



# Balcones Forge Dispatch

President's Corner

June 2013



We all had a great time in San Marcos at the Texas Natural and Western Swing Festival on the grounds of the old court house. Our turnout was great with most of the old faces (in some cases, I do mean OLD) and a lot of new faces. It was a very determined group with a lot of very serious hammering. We are looking forward to this one again next

year. Hopefully, they will move us back into the shade.

We did not have any participants in the Trade Item. This was discussed and we are going to try something new. Instead of a Trade Item we will try Show and Tell. We will come with an item to make for each meeting and encourage all to participate. These items can be a great addition to your portfolio. It was mentioned that you could still trade or even sell your item if you choose to do so. We will have a Competition Item for our June meeting – a hammer or handled tool.

Jerry Achterberg set up an old bellows. They were built by Al Morgan, one of the founding members of Balcones Forge. Al originally built the bellows for the Missions in San Antonio. The National Park Service has had them stored for quite some time when they contacted Jerry to see if they wanted them. Jerry has been working hard to get them back in working order and get them set up as a great demonstration piece. I am sure we will see them in the future. Jerry also talked about the Golden Mean Ratio and showed us a set of Golden Section Calipers that he made. Thanks Jerry.



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## Meeting Date is June 29

*President's message continued on page 2*

*President's message continued from page 1*

On Saturday, June 29th we will be meeting at the shop of James Helm. He will be using his big power hammer and forging press to make a hammer. They are planning to barbeque for us at this event. Don't forget our competition item. You still have time to get one made. This is one that you will regret missing so, make your plans now.

Mark Aspery will again be our demonstrator for the 2014 Bluebonnet Demo. We will need ten forges for the workshops prior to the demo. The board will meet to come up with a plan. There may be some workdays to get these put together. We will keep everyone advised.

Memorial Day has come and gone. Remember those that have made the supreme sacrifice in an effort to preserve our freedom. With this summer is upon us. If you are working outside and especially in the fire, make sure you stay well hydrated. I am told that it is best to start pre-hydrating the evening before.

Stay safe out there and Happy Forging,  
Jerry

Jerry Whitley  
President, Balcones Forge

P.S. Don't forget to like Balcones Forge on Facebook. We use it to help keep you informed.

### **APRON ENVY**

Sue Murray got the skinny on where Mark Aspery got his cool apron with the top strap and buckles. It was made by Diana Scherf and her website is:  
**[www.bootjackfineleather.com](http://www.bootjackfineleather.com)**  
She has several styles of smithing aprons to choose from.

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## **UPCOMING BALCONES EVENTS**

June 29- James Helm – Elmendorf, Texas

July & August -Too hot to forge!  
Suggestion -M.O. Ranch in Hunt, Texas  
See the work of Eric Riesel, 1930s Blacksmith.

September- Date will be October 5th in Oldenburg, Texas. This is another event where we will work with HABA and North Texas Blacksmiths. The cupolas will be built and the charcoal made. We will have an iron smelt and each group should return home with 10 to 20 pounds of wrought iron from the bloom. This will be one that you do not want to miss.

October 26- Whitley's in Devine, Texas  
I know it is far for many. We have room for those that may want to bring an RV or tent. It is okay to show up on Friday (might get some extra forge time in) and if the after party goes too long and strong, stay until Sunday. We are planning to barbeque again and maybe even take a field trip to Stroud's Blacksmith Shop in Devine.

November and December are still in the works.

## **BALCONES FORGE BOARD OF DIRECTORS**

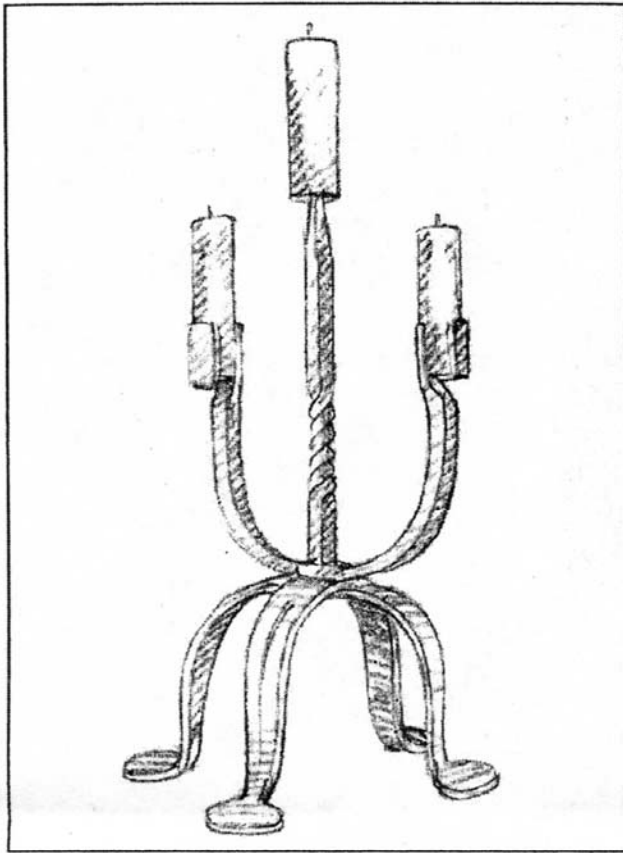
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## 15th Century Candle Holder

Text By: Jim Ryan, Illustrations By: Jerry Hoffman



This fixture features both pricket and strap holders on one unit. The sizes listed are all approximate since the original is still in a museum some place in Europe.

**Step 1** - For the feet, two pieces 1/8" or 3/16" by 1" will do, about 15" long. Drill or punch a 1/4" hole in the middle of each piece.

**Step 2** - Forge a notch near the end with spring fuller, guillotine fuller, or hand held fullers.

**Step 3** - Taper both sides toward the notch, keeping the thickness uniform. Leave the square at the end for the foot.

**Step 4** - Round off the square to make it into a "penny foot".

**Step 5** - Chisel a decorative line from a little above the top of the foot to 1" or 2" from center.

**Step 6** - Duplicate these steps for the other end of the piece. Do it the same way and when you're finished and you will have two identical pieces.

**Step 7** - Bend the feet out from the legs at about a 60 degree angle, (just eyeball it) and then curve the legs as shown. Fasten the two legs together with 1/4" bolt to hold them in place for aligning the feet until all four touch the table.

**Step 8** - For the center pricket, try 3/8" square, about 12" long. Taper one end with a long, thin taper, sharp point.

**Step 9** - Put a decorative twist or two in the center of the pricket bar.

**Step 10** - Forge or file a 1/4" tenon about 3/4" long. Any book on blacksmithing will tell you how to make one.

**Step 11** - For the candle bracket arms, use 20" of 3/8" square. Spread at the center to about a 1" or 1 1/2" area. Drill or punch a 1/4" hole in the center.

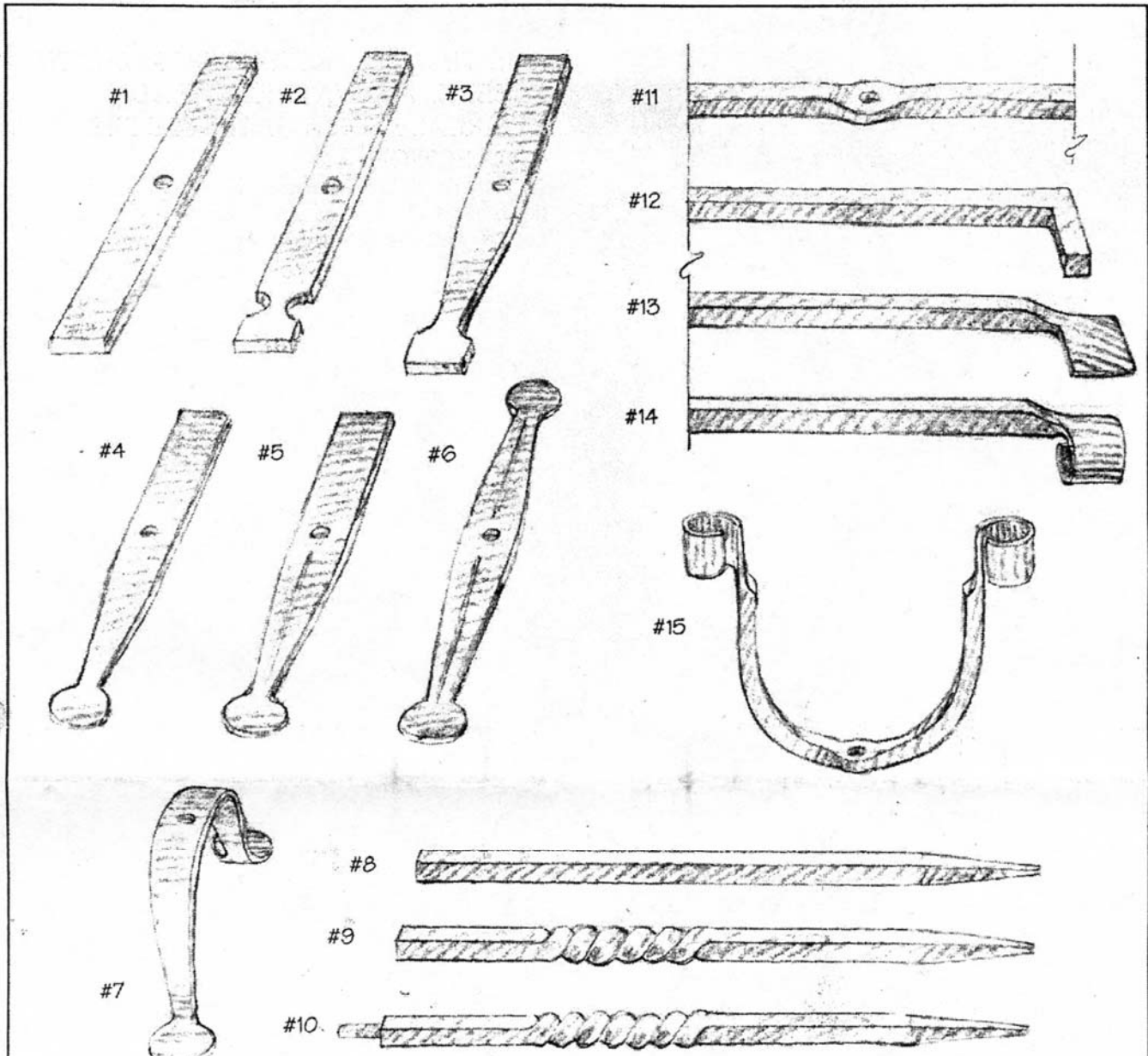
**Step 12** - Bend three inches of one end to a 90 degree bend.

**Step 13** - Spread the 3" area away from the main piece to create a piece that looks like a stick with a flag on it, about 1" x 3" and near 1/8" thick.

**Step 14** - Taper the bend area to make a smooth progression from the 3/8" square to the flat area.

**Step 15** - Bend the flat area around the horn of the anvil or around a tapered bick to shape the strap bracket. The bottom of the bracket should be about 3/4" in size and the top should taper up to 1". This permits different size candles to fit.

**Step 16** - Do the same procedure to the other end of the piece. Care must be taken to see that the strap brackets curl in opposite directions from each other.



**Step 17** - Curve the arms up into a U shape, leaving the spread center flat.

**Step 18** - Assemble the fixture by removing the 1/4" bolt in **Step 7** and putting the pricket tenon through the bracket arms and both foot pieces. Put it all upside down in the vise and peen over the tenon lightly. Remove and check alignment, then finish with a tight peen on the tenon.

**Step 19** - Finish with floor wax, boiled linseed oil, varnish, paint, or whatever you like.

Do not be concerned if your candle holder is a little out of line. The original is way out of line in the photograph. Be sure to make a hole in the bottom of the candle that is at center. Otherwise it will split.



Artist-Blacksmith's Association of North America

Appalachian Center for Craft.  
Summer Workshops  
Seats still available

June 21-23 Joe Brown: Candle Holders  
July 19-21 Steve Williamson: Dragons and More  
July 28-Aug. 2 Howard Clark: Swordsmithing  
August 9-11 Elmer Roush: Viking Padlocks

please contact:

Lindsey Maestri Program Manager  
Appalachian Center for Craft  
1560 Craft Center Drive  
Smithville, TN 37166  
931-372-3051 or 615-597-6801

craftcenter@tntech.edu

scholarships available



Artist-Blacksmith's Association of North America

CanIron IX  
JUNE 29TH-JULY 1ST 2013

FOR MORE INFORMATION  
www.caniron.ca

## BALCONES FORGE MEETING INFO

Meetings are open to everyone -- you do not have to be a member to attend.

Meetings are usually held on the last Saturday of each month, but subject to change.

Bring your Safety Glasses -- REQUIRED

Other things to bring:

Hearing protection, notepad, camera, folding chair/bleacher seat cushion, drinking water, re-turning library book/video, "Iron in the Hat" auction item, trade item/competition "trade" item. Competition "trade" items are creations that take time and effort, so you get to keep your item. Usually the items are judged and prizes awarded.

### JUNE MEETING INFO

The Shop of James Helm  
Helm Enterprises  
Elmendorf, Texas  
June 29 - 9:30

Besides his usual forged items and tools, James is becoming well know for his excellent and unique knives. He has a great blogsite with helpful tip-filled videos at:

<http://helmforge.blogspot.com/2010/03/hello-everyone.html>

James will be forging a hammer.

Show and Tell Item -- Hammer or handled tool.  
This will be a competition item you not only get to keep, you might win a prize.

Look for directions and a map elsewhere in this edition of the BFD.



He's our President and he feeds us! Hurray for Jerry Whitley!

*photo by Vince Herod*

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Scenes from the May meeting

Photos by Vince Herod



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# A Brief History of Colonial Iron Production in North America

Contributed by Dick Smith

There is very little known about iron making in North America before the colonists arrived in Virginia in 1607. The Inuit probably hammered knife blades from meteorites and mounted them in ivory handles, but there is no evidence that North American Indians smelted iron.

Practically from the very first moment that colonists settled in Virginia, local deposits of iron ore were discovered and converted into pigs for their use. All along the Shenandoah Valley there were ample resources available for the production of iron, including limonite, magnetite, hematite, limestone, forest tracts for the production of charcoal and water powering streams. According to Stanley Dickenson in his short history of American iron works\*, the first recorded smelting of iron occurred on the James River in Virginia from 1607-1609 with some of the ore being shipped to England. This activity provided income to the early settlers as well as raw materials from which to make much needed iron products for their new communities. Also in Virginia a furnace and iron-works were constructed on Falling Creek around 1622 but all of the ironworkers and artisans were killed by Indians. Around the same time period the Saugus works in Massachusetts was in operation and continued production until it was shut down in 1652 because of financial and legal difficulties. Other furnaces were constructed along the Rapidan in Virginia that were designed along the lines of the Saugus works. After these aborted attempts the Virginians found it more rewarding to concentrate their efforts on agricultural pursuits and over the next hundred years made only modest amounts of iron in inefficient bloomery forges.

The following is a listing of those iron works, furnaces and forges in operation in Virginia from 1607 through 1810, after which time some of them failed because of a lack of demand or funding.

- 1607-09 First iron smelted on the James River.
- 1609 Iron ore shipped to England.
- 1622 Iron works built on Falling Creek, Va.
- 1624 Saugus works in operation.
- 1714-1732 Blast furnaces built along the Rapidan in Va.

- 1726 The Accokeek furnace built in Stafford Co. shipped 410 tons of pig iron to England in 1750.
- 1738 Neabsco furnace on North Creek.
- 1740-1762 Bloomery established on the Shenandoah River. John Miller had a furnace & forge. Isaac Zane also had a furnace & forge, the Marlboro Works, in Frederick Co., Maryland. Catoctin furnace and iron works and Johnson's furnace on the mouth of the Monacacy River,

- 1759 Occoquan furnace with forge, saw mill and bolting mill.
- 1775 Secret manufactory in Fredericksburg for the production of small arms.

- 1776 First cannon constructed in Maryland at the Antietam furnace.

- 1778 Fredericksburg arms Factory, Westham foundry, Buckingham furnace and Hunter's Ironworks failed due to a lack of funding from the government.

- 1796 Country unable to produce munitions.

- 1810 Springfield Armory and musket factory and the Hall rifle works in operation at Harper's Ferry.

Cannon production at Mt Aetna (formerly the Antietam furnace), the Foxall foundry in Georgetown and the Tredegar works all in operation.

Most if not all of the early furnaces in Virginia and Maryland were fired by charcoal." 'Coaling' a stack of 3 0-40 cords of wood was a job for specialists. A master collier and one or two helpers built the pit, lighted it, and then monitored it continuously, night and day, for several weeks until it was finished charring. As many as ten colliers were needed to keep one furnace going. An average of 800 bushels of charcoal was consumed in a 24-hour "blast" and more than 240 acres of woodland might be required over a year.' --

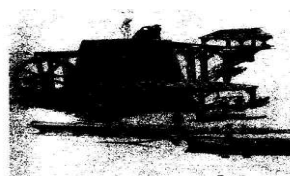
Until coal was transported to the furnaces by barge, this "coaling" of wood contributed to widespread deforestation of the surrounding countryside.

## Bloomery



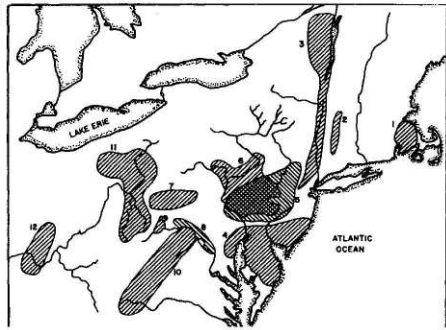
Artistic reconstruction by Mike Tate

## Pig Iron Furnace



Artistic reconstruction by Robert Thorne

- A Celebration of Iron, Gateway Press, Inc., Baltimore.



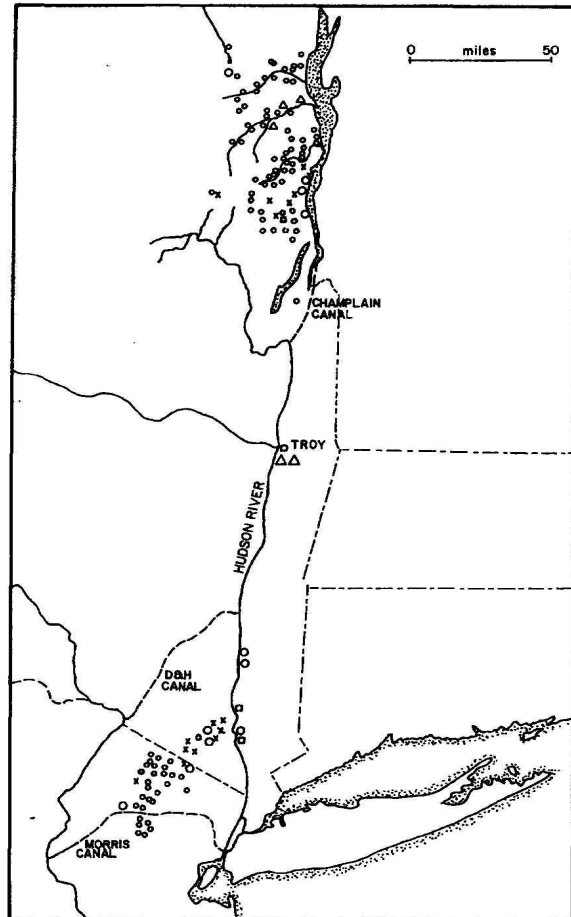
3.3. The North American iron making regions in the Northeast, shown on this map, were distinguished by their natural and economic resources and fry cultural preferences. Key: 1, Southeastern Massachusetts; 2, Salisbury (in Connecticut); 3, New Jersey-New York (spread along the Hudson River and Lake Champlain); 4, Coastal Plain; 5, Piedmont 6, Anthracite (embracing the Delaware and Susquehanna Rivers); 8, Potomac 9, Western Maryland; 10, Shenandoah (between the Potomac and James Rivers); 11, Appalachian Plateau (along the Allegheny and Monongahela Rivers); 12, Hanging Rock (in Ohio and Kentucky). Note that the piedmont and anthracite districts overlap and that the Potomac and Shenandoah districts are contiguous.

(Figure 3.3 and text reproduced from “American Iron, 1607-1900, Robert E. Gordon, the Johns Hopkins University Press, 1996.)

In the early 1700’s English investors decided to invest in North American ironworks because of the high cost of importing Swedish products. Also, by this time the population in America was rapidly increasing and the Indian wars were largely over, thus driving up demand for home grown products. From about 1720-1750, the American iron making industry was growing rapidly enough for the British to institute controls and regulations on these colonial manufacturers. In fact, they became so successful that they were able to expand and upgrade their facilities. Starting out with relatively inexpensive bloomery forges they added fineries and blast furnaces to produce pig iron. Colonists in New England began by smelting the low grade bog ores found in their local area. However, these ores were high in phosphorous and fine particles that resulted in the production of poor iron. By the end of the second decade of the eighteenth century they had in operation six blast furnaces, nineteen bloomeries and a slitting mill and nailery. Despite this level of activity they never eclipsed the size and productivity of the iron making industries of the middle Eastern

states. This impressive expansion of the iron making industry in America is attested to by the following quote.

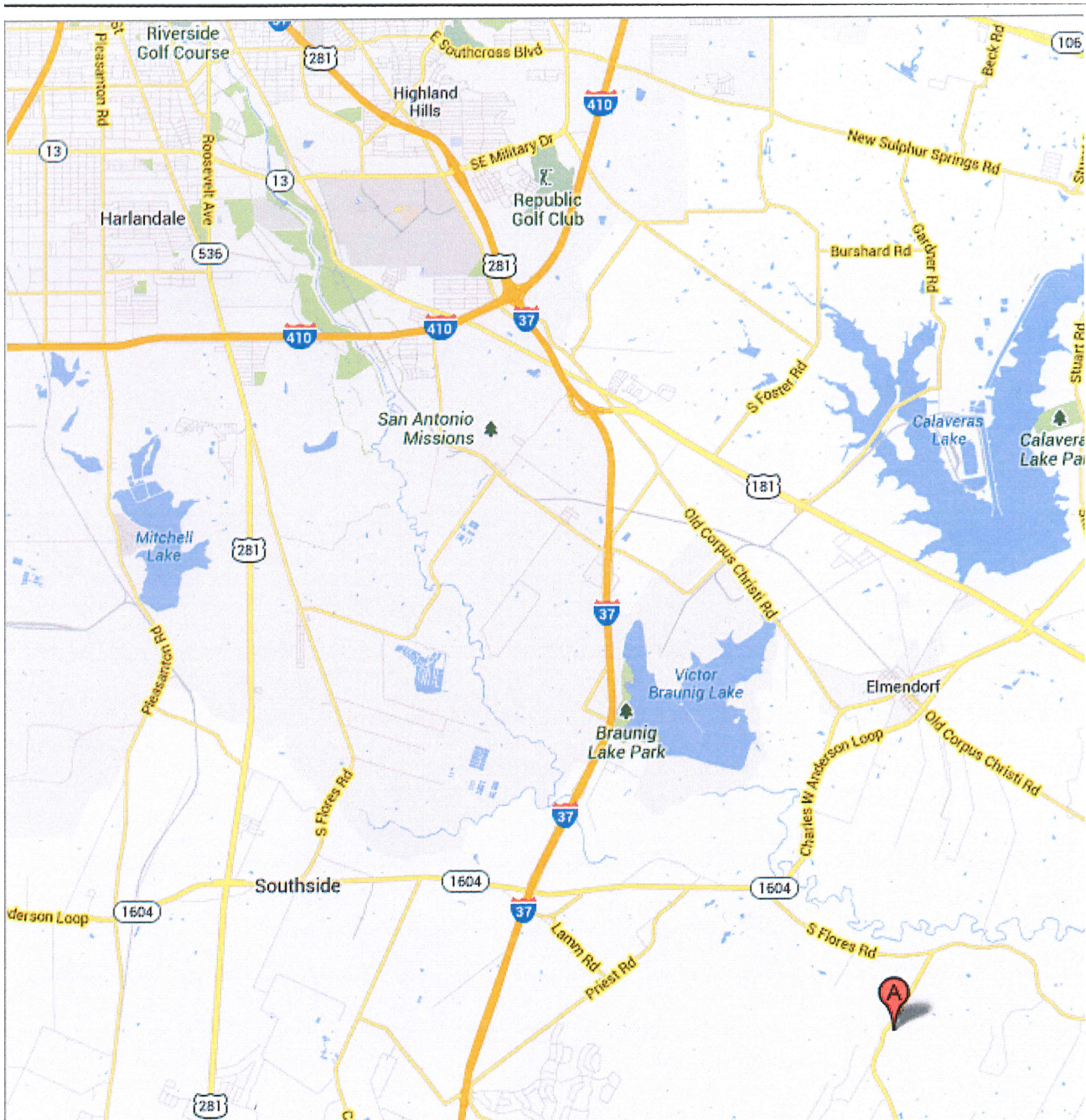
“In the second quarter of the eighteenth century, Americans established themselves as major suppliers of pig and bar iron to British manufacturers, and by 1775 they were the third largest iron producer in the world.”



3.9. Map of the New Jersey-New York district, showing bloomery forges (small circles), blast furnaces fired by charcoal (marked by an x), furnaces fired fry anthracite (large circles), rolling mills (triangles), and foundries (squares). Not all works are shown. The district had magnetite ore, abundant forests, and water power; by 1830 it was criss-crossed by canals. The Delaware and Hudson Canal extended to the Pennsylvania anthracite fields. Railroads later followed the same routes as the canals.

James Helm  
7458 FM 2579 Unit B  
Floresville, TX 78114

Coming south from San Antonio on I-37, you exit on 1604 and head east, toward Elmendorf. After 3 miles, turn right onto FM 1303 and drive 2 1/2 miles. There will be a white convenience store on the left and a bar called The Outhouse on the right where FM 2579 intersects with 1303. Turn right onto 2579, and drive one mile. The entrance will be the first one on the left, and the shop is the tin building on the left.



## LITTLE GIANT ANNOUNCEMENT

Little Giant is changing ownership, effective immediately. In order to perpetuate the line of replacement parts, repair services and information, Little Giant will now be in the extremely capable hands of our machinist, Roger Rice. He will be assisted by our friend David Sloan, who has a great understanding of the mechanical operation of Little Giants. We will be assisting Roger and Dave during the initial transition, and Sid will continue teaching the annual Little Giant rebuilding class. The same telephone number (402-873-6603) and email address (lgiant@windstream.net) will move to the new location at Midwest Machine, 6414 King Road, Nebraska City, Nebraska 68410.

It has been a great 22 years, and we are profoundly grateful to have been a part of the blacksmithing community. We have often said we have the best customers in the world, and we do mean it. It has been an honor to not only help keep these venerable machines in operation, but to have made so many good friends in the process.

With sincere appreciation,

Sid Suedmeier and Keri Hincker



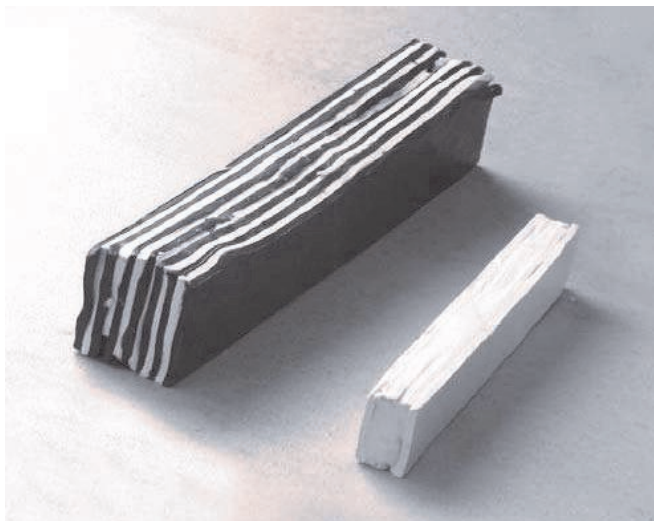
This article originally was published in the *California Blacksmith* No. 12-01, January/February 2012, newsletter of the California Blacksmith Association ( [www.calsmith.org](http://www.calsmith.org) ).

## Using Clay to Create Damascus Patterns

By Tom Ferry, Auburn, Washington

Many of us have heard of using modeling clay as a medium to work out a forging sequence when making animal heads.

At Oktoberfest, noted knife maker and American Bladesmithing Master Tom Ferry demonstrated development of Damascus patterns in clay – a quick and easy way to visualize and understand the development of patterns in Damascus or pattern-welded steel. In his demonstration, Tom used Sculpey oven-bake clay ([www.sculpey.com](http://www.sculpey.com)). Sculpey is one of several polymer clay products which can be hardened by baking in a home oven at 275o. Here, he didn't fire the clay. Rather, he had dark brown and white clay samples, which he rolled out in a device much like a lasagna noodle rolling machine. Each color of clay was there to simulate layers of different types of materials that would be used to make up a Damascus billet.



This simulated the basic Damascus billet.

First, Tom rolled out pieces of clay to about 1/8" to 1/4" thick and about 1" wide. He cut these pieces to be

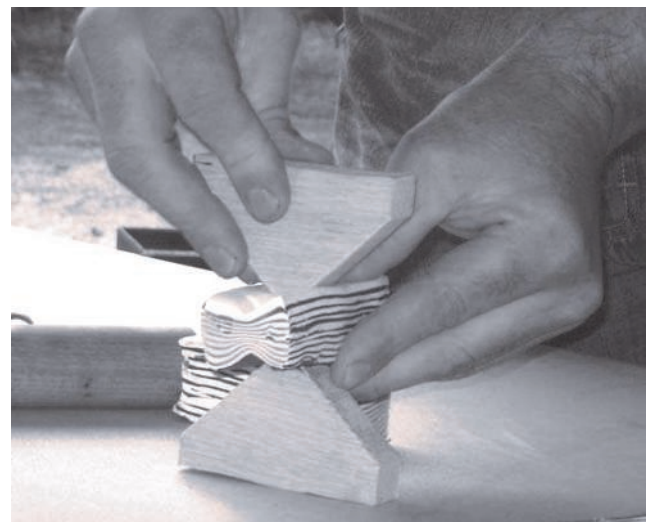


about 6" long and then stacked them, alternating brown and white. Forging this stack would result in the random Damascus pattern.

Next, Tom set out to demonstrate mosaic Damascus patterns. He rolled a basic stack out a bit, using a rubber roller to simulate forging the billet.

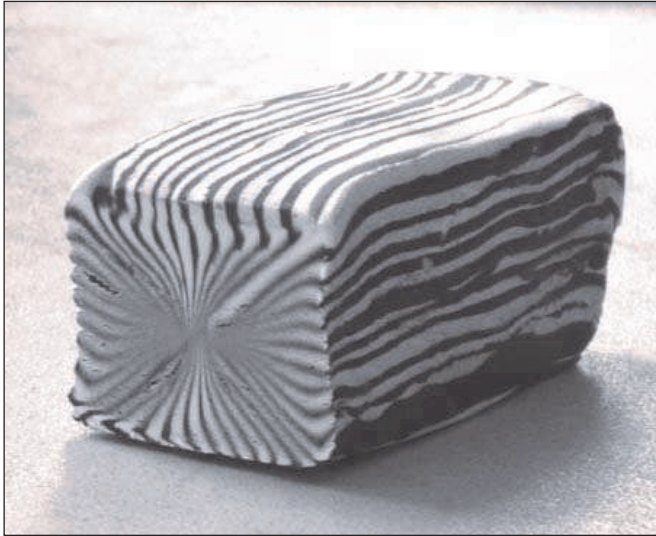
### Radial Pattern

To create the basic radial pattern, he took two stacks, which he wedged in two using a pair of wooden wedges. These simulated this process on a billet with steel jaws in the hydraulic press.



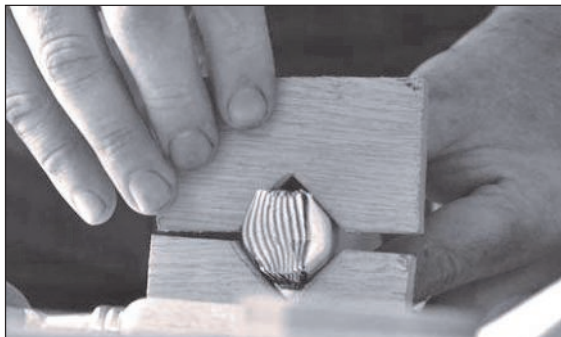
## Damascus Design in Clay

Four of the resulting triangular pieces were then reassembled, squared up – ready to forge if you were working in steel rather than clay. In this photo of the billet, the mating of the four pieces can easily be seen.



## Radial-Squared Pattern

This pattern started with the same basic stack. Two stacks were split into four pieces. Then each piece was squared up using diamond-shape dies.



Once this was done, each of the smaller sections had a diamond cross-section. These were then reassembled into a billet, resulting in the radial-squared pattern.



Tom demonstrated several other patterns in the Sculpey clay. To get the full details of how to create these patterns, take one of Tom's workshops.

### Tom and the clay process

*This article illustrates the idea of using clay as a way to visualize and understand blacksmithing processes. Tom used the clay process to show the pattern development, without having to take time out to forge, grind and polish steel pieces. After Oktoberfest, your editor took the sample pieces home to bake in his oven. They were then polished with a belt sander to bring out the patterns. For more information about Tom, visit his website, [www.tomferryknives.com](http://www.tomferryknives.com).*



Photos by Alan Gering, John Graham & Mike Mumford



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