

The Anvil's Horn

A Publication of the Arizona Artist Blacksmith Association

Issue No. 228, May 2024



*Remembering Bill Callaway, a founding member of
the Arizona Artist Blacksmith Association*

President's Message

Hello Blacksmiths,

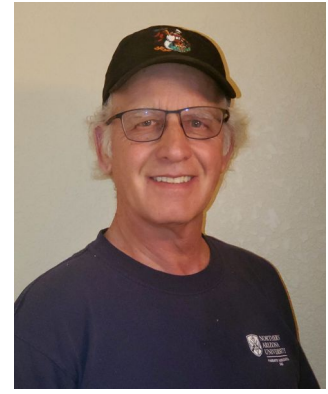
I hope you have all been able to get out into your shop and enjoy the nice weather in the lower elevations. For those of you in the higher elevations, your turn at the nice weather is around the corner, or just stop by. I'll be joining you to escape the heat in a few months.

Several members are traveling together to the 50th Anniversary ABANA conference, June 6-9. It would be great to have you along. If you're thinking about going, let me know if you want to share a ride or hotel.

The President's Project for May is a Ke Ao-Uluala. That's an Hawaiian love pendent. Full details and photos are on page 4.

See you around the forge,

Steve Miller



We Need Your Expertise, Knowledge, Ideas, and Experience.

Over the years, AABA members have submitted several technical articles - interesting and informative articles - that appeared here in *The Anvil's Horn* and were reprinted in the newsletters of several other ABANA affiliates. But the stream of those articles seems to have dried up. I'm looking for more articles like that. They might include things like "Dumb Things Not to Do", suggestions for new projects, new ways of doing common things, advice to beginners, or "How I Solved This Nagging Problem". Write it up, add some photos or drawings, and submit them to *The Anvil's Horn*. You could gain fame here in Arizona and around the country.

Bill Ganoe, Editor

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Material submitted for publication in the Anvil's Horn may be edited or rejected by the editor. Material submitted must be your own work, not plagiarized. By submitting material, you agree to allow AABA to edit, print, or post on the AABA website. You also give permission for the material to be reprinted by other blacksmith publications (i.e. publications of ABANA and of ABANA affiliates). **Copyright.** The creator may retain copyright for the work. If we publish a copyrighted item, consent of the copyright holder will need to be obtained before republication. **Graphics.** High-contrast, high-resolution digital picture files and original drawings are preferred, but we can work with lower-contrast, lower-resolution graphics.

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Demonstration: Saturday, May 18, 2024

Paul Diefenderfer's shop, 7645 E. Highland Rd., Cave Creek, AZ

Demonstrator: Paul "Dief" Diefenderfer

Along with the basic anvil, hammer and tongs, Dief will be demonstrating cool stuff that can be done with a 110 pound power hammer, fly press, treadle hammer, 16 ton hydraulic press, plasma cutter and whatever else is lying around his shop.

Dief will be making a twisted leaf hook, a 4" jingle bell, a mushroom sculpture, a tensegrity sculpture, an electrical etching, and who knows what else will happen.

Demonstration:

- Registration begins at 8:00 AM, the demonstration starts at 9:00 AM.
- Registration fee: \$15 for members, \$20 for non-members,
- Tailgating is encouraged.
- Bring things for Iron-In-the-Hat.
NOTE: No folded tickets. Any folded tickets that are drawn will be thrown away.
- Bring things for Show-and-Tell. Don't forget to put your name on anything you bring for Show-and-Tell.
- Lunch is on your own. There are several good restaurants in the neighborhood including Big Earl's Greasy Eats - highly recommended by Dief.
- Tailgaters, please consider donating to Iron in the Hat.

Workshop:

There's no post-demo workshop scheduled for May.

President's Project for March:

The President's Project for May is a Hawaiian love pendant called Ke Ao-Ulaula. More details on page 4,

Directions to 7645 E. Highland Rd., Cave Creek, AZ

From the 4-way stop at Cave Creek Rd and School House Rd head north on School House 1.2 miles to Highland Rd. Turn right. After a mile+ the road becomes gravel. Stay on the main gravel road for a mile. Turn right when you get to the two buffalo sculptures. Park by the shipping containers. We will shuttle you to the shop or you can walk the 1500 ft along the single lane road. If the shuttle isn't there give us a holler on the radio under the umbrella.

Remember Iron in the Hat

Thanks to all of you who have participated in Iron in the Hat. By purchasing tickets and donating items, you help support AABA events and projects. Items for donation can be a tool, piece of art, something you made specifically for iron in the hat, something you don't need in your shop, a great book, a t-shirt, a hat ... something an AABA member would enjoy.

Safety glasses are always required in the demonstration area.

Hearing protection, closed-toe shoes, and long clothes of natural fibers are highly recommended.

Our May demonstrator: Paul Diefenderfer

Dief got hooked on blacksmithing a couple decades ago when he saw Gordon Williams forging a rattlesnake from a farrier's rasp at an art show in Cave Creek. He joined AABA and started helping Hap Daniels demonstrate for school groups at Saguaro Ranch. His hot metal addiction has continued to grow every since.

President's Project for May

I recently had a request for some Hawaiian-themed blacksmithing. So, I went to the internet to see what I could find and discovered a Hawaiian love pendant called Ke Ao-Ulaula. It's a heart shape on a blob of material with 6 dots inside it. I have no idea what the dots represent despite my searches for its significance. Maybe it is just a design. Anyway, chiseling the heart shape into a piece of 1-1/4 x 1-1/2 x 1/4" steel seemed overly complicated for the group I was serving. So, I decided to try my hand at making a stamp. The base material was 1-5/8" round in 1045. I glued an image of the heart printed on paper to the end of the round bar and began grinding out the heart profile. After some fullering behind the heart shape to isolate the mass, drawing out, and more grinding, I had a useful tool. In use, it had to be rocked to one side, struck, and rocked to the other side and struck again, then the same top to bottom. We were forging outside up north in the wind and cold, so getting the steel up to temperature was a challenge. Did I mention it had snowed there the previous evening? Everyone had fun and enjoyed making their own Ke Ao-Ulaula. Next time I'll remember to bring the cordage to make a necklace out of it instead of construction string!



Knife class at Iron Rhino Forge in Tempe on March 23, 2024.



March Demo Report

Bill Ganoe

Photos by Bill Ganoe unless otherwise noted.

Our March demo was held at the Mesa Community College welding shop on March 16 and 17. It featured Ed Brazeal. On Saturday, Ed demonstrated some interesting twists on forge welding techniques as well as making a rounding thammer head from wrought iron with tool steel faces forge welded onto the wrought iron body. On Sunday, Ed led a workshop that gave students a chance to use the techniques that he demonstrated on Saturday. The idea was to make ornaments similar to what Ed made on Saturday.

Central to Ed's demonstration was creating a good welded joint at slightly less than forge welding heat. While this sounds a little strange, it does make sense. Gas and electric arc welding are part of a class of techniques called fusion welding. Forge welding is part of a class of techniques called diffusion welding. If you want to get a better understanding of what Ed was doing, do a web search with "forge welding diffusion" or take a look at:

<https://makeitfrommetal.com/what-is-forge-welding-a-comprehensive-beginners-guide/>

To use Ed's technique, you need to apply pressure at the appropriate temperature. You can do that with tongs in the forge or with a vise or hammer outside of the forge. You still need to use flux. Ed prefers Iron Mountain Welding Flux for forge welding. He said it doesn't melt and run off the workpiece as much as borax. Ed noted that if you're using a hammer, you have to hit hard and square (straight

on). If you hit at an angle, even a very slight angle, the shear force will be enough to break the initial weld. (Of course, once the pieces have been successfully welded, the joined pieces can be worked any way you want.) One of the challenges here is working at the right temperature. But there were several good welds made at the workshop by both Ed and students. Yes, there were several failed welds too, but this was an interesting introduction to variations on the basic welding techniques we've been taught in the past.

During the Saturday demonstration, Ed had several interesting observations and suggestions.

When making a leaf, leave the leaf relatively thick so you can make the lines in the leave a little deeper. Deeper lines create a more eye-catching leaf.

When drawing out, don't go smaller than 1/4 of the original dimension (cross sectional area). For example, don't draw out a 3/8" rod to less than 3/16" Going smaller increases the chance for flexing leading to cracks leading to failure.

To increase your hammering accuracy, keep you elbow close to your body.

But much of what Ed offered was better explained in the context of his live demo rather than in pages of text.

Learn more and get to know your friends and colleagues better. Attend the next AABA demo in person.



Ed Brazeal



At the workshop on Sunday

March Demo Report, continued

Photos by Bill Ganoe unless otherwise noted.



Show and Tell

Dragon foot with claws and the die to form it by Jaime Escobedo.



An example of the kind of sculpture we were to make at the workshop on Sunday - on Ed's phone.



A couple of elements of the sculpture ready to be welded at their bases.



A couple of sculpture elements successfully welded.

March Demo Report, continued

Photos by Bill Ganoë unless otherwise noted.



The start of the wrought iron hammer with the tool steel faces



Welding one of the tool steel faces onto the wrought iron body.



Final forming of the hammer faces. The rounding face is being formed in a shallow bowl .



The finished rounding hammer.

Remembering Bill Callaway

A eulogy by Len Ledet delivered at Bill Callaway's memorial service on March 17, 2024

It was 1982, 42 years ago. There was a quite a bit of noise and smoke and chatter coming from down the street. What was going on? We were at the Tempe Art Fair. As we approached, I could see an anvil, a rivet forge, and an individual with a hammer in his hand and a bright bandana on his head. He seemed to be really attentive to the lovely ladies watching what he was doing. It was Bill Callaway, demonstrating and selling his blacksmithing creations. I was intrigued, heating and shaping steel. After about an hour I got up enough nerve to ask if he taught blacksmith classes. "No, not really.", was the response. But after about a year of "bugging" him, he called and invited me to his shop for a two night and weekend class.

His shop was in a hell hole located in the old downtown Phoenix vegetable distribution area. There were three students Maurice "Mo" Hamburger, me, and another guy whose name I don't remember. That class had a big influence on both my life and Mo's life. During the class, Bill told us about a club, the Arizona Artist Blacksmith Association, which we joined. Bill was a founding member and very active in the association including being President.

In 1986 the ABANA (Artist Blacksmith Association Of North America) held its biennial conference at the Northern Arizona University in Flagstaff, Arizona. Bill Callaway was the organizer and conference chair. It absolutely was a great Conference. Bill got all of the Arizona guys together, organized us, teamed us, and challenged us to make the conference a great success, which it was. Bill's management style was perfect, a very critical skill in managing people and getting things done.

During the next few years Bill was very active in ABANA and AABA, demonstrating around the country. As I mentioned, Bill was an excellent demonstrator and teacher. But Bill did more than teach and demonstrate. ABANA had some very rough times financially, and Bill, as treasurer, was key to its survival. At the same time, Bill expanded his shop and relocated in downtown Phoenix.

In 2000 Bill volunteered again to chair and organize an ABANA conference in Flagstaff at NAU. It was one of the best conferences ever held by ABANA. Once again, Bill's organization and

management skills were key to its success. One of the memorable demonstrations was copper forging. Bill had traveled to a remote Mexican village where he met a family of artists that specialized in forging copper bowls, and he invited them to the conference. It was a great addition to the conference.

Bill had to move his shop again. He build a facility in South Phoenix. Business grew, and Bill hired employees. In addition to moving his shop, another very significant event occurred: a little lady, Martha, from Bill's past life came on the scene. A very happy Bill soon married Martha, and Martha recently commented, "Its been a wonderful past 25 years with Bill".

In 2002 I retired from the white shirt, striped tie, and dark blue suits environment. Time to become a blacksmith full time. I opened a shop on Peter Sevin's property and guess what, Maurice and I were in two shops side by side. Twenty years had past since that original class that Bill taught.

I enjoyed visiting Bill's shop. Bill had hired a guy named Luis. Luis would cook lunch on a small grill, and visiting at lunch time was great. Bill's belly was beginning to expand. One day Bill told me he was up to his ears in work and wondered if I could take on some work. I was very excited and a deal was made. Turns out that Mo and I partnered on the work that was done for Bill. It was the best projects I have worked on. Between Bill and Mo, all the projects were "perfect".

One day while on a visit, I noticed a new employee. A little lady, named Mary Ann LaRoche. It took Mary Ann quite awhile badgering Bill for a place in the shop. But she was finally hired to do finishing work and sweep the floors. Soon she learned the craft. Today Mary Ann is Executive Director and Founder of "SEEDS For Autism", a premiere facility in Phoenix for autistic adults. It started in a back yard with three autistic students learning how to blacksmith. Later, as the facility grew, Bill became a volunteer instructor working for Mary Ann.

Over the next few years, Bill's shop, the Phoenix Forge, grew and was very busy. Tragically Bills long time partner Bob Rummage died on a camping trip. He had just laid down under a tree for a nap.

Bill continued to be active in ABANA and AABA. In 2009 an event occurred that Bill was

extremely proud of. ABANA had selected Bill to be the recipient of the Bealer Award, a prestigious national award to honor an individual who has made a significant impact and contribution in the field of blacksmithing. Bill was also very proud of the AABA award named in his honor. The Bill Callaway Award is given to a member of AABA for outstanding service and contribution to the organization. Today, I am proud to say I have been a past winner of the Bill Callaway Award.

A few years ago Bill decided to retire and enjoy

traveling and spend full time with the love of his life, Martha. Bill was strong headed and opinionated and the most generous and caring individual that I have had the honor to call my friend. There is a long list of people that would say “Bill you had a big impact on my life, thank you.” Thanks, Bill

– Len Ledet

On February 21, 2024 Bill “PASSED”... A LIFE WELL LIVED...

Remembering Bill Callaway

Jay Burnham-Kidwell

I was saddened to hear of Bill's passing. He was the reason we have AABA, got it going, got ABANA straightened out, and put on two of the best ABANA conferences in Flagstaff that I have ever seen.

Bill was friend of mine since this whole organization started up, and he helped me and a lot of others all over the country. He was a hard charger and got things accomplished during his terms as a member of the board of directors of both ABANA and AABA. While I didn't always agree with him, it never got in the way our friendship and respect for one another.

Go easy, Bill. God bless you, and thanks.



The base for Bill Callaway's urn built by AABA members and others who wanted to show their respect and admiration for Bill.

The plate on the urn base reads:

William T. Callaway
May 18, 1039 - Feb 21, 2024
Artist Blacksmith
AABA Founding Member

People who helped to build the urn base:

Ryan Callaway
 Dylan Cook
 Louis Enriquez
 Jaime Escobedo
 Roger LaBrash
 Steve Miller
 Beatrice Perret
 Richard Rozinski



Bill Callaway's urn, guarded by a little dragon.



The Anvil's Horn

Bill Callaway's memorial was held at the Packing Shed at Sahuaro Ranch in Glandale on March 17, 2024.



AABA Calendar 2024

May 18 & 19
June 16
July 20 & 21
Sep. 21 & 22
Nov. 16 & 17

Demo: Paul Diefenderfer
AABA potluck (link for details on pg 11)
Demo: Brian Hughes
Demo: Steve Miller
Demo: Rodger LaBrash

Dief's shop
Iron Rhino Forge
NAU Sculpture Studio
TBA
Grizzly Iron

Cave Creek
Tempe
Flagstaff
Cottonwood
Phoenix

Your dues are due now. Renew as soon as you can.

Use the renewal form on page 19, or go to the AABA website, www.azblacksmiths.org

Blacksmith Workshops In Prescott

Individual and Small Group Classes/Workshops are tailored to individual skills, goals and interests of students. Half Day, Full Day and Multiple Day Workshops available.

ABANA LEVEL 1 Certification and LEVEL 2 Instruction also available.

Contact Dylan Cook for more information at **928-830-8168** or dylancookforge@gmail.com

MCC Blacksmithing & Welding Class

The Mesa Community College blacksmithing program is an excellent deal - over 60 hours of instruction including material and propane! Classes for the Spring 2024 semester started the week of January 15, 2024. Check the Mesa CC website for specific dates and details related to classes in the Summer 2024 session or the Fall 2024 semester. Blacksmithing is listed as **WLD103** in the class schedule. Classes fill up early, but waiting lists may be available. For more information go to: www.mesacc.edu

Welcome New Members

Joel Connolly	Chandler, AZ
James Calhoun	Maricopa, AZ
Michael Brett	Mesa, AZ
Alfred Cantwell	Mesa, AZ
Heather A. Beary	Prescott, AZ
Christopher Bridges	Scottsdale, AZ
Steven Williams	Mancos, CO
Michael LaMarre	Silver City, NM
Morgan Kirk	Tacoma, WA

Not Seeing the Demonstrations You Would Like? Not Seeing the Articles You Would Like in *The Anvil's Horn*?

Is there a project, tool, ornament you would like to see at an AABA demonstration? Is there a particular demonstrator you would like to see? Send your request(s) to the AABA 1st Vice President, Richard Rozinski, **602-803-7255** or rrozinski@me.com

Is there a particular project or technique you would like to see in *The Anvil's Horn*? Is there a general topic you would like to see covered? Send your request(s) to the editor, Bill Ganoe, by email to: editor@azblacksmiths.org or by regular mail to:
Bill Ganoe
PO Box 40233
Tucson, AZ 85717

Classes at Pieh Tool in Camp Verde

- Beginning/Intermediate blacksmithing classes taught by Dylan Cook
No new classes were scheduled at press time.
Registration is \$585.
Students will make several simple projects to take home.
- Knifemaking class taught by Master Bladesmith, Ray Rybar
No classes were scheduled at press time.
Registration is \$585.
Students will make one knife.

For class dates when they become available, for full details about the classes, or to register call **928-554-0700** or go to <https://piehtoolco.com>

Deadline for the July 2024 issue

June 1, 2024 is the deadline submitting photos and articles for the July 2024 issue of *The Anvil's Horn*.
Send articles, pictures, etc. by email to:

editor@azblacksmiths.org

or by regular mail to:

Bill Ganoe, PO Box 40233, Tucson, AZ 85717

AABA Website: www.azblacksmiths.org

Open Forge: Tucson

Tucson will probably not have a scheduled open forge until it starts to cool off in October, but short-notice events may come up during the summer. If you are on the email list for southern Arizona, you will get a notice about summer events as they come up. If you aren't on that email list, send a request to editor@azblacksmiths.org

Open Forge: Grizzly Iron

Open forges at Grizzly Iron have been paused. See details below under Classes and Events.

Open Forge: Iron Rhino Forge

2051 E. Cedar St. Suite 6, Tempe

Open forges every Tuesday evening, 6 pm - 10 pm. Free to watch or \$30 to participate. Details at <https://www.arizonablacksmith.wtf/open-forge>.

Teen Social Open Forges, one Sunday every month from 4 pm to 8 pm. Come practice your blacksmithing skills with other youths, have some pizza, and make new friends! For ages 18 and under. Parents are invited as spectators. Specific dates and other details at: <https://ironrhinoforge.as.me/youthsocial>

If You Are Attending An Open Forge...

These open forges are part of AABA educational activities, but AABA does not provide funds for these events. They are hosted by our members for all of our benefit. So if you participate in forging, welding, use shop materials, or accidentally damaged something, please put something in the donation box to help our hosts with their expenses. Thank you! From all of your open forge hosts.

You will need to wear safety glasses. Hearing protection is recommended.

***** Also, observe the safety requirements of the open forge hosts.*****

Classes and Events at AABA Members' Shops

Desert Metal Craft

544 E. 24th St., Tucson, AZ

The schedule at Desert Metal Craft features a wide range of classes and workshops. A list of classes and workshops coming up this fall and winter will be out in May. Check the DMC website, <https://www.desertmetalcraft.org>, for details of specific events, and to register for each class or workshop. Be sure to check out the scholarship opportunities.

Grizzly Iron

1329 W. Lincoln St., Phoenix, AZ

Grizzly Iron has indefinitely paused open forges, classes, and workshops because of the current heavy business work load. Check the website: <https://grizzlyiron.com/core-classes/> or <https://grizzlyiron.com/master-classes/>, or go to the **Grizzly Iron Open Forge and Workshops** group on Facebook for changes as they develop.

Iron Rhino Forge

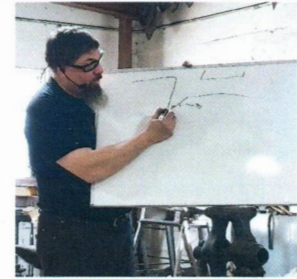
2051 E. Cedar St. Suite 6, Tempe AZ

The Iron Rhino Forge has a wide range of special blacksmithing and knifemaking classes, demos, and workshops with local instructors and master-level guests from around the country and the world! Details and registration are at <https://www.arizonablacksmith.wtf>.

AABA potluck. Sunday, June 16, 6 pm - 10 pm. Bring a dish to share. Blacksmithing demo starts at 6 pm for an hour or so. More details at <https://ironrhinoforge.as.me/communitypotluck>

Heavy Metal-lurgy!

The Mid-Atlantic Smiths Association had Patrick Nowak as their demonstrator for their January, "Bill Gitchner Memorial Hammer-In". Patrick is a Metallurgical Engineer with Scot Forge located in Clinton, Wisconsin and has been there for 20 years. He knows ALL about open die forgings, rolled rings and just about any metal composition question you can dream up! His specialty at Scot Forge is developing forging and heat treat processes for carbon, low alloy, and stainless steels. Patrick is a personable individual that works with ease, pace, confidence, and was deliberate in his delivery at the forge and in his discussions. Listening to his lectures and watching his demonstrations were easy even though the subject matter was complex. He used good examples, but most importantly explained "why" things happen.

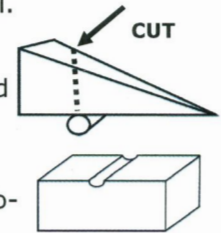


Following are some of the interesting subjects and points he made during the three day conference. Patrick also enjoys the art of Mokume Gane which he expertly demonstrated on Saturday. They work BIG at Scot Forge, to give you an idea of their hammers, the shop has 4 old steam Chambersburg hammers that range from 6,000-10,000# and presses designed by Scot Forge at 1,250, 2,000, 3,000 tons in Clinton and in the facility in Spring Grove, Illinois, they have presses of 1,250, 3,000, 5,500 and 16,500 ton capacity. (Yep, you read that correctly, example—3,000 tons equals to 6 million pounds!)

-Why calculate how much stock you need to make a project?

1. You want to use the material responsibly.
2. Have more control over the forging.
3. Material may be expensive, avoid waste.
4. Sometimes there is more work to be done such as machining and by not having too much stock will cut down on the time and expense of the extra work.
5. You have more control over the size, shape, and properties of that material.

- ◆ A simple but effective way to find equal volume for an odd shape of material: Balance the material on a piece of round until it "balances" - make your mark and cut. The result will be very close to two pieces of equal volume.
- ◆ Tip: Mark your power hammer dies for a measurement if you are working on measuring something hot. Then make a small indentation on the block of metal you are using. (See on right.) This way you will know what part of the metal is going to be the shank and what part will be the blade as an example.
- ◆ Patrick owns two Bradley hammers, (300# and 500#). The reason he selected these hammers is because they have a big dies (approximately 4" wide and 10" long). For the work he does in his home shop, this is an advantage for making billets of Mokume Gane and forging material for a client into requested shapes.
- ◆ Don't feel obliged to use "new" or "newer" steels that are on the market today. They have not existed before 1865. The "newer" steels allow you to be more abusive working with your tools, and you can make them lighter and thinner, but except for these reasons general steel is adequate for most all applications.
- ◆ There are individuals that use unique materials such as S7 for making hammers. Making a hammer from this material takes a lot more effort to move this metal and the metal does not serve the user any better than 1045.
- ◆ In our own shops, we do not need tools to be hardened all the way through except for power hammer dies.
- ◆ If you are not set up to harden a die, there are commercial services that can do it for you, but you must supply them with the material composition. Rockwell 50 is what you would want for a hammer die. You want the die to be a little on the softer side to avoid chipping off and becoming a safety hazard.
- ◆ On side set tools: The radius is very important, Patrick recommends 83° instead of 90°. If you make it at 90°, it will cut in.
- ◆ Patrick stressed the importance of good tongs. Traditionally, low carbon steel or wrought iron was used. Historically, reigns were sometimes cut off and replaced. The disadvantage was that they were heavy. Patrick uses 4140, 5160, or spring steel for his tongs, he likes them light weight. The disadvantage of using 4140 or other mentioned steels is if they are hot and are quenched that will harden them and they will become brittle and will crack or snap.



- ◆ Ya' Don't Say! or Issues of Vocabulary! The terms "tool steel" and "mild steel" have been used in blacksmithing and metallurgy for many years. These terms are super confusing because there is nobody that makes "mild steel"! This term was developed after the 1865 Bessemer Steel process was developed. The term "tool steel" has been around for a long time. Some old books use the term "tool steel", but that is not what the material is today! Today, "tool steel" is a collection of steels for a specific purpose such as an air hardening alloy. A long time ago "tool steel" was a straight carbon steel like 1095. A modern day metallurgist does not use the term in the same way. Check the resource you are using, if it is reference material from days gone by, you might like to translate the words to fit your needs.
- ◆ For those of you that make sharp kitchen implements with blades. Is there a difference in performance regarding the act of stock removal or forging? According to Metallurgist Patrick Nowak, there is not.
- ◆ Can you weld Corten Steel? Yes! Corten Steel has about 2% copper within its composition. The metal will flash rust and then that's it! It also forges just fine!



On Mokume Gane

- ◆ The word Mokume Gane means "wood grain". The sheet metal Patrick used was a combination of copper, red brass, and nickel silver.
- ◆ The sheet metal MUST be meticulously clean. It can be pickled and then handle with gloves. Any oils from handling will compromise the integrity of the welding process. The clean surfaces and pressure will allow the metals to become one and unite into a laminated block; by forging this material, a wood grain pattern can develop by the forging process with manipulation.
- ◆ You may have heard of using a stack of quarters to make Mokume Gane. One of the problems with this approach is that the coins need to be immaculate. This is a challenge because of the oil and dirt imbedded into the metal depressions.
- ◆ When you are forging a laminated block, the center will move out more than the surface material, see drawings.

Drawing #1– Top view of forged layers of materials.

Drawing #2– Side view materials, Note: center protrudes from the center of the stack.

- ◆ Moving the center out from the stack will happen only if you are hitting with enough force and have at least 1/2 of the stock cross section being struck by the hammer. Example: if you start with a piece of 2X2X6, start forging with at least 1" between the dies. If you start with less than that, you will end up with the surface moving in front of the center metal resulting in a "sucked in" or puckered appearance. (This is often referred to as a "fish mouth".) This often comes up when people compare hydraulic press forging and to hammer forging. Sometimes they describe the press as "working the metal from the center" while hammers are "working from the surface". This is not strictly correct. What is being observed is that the hammer being used does not have enough power to work the center while the press does. Switch to a large enough hammer will give you the same effect on the center as using a press.
- ◆ When you are heating a mixed metal laminated billet, you need to respect the metal with lowest temperature tolerance, such as the red brass, (1650⁰ F). Find a combination of materials that have an equivalent temperature to the lowest heat and test from there.



On Quenching:

- ◆ How much quenching fluid should you have? You should have at least 1 gallon per pound minimum. Example: For a 5# hammer, a five gallon pail should work, but you can only do it once! The water temperature should be under 100⁰ F.
- ◆ How fast is fast enough to quench? "Fast enough" varies with material.
- ◆ Why is oil quench preferred over water in some instances? If you use water, a steam jacket can develop, then boiling, and then a rapid cooling. The steam would interfere with the quenching. With oil quenching, you would not have a "steam jacket" develop, and it would also give you faster cooling, but it does depends on the oil (this refers to mainly production work).

This article was reprinted, with permission, from the March 2024 newsletter of the Pittsburgh Area Artist Blacksmith Association



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 pokers 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.

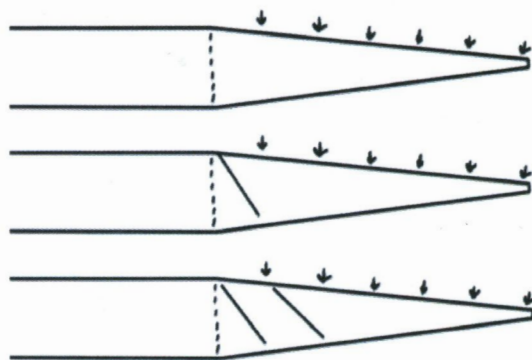
Start out with 1/2" square rod. Make a chisel mark three inches from the end, and one 5 inches from the end.

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).



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.

Members Gallery Sam Rivera



Sam made this cross for his church.

The patina didn't color the weld the same way it colored the cross pieces, so Sam used an angle grinder to add the pattern here to camouflage the color difference.



ABANA's 50th Anniversary Celebration and Conference

June 6-9, 2024 in Johnstown, Pennsylvania

We are pleased to announce that we will be celebrating our 50th Anniversary June 6-9, 2024 in Johnstown, Pennsylvania

The event will feature:

Top-notch demonstrators
A team forging competition
Hands-on educational opportunities
Food, festivities, and more!

More details as they become available will be at
<https://abana.org/upcoming-abana-conference/>



Learn more at:
<https://abana.org/ring-project/>



Join our volunteer email list
to be contacted at a later date!

Learn more at:
<https://tinyurl.com/yqwzrafr>



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An AABA team for the Team Forging Competition?

If you are interested in helping to form an AABA team, or participating as a team member, for the Team Forging Competition, contact Steve Miller at stevemiller.az@cox.net

We're putting together a travel group for the 50th Anniversary ABANA conference. If you're thinking about going, add your name to the list to share a hotel room or transportation, let Steve Miller know at stevemiller.az@cox.net.



Artist-Blacksmith Association of North America

ABANA is widely recognized as the preeminent organization of blacksmithing in the world. Visit us online at www.abana.org and like us on Facebook and Twitter. Join or renew your membership at: www.abana.org/membership

Blacksmithing, the cornerstone of all crafts for centuries, has come back to life. Once rendered nearly obsolete by the Industrial Revolution and 20th Century technology, this ancient craft has undergone a contemporary renaissance. A new appreciation of the honest, enduring qualities of forged metal has developed.

At the heart of this revival has been the Artist-Blacksmith's Association of North America, Inc., a non-profit educational association dedicated to the dissemination of knowledge about the art and craft. Started by a handful of isolated blacksmiths in Georgia in 1973, ABANA now serves nearly 4,000 members.

As part of your Membership Benefits you will receive 4 issues of the Anvil's Ring and 4 issues of the Hammer's Blow Magazine each year you are a member. These magazines can not be subscribed separately but are only received by our members. We have recently added a youth membership at a reduced rate, this membership available to those 18 or under includes a subscription to only the Hammer's Blow magazine.

ABANA Education Grants

"Since its founding in 1973, ABANA has been committed to the education of its members. The purpose of the ABANA Scholarship Fund is to provide financial assistance to our Affiliates and members to assist them in the development of blacksmithing skills and abilities."

Available to:

- ABANA affiliate organizations (such as AABA)
- Individuals (who are individual members of ABANA)

More information at: <https://abana.org/education/grants/>

New feature on the website: Smiths to Remember at <https://abana.org/smiths-to-remember>

This is a page of memorial tributes to smiths who have passed on recently, such as Joe Koches, who opened and operated The Blacksmith Shop in Ferndale, CA, and Frank Turley, who taught many contemporary blacksmiths, well-known and not-so-well-known.

Classifieds

Classified ads are free to members and can be submitted by email to: editor@azblacksmiths.org. Ads will run for 3 issues. You can renew your ad if you need to run it after the third issue.

Please let the editor know when you no longer need to run the ad.

I am including photos, but, if space runs short, photos will be dropped as needed beginning with the oldest.

For Sale

Lincoln Power MiG 255 in very good condition, \$1500.00.

Peter Sevin **602 320 2384** or peter.sevin@gmail.com

I Will Buy

your unwanted blacksmith or horseshoeing tools and supplies. Barry Denton, **928-442-3290** any day before 7:00 pm.

For Sale

Complete blacksmith shop. My husband passed away, so I need to sell. My husband was Donald Dumler, a long-time AABA member.

- Line shafts with belts and hangers all in good working order
- Taper cone
- swedge block with stand
- 45 pound BOSS trip hammer
- home built gas forge
- 253 lb. anvil
- Champion drill press
- coal forge
- and many other items.

I would like to sell it as a package, but will sell individual items if needed. I also have a John Deere 430 tractor and manure spreader with a street rod paint job.

Barbara Dumler, **928-368-4971**

For Sale

- 3 Gas Forges \$150 each
- Lg Dayton Grinder on stand, 1 hp \$400
- 3 sm Bench Grinders \$25 each
- Sm Gas Welding outfit on cart \$300
- 4" Pole Vise \$165
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SHARPIE DX VACUUM MODEL hand held tungsten grinding kit. \$275.

Chip Uren, Phoenix, **602-809-1200**

For Sale

Titanium Tongs - All sizes and shapes, 50 pairs. Get them while they last. \$100 per pair. Bernhard Heer, **715-205-8786**

Basic blacksmithing and metal forming workshops

Richard Rozinski is offering basic Blacksmithing and metal shaping workshops in his studio in Gilbert Arizona. Class sizes and complexity vary. Class topics range from basic blacksmithing, copper vessel raising, pewter construction and abstract sculpture fabrication.

For details text or call **602-803-7255**

Free

Granite slabs in Mesa. Various sizes and colors
Call Paul at **602-228-2426**

For Sale

Welding instructor from Mesa Community College is downsizing and selling his blacksmithing equipment. Includes a homemade 35 lb. power hammer, and multiple handtools. Call him at **928-587-3706** or Richard Rozinski at **602-803-7255**

Sources

AZ Tool Steel
520 S. 52nd Street #201
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Toll Free: 877-795-1600

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Several 65 lb. & 85 lb. swage blocks for sale. Your source for anvils, post vises, and other new & used blacksmith tools. Barry Denton. ph 928-442-3290 email: barubarranch@gmail
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AABA Membership

Benefits for members include:
Member discounts at vendors around the state: See page 18 of this issue for more details.
Reduced registration fees at demonstrations and workshops
A one year subscription to the bi-monthly newsletter, *The Anvil's Horn*
Connection to members throughout the state who can answer questions and give advice
Free classified ads in the *Anvil's Horn* and on the AABA web site.
eMail notices when event details change or new events are scheduled on short notice.

AABA Membership Form: New Member or Renewal

Name _____

Address _____ Do not publish

City _____ State _____ Zip _____

Phone (home) _____ (mobile) _____ Do not publish

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Professional blacksmith ___ Hobbyist ___ Farrier ___ Blade smith _____

Your main blacksmithing interest _____

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Please check one: Regular membership (\$35) _____
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Mail to: Jacie Cotterell
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Make Check Payable to AABA

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P.O. Box 40233
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For membership information or address change, contact:
Jacie Cotterell, 2051 E. Cedar St., Suite 6, Tempe, AZ 85281, 480-319-3522, redfrontforge@gmail.com

Your dues are due now. Renew as soon as you can.

Use the renewal form on page 19, or go to the AABA website, azblacksmiths.org

**Not seeing good coverage of events at your shop?
Take some pictures, write up some text, and submit everything.**

— The editor



*Open forge at Sam Rivera's shop in Tucson,
April 6, 2024*



*Brooch made by Seth Peiper
at Sam Rivera's open forge.*