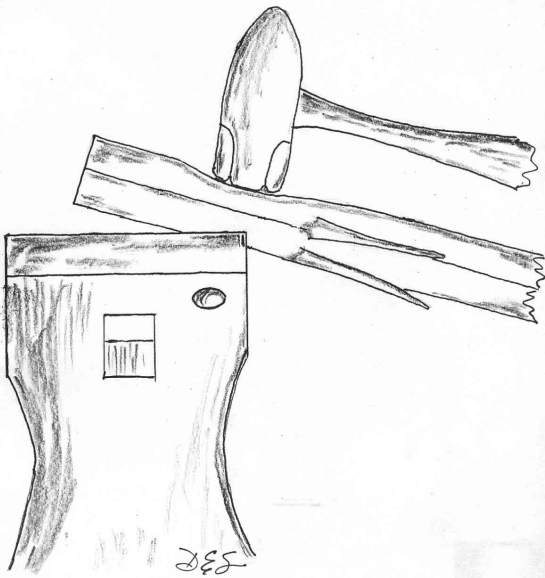


Working the other side – hand holding the bar not shown, it would be in the foreground.

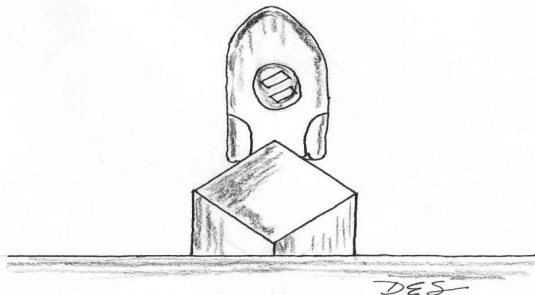
At this point you have "nearly finished" horns – you will need to give them their final positioning as one of the last steps in forging the dragon. For now heat and then gently fold them back against the body of the dragon. Use either very light hammer blows or a wooden mallet to "tap" them back towards the body. They do not need to be tight to the body, just close to the body to be out of the way for your next operation – forging the eye sockets.

The first step in forging the eyes is to set the area for the eye socket. To do this you select the position ahead of the horns where the eye will fall and inset an area on a sharp edge of your anvil. You will be forging on the diamond and the eye area will be in contact with the face of the anvil. Use half on half off blows of your hammer to the "bottom " or under side of the head to inset the area for each eye. You will be doing two things at once – one is to inset the area for the eye, the second is to round up the bottom of the head. The critical operation here is the inseting of the area for the eye, the rounding up of the underside of the head just come along for the ride and isn't critical.

You want both of the eyes to be equal distance in front of the horns. To make this happen, I suggest that you use a cold chisel to make a small cut on the corner of your bar where the inset will fall. Then when you come out of the fire to do the half on half off hammering, you can "feel" the sharp corner of your anvil by sliding the bar up and down the edge of the anvil. If you don't have a good sharp edge on your anvil for this operation you can make a hardie tool that is nothing more than a block of steel with a sharp edge and a hardie tang on the bottom. It's a useful tool to have anyway, when your anvil is too wide for some operations.



Setting the eye area on the sharp edge of your anvil. Note that the hammer blows are direct to the underside of the head and are "half on half off" the edge of the anvil. This is the first eye; the second one hasn't



been started yet.

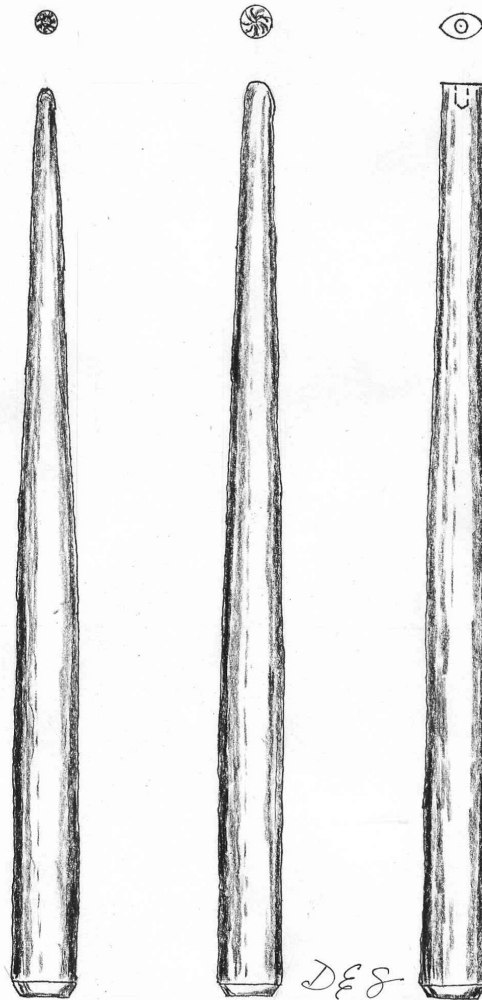
Looking from the side of the anvil setting the eye is done "on the diamond". The second eye will be done by turning the stock 90 degrees and also on the diamond.

Now you are ready to forge the eyes themselves. To do this I highly recommend a vise anvil or detailing wedge. See the short article "**For your toolbox**" in this issue for details on how to make one if you don't already have this very useful detailing tool. You will also need three or four "punches" to form the eyes. Two to three simple punches and an eye punch. I suggest that you make these punches out of either 5160 (coil spring) material or W1 tool steel (water hardening drill rod). Both of these will work very well for these types of tools. You could use more expensive and exotic tool steels such as H13 or S7 but this is overkill. Save these tool steels for hot cuts, punches and other uses where you have long contact times with the hot steel.

To make the simple punches "long center punches", forge out the taper and then grind the end to the desired cross section and shape. I make my punches 9 to 11 inches in length. This length lets you hold them near the hot metal without your hand getting too hot. While I would heat treat these tools some folks just forge them, grind them and use them. I suggest that as minimum you at least normalize the tools after you finish forging them. To do this heat to just above the non-magnetic point (transition temperature) and let them air cool.

Making the eye punch itself is a little more complex than the socket punches. First I forge to the general shape of the punch and then touch it up by grinding to get the final eye shape cross-section. Now put the pupil in the end of the punch. To do this I like to drill the "hole" in the end of the eye punch. First you need to anneal the punch – heat to just above the non magnetic point and then place in either wood ashes or vermiculite and let it slow cool overnight (or for at least several hours.) I have a metal garbage can filled with vermiculite for just this purpose. You can find vermiculite at the garden supply store or the garden department of Home Depot etc. After annealing

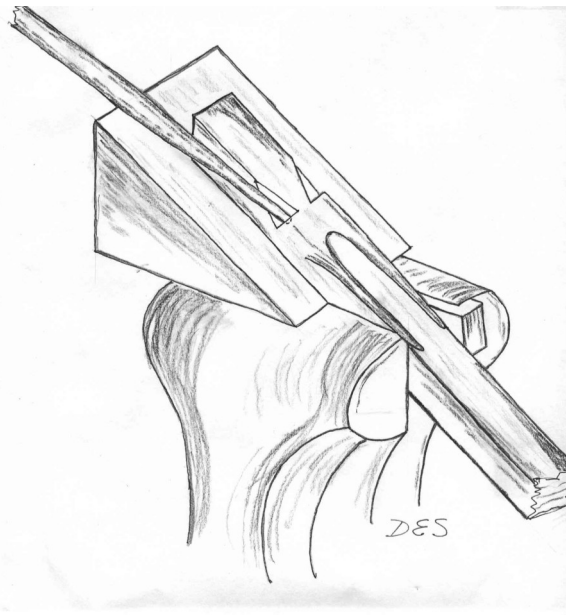
it is a simple matter to drill the hole in the end of the punch. Now finish by heat-treating the eye punch or at least normalize it. If you are using 5160 you will get fair hardness in the tool by the "air quench" of the normalizing.



You will need 3 to 4 punches for the eyes. The first ones form the eye socket while the last one is the "eye" punch itself. Make your punches from 9 to 11 inch long 5/8 to 7/8 dia. These are shown about half size.

Rather than drilling the hole in the eye punch, you can forge it. It is just harder for me to get it placed where I want it doing it this way. To forge the hole, heat your punch, place it vertical in your vise and use a small center punch to drive the hole into the end of the hot punch. Now clean up the resulting upset by grinding and finish up the eye punch. Again I would heat treat the punch as the final step.

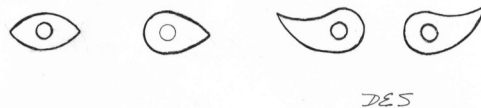
Now that you have your punches, heat the dragon's head and clamp it in the vise with the area below the horns clamped. The underside of the head should be resting on the detailing wedge. Start with the sharpest punch and set in the location of each eye. Steve likes to work by taking 3 hits on one side and then moving to 3 hits on the other eye. If needed, come back to the first eye and then to the second. This method of Steve's of alternating between one side and the other helps to keep things equal as the metal cools. It also helps minimize bending of the dragon's head at the neck area where it is clamped in the vise.



Starting to punch the first eye socket. Alternate from eye to eye with no more than 3 blows to one side at a time. Then move up to your next larger punch – finishing with the "eye punch".

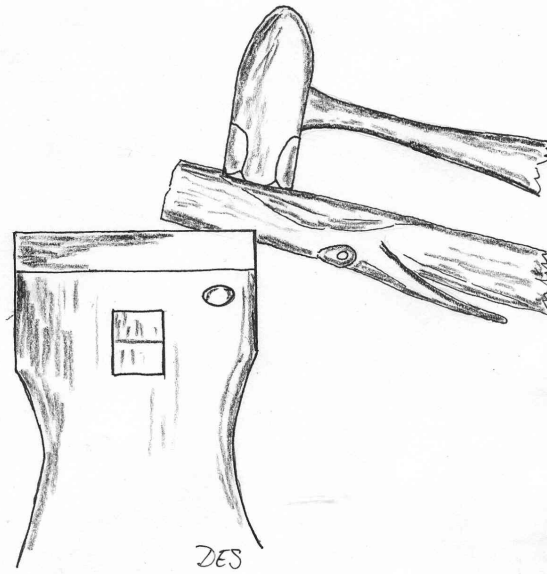
Now proceed to the next punch and deepen and raise the eye socket. You may need to go back into the forge for another heat if your piece has cooled too much – remember to work it hot. Or if you like, you can reheat the area of the eye with a torch with the work held in the vise. If you do this try hard to get both eyes up to the same temperature so that they forge the same.

You are now ready for the last punch, the eye punch itself. The angle that you hold this punch can have quite an effect on the final look of the dragon. The eyes in a figure like this always seem to set much of the dragon's character. You can also experiment with different shapes to the eye punch including a tear drop cross section. If you use this type of eye make sure you turn the punch over as you move from eye to eye. For some eye shapes you will need a right and left punch.



Variation on eye punch shapes. Just some ideas for you to consider and play with. You can change the "face" of your dragon more by changing the eyes than almost anything else. We are all drawn to how the eyes on a figure look at us.

Next the nose !! Forging the nose is much like doing the eyes, first we set an area for the nose and then we punch in the nostrils. In setting the area for the nose we want to work across the full width of the head – rather than on each "corner" of the stock. Steve forges a step where he wants the finished nose to fall on the head. Heat your dragon and then place the nose area down on the sharp edge of your anvil and forge the step with half on half off blows to the underside or bottom of the head.



Setting the nose area. The top face of the stock is set against a sharp edge of your anvil. Again the half on half off hammer blows are directed to the underside of the head. The anvil forms the top.

This procedure again lets us put the most visible side of the head against the anvil and bottom side takes the hammer blows. Also since the underside of the head has no fine details you can clean it up with the disk sander or you can file it.

Steve then deepens, upsets and raises the nose area some by using a "butcher" with the dragon held in the vise against the detailing wedge.

Now that you have a good sized step and have raised the area and better defined it with the butcher your are ready to punch the nostrils in the beast. Follow basically the same procedure that you did for the eyes (without the eye punch of course). Start with the smallest punch and work your way up alternating from side to side to keep it balanced. You can angle the punch to make the nostrils flare to the outside and also raise them by controlling the angle of your punch. This is one of the real advantages of working the head while holding it against a detailing wedge in your vise. It allows you to work around the head and gives you a solid surface to punch against.

Forge your butcher from tool steel, I like 5160 (coil spring) or W1 (water hardening drill rod) for making this tool. Like the punches I would make this tool 9 to 11 inches in length and from 5/8 to 7/8 diameter material.

Steve adds details to the eyebrows and nose at this time. With the eyes and nostrils in place you can take a small hot cut and / or other punches and add some more details to the face. Here is another place for you to add to your growing collection of punches. Some curved hot cuts come in handy here. They look like a range of wood carving gouges. You make them the same way you did the other punches for your dragon.

Continued on next page.

At this point you head could look something like this.

MFC Editors' note.


I really want to thank Dave Smucker for allowing us to reproduce his work. He puts a lot of time into writing the articles and drawing the pictures and his willingness to share this with other is commendable.

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Lester's Super Sucker Re-Visited



There has been quite a bit of interest in Lester's Forge hood both within and outside of the AACB. A number of other newsletters reprinted Lester's information and he has updated the design with a variation on another way to build the unit. You will find that on the next page. Here are some pictures of the set up as built by H. Kent Hepworth.

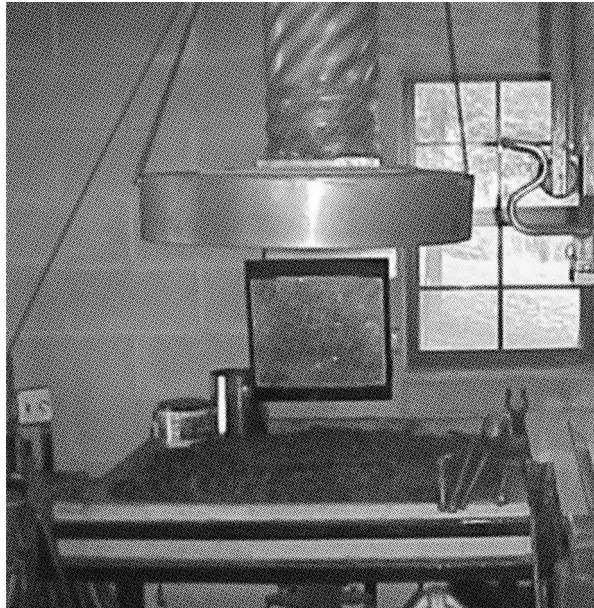


Kent's Shop with his forge stack (15-inch culvert) on left and wood stove stack on right.

Kent comments as follows: "My side draft design was not as satisfactory as I desired; so, I have been searching for a simple fix and Lester Beckman's Design looked like a great candidate.

I built a slightly modified version of Lester's "canted side draft super sucker" using some 2"x3" heavy walled angle iron from my collection of scrap. My modifications were simple extensions taking advantage of my existing plenum system and the wide flanges of Lester's hood. I installed the 10"x10" Super Sucker Hood at the bottom of my plenum, so still had a 12" plenum opening above my hood. Being the proverbial "Doubting Thomas" I in-

stalled slides for an aluminum "emergency damper" to expose this additional plenum space to vent start-up smoke if the super sucker's initial exhaust draft was insufficient. My other modification was to install clips on the super sucker's flange to slip a damper over the opening to close-off the stack when the coal forge is not in use. Frequently during the winter I work in my shop and use my N.C. Whisper Low Boy propane forge. So I wish to keep as much heat from my wood stove in the shop as possible. This is why I wanted the damper to shut off the coal forge's stack draft.



New Super Sucker closed with "damper" when not in use.



**Kent's unit
it really**

Once again, Thanks, Dave Smucker and the Appalachian Area Chapter, for letting us re-print your articles..

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Drifts:

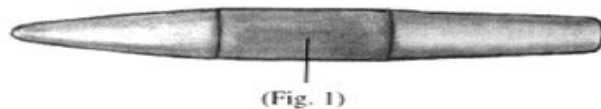
Drifts are tools that are used to shape and refine the inside diameter of slits, punchings and rolled forms in a variety of situations. Drifts can be made in almost any shape a design requires. The most common are round and square in cross section.

The diameter of the body of the drift is the precise forming aspect of the tool. (Fig. 1) The body of a drift works well when it is as long as the piece to be drifted is thick.

The leading end of the drift is tapered enough (Fig. 2) to fit into the undersized slit or punched hole. Sometimes the leading end is forged to match the slit hole with a transition into the body (round or square) of the drift. In either case the leading end has smooth taper to allow the tool to ease into the hole.

The trailing end (Fig. 3) of the drift is also tapered but not as much as the leading end. In fact, the trailing end needs to be just under the diameter of the body of the drift to function. The trailing end is a heavier taper because it must carry the force of the hammer blows that drive the drift through the undersized hole. The length of the trailing end is critical. It must be somewhat longer than the thickness of the stock being drifted to allow the full size body of the drift to move through the stock, refining the hole, before the end of the drift is flush with the stock surface. If it is not longer than the body of the drift there will be nothing to drive with the hammer and the drifts body will hang-up in the hole. If the trailing end is longer than the stock is thick, the body will pass through the stock while enough of the trailing end protrudes to hammer on. Make the last few hammer blows light ones or the drift will shoot out of the piece as the body passes through. It will be hot and moving fast if you are not careful.

There are other types of drifts beyond the basic form described here. In the project section there are two different types of 'drifts'.



(Fig. 1)



(Fig. 2)



(Fig. 3)

by George Dixon
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made to produce the "scales" or "ridge back" to the neck and tail. We will also continue with the other portions of this dragon.

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