Blacksmiths of Central Texas

President's Corner... September 2009

Each time I'm at the Wimberley Market Days with my metal work, I have customers say to me that they thought blacksmithing was a dying art. It's refreshing to know that there are so many people around the country still taking interest in it, whether as a hobby or as professionals. It is hard work, but it is also a great workout for our minds. People really seem to get excited when they find out we are still doing it in some capacity or other. Balcones Forge offers lots of opportunity to learn blacksmithing tricks and techniques, whether it's through the extensive library, attending demonstrations by professional blacksmiths or just attending meetings and learning from other members. Be sure to take advantage of all this and if you feel you have something to share, let us know and we'll give you some time to pass your knowledge along.

See you at the next meeting!

Sue Murray, President

MEETING DATE IS SEPTEMBER 26
START TIME IS 9:30am

A map is on the back page and driving directions are on the website.

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Meeting Info

The September meeting will be in Llano at Bob Pheil's shop. Bob has a short demo on collaring, Sue Murray will demo a neat little flower, and Mary Jo Emrick will show us some welding tips and talk about safety. To finish up the festivities Larry Crawford will also have something to show.

Come for the blacksmithing and stay for the bar-b-que!

Trade Item

Bob has chosen a candle holder for the trade item. Remember, you gotta make one to take one!

Go East, Young Man

For a majority of Balcones Forgers, we seem to always be going west for most of our meetings. Break the trend and mark your calendar for a big event on October 24 in Rockdale, 60 minutes east of Austin. The community historical society has built a fantastic blacksmith shop on the grounds of the 100-year-old train depot. Among the events scheduled is the dedication of the shop in honor of two notable blacksmiths -- one being **Mr. Charlie Stolte**. This beautiful little town does it up right -- you'll want to be a part of it. More info to come.

Rudy Billings, Treasurer

Secretary's Report

The August meeting was held at Mission Espada, in San Antonio, with a side trip to the Concepcion Mission to see some recently-uncovered frescos.

To start off the meeting, Tom Leining informed the group that the Pioneer Village, in Gonzales, would like our group to demonstrate at an annual festival the last Saturday in April each year. If we do, we will also be able to have a guided tour of the area, which includes an old jail. Tom demonstrated this year and enjoyed it.

Balcones Forge is selling raffle tickets for the ABANA 2010 conference in Memphis. You can buy them for $1 each and the proceeds go to ABANA's scholarship program. Prizes are a Clay Spencer Tire Hammer, a BAM Box with "signature tools", and a 120 lb. Nimba anvil. The drawing will be during the ABANA Memphis Conference, June 2 - 5, 2010. Winners do not have to be present. We are, however, responsible for the shipping should we win and require the prize to be shipped to us.

For the October meeting at Master Bladesmith Johnny Stout's shop in New Braunfels, members are invited to bring a damascus billet for him to work with.

If you want the electronic version of the newsletter, let Rudy Billings know. It will save money and you won't have extra recycling to do when you are done with it. Elections are coming up, so if you would like to be on the Balcones Forge board, feel free to step up and let us know.

There were eight items "made of rebar" that were traded. We also had several things donated for iron-in-the-hat.

We had a brief overview of Mission Espada and then we went to Mission Concepcion, where we were given a tour of the mission, which dated back to the 1700s. We also got to see the Father President's quarters, which is normally off-limits to visitors. The frescos are still being uncovered and it's amazing that they are still visible after so many years. We also discovered that the state takes care of the grounds around all of the missions, while the church is responsible for the upkeep of the missions. We had a great turn-out.

Sue Murray - Stand-in Secretary

BALCONES FORGE
CENTRAL TEXAS BLACKSMITHS

Balcones Forge... a dynamic group of amateur, professional and beginning smiths, whose mission is to promote the art of blacksmithing. Offering monthly meetings, workshops, and demonstrations, Balcones Forge is an organization dedicated to helping anyone interested in blacksmithing learn and grow in skill and knowledge. Join us.
www.BalconesForge.org

Forging Dragons

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

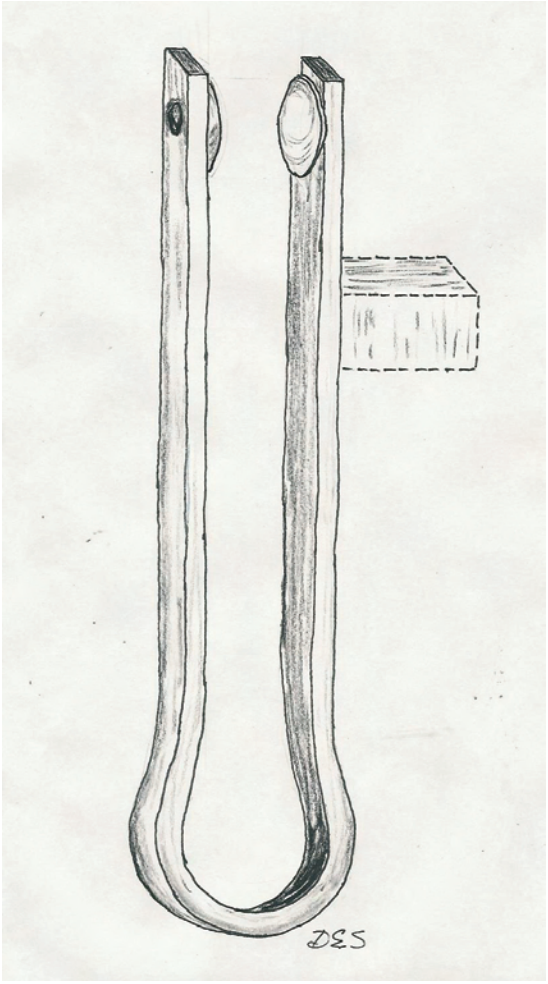
by Dave Smucker

Part Three

In the last issue of the newsletter, we completed forging the dragon's head except for the mouth and "beak" area. Now to continue, the next operation is to forge the neck area and complete 2 to 3 back ribs, (scales or vertebra – "whatever you want to call them"). They are the pulled out ridges that define the back of the dragon and extend from the base of the head to the end of the tail – except where the wings attach to the body of the dragon. While we didn't make much use of the treadle hammer in Part I – if you have one you will make a lot of use of it for the vertebra. If you don't have a treadle hammer you can still do this work at the anvil with the correct tooling – it will just take more heats and effort.

To forge the vertebra you will need a special tool, a type of spring fuller that will allow you to forge both sides of the vertebra at one time. Steve makes up two forms of this tool based on a design from Clay Spencer. Clay's original design is one that he came up with to form the "pulled out" nose on his rail spike wizards. Clay made these original spring fullers by welding two large steel balls (3/4 to 1 inch diameter) to the "U" of the spring fuller. For Clay's spring fuller you can get these balls from a large ball bearing or they can purchased from someone like MSC. Steve's tools uses large carriage bolt heads in place of the ball bearings. This, in effect, gives you a spherical surface that has about double the radius of the 3/4 to 1 inch ball bearings. Carriage bolts are officially known as American National Standard Round Head Square Neck Bolts – but don't try that name at your local hardware store unless you enjoy a good laugh. The 1/2 inch size has a head diameter of about 1.050. The 5/8 inch size has a head diameter of about 1.250. They have a spherical "size" of about 1 3/4 and 2 inch respectively. (from Machinery's Handbook Industrial Press Inc.)

To make the spring fuller you will need carriage bolts and 1/4 x 1 inch flat stock for the "spring". I suggest that you make two of these tools, one with and one without a hardie tang. Cut your flat stock to a length of 26 to 28 inches, then find and mark the center of your stock. I use a square point center punch for this because it is easier to see when hot. Now heat the center of your bar and then bend it around a cylindrical form or the horn of you anvil. I like a piece of 1 – 1/2 inch pipe clamped vertical in my vise to make this bend around. What you are bending here is a large "U". Don't worry if the ends are not exactly the same length, you can trim them off later. Let your "spring" air cool. Now select the location on the shorter leg and center punch where you will bolt will go. Cut a piece of scrap wood that will just fit between the two legs of the "U". (All blacksmith shops should have some wood around – it is useful for other things than just starting fires.) Clamp your wood scrap between the legs of the "U" and drill through both legs and the scrap. If you are doing this in a drill press use a C-clamp or if using a hand drill just clamp the "U" in a vertical position in your vise. For this type of operation, I suggest first drilling with a 3/16 or 1/4 pilot drill and then opening up the hole to 1/2 inch for the carriage bolt. By drilling through both legs of the "U" and the wood scrap at the same time, you assure that the two bolt heads will be in alignment.



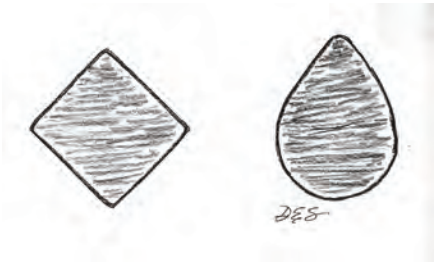
Spring Fuller – from 1/4 x 1 inch stock with 1/2 carriage bolts heads used for "tool surfaces". A tang can be welded on one side for your hardie hole.

Now you can install the carriage bolts from the inside of the "U". Most likely, the carriage bolts are galvanized. It is hard to buy black steel ones anymore so I suggest that you heat them in your forge to burn off the zinc plating. Be very careful to avoid the fumes from the zinc. Let them cool and then file or grind the corners off of the square shank so that they are not too hard to install in the "U". Press into place from the inside of the "U". You can tap it into place or drop several washers on the bolt and run a nut up and pull the carriage bolt into place. Cut the treads off.

Now plug weld them from the outside of the "U". Do a good job here and build up some weld material on the surface because this will be the striking surface for the tool. Clean up with that grinder or disk sander. Now, as I said before, I recommend that you make two of these tools. One to use free hand and the other to use with a hardie hole tang in either the anvil or treadle hammer. If you are going to do this work without a treadle or power hammer than you will need one with the hardie tang unless you have a striker.

Now that you have the tools, let's get on with more work on the dragon.

As we left the dragon in the last issue the horns where laid back against the body so that we could work on the details of the head. Now you need to heat them and gently bend them forward so that you can work on the neck and body area. They do not have to come too far forward – vertical to the body is fine. We now want to forge and draw out the neck area but retain most of the mass in the body area where the wings and talons will attach. Steve draws and forges this area to what I would call a "fat tear drop" cross section with the top of the tear where we will form the neck fins or vertebra. You want this length to be long enough for two to three fins but not more. Another way to think about this cross section is to think about it as a diamond with the bottom of the diamond rounded. This is also the best way to obtain the desired shape – first forge the area into a square set on the diamond to the head and then round up the bottom. You can do this by keeping the bottom against the anvil and working the top two side of the "tear". Forge a smooth transition back into the body section.



Square section on diamond – Fat Teardrop

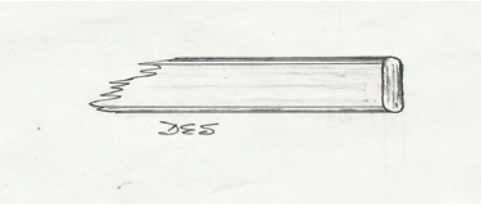
Now you can put your tooling for forming the fins to work. Steve does the neck fins with the tool fastened via the hardie hole tang in his treadle hammer. This allows very close control on the placement of the fins. With this arrangement in a

treadle hammer, you can hold the dragon by the "tail" and also use tongs in the other hand to give two-handed control of placement.

If you are working on the anvil – you will also need the tool with a hardie tang but will only have one free hand to hold the dragon (the other one has your hammer) unless, of course, you are blessed with a striker.

With these, two (or three) fins in place it is time to set the curve of the head and neck to the body section. Also, while you have everything in the area warm, heat up the horns and get them into the final location over the neck area. Take some care here, take a good look at the metal at the base of the horns, and look for cracks – if you have any, dress them out before making your final bends. A small rat-tail file or small chainsaw file works well for this.

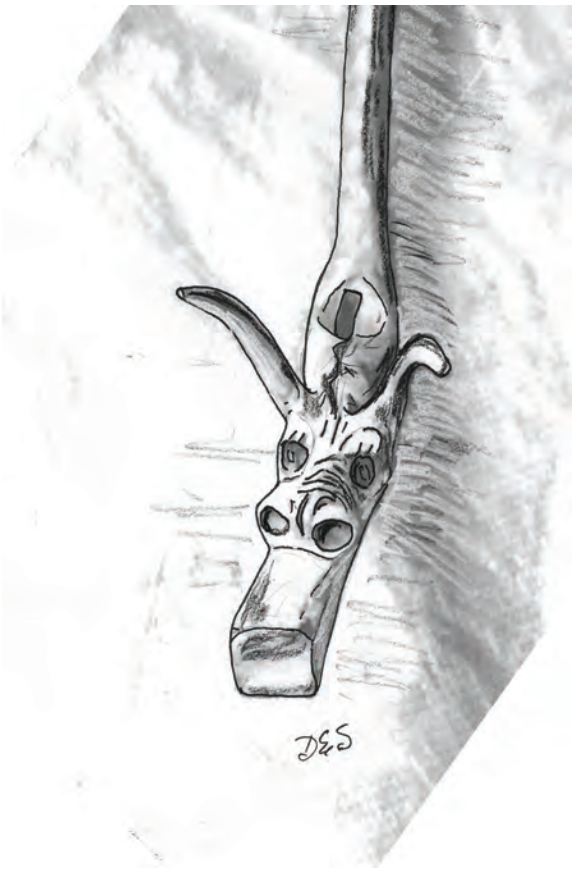
The dragonhead and neck are now complete, except for the "beak" and tongue, but we are going to move on towards the tail before finishing the head. Round up the body section – the mass in this area stays the closest to the original stock section but is rounded up and drawn out a little. Then start the drawing process for the rest of the long tail of the dragon. Like the short section of the neck, that we have already done, this will be a "fat teardrop". As before first draw this out as a square section but set on the diamond to the body. Then form the tear by working the bottom area against the anvil, rounding it by working the top sides of the teardrop with the hammer. This will round the bottom with the anvil and sharpen the top of the tear. When we have 4 to 6 inches of the tail shaped, we are ready to put a slot in the back for installation of the wings. Don't put the fins on this section yet.
Steve now punches a slot in the back (top) of the body by using a 1 inch slotting punch – but doesn't punch through. Make you punch about 1 inch wide by 1/4 inch with rounded corners.



Working end of punch, grind end flat with sharp edges to body.

You can make your punch from 5160 (coil spring) or W1 tool steel and it will work fine – but this is one application where I prefer H13 or S7 tool steel. The reason is that this type of tool will remain in contact with hot metal for longer periods – and the hot work tool steel in H13 or S7 just plain holds up better than others when it has to work at higher temperatures. While this is a punch required for this application, you will find many other uses for this punch in other work too.
To do this punching, set the heated body section of your dragon in a 1-inch or 1 – 1/4 inch bottom swage set on your anvil. If you have a large swage block with this size, usually on an edge, that can be used too.

To make the slot, heat your dragon to a good orange, place it in the swage block and punch down from the top or back of the dragon. You want to make a deep slot for the wings but do not want to punch through as you would in most applications. Position your punch and take the first blow or two to start the process. Cool you punch and drop a little fine coal dust in the started slot and continue punching. You may have to do this several times but you should be able to deepen the slot with only one heat.



A View of the Dragonhead after the slot has been punched for the wings, but before the tail has been completed or the saw cut made for the mouth.

We are not going to install the wings yet, but we are ready to draw out the rest of the body / tail of the dragon. We produce a long gradual taper over the total length of the body /tail until we reach the very end of the tail. Use the same procedure as before, first drawing it out a square section then rounding into the fat teardrop. Here is where if you don't have a treadle hammer or power hammer you will wish you did. Never the less, all of this drawing can be done on the anvil, as it was done for centuries by many blacksmiths. About half-way through you will want to turn your work around and hold it by the dragonhead. Steve works to have his 1-inch stock dragon reach a length that measures from his waist to the floor.

Most likely, you will have some stock left as you reach the end of the tail. Cut this off, leaving enough material to form the "rattle" or "spear" on the end of the tail. You form this rattle / spear just as you would a leaf. Set off some material on the edge of the anvil or using a spring fuller and then form into the leaf shape.

You are now ready to put all of the fins or vertebra on the back of the dragon over the total length of the body / tail. For this part of the dragon, Steve Williamson uses the same spring fullering tool but uses the free hand one and does the work in the treadle hammer. He finds that this is the fastest way for him to work. He heats a section of the dragon and then draws out each one of the fins – being able to do three fins with each heat. As you draw out the fins, it will cause the body / tail of the dragon to curve because it becomes longer on the fin side. You need to adjust for this at least every other heat. Steve recommends using a wood mallet to do this so that you don't damage your dragon. Another important recommendation of Steve's is to heat you dragon with the fins up in your fire or your will have real danger of burning them. Working from the head to the tail makes the fins small towards the tail with closer spacing.

If you are doing this for the first time, you may find that it is easier to use the fuller with the hardie tang attached. If you are working under a treadle hammer this allows you to use two hands to position the work piece. For me, I would hold the dragon itself with my left hand, using a Kevlar glove if necessary and using tongs in my right hand. Without a treadle hammer, working on the anvil I would for sure want to use the fullering tool with the hardie tang. Again, being right handed, I would hold the dragon with my left and use the top of my hammer to help position the work piece into the spring fullering tool – then strike it with my hammer when correctly positioned. While not as easy to use as tongs to help position the work piece I find that I can both push and pull with my hammer when using a spring fuller. You may have to "adjust" the spring of your fullering tool so that it has a light spring effect on the work piece. This is easier for me to work with than when the fuller halves (top and bottom) have a gap to the work piece.

PART 4 COMING SOON!

VOSTENAKSTUDIOS

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Silver Forging Workshop

October 16, 17, & 18
November 13, 14, & 15
December 11, 12, & 13

IN THREE DAYS OF HANDS-ON LEARNING, mixed with demos, you'll experience the joy of hammers, anvils, and silver!

This workshop is geared to beginners and intermediates. If you've never picked up a hammer and hit metal with it, I'll have you moving silver on the first day, releasing your creative flow. If you're an intermediate, with some experience in forging silver, I'll work with you to hone your skills.

You'll learn about tools and the ergonomics of using them, silver and its properties, hammering techniques and how to fix problems, and designing and planning your pieces. With the class size limited to six, you'll receive close personal attention. And you'll have 3–4 finished pieces to wear or give as gifts!

- **All materials will be supplied,** from hammers, anvils, and silver to coffee and goodies for breaks. You'll only need to bring notebook and pen, and as always in a metal shop, the recommended safety glasses and hearing protection.
- **The workshops will be held in Camp Verde AZ,** 30 minutes south of Sedona, about 1.5 hours north of Phoenix. There are hotels and camping nearby. Google maps is the best place to start. Fall is a gorgeous time in mid-northern Arizona. Come and enjoy the lush Verde River Valley and the beauty of the red rocks of Sedona.
- **The cost is $450,** with $50 of it as a non-refundable deposit to hold your space.
- **Choose your workshop dates and schedule it through my website: valerieostenak.com** on the workshop page. It's easy, safe and secure—it's through Paypal! When you choose the deposit option, you will receive an invoice through Paypal for the final amount—which is due 14 days before the workshop dates. Please include your phone and email contact information too!
- **Questions? Send me an email at vo@valerieostenak.com**

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When you come to the stoplight on the Northeast side of the square, turn left. Go 1.7 miles to Post Oak Drive.

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