

# HAMMER MARKS

## Winter is Coming



### Memories of Summer

This summer I produced a variety of steel flowers for the local Garden Club.

If any of you are interested, I have an E-Portfolio with a number of designs in it.

To request a Copy contact me at:

[tnt\\_austin@shaw.ca](mailto:tnt_austin@shaw.ca)

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## **From the President's Anvil**

Greetings to all, my apologies for the lateness of this newsletter, due primarily to a combination of busyness and laziness. Lots of small time-consuming projects, few large works, seems money is tight everywhere.

As mentioned in Memories of Summer, I'm putting together an E-Portfolio of flower designs I have collected over the past 20 years, it should be ready by the end of the November, you can request a copy now or wait until I put it up on the KBA website.

As always I am requesting photos and project descriptions of your latest works for publication in Hammer Marks, along with idea for future articles and in addition any flower designs for the E-Portfolio.

Tony Austin, KBA President and Hammer Marks Editor

### **Publishing Information**

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### **Library News**

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**Email: [dnewall@wildbuffalo.com](mailto:dnewall@wildbuffalo.com)**

**123 Books, 40 DVD's and 7 Videos**

**Check It Out!**

The KBA Library Stock List can be seen  
online at:

[www.librarything.com/catalog/kootenay-blacksmiths](http://www.librarything.com/catalog/kootenay-blacksmiths)

(You have to join, it's free)



## Let's Talk Design (& Production)

### Level 2 Skills: The Weaverville Sign

John Barron, Georgetown

Zoom talks, Feb. 2 & Feb. 9, 2023

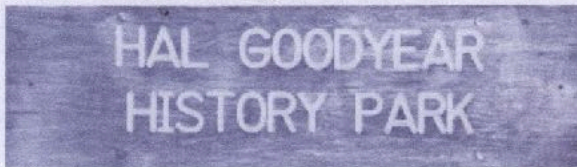
*This is not a blow-by-blow: this article covers a summary of the ideas and insights that I received - Mike Mumford.*

#### Design and Construction of a Product Using Level 2 Skills

##### What's the Job?

The starting point for any creation is to figure out what you're intending to do.

The Weaverville Hammer-In has been held for many years, at the Jake Jackson Museum in the small town of Weaverville. It's an enjoyable town, for which the museum generates lots of local interest. In 2019, the Weaverville organizers asked for a workshop to make a sign honoring Hal Goodyear, who the park is named for. The complete workshop was planned, then Covid intervened. Following that stoppage, the videos for this presentation were shot in John's shop in 2021.



The wood sign had been created, the workshop's job was to make a frame to hold the sign. The workshop goals were:

- design and develop workshop to produce a sign bracket
- to be fitted between posts and installed later
- existing wooden sign
  - 12" tall
  - 40" wide
  - 3/4" thick
- gear workshop to Level 2 skills/participants

The size of the sign, and that it needed to be at a height for visibility, were given as requirements. Other dimensions and styling were open/unconstrained.

I like John's phrase: these are the "hard facts." The phrase encompasses "what are the constraints and requirements for the project that you have to work within." (or work to meet). John said that most of his experience is doing architectural work - where you have to fit the hard facts of a particular set of project requirements.

#### Thinking Through The Design

Clearly, John thinks carefully and thoroughly about his design.

John's design process was:

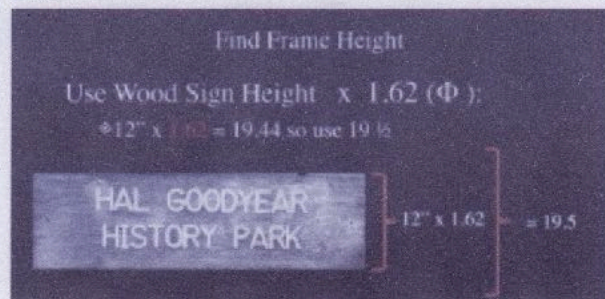
- establish the hard facts
- use design tools such as Golden Ratio (Phi) and repetition
- eyeball the design, then adjust as one feels necessary
- draw out at full scale

Starting with a blank sheet of paper, rough sketch in the hard facts, then use these design tools to block out the shapes.

#### Block Out Shapes

John walked us through the application of these design tools to this project. Note: these are choices — another designer could apply these ideas differently, making different choices.

Phi:



*Frame height Phi \* sign height*

Repetition:



*Equal space repeated all around*



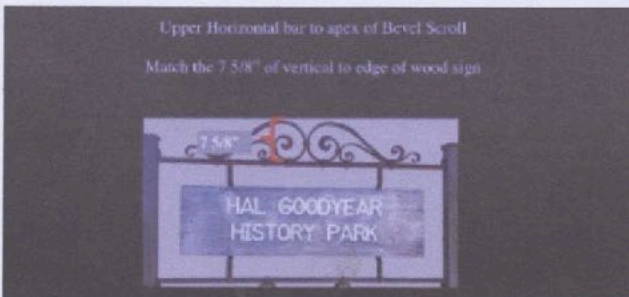
# The Newsletter of the Kootenay Blacksmiths

Phi:



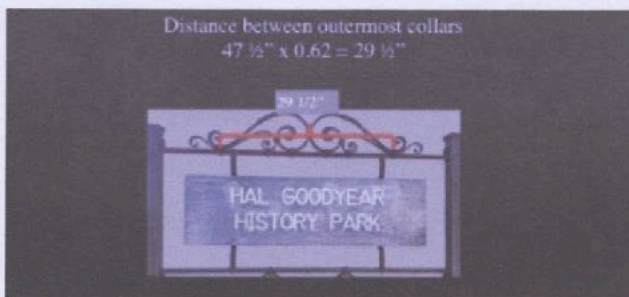
*Support bars at Phi \* sign width*

Repetition:



*Top scroll height repeat space to side of sign*

Phi:



*Collar spacing Phi \* frame width*

Repetition:



*Height of bottom scroll matches spacing above*

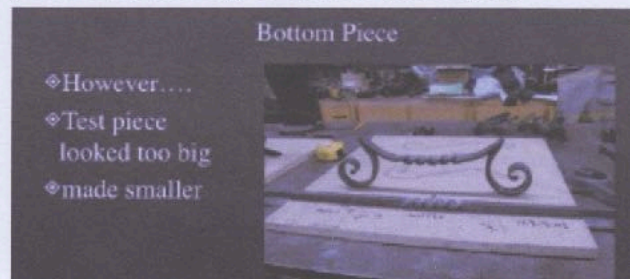
Direct the eye:

Not mentioned in the presentation, but worth noting when examining the design: the application of an artistic technique of directing the eye. The swoops



on the bottom scroll direct the viewer's eye back to the center of the sign, as do the swoops on the top scrolls.

However – John's advice: design using these tools, then check and adjust. Don't follow a slavish adherence to exact ratios. For example: the bottom piece looked too big, so the size was reduced.



Remember: while we showed specific examples of the elements of the sign, the preceding design work only allocated spaces to the elements.

Next is to turn to specifics of each element. A couple of references that were useful included:

Thomas Wilson's Design Notebooks  
Otto Schmirler  
And - John Barron's intuition

These references resulted in the scrolls, twists, and decorative elements of this frame.

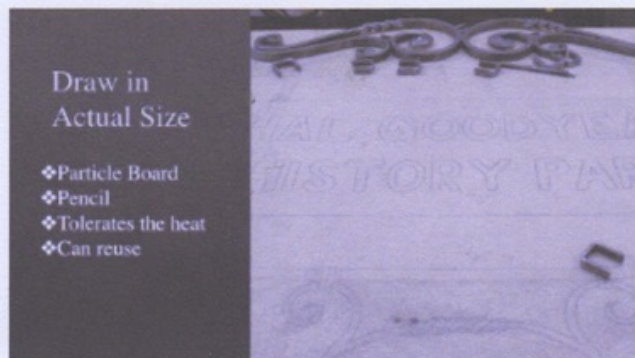


# The Newsletter of the Kootenay Blacksmiths

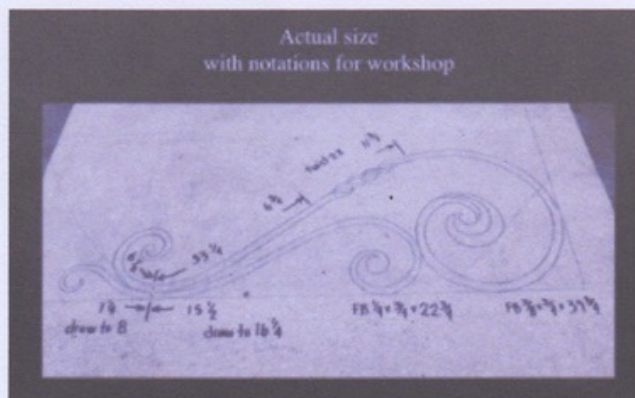
## Full Size Layout



Make this on particle board - reusable if you sand drawings off.



Everything marked with references/sizes



## Consistency

This project is only making one piece, but John explained his approach to getting consistency, repeatability, and efficiency. Some of these ideas included test pieces, parallel steps, jigs.

### Test Pieces

Test pieces are a routine part of John's approach. He did the math to figure out sizes, draw-outs, etc, then checked by making a test piece.

### Parallel Steps

For example, when forging scrolls, he would do each element or step for all the scrolls, then go on the the next element. Again, doing the same process in parallel across all the pieces.

### Jigs

To obtain repeatability and efficiency, jigs were an often-used tool. Care has to be taken to use the jig, just because you have a form you can still use the jig incorrectly. [Yes, he showed a jig use error.]

Quickie jigs were part of his repertoire: steel blocks that could be quickly welded into place, for specific tasks.

John used multiple jigs on each scroll: a scroll-starter jig, followed by a second jig to complete the scroll. Again, John said that he used one jig for all pieces, before going to the next jig.





# The Newsletter of the Kootenay Blacksmiths

## Techniques/tricks

One could call this section Techniques Employed by a Master, or perhaps "Trick of the Trade." Whatever the terminology, whenever I visit or work with another blacksmith, I always keep an eye out for good ideas that I can take away to use. Here are only a few of the nuggets I learned from this presentation.

The first thing that I noted in the videos was the clean, well-organized shop.

Other worthwhile techniques:

### Local Heat

Using a torch to provide local heat helped with punch-and-drift, as well as in forging upset square corners. It was particularly noticeable how little distortion there was when punching after heating locally.

### Cut Tenons

It may be faster to cut away excess material before forging. These tenons were the same diameter as the thickness of the bar..

### Mark Only One Side of Punched Hole

Marking in the center obscures the mark when you set the punch down.



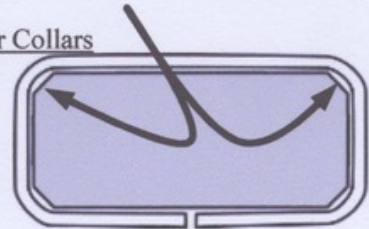
### Nick Hole To Lock Tenon

Nicking the sides of the bar will lock the tenon into place, preventing rotation. Nick on the side which will be headed.



### Chamfer Corners Under Collars

Chamfering the corners of the wrapped stock helps to make the collar fit tighter.

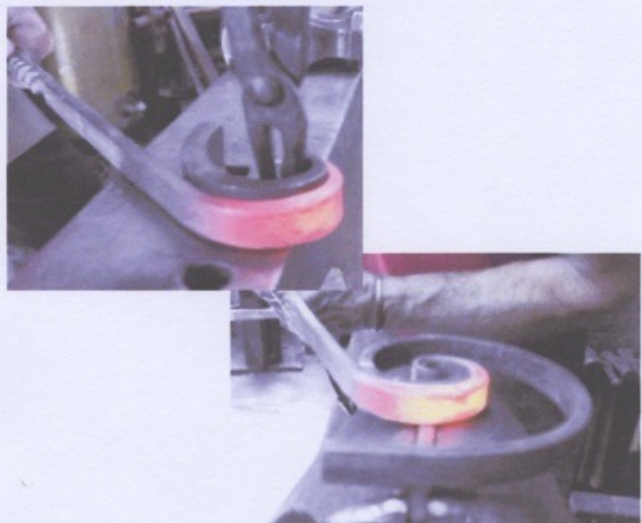


### Series of Heavy Bending Forks

These were cut from 1/2" spring steel, and made in sizes from 3/4" to 2".



### Separate scroll starter jig/completion jig





# The Newsletter of the Kootenay Blacksmiths

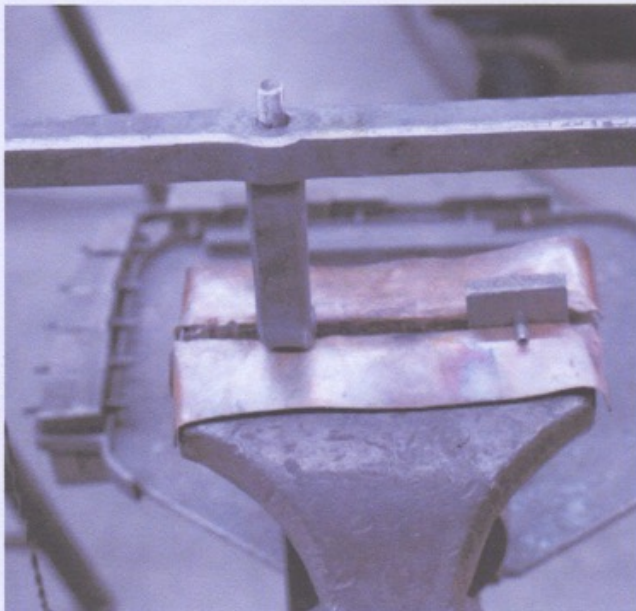
## Test forge weld temp

Use a tapered poker to test to see if the joint is at forge welding temperature - if it sticks, the weld is about ready.



## Soft Jaws

Protect the work from marring by the vise jaws, with a soft jaw liner. Also note the use of a vise spacer to prevent racking of the jaws.



## Pin Joint

Insert a pin to align the joint (a traditional technique) before wrapping a collar around the joint.



## Subsequent Articles: Scroll-end types, Collars

We'll show the scroll-end forms and collaring that John explained, in separate articles. The scroll-ends covered included

- ribbon
- penny
- snub
- bevel



The zoom and presentation came about because John had originally intended to teach this at the Weaverville Hammer-In, which was cancelled during the pandemic. So, we all now have an opportunity to experience this workshop!

John credited and thanked Greg Hudgins for shooting all the video, all done in one loooooong day. Other thanks for help to Michael Suwczynsky to sort photos, David Thayer for video editing, and Victoria Ritter to add photos and create the powerpoint.

## Video Online

The presentation videos are being archived and posted on the CBA YouTube channel..



## **Part of Towel Bar Education Demo Oktoberfest 2017**

### **SKULL - Logan Hirsh, Weed**

*Photos by John Graham, Tom Davisson, and Mike Mumford*

This article reports on part of the workshop led by Logan Hirsh, teamed with Andy Dohner. In the workshop, Logan made one side of the towel bar.

At the start, Logan said several memorable points:

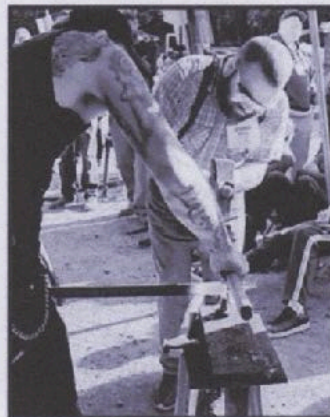
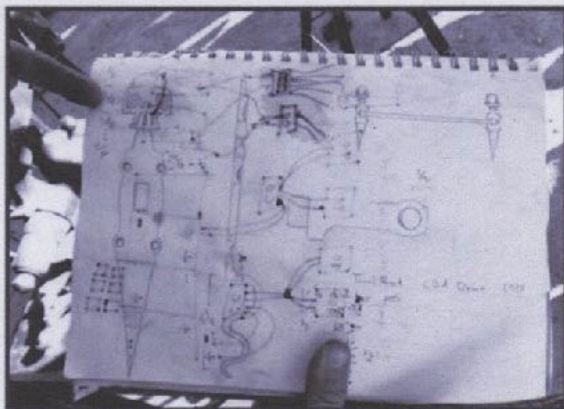
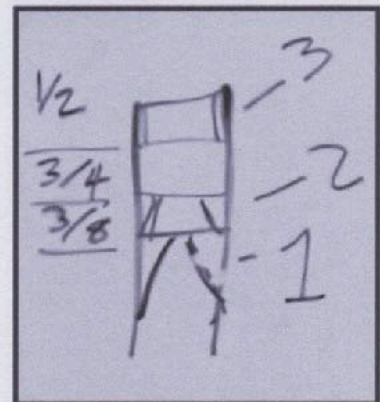
- Making two to match is much harder than making one.
- Don't get stuck in "process" - process gets static, he's trying to break out.
- Do a lot of layout first - get control of your design. Always do test pieces, especially for skulls.
- Always start with a drawing: they make your designs much better.

Material for the skull: 5/16" x 1-1/4" flat bar.

Start by isolating the three major masses for the skull. Calling these his 1/2, 3/4, 3/8 isolations, he proceeded to mark these lines with a cold chisel. Chisel lines went on the flat and on the edge.

Next, go to matched top and bottom tools (or a guillotine) to butcher in at these marks. The order of butchering is important! Logan's drawing (at left) shows the proper order.

A note of caution: Logan realized that he started in the wrong order, threw the piece away and re-started. The order of the butchering is important so that the product will have cleaner shoulders.

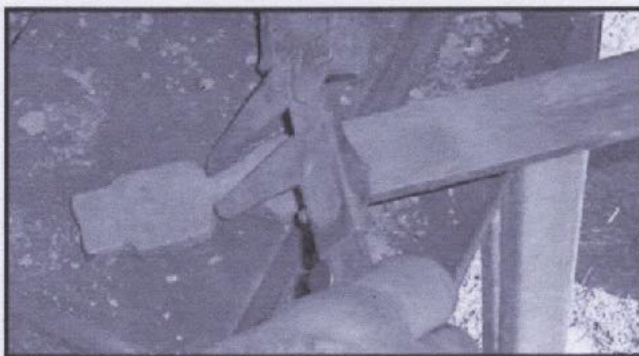




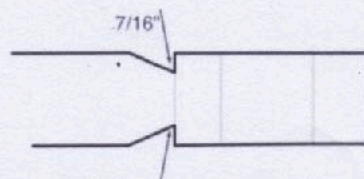
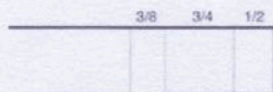
## SKULL

Following his drawing, Logan was forging the skull to specific dimensions, measured with vernier calipers. He had 3 metal calipers that he used, set to the desired dimensions of the skull. He likes metal calipers because they can be safely used on hot metal.

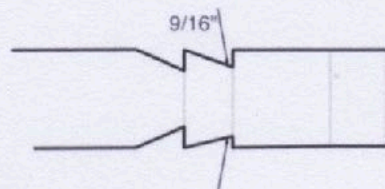
Logan had 3 calipers handy, preset to different dimensions.



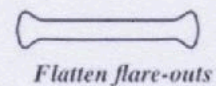
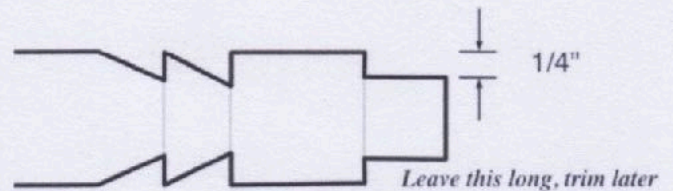
Shoulder the neck first -butcher in about  $7/16$ ".



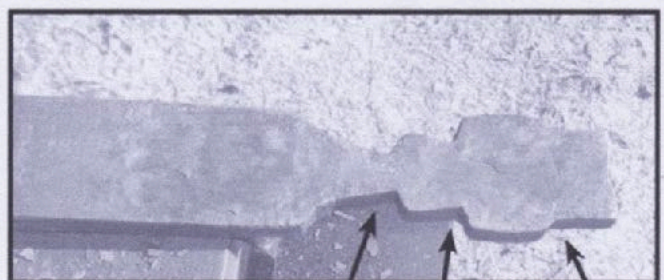
Then shoulder the lower part of the skull (i.e. below the eyes). Rotate the work in the dies to keep the butchering even.



Shoulder the top of the head last. This will be a bit long, to be trimmed later. Butcher in about  $1/4$ ", then switch to flat dies to make the sides and faces flat and parallel.

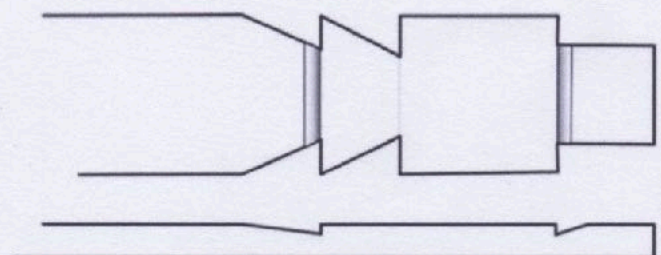


The order of these butchering is shown below, refers to the image immediately following.



First  
Second  
Third

Use a butcher to mark the top of the head and the bottom of the chin.





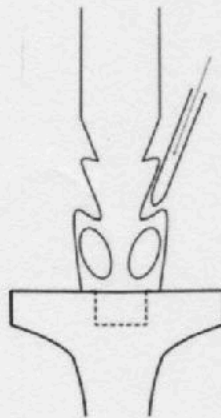
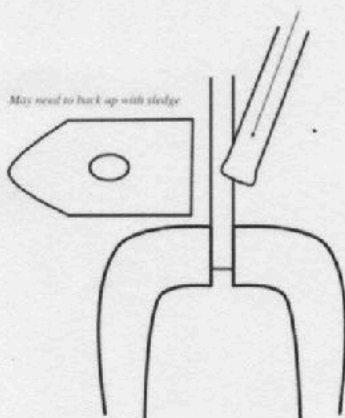
## **SKULL** *(continued)*

Next, set the eye locations with a 3/8" round punch (hammering the punch straight down). Then hammer the round punch at an angle to pull out the eye socket, and make it somewhat oval.



Flatten from the back as necessary.

With the skull held upside down in the vise, use a 1/4" fuller to drive in and emphasize the eye sockets.



Teeth and nostrils.

### **Teeth and Nostrils**

The nostril punch is a ~1/8" x 3/16" teardrop shape.



Triangle  
3/16" x 3/8"



Teardrop  
~1/8" x 3/16"

The teeth are made with a triangular punch, a little less than 3/16" x 3/8".

When punching the 3 teeth, start with the center, then punch the sides.

It should look something like this!



*More info and details about the towel bar rack are in the online edition.*



# The Newsletter of the Kootenay Blacksmiths

Ib Jensen, Ib/s Smithy, Calgary



Ib trying to turn down Patrick's smile at the Spring Conference



Tongs, Dragon Door Handle, Battle Axe, Lock & Rasp Snake





## Gothic Twist, *Illustration by George Dixon*

A chisel-cut leaf or spur starts with the chisel set at an angle which is much steeper than the intended cut line.

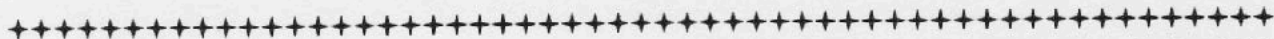
The steep angle allows the blade of a thin chisel to grab, instead of skating, as it is struck.

As the cut progresses, the angle of the chisel is raised, keeping the cut from getting too deep.

Once the leaf is cut away from the bar it is decorated with small, evenly applied chisel nicks.

For added depth to the effect, the section of the bar can be forged onto a 'diamond and/or a ribbed vein can be chased along one or more edges.

The bar is twisted and the chisel-cut leaves are adjusted with pliers.

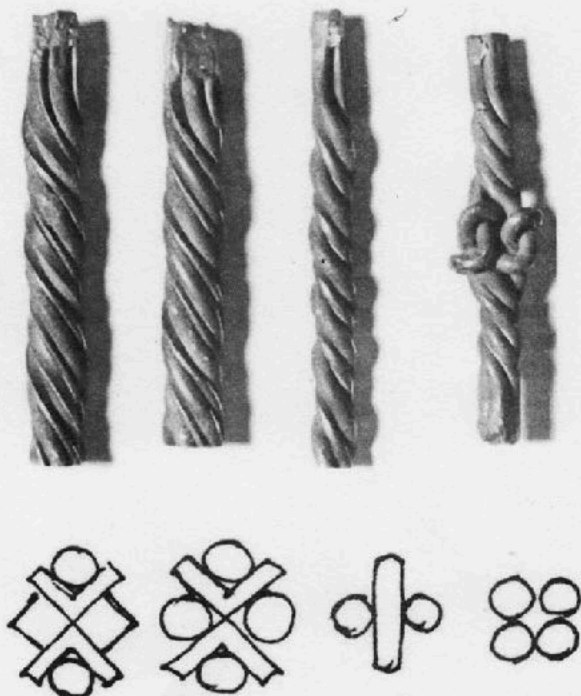


*This 1/2 page article originally appeared in the (June 1975) issue of The Anvil's Ring, and is reprinted courtesy of ABANA. All rights reserved.*

## TWISTS

Here are 4 examples of types of twists made in the Samuel Yellin shop. They may be used for table legs, frames for grills, banisters and newel posts and for other uses. The diagram below each shows the composition of the cross sections. All are made of a combination of rod, square bar, angle iron and flat bar. The twist on the right is composed of rod but is embellished with two square knots (because the rod was not long enough?).

Max Segal Philadelphia, PA





### Dog... NOT Gone! By John Steel and Chris Holt

Steel Welding is often asked for auction items and gifts for community organizations. We like to offer items that are a little different and original. The following idea is for a dog leash holder that has personality! This item includes blacksmithing skills, fabrication, and use of a variety of tools you have in your shop you may not use often. (This gives you a reason to keep them, the "You Never Know" syndrome!) You can also use up material odds and ends you have been saving! Dog lovers appreciate a unique and personal item for their pets!

#### Stick-Like Pipe Dog Leash Holder

From the Feb 2023 PAABA Newsletter

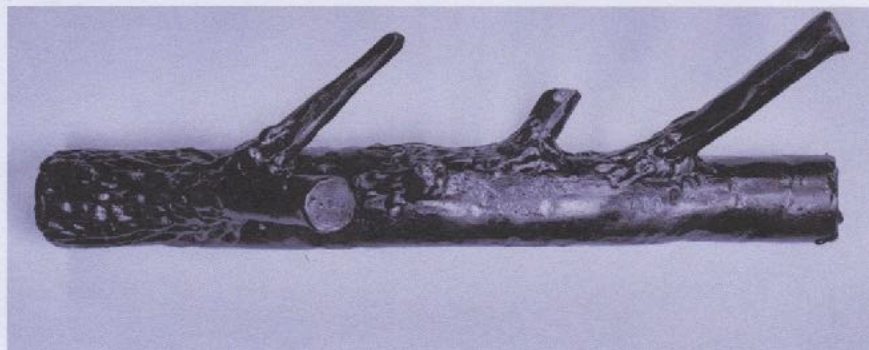
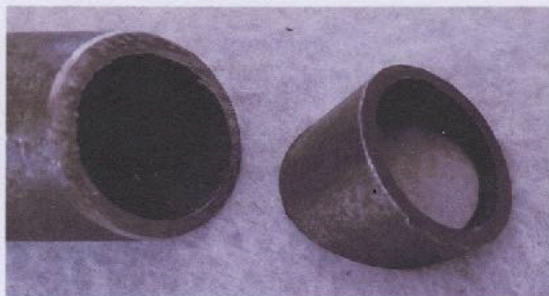


Materials: 1 1/4" sch 40 pipe about 14" long, and a piece of 1" X 1" X 1/8" angle

1. Cut a square cut on one end of the pipe and an angle cut on the other, save the angle cut off piece for later.
2. You can run the pipe through the dies of a power hammer randomly for texture or hand hammer.
3. Curve the pipe in a Hossfeld Bender, if you do not have a bender, bend the pipe just enough to enable hanger clips to weld on the pipe and extend from the wall when attached. It gives the "branch" a better look.
4. Cap the two ends of the pipe, we used electrical box knock outs which fit nicely. (Thank you Duke Mincin!) To add texture, you can use an engraver tool and make growth rings on the end. Growth rings are concentric circles emanating from the center, they NEVER cross, practice on a scrap.
5. Weld on assorted "twigs, stubs of branches" etc., keeping in mind the front and top of the branch. Run beads of weld (mig) to blend in the twigs and branches to the pipe. You can forge some twigs or look through your scrap bucket.
6. Make two hanging brackets from 1" X 1" X 1/8th" angle, cut a key hole slot for hanging on each and attach.
7. Make a small name tag with the name of the dog and attach to back. You can use your treadle hammer and that set of letter stamps you bought ...and haven't used! Or you can set the letters by hand using a hammer. (If you are missing a "letter" in your collection, change the name of your dog!)
8. Use a wire wheel and clean, we use a black wash to bring out the highlights of the texture, and clear coat.

This project uses a variety of tools and odds and ends you have been keeping for "something special".

*Left: Angle cut on end of the pipe and save. Middle: Weld on angle and cap, run weld for bark to blend into branch. Right: Use an engraver to make concentric circles on straight end of pipe cap for a grain appearance. Bottom Left: Key hole hanger. Bottom Right: Completed dog leash holder.*





## **Damascus Ring**

**Will Stimson, Bishop**  
**Mike Mumford, Ridgecrest**

Will has been one of my blacksmithing students, recently completing his Level 1 (yayy!). A recent move caused him to close down his shop, he asked to come down to my shop to make a Damascus ring.

This was a commission for a friend's future engagement.

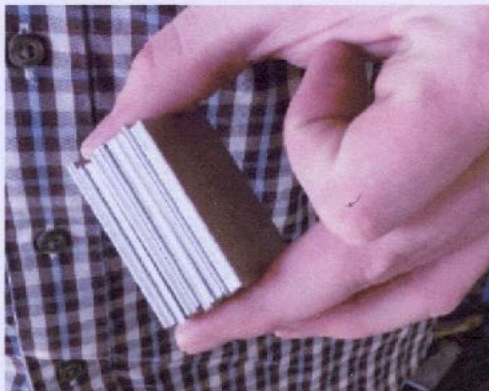
The deal for using my shop was that we would put the episode together as a story for the magazine.

Here's the story.

Will showed up on a Sunday morning, starting just after early church - praying that all this would go well.

He brought materials to start with a 12-layer billet, 1095 & 15n20. Approximately 1.5" x 1" x 2".

His goal was a ring about 1/4" thick, 3/4" ID, with 1/8" walls.

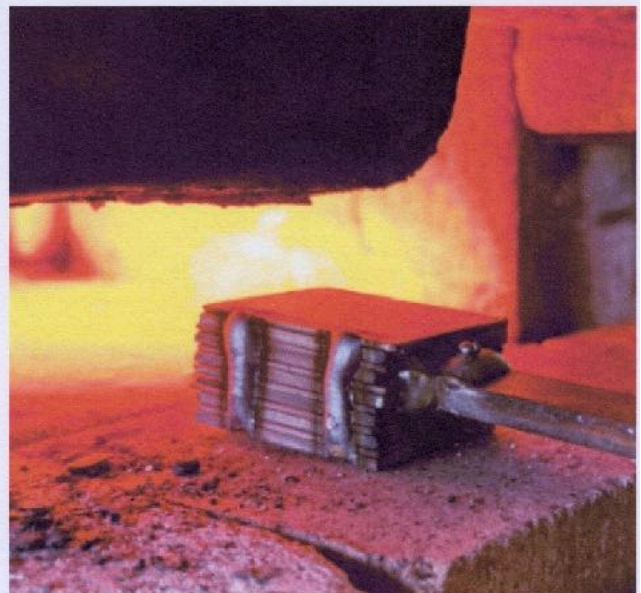


We started by laying it out on the anvil.



After cleaning with acetone, we welded the edges with the MIG, then welded on a 1/4" x 3/4" porter bar.

Will carefully noted that the narrow side of the porter bar corresponded to the layers.



We brought the (propane) forge up to welding heat, then the first job was to set the weld. Fluxed, then forge welded.



## Damascus Ring



Will then alternated between drawing dies in the hydraulic press and the hand hammer, to draw the billet out to 5/8" x 5/8".

Next, he let it cool a bit, then grind clean, cut & fold. Clean the mating surfaces again, then flux and reweld. Now he had 24 layers.

He went through the drawout process, then clean d folded, and welded again.

Now he was at the desired 48 layers. in a billet 5/8" x 5/8" by about 8".



*Look carefully, you can see the layers.*

So - set that aside for a bit.

## Test Piece

We decided that he should do a test run with a piece of 1/2" sq mild steel, to make sure we had the process down.

He forged the 1/2" x 1/2" down to 3/8" x ~ 5/8".

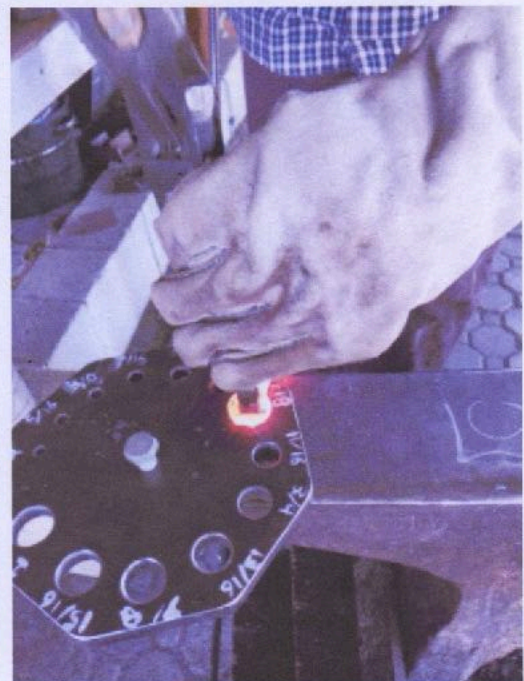
Then, marked at 3/16" from the end.



Next, punched a 5/8" long slot



Then he drifted over both a bolster plate and on the anvil horn.

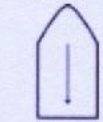




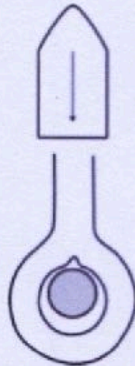
## Damascus Ring

As he got near to the desired diameter, he used the hand hammer with the ring on the anvil horn to get rid of the cat ears.

*(The photo also shows using a small vise-mounted horn)*



In one test, there was a bit of a divot on the stem end - the solution was to hammer on the end of the stem, driving the steel down to fill the divot.

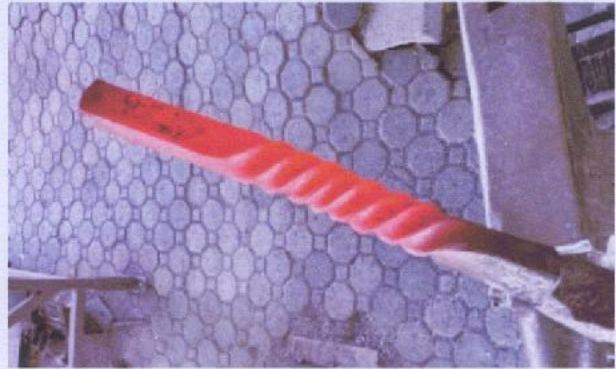


The section opposite the stem came out a bit too small. So we tried again with a second test piece, punching at 5/16" from the end. This time he got the end-dimension he wanted.



## Back to the damascus billet

Will split the billet into two halves, one to be left as "flat" layers, the other to be twisted so that we could decide later which we liked better.



As with the test pieces Will drew the sections down to 3/8" thick, then punched & drifted.

The desired ring size was 10.5, corresponding to a 0.79" ID. Will forged the rings to 0.75", to be ground out later.



After cooling, here are the two ring sections, ready for the next steps. The flat-layered piece is on the left, the twisted piece is on the right.



This was a full day's work. Will then took the sections back home for cleaning, grinding, polishing, etching, and finishing.



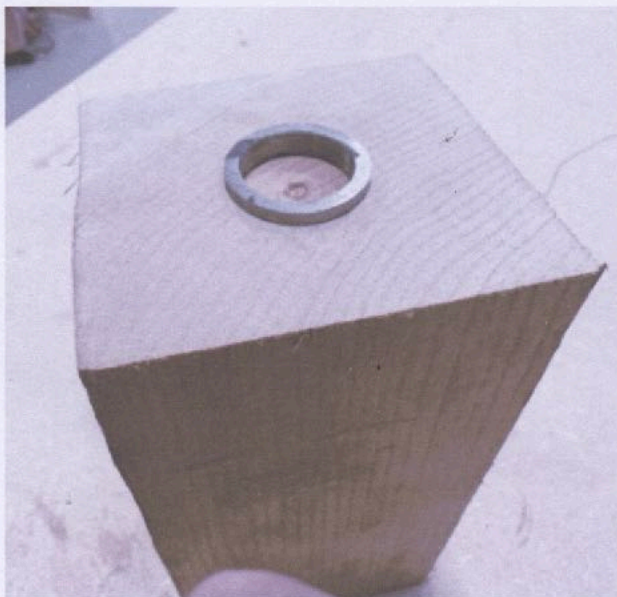
### Damascus Ring

#### Finishing

A Dremel got the ID sized and to knock off the inside edges. The belt grinder roughed out the OD.



A forstner bit was used on a drill press to make a perpendicular hole for the roughed ring to seat itself in, then a right angle guard to guide the ring against the grinder to make each side of the ring parallel and to get the width of the ring where it needed to be



The "final" ring thickness was then ground manually by rolling on a surface to see which sides had more mass to grind down. Layout fluid and calipers could have been used also.

The banding on the ring could then be smoothed out with a coarse grit and then when the geometry was satisfactory, the slack part of the belt was used to smooth out any irregularities. Went up to around 400 grit.



With a buffing wheel on the Dremel, he polished the inside and outside with E5 and SCR compounds.

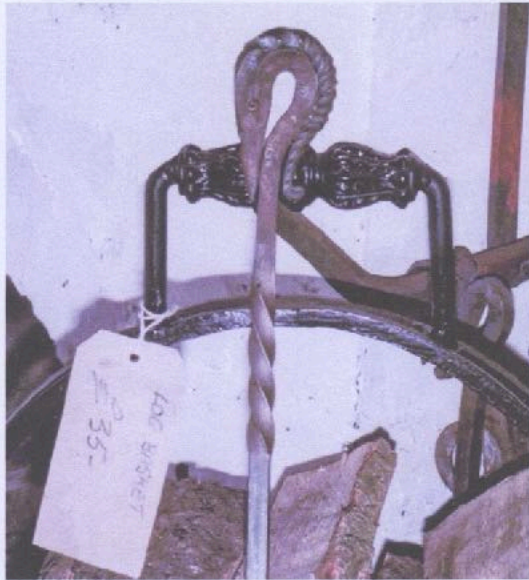
Then he cleaned the ring with rubbing alcohol, used ferric chloride and distilled water at 50/50, then let the ring soak 15 minutes at a time until satisfied with the depth of the etch. Baking soda was used to neutralize the acid and the ring was rinsed in cool water.



Will didn't have the green polishing compound up until this point, so he polished the ring once more at this step with just the green compound.

Last step was to seal the ring with protectaclear. It's not permanent but by the time it wears off we're hoping oils from the skin will prevent oxidation





## Crane's Head

*By Otto Bacon, A MABA member*

A couple decades ago I visited a historic site in England. The blacksmith was making fire poker with this crane's head as the handle. He said it was an ancient English pattern and I was welcome to copy it. Over the years, I have used it in several variations on a number of projects.

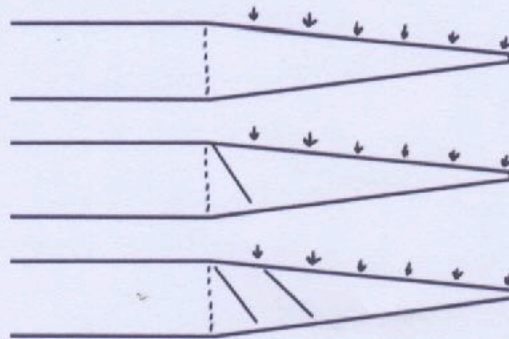
Start out with 1/2" square rod. Make a chisel mark three inches from the end, and one 5 inches from the end

Starting at the three inch mark, draw a taper almost to a point. Slightly chamfer the corners of the tapered section with light hammer taps. The length of this taper determines the length of the cranes feathered plume.



*Taper with chamfered corners-*

Now you need to twist the tapered plume. If you simply heat it up and try to twist by the small end, you will end up with a twist on the first little bit only. You have to do it in stages. Heat the taper to bright red and clamp the bar in your vise right at the base of the taper. Using tongs, grasp the taper about 3/4" to 1" from the vise and twist to your satisfaction. Now do another heat and twist the next 3/4" to 1". As the taper gets smaller, you must twist a shorter section. Make sure the twist on each section matches the previous. There is no "do over" on this.



*Twist the taper in several sections as shown by arrows.*



At the 5" mark, completely fold the bar back on itself. Use a wooden mallet to avoid damaging the corners of your twist. (I realize there is a regular hammer in the picture, but I really did use the wooden mallet).



## The Newsletter of the Kootenay Blacksmiths



Using a wooden mallet, form the crane's head over the horn of your anvil. (now you can see my well used and abused wooden mallet).



Add the eyes with an eye punch. Be careful to get them lined up from one side to the other. You think it won't show, but it will.



Draw the folded part out to form the beak.



Now add the nostrils with a pointed punch.



Shape the neck to suit and polish with a wire brush.

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The Upsetter



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