

# *The Anvil's Horn*

**A Publication of the Arizona Artist Blacksmith Association**

Issue No. 213, November 2021



*Leaves, scrolls, and square corners were the subjects of  
Mark Aspery's September demonstration  
in Camp Verde, AZ*

# President's Message

Howdy all,

Wow, has 2021 flown by! I hope it's been a good year for you and that you've seen growth in yourself and those around you. It was great seeing everyone at the September hammer-in. We had a great turnout in a beautiful setting. As always, Mark Aspery put on a great demo as well.

So it looks like this will be my last president's message going forward as I prepare to step down. In no way did I expect for this to last four years but its been a lot fun in doing it. I look forward to assisting the board in any way that I can going forward!

Speaking of other commitments, the auction is fast approaching! Many of you know that I have chaired this event for many years. The auction will be in the same time and place as years prior but I want to make this one special. It's been said too many times, but we have not seen each other as often in the last 18 months. Don't miss this one! I always look back at the auction as one of my favorite events of the year. We get to relax, laugh, and enjoy the company of others.

This year we will not have as many demonstrator items that sometimes draw the higher dollar amounts. I encourage you to look around your house or shop. If you have items or memorabilia that is blacksmith, or even better, AABA related, to please donate them to the auction. I'm sure there are many

other members who would appreciate taking home a piece of memorabilia and give it a new life of appreciation in a new home.

One of the main goals of our organization, is to promote the education of blacksmithing. The auction does this by raising money for the Read Carlock Memorial Scholarship fund that allows members to take classes they might otherwise not afford. I also feel the auction is a great place to introduce new members to our group. It's a great place to welcome them in and sometimes inspire them with what can be made from metal in the items that are auctioned off. Please bring a friend who has shown interest in the craft! It's how we can grow this family.

Lastly, I want to thank all the board and association members for all their help these past few years. Steve Miller, especially, has put in countless hours in the background organizing demonstrations and then videos through the pandemic. Without his work and several others, our association may not be where it is today. He and Richard Rosinski also relaunched Winterfest which is becoming more and more nationally recognized as a blacksmith event to attend. With help from members like them, this association has a bright future. If you want to be part of that, please reach out to any of us and we'll gladly point you in the right direction. See you all again soon!

*Jason LaBrash*

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# **Demonstration: Saturday, November 20, 2021**

Welding Technology Bldg.  
Mesa Community College  
Mesa, AZ

## **Demonstrator: Michael Sobrado Induction Forges**

Michael Sobrado purchased his first induction forge for blacksmithing in 2009 and never looked back. He maintains that the advantages of the induction forge vastly outweigh the disadvantages. Michael will be demonstrating his induction forge, discuss the rudiments of coil construction, and then proceed to forge a leafing hammer from 1" square bar using his induction forge. If there is enough interest, we may be able to organize a workshop on Sunday to make some leafing hammers.

- 
- 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.
  - Tailgaters, please consider donating to Iron in the Hat.
- 

### **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.

### **Directions**

To the MCC Welding Technology Bldg.,

- I-10 to the Superstition Freeway (US 60)
- East (toward Mesa) on US 60 to Dobson Rd.
- North on Dobson Rd.
- Turn right (east) (almost immediately) on W. Solar Way.
- Follow W. Solar Way around (or through) the South Parking Lot to Bldg 52, the Welding Technology Bldg., on the S.E. corner of the South Parking Lot.
- See the map on page 4 for more details.

**As always, safety glasses are required in the demonstration area.**

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



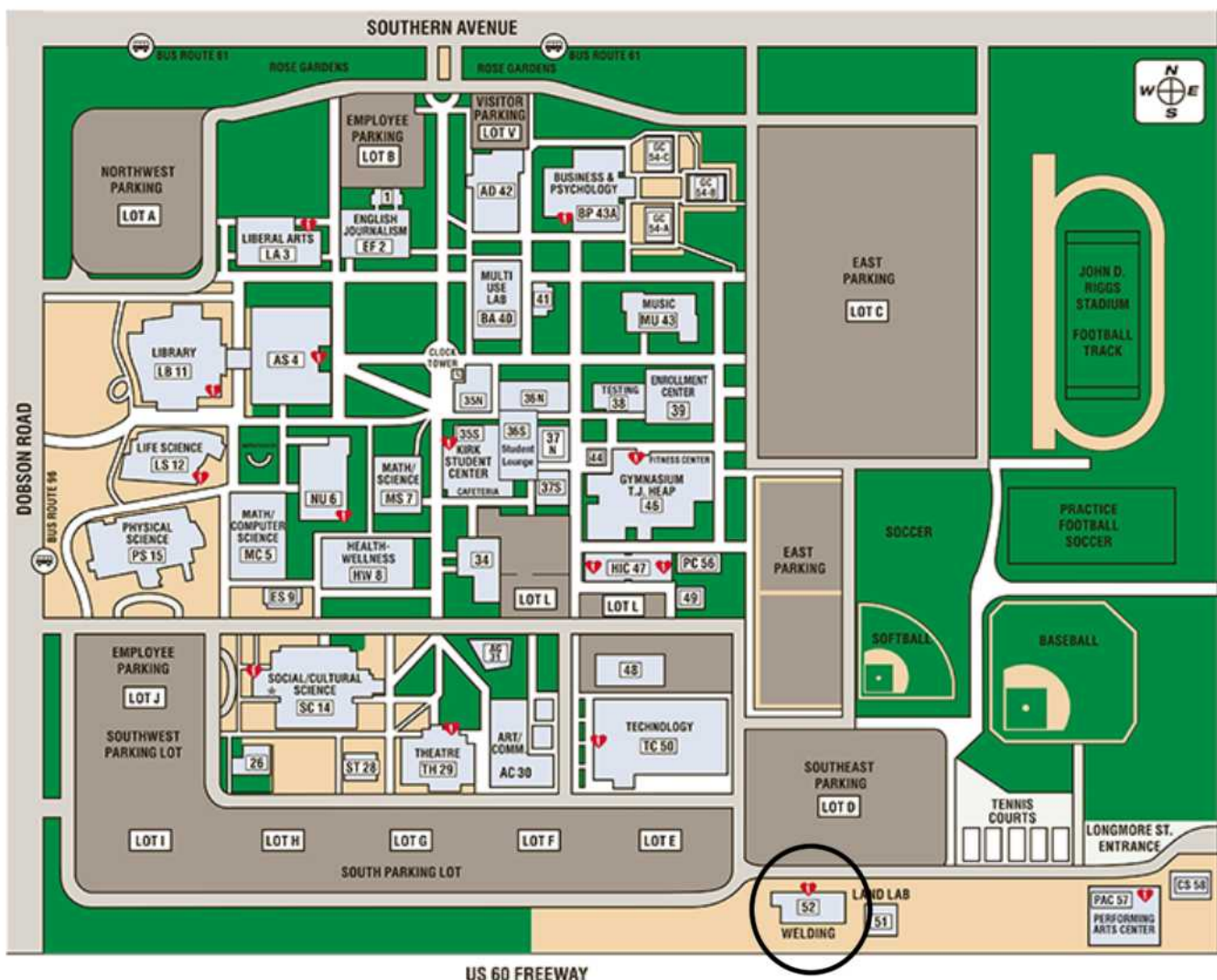
# Michael "Poppa Dragon" Sobrado Our Demonstrator for November



Michael is a third generation blacksmith from Rome NY. He has been enthralled with the magic of forged iron since an early age. After two Bachelor's degrees and a 3-year apprenticeship in his cousin's shop, he moved to Arizona for better weather in 1998. Dragonforge Ironworks was officially founded in 2006, the same year Michael started teaching blacksmithing at the Mesa Arts Center and Mesa Community College.

In 2016 Michael started teaching Engineering at Arizona State University in addition to teaching blacksmithing at his shop in Mesa. He worked in the teaching tent at the 2016 ABANA Conference and has taken several classes with Mark Aspery. He has done several AABA demos and written a few articles for *The Anvil's Horn*.

## Mesa Community College



# **AABA Annual Meeting, Banquet, and Auction Sunday, December 5, 2021**

Fruit Packing Shed/Gallery at Sahuaro Ranch  
Glendale, AZ

This year the auction will be held on Sunday, December 5 at Saguaro Ranch. Registration will begin at 11 am with food being served at 12 noon and the auction starting at 1 pm. There will be no cost for registration or lunch as AABA will cover the costs. We will need a head count so please contact Jason to RSVP by November 26. Use the post card inserted in this issue, or contact Jason at 602-717-1459 or [jason@grizzlyiron.com](mailto:jason@grizzlyiron.com).

The auction is always a great time to reconnect with old friends and make new ones. This year we've made it so that the food will be catered by a local company so everyone will have more time to relax and enjoy time with your blacksmith family. Please bring new friends too. We want to expand our blacksmith family, and, if you have a friend who would be interested in blacksmith or even just seeing some amazing blacksmith work, please invite them.

We have our auction annually to raise funds for the Read Carlock Memorial Scholarship Fund. That fund supports scholarships for qualified applicants to further their blacksmith and metalsmithing education. In recent years we've auctioned off items such as bottle openers, napkin rings, lamps, wall art, and even tables. You don't have to make a table to participate, but if you've got a project idea that you've always wanted to try, here's a great reason to make it. Maybe it's a centerpiece for a table or a unique door knocker. Every item donated, large or small, is welcome and appreciated. Craig Riggle, our professionally trained auctioneer, will auction off all the items and many people will go home with some amazing treasures.

We do need help during the auction with spotters and presenters, so, if you are interested, please contact Jason at 602-717-1459 or [jason@grizzlyiron.com](mailto:jason@grizzlyiron.com).

Also, remember that it is time to elect AABA officers and members of the AABA board of directors for the coming year. The results of the election will be announced at the Annual Meeting. Be sure to vote with the ballot card insert in the middle of this newsletter.

## **Directions to the Fruit Packing Shed in Sahuaro Ranch Glendale, AZ**

- I-17 to Dunlap Ave.
- West on Dunlap (which turns into Olive Ave.) to 59th Ave.
- North (right) on 59th Ave. to Mountain View Rd.
- West (left) on Mountain View
- Take first right into the East Parking Lot.
- Walk from the parking lot to the Fruit Packing Shed.



The Anvil's Horn



# **The Arizona Artist Blacksmith Association**

presents

## **Winterfest IV**

January 13-15, 2022

Brandi Fenton Memorial Park

Tucson, Arizona



- \* Four demonstrators over two days.
- \* Additional slide shows by the demonstrators.
- \* Education Tent
- \* Little Tent Event
- \* Banquet dinner Saturday evening
- \* Iron-in-the-Hat
- \* Silent Auction of blacksmithing tools and art.
- \* Special raffle for the Lost Dutchman's Treasure Box (tools and materials)
- \* Special raffle for an Alec Steele 140 lb. anvil.

### **Demonstrators:**

Ray Rybar, Master Bladesmith, Camp Verde, AZ

Rick Smith, Associate Professor of Blacksmithing and Metal Smithing,  
Southern Illinois University,  
Carbondale, IL

Lisa Elias, Elias Metal Studio, Minneapolis, MN

Michael Bondi, Bondi Metal Designs, Richmond, CA

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Go to <https://www.azblacksmiths.org> for registration forms and other details.

It is recommended that you reserve your hotel rooms now.



# The Lost Dutchman's Treasure Chest

Richard Rozinski

Hey everybody, Winterfest IV is coming up soon, and The Lost Dutchman's Treasure Chest at Winterfest III was such a success that we'd like your help again this year. We're looking for tools that you've made either especially for the Treasure Chest or that you have made in the past and have lying around that you'd like to donate. Also, we would accept tools that you have laying around your shop that you don't use. Tools that you can live without that someone else would absolutely treasure.

Watch for the raffle, and buy your tickets early. We'll see you at Winterfest IV.

Send your donations to:

RICHARD ROZINSKI

2675 E. Elliot Rd.

Gilbert, Arizona, 85234



## Other Events of Interest

Save the Date

**CBA Spring Conference**  
Petaluma, CA



**April 21-24, 2022**

**Come Together**

We have great demonstrators lined up:

- Monica Coyne
- Peter Braspennix
- Doug Pryor
- The Bushey Brothers Jesse and Aaron

With a special guest from Italy.

The CBA teaching Team - Lead by Mark Aspery with John Williams and Victoria Ritter

And many more.

<https://www.calsmith.org/event-4379489>

## September Demo Report

We gathered in Camp Verde for the first demonstration since the COVID-19 pandemic. The event was held fully outdoors in the shade of Cottonwood trees near the Verde River.

The demonstration on Saturday featured blacksmith educator Mark Aspery, forging portions of the Level III grille. He produced the water leaf and beveled leaf scroll, forged two right angle bends, then demonstrated the technique of using a rivet to insure a successful forge weld in a gas forge.

Between hammer swings, Mark described the changes happening in blacksmith education in the USA. He explained that the Level III grille is the culminating project for the National Curriculum recently adopted by ABANA from the California Blacksmith Association (CBA). The National Curriculum leads a developing blacksmith through a progression of fundamental skills necessary for advancement in the craft. As Mark explained, it's not about the grille. The grille is just a goal. The idea is to develop the basic skills needed to achieve that goal. Those skills can then be used in all sorts of other projects.

Further he described that the CBA's investment in ZOOM classes had paid off by engaging smiths during the pandemic, extending the reach of classes to smiths across the USA, and ultimately increasing the CBA membership. [These classes are a big step above the usual YouTube video. It's something AABA might want to consider in the future. -Ed.]

The hands-on workshop on Sunday, with a smaller group, focused on techniques for spreading material to make the water leaf as well as specialized tooling to help raise the leaf. Mark advised workshop participants on how to dress a hammer to better spread material and the ergonomics of a powerful hammer swing.

The Camp Verde gathering offered blacksmiths the opportunity to improve skills and learn new techniques. And more importantly, to see old friends, make new friends, and enjoy being in the company of kindred spirits.

- Nancy Bruce

Wow, what a great return to in-person demos. It was great to see everyone. I counted 50 people at one point and 40 cars. This new venue worked out well, and there were many compliments on it. Retail sales hit an all time high, and Iron in the Hat had a lot of items that have probably been piling up for the last 16 months or so. The weather, all though a bit warm, was a nice change from the blistering heat I've endured all summer. I think it's safe to say everyone had a great time. Thanks to everyone that helped make this a huge success and all who pitched in to help cleanup and pack cars at the end of the weekend.

The workshop was also well attended with 7 slots filled. We spent our time making water leaves. I need to practice a few more, however. Mark offered to teach a 6-day class in April. It will likely be held at the same place in Camp Verde. I'm checking availability now. The class can focus on beginner techniques, which will be more tool making, or an intermediate level with more of what this demo and workshop were all about. So, we need input from all of you if you are interested in attending the class. Contact me at **602-989-6505**.

And, there may be another in October. I took a 6-day class from Gordon Williams several yrs ago and it improved my blacksmithing skills dramatically. The focus day after day for more than a weekend is the key. The first 2 1/2 days were a bit of a struggle, but afterward I surprised myself with increased hammer control and efficiency. I know it is a lot of time away from work and family, but it is well worth it if you can swing it. You won't be disappointed. The cost will be similar to the workshop cost per day of \$100. There will be a minimum required to make it a go and a max of 8 slots. The exact details are being worked out, but this is an interest survey for now.

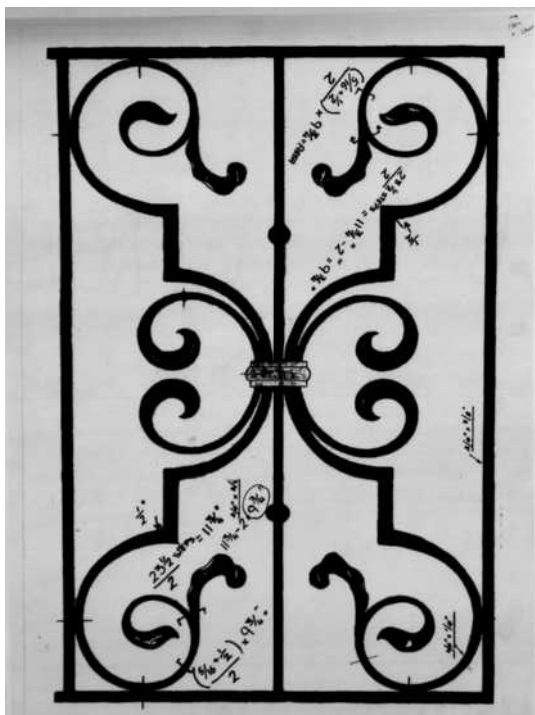
- Steve Miller



## September Demo Report (continued)



*A good crowd  
(Photo by Nancy Bruce)*



*A drawing of the level III grille*



*(l. to r.) Mark Aspery, Sarah Harms,  
Beatrice Perret, and Steve Miller  
(Photo by Nancy Bruce)*



*Warren Weiner  
(Photo by Nancy Bruce)*



*Matt Freyer  
(Photo by Nancy Bruce)*



*Forming multiple square corners.*



*Mark's 20th-Century version of  
the traditional traveler.*



*Mark's leafing stake*



*The leafing stake in use.*



*A leaf from the leafing stake.*

*All photos are by Bill Ganoe unless otherwise noted.*

## AABA Calendar 2021-2022

November 20	Demo - Michael Sobrado	Mesa Community College	Mesa
December 12	Annual Banquet & Auction	Sahuaro Ranch, Packing Shed	Glendale
January 13-15, 2022	Winterfest IV	Brandi Fenton Memorial Park	Tucson

### MCC Blacksmithing & Welding

The Mesa Community College blacksmithing program is an excellent deal - over 60 hours of instruction including material and propane! Classes are on Wednesday during the day with instructor Richard Rozinski, Monday and Wednesday evenings with instructors Richard Rozinski and Robert Ratliff, Tuesday and Thursday evenings with instructor Robert Ratliff, and on Saturdays with instructor Jaime Escobedo. Blacksmithing is listed as **WLD103** in the class schedule.

Class in TIG, MIG, Arc, Gas, and Art welding are all available, as is certification in any of those welding methods, at Mesa Community College, Southern and Dobson in Mesa.

Classes fill up early, but waiting lists may be available. For more information go to: [www.mesacc.edu](http://www.mesacc.edu)

### Deadline for the January 2022 issue

November 1, 2021 is the deadline submitting photos and articles for the January 2022 issue of the Anvil's Horn.

Send articles, pictures, etc. by email to:  
[editor@azblacksmiths.org](mailto:editor@azblacksmiths.org)

or by regular mail to:

Bill Ganoe, PO Box 40233, Tucson, AZ 85717

### Welcome New Members

Ken's Custom Iron  
Matt Freyer  
Andrew Hawken  
Sandra Knudson  
Perry Rasco  
Brad Rudy  
Alan Ryder  
Russell Smith  
Rick Tackitt  
David Wyngaarden

Avon, MN  
Flagstaff, AZ  
Chandler, AZ  
Mesa, AZ  
Yarnell, AZ  
Merrillville, IN  
Vail, AZ  
Tucson, AZ  
Camp Verde, AZ  
Chino Valley, AZ

### Classes at Pieh Tool Beginning/Intermediate Blacksmithing

• Beginning/Intermediate blacksmithing classes with Dylan Cook:

Nov. 5-7, 2021

Dec. 3-5, 2021

Registration is \$570.

Students will make several simple projects to take home.

• Knifemaking class with Master Bladesmith, Ray Rybar:

Nov. 19-21, 2021

Registration is \$570.

Students will make one knife.

For more details call 928-554-0700 or browse to [piehtoolco.com](http://piehtoolco.com).

### AABA banquet RSVP and election ballot cards

AABA members should find two postcards inserted here in the middle of the newsletter. One card is the ballot for the annual election for AABA officers and members of the Board of Directors. Please be sure to vote by November 30. The other card can be used to register for the Annual AABA Banquet and Auction. Please be sure to register by November 26 to ensure that we will have enough food and tables for everyone.

### Request for research help

I am Liz Cameron, a metallurgist and blacksmithing instructor in Tucson. I am starting my PhD program this semester at the University of Arizona, and I am basing my dissertation on studying the superstitions, myths, and folklore surrounding blacksmithing that I can reproduce and test in the lab. There is a vast array of myths and stories out there, but, after an extensive literature search, I've narrowed down my focus to three things:

1. The use of bone in the steel making and/or case hardening process.
2. The use of bodily fluids as quench media before oils were used.
3. The effects on quenching during a full moon and facing north.

(Yes, this may be pure myth, but there may be some subtleties here that we miss today.)

If you have any stories or experiences related to these three things, I would like hear about them. I can be reached at [liz@desertmetalcraft.org](mailto:liz@desertmetalcraft.org).

# AABA Website: [www.azblacksmiths.org](http://www.azblacksmiths.org)

## Open Forge: Tucson

Darius and Brody Kruger, owners of the Southern Arizona Farrier Supply in Tucson, will host an Open Forge at their ranch in Tucson from 9 to noon on Saturday, November 6, 2021.

The Kruger ranch is at 2230 N. Kimberlee Rd. Take Tanque Verde Rd. east past Houghton to Kimberlee and turn south (to your right) about 0.1 mi. Kimberlee is just past (east of) the Circle Tree Ranch road. Call Darius at 520-500-7555 if you have trouble finding the place.

## Open Forge: Grizzly Iron

Don't have a power hammer? Use one at Grizzly Iron, 1329 W. Lincoln St., Phoenix, Wednesdays from 5:00 PM to 8:00 PM, more or less. Pre-registration is required. There may be changes in dates, times, and restrictions, and those changes may be made on short notice during the COVID-19 pandemic. Check <http://grizzlyiron.com/open-forge> or the **Grizzly Iron Open Forge and Workshops** group on Facebook for current details.

## Open Forge: Desert Rat Forge (Phoenix area)

Paul Diefenderfer will host an open forge at Desert Rat Forge on Saturday, November 6, and Saturday, December 4, 2021, from 9 AM to noon followed by lunch (You gotta' buy your own.) at the world famous Big Earl's Greasy Eats in Cave Creek. Desert Rat Forge is at: 7645 E. Highland Rd., Cave Creek. 602-509-1543 or [dief@phoenixrockgym.com](mailto:dief@phoenixrockgym.com).

Directions: From the center of Cave Creek – 4-way stop at Cave Creek Rd & School House Rd. Head north on School House 1.2 miles to Highland Rd (if you get to the 4-way stop at Fleming Springs you've gone a tad too far). Turn right (east) on Highland. After about 1 mile the pavement ends. Please drive slow to avoid kicking up dust. As the gravel road makes a turn to the left there will be a single lane gravel road on the right with a sign for 7645. Drive down this road for bit until you see the big anvil. You are there! Park in the pullout if there is room – please do not park on top of any vegetation! If no room, return to main dirt road, park along the north edge, and walk the 700ft back to property.

## 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.**

## Classes and Events at AABA Members' Shops

### Desert Metal Craft

544 E. 24th St., Tucson, AZ

“Desert Metal Craft is the only school in the southwest dedicated to teaching blacksmithing, bladesmithing and fabrication together with the modern science behind the craft of metalworking.”

- Rich Greenwood

The schedule at Desert Metal Craft features a wide range of classes and workshops. Check the DMC website, <https://desert-metal-craft-108715.square.site>, for on-line events, details of specific events, and to register for each class or workshop

### Grizzly Iron

1329 W. Lincoln St., Phoenix, AZ

The schedule at Grizzly Iron features a wide range of classes, open forges, and workshops. For the current schedule, prices, and registration check the website: <http://grizzlyiron.com/classes-and-workshops>, or the **Grizzly Iron Open Forge and Workshops** group on Facebook.



**Editor's Note:** I first heard about the Induction Forge from Darryl Nelson, who told me a remarkable story of how much fuel savings it made for him. Then I saw one at John McLellan's shop, and was again intrigued.

Earlier this year, I saw the Induction Forge 101 article, in the New England Blacksmith's newsletter, which they are allowing us to reprint. Then I learned that both Carol de Maintenon and Victoria Ritter had purchased them, so I asked them to write about their experiences.

I am still intrigued by these devices, but I am holding off because of potential interference with my pacemaker.

### Induction Forge Carol de Maintenon, Benicia

My interest in the induction forge began 3 years ago with a visit to Ratho Forge in Scotland. Shona Johnson and Pete Hill generously invited me in to tour their shop. They had an induction forge in use and I was amazed! That introduction to the induction forge, though brief, and appearing to be pure wizardry, placed yet another line item on the list of cool tools I keep in my brain. Fast forward a couple of years to a joining the Facebook Induction Forge Group, watching our friend, Bob Menard, from Ball and Chain Forge use an induction forge for production work, and that lunch with Victoria Ritter Nenneman in February of 2021. We get together to scrounge through metal and compare notes on things blacksmith and CBA when we can. Still in the throes of Covid, and feeling cooped up, and wishing for life beyond the zoom, the talk of induction forges came up, and within a couple of weeks, we had both ordered them!

I ordered mine from a company called US Solid Straight of Amazon for \$1,076.78, shipping included. My High Frequency 15KW Induction Heater, 30-80 KHz, 220 or 110V, showed up in about a week. A big wooden box. I wrestled it off the front porch and unboxed it carefully with a crowbar and claw hammer to get to the magic machine inside. Once it was unpeeled from its shell, I had a machine that looked about the size of a small MIG welder, a few odd brass nuts and some copper tubing, an "instruction" manual and one premade coil. It came with no cord: **not** plug and play.

The electrical cord was the first thing to add. The electrical connectors were sticking out of the back of the Induction Forge (IF), with a sheet metal, top-hinged box that you would open to access the connectors. The chance of touching both terminals at the same time



looked to be extremely likely. The connectors were put into a 4 square junction box. The cord is a STOW 6/3 & 8/1. For those who don't know what that is, it's a fat cord that has 3 (three), 6 gauge wires of which, 2 are black and 1 is white, and, one (1), 8 gauge wire which is green, your ground. The black wires carry power at about 110 volts each to total 220V, the white is a neutral and the green is a ground. STOW indicates S for Service, T for Thermoplastic, O for Oil-Resistant Jacket, and W for Weather and Water resistance. Rated to 600 Volts, Temperature range -40 to 60 degrees C, so really beefy! The plug is a NEMA 14-50 4 wire plug. It is on a 50 Amp breaker, although it ran on a 30 Amp for a while with no apparent problems.



## ***Induction Forge***

Next I had to tackle the cooling issues. The IF produces a lot of heat that must be removed; it cannot run without cooling. There is a built in safety that won't allow the IF to even turn on unless it detects a coolant flow and in a certain temperature range. The specified water temperature protection point is 40 degrees Celsius. Additionally, the flow rate must be 7.5L/minute. Many IF owners have chosen to use a TIG cooler which works well for light to medium usage. After following some of the experiences of smiths on the FB Induction Forge Group, I decided to engineer my set-up to avoid overheating issues that could eventually become a problem as I learn to use my forge for larger projects. After a lot of research, I purchased a Procon Brass Rotary Vane Pump with 115 VAC MTR, 1/3 HP 60 Hz, \$190 + shipping. I put the IF on the top level of a 2 level cart on wheels, and the pump on the lower level. I also added an 18"x18" Water to Air Heat Exchanger, that was \$139 + shipping. The cart got electrical connections for the pump to run and be switched on and off, independent of the IF circuitry. I added a expanded metal guard to protect the heat exchanger baffles. I also have variable speed fan to add if temperature becomes a problem, which would draw air through the radiator/ heat exchanger. I have not needed to use it yet. The coolant is distilled water that I put into an 8 gallon steel container that I have added Propylene Glycol, Corrosion Inhibited USP Grade 95%, about \$50 for a gallon\*. I added about 10% PG by volume to the distilled water. This is non toxic to animals or humans. My concern was that my fur creatures may be exposed to the antifreeze additive. Some antifreeze additives are highly toxic. I added some red food coloring so I could see the fluid through my clear tubing. Another couple hundred for brass pipe fittings, adapters, connectors, plus an inline flow meter and pressure gauge and a lot of time engineering the tubing system and constructing it all without leaks, and I was cooking with Magnetic Current!

I have made a couple of coils that work well. I made a set of adapter tubing connectors which allow me to use hardware readily found in our local hardware stores. I brazed together 1/4 inch threaded flare X MIP Adapter Union Fittings to make the 8mm to 1/4" coil adapter. 1/4" O.D. copper refrigeration coil works well for the coils. If you did not make the adapter, the nut that would be required otherwise is only available

*\*Available from ChemWorld,  
www.chemworld.com*

*\*\*derekmelton.com*

through the induction forge supplier and a few others who have gotten a supply, ie. MettleWorks.\*\* To make the coils, you'll need a tube flaring tool and mandrel to wrap the copper tubing; a pipe works well. There is a lot to learn when it comes to tubing and current dynamics. I am learning as I go.

I have found the IF forge to be my "go to" forge. It's quick, clean, produces precision heats, probably cheaper than solid fuel to run, and can be run indoors in a fire resistant space with ventilation. I have invested in a flat coil which I use to heat flat sheet to form on stakes, i.e. Acanthus Leaf forms. I've attempted brazing in the coil with varying degrees of success. I certainly know how quickly a brass puddle occurs! For punching and pass-throughs, its great! Very little scale forms using the IF, making for truer dimensions and less cleanup.

I have a lot to learn; I've had my forge up and working for about 4 months and I learn something every time I forge. Making coils for different size metals is high on my list of things to learn. Matching metal volume to the number of coils, spacing, and diameter is important for efficiency and also the life of the IF, which is a highly sophisticated box of electronics and feedback systems.

I am by no means an expert, and I am relaying my experience up to this point. I think that the Induction Forge definitely has a place alongside our solid fuel and gas forges as yet another choice for today's blacksmiths. I hope to see some of your work produced either all or in part on your Induction Forge!

Carol de Maintenon





### Induction Forge Victoria Ritter, Orangevale

An induction forge provides clean, no-fire-involved, heat with the press of a foot pedal and my first experience with this type of heat was at John McLellan's shop in Loomis. It was clearly a must have, but the price tag scared me away. When I heard that you could buy them online for much less than the thousands I was quoted at that time, I wasted no time getting one for myself and am so glad I did.



The induction forge will need an electrical cord and must be connected to a cooler of some sort; I opted for a TIG cooler with a 25L tank and find it works well. It was easy to find the connectors needed to hook the hose from the induction forge to the smaller connection hose on the TIG cooler.



*Tig Cooler*

An electrician installed the power cord and moved the ground connection up

to the other electrical connections from its odd placement below the water in/outlets. The cord now comes from a junction box mounted outside the machine covering the less-than-optimal open electrical connectors. Once those things were taken care of, it was all about the coils.

The unit came with one coil with an internal diameter of just under 1.75 inches, covered in insulation cloth and equipped with the 8mm flare nuts that fit on the unit. This is a fine coil and I have used it often, but it only works well with metal that is at least one inch in diameter. I needed to make my own coils. Using the tips and tricks I found on Derek Melton's web site and EJ of the Anvil's YouTube videos along with some of my own trial and error, I have been able to make a couple coils and will be making more. I did purchase a flat or pancake coil from Mettle Works for use with the Acanthus leaf and other thin metal but have only used that a couple of times.

The first order of business was to determine if I could use 1/4 inch tubing with a machine equipped with 8mm flare nuts for the coils. 8mm size tubing is hard to get in the states so I opted to make my own adapter so that future coils could be made with 1/4 inch tubing and connectors purchased from the neighborhood hardware store. Another good reason for this is that the threads will become worn as the coils are changed out frequently and it is easier to replace the nuts on the adapters than the nut on the machine. To make the adapters, I cannibalized the coil that came with the unit for its 8 mm tubing which was attached to a 6mm coil. I soldered the 8mm tubing a 1/4 inch male flare to MIP adapter. This required insertion of a brass shim to fill the gap between the 8mm tubing and the adapter before soldering. The original 8mm nuts were used to connect the adapter to the machine and so far, no leaks. Fortunately, I am still able to use the 6mm coil as I added 1/4 inch flare nuts and flared the cut ends to fit the newly created adapter.



*Back of Induction Forge*



## *Induction Forge*

Coils, like the tools in your shop, can be a variety of designs depending upon what you need for your project. So far, I have only made coils that go around the metal I want to heat. To optimize heating, the metal should fit to within 5mm (or ¼ inch) of the internal dimension although I find if more than half the space is filled you can get a good forging temperature. If I am trying to forge weld and the piece is too tight in the coil, some of the edges will melt before an even welding temperature is reached so will use a slightly larger coil. It did not take much trial and error to find the balance between the coil size and the desired result. The metal needs to be held so that it does not touch the coil, or it will spark. To mitigate the spark, you can use an insulating material that is either placed over the tubing or sprayed on, but these applications only last so long. The coil that came with my kit had a sheath but that has already partially melted off due to the metal touching the coil rendering it useless with a couple of uses. I have not bothered adding any insulation to the coils I have made and find that it is not necessary. Besides, the occasional spark adds a little extra excitement while the metal is heating up.



*Original Coil  
Melted Insulation*

You only need to know a couple things to start experimenting with making coils. As stated, the coils should be large enough so the distance between the metal and the coil is as small as possible without touching. The coil loops must be spaced so that they do not touch each other, or you will stop the current and

the piece will not heat past that spot. If you want long heats on a piece, you could add more coils or space between the coils, just be aware there is a limit to these machines and if you make a coil too big or use over 2 feet of tubing for the coil portion, the machine may struggle to keep up preventing the desired result.

I had some left-over refrigerator copper tubing in my scrap pile and a flaring tool in my toolbox. I purchased a pack of 10 flare nuts as I knew I would need 2 per coil. I filled the tubing with salt to help prevent kinks after trying to bend hollow. The salt is a big help, but you should still bend slowly and carefully especially with the pliable refrigerator tubing. You can start the turn with a ¼ inch handheld pipe bender and then transfer the coil start to a piece of round steel the size of the internal diameter desired and work the tubing around. For rectangular shapes, three pieces of wood clamped and filed to guide the tubing works well. These bends are tighter and more prone to kinking but slow and steady works. When you are finished the middle piece of wood is knocked out releasing the other two. The copper does work harden so be careful to not overwork. Once you are happy with the loops and have the ends positioned to fit onto the machine, pour out the salt, slide on the nuts and flare the ends with a flaring tool. It really is that simple!



Overall, I am happy with my investment and even though I still use the coal forge, there is something novel about being able to walk down to my shop and be forging, forge welding or heat treating within minutes.

# One way to avoid fish-mouth when forging a blade.

September-October 2021

## Bituminous Bits

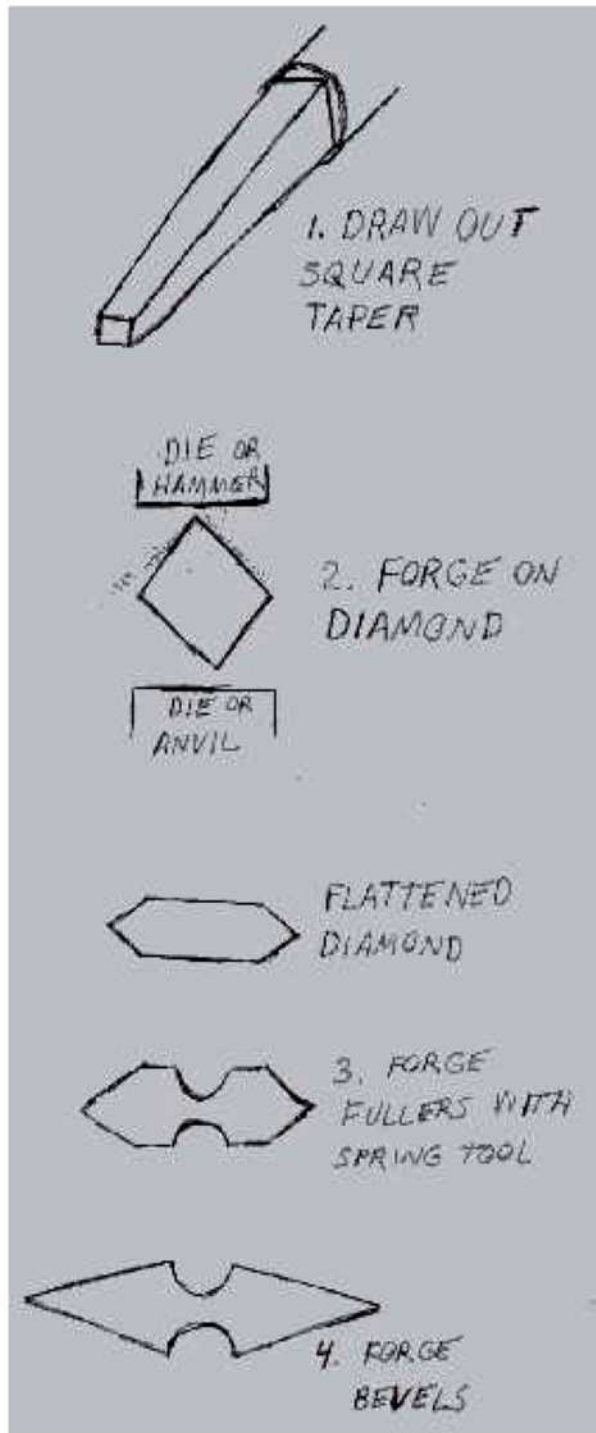
### Forging a Fuller

Kevin Cashen demonstrated sword forging at the 2021 Batson Bladesmithing Symposium. He took an interesting approach to forging a long, double-edged blade with a fuller. He said he used this approach in dagger classes.

Students trying to forge a dagger from flat bar often get a “fish-mouth” on the edge of the bar while trying to forge in the bevels. A lot of us may be more familiar with the dreaded fish mouth when trying to forge the initial point on a flat bar or maybe when trying to forge a nice tapered point. Fish mouth forms when hammer blows draw an edge or corner out over the middle part of a bar. If the smith doesn’t notice and correct the problem, the drawn-out corner can be forged over and result in a crack later on.

Kevin’s solution was to start with round bar, forge a long, straight, square taper as long as the desired blade, and then forge the square flat by hammering on two corners of the square cross section. The result is a tapered, flat bar where the edges already come down to points. The “pointy edges” are relatively easy to forge down to nice bevels.

The flat bar also made a good surface for forging in fullers. Kevin measured and marked a line down the center of one side, then used an angle grinder to cut in a line that he could feel and follow with a spring fuller when the steel was hot. The power hammer and the spring fuller made quick work of putting in a nice fuller. Kevin forged the bevels by hand to match the fuller, straightening as he went. Ideally, he would have done a lot more straightening and normalizing, especially for such a long blade, but time was limited and he had to move on to grinding and then heat treating.



*Reprinted from the September-October 2021 issue of Bituminous Bits, the newsletter of the Alabama Forge Council*





## **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](http://www.abana.org)** and like us on Facebook and Twitter. Join or renew your membership at: **[www.abana.org/membership](http://www.abana.org/membership)**.

The Arizona Artist Blacksmith Association is an affiliate of ABANA.

ABANA has moved its headquarters from Jonesborough, Tennessee, to Johnstown, Pennsylvania. Blacksmithing and the steel industry have played an important part in the history of Johnstown since the mid-19th Century. That makes it a fitting place for ABANA to call home. ABANA's new home is in the historic Pennsylvania RR depot where it will have offices, a gallery, a retail shop and a library. The Center for Metal Art is located in other historically significant facilities in Johnstown.



### **ABANA'S Education Committee announces the National Curriculum**

A model curriculum that provides a structured program of study to learn blacksmithing.

"We have some exciting news from the Education Committee; ABANA has fully adopted the National Curriculum (NC), based on the curriculum of the CBA (California Blacksmith Association). As our core mission is to perpetuate the noble art of blacksmithing, we recognize it's incumbent as a national blacksmithing organization, to share a successful and practical working curriculum with members, affiliates, and the blacksmithing world at large. What is the National Curriculum? The NC is a departure point for those that seek a structured program of study that can be used at schools, conferences, meetings, and individual shops through one on one, small groups and self-guided study. We present the curriculum as one way to learn blacksmithing, but certainly not the only way. From this set of goals, lessons, and benchmarks, smiths at any skill level can pick this up and continue their education. The curriculum provides the framework for the student to progress through increasingly challenging projects that focus on the skills expected of a journeyman smith, culminating with the [CBA] Level III Grille."

-- ABANA Affiliates Newsletter

### **Touchmark Registry**

"From discussions present and past, there is a growing need for a registry of touchmarks and signatures from our blacksmith community, not just ABANA members, but all smiths. I for one, have many examples of demonstrator's work, signed and some dated, but there are several which I do not recognize and cannot place a name to." - Frank Van Pelt, ABANA web administrator.

ABANA is building a touchmark registry for all blacksmiths, not just ABANA members. You can submit your touchmark or signature to **<https://abana.org/touchmark-registry/>**



# Classifieds

Classified ads are free to members and can be submitted by email to: [editor@azblacksmiths.org](mailto: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..

**Will buy your unwanted blacksmith or horseshoeing tools and supplies.**

Barry Denton, **928-442-3290** any day before 7:00 pm.

## For Sale

- 1 **Nazel 2b Forging hammer** with 3-phase motor, dies, and oiler, \$13,000.
  - 1 **Little Giant 25 lb. power hammer**, single-phase. \$2,500.
  - 1 **Little Giant** (not the one above) 25 lb. power hammer, single phase. \$3,000.
  - 2 **5'x5' Acorn type platens**, \$2,500 each or \$4,000 for both.
  - 4 **Post Vises**. Jaw widths: 4" for \$150, 4 1/2" for \$150, and two 6" for \$350 each..
- Note: these are rusty and will need to be cleaned and lubed.
- 1 **P&H 300 amp Stick/TIG welding machine**, single-phase w/ foot pedal, no leads, torch, flow meter, or bottle. \$300.
  - 1 **Cincinnati/Greeves** Vertical/Horizontal milling machine, w/ 10"x54" power feed table and tooling, 3-phase. \$1,500.
  - 1 **3-ton air-powered crane hoist**. \$450

All items are located in Buckeye, Arizona. These prices include loading onto your trailer/truck. I can offer curb-side delivery for an additional fee.

Contact: [jaegermax@msn.com](mailto:jaegermax@msn.com)  
Please put "AABA Equipment" in the subject line so I don't delete it as junk.

## For Sale

**Pallets of firebricks.** Many different sizes. All for \$400. Photographs available on request. Located in Prescott, Pick up ONLY. This is a lifetime supply. Steve Imms, **928-852-0881** or [steveimms@cableone.net](mailto:steveimms@cableone.net)

## Picture Rock

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Burns great! \$30 for 50 pounds  
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Casey Abbs, **520-869-8778**

## For Sale

**Swage Block.** 160 lb. in excellent shape. Never been outside. \$450.  
**Post Vice.** Good jaws, mounted on a steel base. \$200.  
Larry Dorrell, **928-925-7091**

## Gas Forge Building Workshop

Richard Rozinski is offering gas forge building workshops in his shop in Gilbert. Two person minimum. Call Rich for scheduling and prices.

**602-803-7255**



## 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**

## For Sale

**Wrought Iron.** 1 1/4" x 5" x 48".  
I have a few. \$100 ea.  
**Coal Forge**, comes with some coal. I can text photos. Price is negotiable.  
Dan Jennings, **480-510-3569**

## Sources

### AZ Tool Steel

520 S. 52nd Street #201  
Tempe, Arizona 85281  
Phone: 480-784-1600  
Toll Free: 877-795-1600

### Bar U Bar Supply

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.com [www.barubar.com](http://www.barubar.com)

### IMS

Full service supplier of steel, stainless, brass, aluminum, copper. Discounts for AABA members. (See details on pg. 18.) 5150 S. 48th St., Phoenix 602-454-1500 3757 E. Columbia St., Tucson 520-441-5900

### Interstate Steel and Salvage

Specializing in Steel, Aluminum, Stainless Steel, Brass, Copper and some alloyed metals of all types, sizes and shapes. Cutting, Shearing and advanced Flow water jet cutting for all your project needs. Valley wide delivery. Let us quote your next large or small job! 12129 W Peoria Ave, El Mirage 602-944-2000

### Old Globe Reclaimed Wood Co.

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### Say-Mak Power Hammers

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### Southern Arizona Farrier Supply

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### Vern Lewis Welding Supply

Discount pricing for AABA members.  
Various locations in the Phoenix area.  
602-252-0341  
Dan, 602-316-4140, for tech support.

### Superior Steel Stamp Co.

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For either, contact  
[Sales@superiorsteelstamp.com](mailto:Sales@superiorsteelstamp.com)

### Tire Hammer Plans by Clay Spencer.

Send \$30US (PayPal) to  
[clay@tirehammer.com](mailto:clay@tirehammer.com).  
Or send check/money to  
Clay Spencer  
73 Penniston Pvt. Dr.,  
Somerville, AL 35670.  
I can mail a copy or email PDFs.

### Tucson Iron and Metal

Steel, aluminum, stainless, copper and brass for sale by the pound. Open Monday - Friday 8 - 4:30. Also 1st and 3rd Saturdays 6:30 - 8 am. specifically for metal artists.  
690 E. 36th St., Tucson  
520-884-1554

## 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 ☐

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Your main blacksmithing interest \_\_\_\_\_

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Please check one:

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Mail to: Terry Porter  
2310 E. Melrose St.  
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Terry Porter, 2310 E. Melrose St., Gilbert, AZ 85297, 480-988-2070, [trp555@prodigy.net](mailto:trp555@prodigy.net)