Blacksmiths of Central Texas

President's Corner...

June 2009

The heat is on, as it is every summer in Texas. We've got to be a fairly tough bunch to do what we enjoy this time of year. We will be having our summer demo at John Crouchet's shop the last Saturday in July and to entice you to come out of the air-conditioning, we will be adding some BBQ and bluegrass to the afternoon. We need your auction items, too, so that we can add to the funds that will be used to bring a national class demonstrator in the spring. If you have an old forge, anvil or some blacksmithing tools laying around that you aren't using, we have several new members that would love to bid on those items, I'm sure. We love your hand-forged items too! So come on out, bring something for the auction and get a dose of blacksmithing, food and music.

I'd like to thank all of the folks that have spent their time representing Balcones Forge at demonstrations around Central Texas this spring. There has been quite a demand for demonstrators and your willingness to go out and hammer some iron for the public is greatly appreciated. Thanks again!

Sue Murray, President

MEETING DATE IS JUNE 27

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Meeting Info

June 27

Last Saturday of the month (as typical)

Our June meeting will be at the shop of Tom the Blacksmith, Leining in Wimberley. Tom will have some excellent shop tips and forging shortcuts to share with us. We'll also have time for another demo or two -- is it your time to show us something you've learned? Let your Board know and we'll put you on the schedule.

Address: 150 Pinion Trail, Wimberley, TX

Standard meetings (like this one) start at 9:30am.

On The Web

Have you checked out the links on the Balcones Forge website lately? You could learn how to make a treadle torch or, if you have the time, read 106 years of Popular Mechanics. There is also a nice list of suppliers. And be sure to check out the websites of several members.

Get your hats and T-shirts at most monthly meetings. And don't forget the great library available to PAID members.

Trade Item

For June: Insect/Bug -- Anything Creepy Crawly

Tom Leining will be our host for the June meeting

Found in "Farm Blacksmithing," 1918 (average family income less than $30/week)
To set up the average blacksmith shop, here are the costs:

Bellows and tuyere iron	$5.35
Anvil	$8.00
Vise	$4.00
Hammer	$1.00
Tongs (two pairs)	$0.70
Hardie	$0.25
Stocks and dies	$3.00
Drill press	$4.50

Holy Cow! 25 cents for a hardie? Highway robbery!

Part I

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 you 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 Quetzalocoatlus 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.

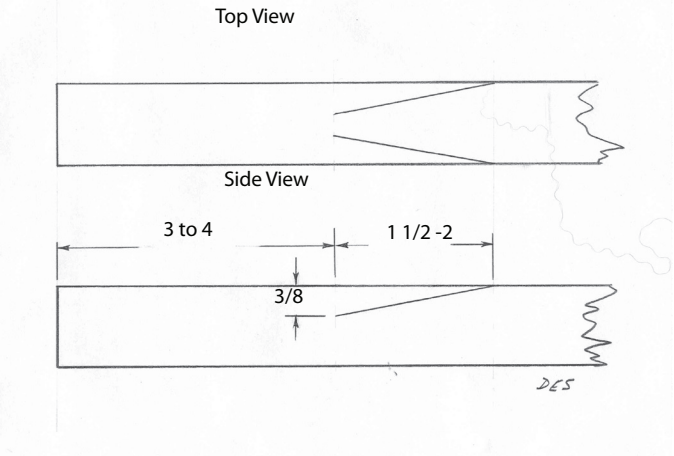
Steve starts with square bar stock about 26 inches long. He mainly uses sizes of 1-inch square, 3/4 square and 5/8 square. At Tannehill he showed dragons made from both the 1-inch and 5/8. Steve says he has used as small as 3/8 square stock and once and only once used 1 – 1/2 square. Commenting on the 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.

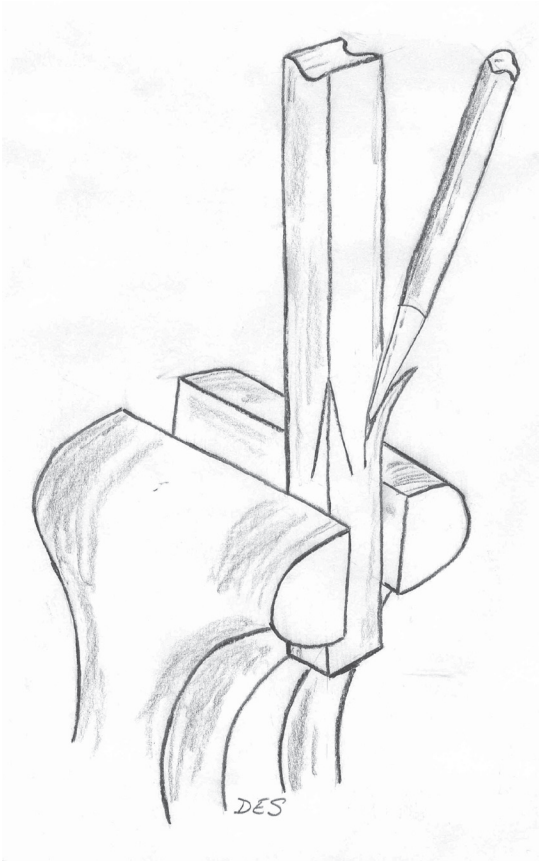


Layout of the "horns" stock is 1 x 1 x 26 inches

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.

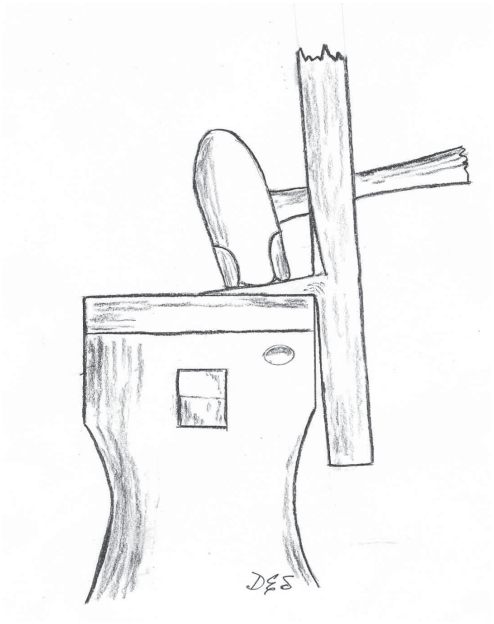
The next thing that Steve does is to clean up the horn with a disk sander. As a professional welder Steve is very much at home using a 4-1/2 or 5 inch grinder and isn't a bit afraid to use it as a "power file" for cleaning up work. He likes to use a sanding disk backup up with a flexible sanding pad. 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.

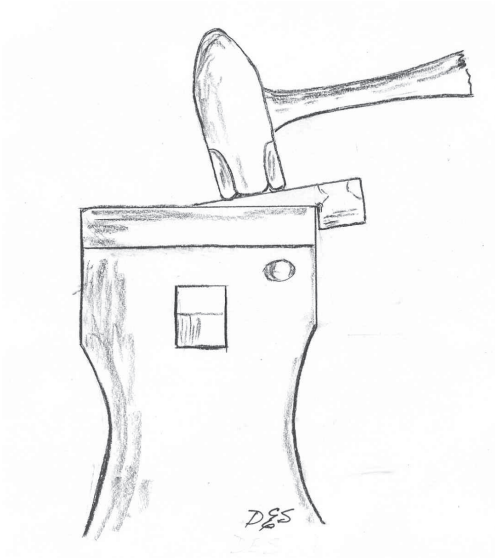
Now you are ready to draw out the horns. Steve does this on the anvil much as you would the tines of a fork. First heat your stock to a good heat and partially bend one of the horns out from the body. Now you can work that horn on the anvil, in fact taking it to a near 90-degree angle from the body. 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.



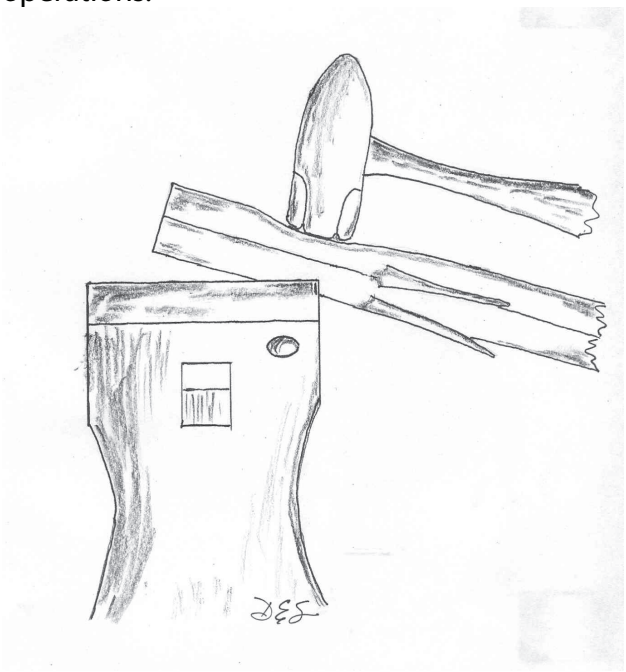
tail view of anvil

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

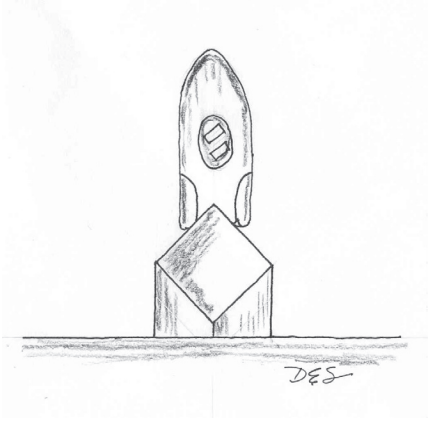
At this point you have "nearly finished" horns – you will need to give them their final positioning as one of the last steps in forging the dragon. For now heat and then gently fold them back against the body of the dragon. Use either very light hammer blows or a wooden mallet to "tap" them back towards 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 insetting 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.

We are going to stop at this point until the next time. In the next part we will detail the special tooling Steve 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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