BLACKSMITH TRADITIONS: APPRENTICESHIPS

APPRENTICESHIPS IN ANTIQUITY

Since the dawn of recorded history, each generation of craftsmen has taught the skills of their trade to the next. The Babylonian Code of Hamurabi, a set of laws carved in stone over 4000 years ago, required craftsmen to teach their skills to the youth.

If an artisan has undertaken to rear a child and teaches him his craft, he can not be demanded back. If he has not taught him his craft, this adopted son may return to his father's house. (Code of Hamurabi 188-189)

The earliest civilizations with significant surviving written records, Egypt, Greece, and Rome, all agree that, from the earliest times, craftsmen passed on skills in this way. When youth in these civilizations achieved the status of skilled craftsman or craftswoman, they became important members of society. Middle Eastern society honored skilled craftsmen, as we see in the Bible. “Seest thou a man diligent in his business: He shall stand before kings” (Proverbs 22:29). The honor due a skilled craftsman in western Europe is also reflected in a dialog from the Red Book of Hergest, a 14th-century Welsh Bardic manuscript:

“Open the door!” “I will not open it.” “Wherefore not?” “The knife is in the meat, and the drink is in the horn, and there is revelry in Arthur’s Hall; and none may enter therein but the son of a King of a privileged country, or a craftsman bringing his craft.”

Continued on page 16
SAFETY FIRST! MORE ON EYE PROTECTION

Our very first Safety First article was on the topic of eye protection. In that article, the focus was on protecting your eyes from flying bits of scale, dust, and metal debris. A flying splinter of metal that would be little more than a nuisance to your arm could be life-changing if it hit your eye instead. Safety glasses are extremely important!

This month we want to extend the discussion of safety glasses to IR and UV filtering. The intense heat of a coal or gas fire can cause objects to radiate both in the infrared (IR) and the ultra-violet (UV) wavelengths. These can be extremely damaging to your eyes. Your shop may be quite dark, but I bet you’ve ended a day with arms sunburned by the forge before. What you may not have realized was that your eyes were being sunburned as well.

“What you may not have realized was that your eyes were being sunburned as well.”

Many smiths use didymium-coated lenses, which filter the bright yellow glare at the heart of a fire. This does a great job of allowing you to see clearly into the heart of the fire, but they filter only harmless bright yellow (sodium flare) light. They do not filter the dangerous IR and UV. Because you can see so well, they actually lead you to stare into the fire with pupils dilated wide—a very dangerous habit. Also, some smiths complain that these glasses make it very difficult to distinguish forging and welding temperatures, since they filter yellow light so heavily.

A better alternative is shade 2.0 or 3.0 welding glasses, which are impact resistant, but also filter 85% of IR and 99% of UV light, while remaining light enough that you can walk around the forge without tripping over stuff. Any more than usual, anyway.

BOA member and optometrist Herman Ginger says that polycarbonate safety glasses filter both IR and UV, and most can be purchased with a flip up shade (up to 4.0) to help you see into the bright light of the forge.

LETTER FROM THE EDITOR

It’s a brand new year. What kinds of resolutions do blacksmiths make? For me, I want to try to bring a trade item to every single meeting this year. Last year I even missed one time when I was hosting! The shame!

Putting together this newsletter, I’ve been reading a lot about the traditional apprenticeship program, and thinking how grateful I am for the smiths who have taught me what little skill I possess.

My first foray into smithing was a three day class my father and I took from Bob Patrick. I can still remember walking into his shop for the first time. The huge anvils. The big stone forge. Thousands of mysterious tools hung everywhere. The smell of coal. This was a place where magic was real, and I was about to learn the secrets from the grand wizard of blacksmithing, himself.

I’m still hooked, but I’ve found that some of the magic begins to fade away once you learn the secrets. I enjoy the art of it, the unique skill involved in this craft, but I miss the magic. I thought for a while that the magic of blacksmithing was gone forever, like childhood.

Then Dustin brought in Nathan Robertson for a hammer-making class last spring. A dozen men in a shop lit only by the fire of a forge, all working together in the heat and flickering flame to forge our very own massive hammers. I stayed for both days and have to admit that I put my hammer on the bedside table of the hotel that first night, and went to sleep dreaming about the power and potential I had created.

This year, my resolution is to bring back the magic of blacksmithing again. I want to learn the secrets of the masters, and dream about the possibilities.

Robert Fox, BOA Editor
LETTER FROM THE PRESIDENT

Dues for 2015 are due. It seems like a lot of us have let the busy holiday season overwhelm us to the point that we have forgotten to send in our dues. Ron Wells would like to get the New Year off to a good start and not have to be dunning everyone about their dues.

Let me congratulate Clyde Foster on hosting the best, or at least the best attended meeting the Northwest Chapter has had in my memory. By one count we had 32 people attending; including children. The trade item of a set of tongs and we had several very nice pieces. Clyde’s wife Connie, fixed an excellent lunch of Chili and Hot Dogs with all of the fixings and several very tasty desserts. This month’s meeting is at Ed Osoris’ shop in Springdale. The trade item is a door knocker. Next month’s meeting is at Richard Ross’ shop, The Crooked Creek Forge and the trade item is a forged dragonfly or a hummingbird. Of course it is on Valentine’s Day, February 14th. And in March the NW chapter is returning to Eureka Springs at Stosh Japeczyk’s shop.

The Northeast Chapter is looking for ways to increase public awareness of BOA in that part of the state. Their next meeting is Saturday, January 3rd at Jim Soehlman’s shop from 8 am to 3 pm.

BOA is experiencing a surge of growth. We have had 16 new members join since the November NW meeting. The best explanation is that we are doing exciting things that people want to be a part of. Don’t hesitate to hand out the business cards; I have more if you run out and we will order more if we run out of those.

The board of BOA met on Monday, December 21st by conference call and approved three items:

1. The request to form a new chapter was approved to be called the River Valley Chapter centered around Fort Smith. Jerry Holmes will be the acting Steward until one is elected. They will meet on the first Saturday of the month.

2. A request to sponsor an internship at the University of Central Arkansas was approved. The intern will be expected to perform six to nine hours of work each week to include attending monthly meetings, producing a draft grant proposal for the building of a shop at the Faulkner County Museum and a forged piece to be judged by three smiths selected by the board.

3. A committee was formed to update the by-laws. The current by-laws are out of date on several issues; not the least of which is the formation of chapters as part of BOA.

On Saturday, December 27th we roasted the raw ore we gathered up at Magnet Cove. I can only say that the results were disappointing. The ore did not behave as I thought it would. If I can’t quickly solve the problem with the ore it is unlikely we will be traveling to the Eureka Springs School of the Arts (ESSA) on the 21st of January. A final decision to go ahead or postpone the smelt will be made by the 10th of January, All I can say is to stay tuned for the latest developments.

I have asked many members to contribute in ways large and small to this project and I have been very pleased with all of the enthusiasm and the willingness to help.

Dale Custer, BOA President
BOA MEETINGS

UPCOMING EVENTS AND DEMONSTRATIONS

As usual, we will have demonstrations at the 2015 meetings in April and September (Tired Iron) and June and October (Rusty Wheels).

The Faulkner County Museum folks also want us back in November, 2015, and we will be demonstrating at the Harvest Homecoming in Harrison.

Let us know of any other planned events!

NEXT EVENT—TIRED IRON ANTIQUE TRACTOR AND SMALL ENGINE SHOW

April 18th, 2015
13344 Taylor Orchard Road, Gentry, Arkansas

The members of Tired Iron of the Ozarks have developed 17 acres in Gentry, including a 1907 log cabin, a blacksmith shop, a clubhouse, an early 1900s sawmill, and a 60 ft x 32 ft antique home exhibit building.

BOA members demonstrate in the blacksmith building at the Gentry event, which also includes antique tractor pulls, a tractor parade, and antique engine demonstrations.
NOTE FROM THE COAL-MEISTER—RON WELLS

I have a new load of Vinita coal. It is smaller pieces than what I have been getting and preliminary reports are that it is of good quality.

I bring coal to all the NW Chapter meetings and also supply the stewards with coal for the other chapters. I try not to bring more than is needed so that I don’t have to haul it back home. Sometimes I misjudge and some may not get the coal that they need. Now, here’s the trick:

Let me know by email or phone call, in advance, how much coal you want and I will guarantee that you get it. If you do not let me know in advance you will have to fight the others for the extra coal that I bring. No guarantees.

One more thing: Please return empty bags and bring new empty bags. Thank you.

THANK YOU FROM RON WELLS

My wife and I wish to thank BOA for the contribution to The Dolly Parton Imagination Library. Bertie directs this wonderful program for the Mount Judea area children and Jacob was a generous contributor. Also, we send a heartfelt thank you to all of you who have expressed condolences. The thoughts and prayers from all our friends and loved ones have been most comforting.

THE BLACKSMITH DUEL

One of the famous duelists of early New Orleans was Bernard Marigny, a member of one of Louisiana’s oldest and most influential families, who was a master swordsman and a crack shot with a pistol. He was elected to the state Legislature in 1817 as a member of the House of Representatives and took an active and leading part in the many disputes that arose between the Creoles and the Americans.

At the same time Catahoula Parish was represented by James Humble, a blacksmith and a former resident of Georgia, who was noted for his great stature—he stood almost seven feet in his stockings.

Humble replied to one of Marigny's most impassioned speeches, and made various allusions so pointed and personal that the Creole considered himself grievously insulted, and he challenged the blacksmith to a duel.

Humble sought the advice of a friend saying, "I will not fight him, I know nothing of this dueling business."

"You must," his friend protested. "No gentleman can refuse a challenge."

"I'm not a gentleman," Humble retorted. "I'm only a blacksmith"

Humble was assured that he would be ruined both politically and socially if he declined to meet the Creole. However, his friend pointed out that as the challenged person the blacksmith had the choice of weapons and could so choose as to put himself on equal terms with his adversary.

"I'm not a gentleman... I'm only a blacksmith."

Humble considered the matter for a day or two and then sent this reply to Marigny:

“I accept your challenge, and in the exercise of my privilege I stipulate that the duel shall take place in Lake Pontchartrain in six feet of water, sledge-hammers to be used as weapons.”

Since Marigny was less than five feet and eight inches tall and so slightly built that he could scarcely lift a sledge-hammer, this was giving Humble as equal chance with a vengeance.

The Creole’s friends urged him to stand on a box and run the risk of having his skull cracked by the huge blacksmith’s hammer, but Marigny declared that it was impossibly for him to fight a man with such a sense of humor. Instead he apologized to Humble, and the two became firm friends.

(From The French Quarter, Herbert Asbury, pg.108)

GOT A STORY IDEA?

Do you have a story you would like to see in the VOICE? Would you like to write it, or is it something you want to read?

Let us know—send an email to editor@blacksmithsofarkansas.org.
NOTE FROM THE TREASURER—RON WELLS

The checks for dues have started coming in at a little faster rate since my last communication by email. Several members still owe dues for 2015. The newsletter reaches all the members, so I’m taking this opportunity to remind you that the 2015 dues are due January 1, 2015. Just make out a check to BOA for $25 and mail it to:

Ron Wells
HC 32, Box 141
Mount Judea, AR  72655
METALLURGY COLUMN (NEW FEATURE!)

Now that I have had an opportunity to get out to a few meetings and meet some of the great folks in the club, I would like to introduce myself here and outline a new monthly addition to the news letter. My goal here in this column is help educate and inform all of you on steel production, equipment and metallurgy topics. I hope most of you find these topics as interesting as I do.

I have had an interest in metals and metalworking since I was a kid. My dad, who was able to meet a few of you at the recent ore roast, was always making things he needed in the garage. He introduced me to machining with a small lathe and milling machine. He rebuilt engines and transmissions, until they started putting computers in cars and even set up to do aluminum casting.

I pursued my interest and went to University of Missouri at Rolla (now MS&T) and studied metallurgical engineering (Ron, this was for engineering not English). This is one of the few schools in the nation that still teaches a pure metallurgical program. One of the best features of the program was the school foundry, the best I have seen at a school yet! We had a two box induction furnace capable of melting aluminum, brass, and bronze in one side and Iron and steel in the other. In the 90’s the school performed a lot of research into lost foam casting (I will go into greater casting methods later).

The university enjoys a good relationship with industries the professors work hard to see that all get jobs out of school and those who want have internships in the summer. My first internship was with Stahl Specialty in Kingsville Mo. Stahls produces aluminum casting using the permanent mold process. The founder of the company designed and built his own equipment. This led to a very nice equipment manufacturing center in the heart of this aluminum foundry. I spend 4 summers there from working in the foundry, machine shop, and engineering, across all 3 shifts. I knew everyone at the plant and determined that I did not like processing aluminum (more at a later date).

I took some time off from my studies of metallurgy and earned an associate degree in machining. Also during this time off I worked for a short time at Atchison Castings in Atchison Kansas. This place is a steel foundry that produces large steel and stainless castings. They have an AOD (Argon Oxygen Decarburizer). I will always remember the response of the shop manager when I asked how it works, “I don’t know, it just does.” After that and a safety incident I decided to get back to school to finish the metallurgy degree.

I worked a lot in the foundry and was involved with AFS (American Foundry Society) student chapter. I also went out a semester on coop at Southern Cast Products in Jonesboro AR (hey there to the friends in NE chapter). This was my first experience at gray and ductile iron casting. My main project with there was to set them up on steel casting, which is now a growing part of their business.

I graduated and took a position at Gerdau Ft Smith. This steel mill produces round bars for automotive and heavy truck applications. We produce around 520,000 tons of steel a year. Our melt shop process uses two EAFs (electric arc furnaces), LMF (ladle metallurgy furnace), VTD (vacuum tank degasser), and three strand rotary caster. I have been caster metallurgist at the caster now for 7 years.

I have had a desire to work with metal all throughout my life, a passion I intend to keep pursuing. I have worked with steel, iron, and aluminum in a wide variety of metal forming processes. Schooling is important and I have most recently completed the company’s accelerated two year Engineer Advanced Training program to accompany my associate’s in machining, Bachelors in metallurgy, and masters in operational management. All throughout I have been involved with organizations to expand my horizons such as AIST (Association of Iron and Steel Technology) and have served them as chairman of the Southwest chapter. Participations in these organizations have allowed me to tour many of the steel mills, fully integrated and mini mills in the states along with downstream processing plants.

I hope each of you find this column interesting, informative and furthers your appreciation of steel making, forming and application. Please feel free to email or call with questions and I will add these into the column each month. With the ore smelt happening in January, I will talk about a brief history of steel and if time permits, and Robert doesn’t cut it down, the initial process at an integrated steel plants (thank you Carnegie).
This way it won’t slip down into the hammer to sharpen the shoulders.

I heated a short section of 1” solid square bar, then used an old center punch that was about the same size as the rivet head to make an indentation. The punch needed re-tempering and the point had become a little round—perfect. Once the hole was closed, I drove a cold rivet head into the heated bar to get the final shape. It is better to have the hole a little shallow than too deep, because too deep will not hold the rivet against the work, and will result in a loose joint.

The hardest part of using a rivet header is holding it. Even in a vise, it slips down as you use it, and you have to keep repositioning. After doing this a couple of times, I used a spring fuller to put a waist in the header tool, then thinned everything below the waist. I heated up the stock, quenched the header end, set it loosely in the vise, and drove it down with a big hammer to sharpen the shoulders. This way it won’t slip down into the jaws in use.

I made this project as a gift for my daughter, who, now that she has moved out, is learning that cooking is easier on the budget than eating out!

1. First, find a bunch of wine corks. It takes a lot more than you might think. Plan on about 50 corks for a 7” diameter trivet. If you don’t have your own growing collection, most restaurants which serve wine will give you their corks if you ask, or you can buy them fairly cheaply at most craft stores.

2. Place a piece of scrap paper on a flat surface and stand your corks up together to trace out a very rough circle the size you will need. To calculate the length of the band that will wrap the corks, you measure the diameter (width) of the circle and multiply by 3.14, or you can just lay a string or belt around it, then measure the length from that. At this point, do not add any length for overlap. This length is your circumference, the distance from the rivet hole on the inside of the overlap to the hole for the same rivet in the outside of the overlap, measured around the strap. My circumference was 22”.

3. For my design, I wanted to thin the inside of the overlap for about an inch, and I wanted the outside of the overlap to terminate in a taper, like the end of a belt. For this design, you need to find a metal strap at least four or five inches longer than the circumference you measured. I used 3/16” x 7/8” x 27” mild steel, but anything close to that will do fine.

4. First I thinned the inside. My natural inclination is to just start smashing the end thin, but I’ve found that to be a mistake. As it gets thinner, it naturally fishtails out wider. It’s very hard to hammer this very thin edge back to the original width. Instead, I first figure out how much thinner I wanted the edge—in my case I wanted the end to be about a third of the original thickness. So I first hammer the edges, not the flat, and reduce the width to about 1/3 the original width. This seems backwards, but now you can hammer it thin and let it fishtail back out to the original width. You’ll still have a little straightening to do, but it’s much easier than trying to deal with a wide, thin fishtail.

5. Measuring from the thinned end of the strap, I made a soapstone mark at a point equal to the circumference I measured earlier, plus about five inches (for the overlap). Working cold, I cut the bar almost through on my hardy (made from a massive section of a tractor leaf spring that Garrett Sheeks gave me), then put it in the vice and snapped it off.

6. Next I heated the cut end and tapered it down to a rounded point, like the end of a belt, taking care to keep the curves even and the thickness the same as the original.

7. Next you need to mark the locations of the rivet holes. I wanted the first rivet hole about an inch and a half from the end of the inside (thinned) end of the strap, so I made a mark at this point with soapstone, then another mark about two inches down. Working cold, make a good mark at each of these points with a center punch, making sure to mark at the center of the strap.

8. Next you need to measure the length of the circumference from each punch mark and put another mark. The distance between the two punch marks on each end (about two inches) is about the only thing in this project that needs to
be fairly precise. I actually measured the circumference for only one of the rivet locations, the determined the location for the other by using a set of calipers. Technically, the outside end of the strap needs to have the holes slightly farther apart, but I found it easier to measure them exactly, then adjust later (step 13).

9. Next you need to punch all four rivet holes. I went in with Dale to buy a box of 1/4” rivets (see sidebar), so I punched a 1/4 hole. While they turned out just fine, I’m sure my technique was deplorable, so I’ll leave the punching as an exercise for the student...

10. I wanted the entire outside surface of the strap to be textured. I could easily dent it up cold with a ball peen, but it just didn’t turn out with the look I wanted unless I heated the strap first. Remember to texture the edges also. This was actually one of the longest parts of the project.

11. After I finally got it all textured, I heated the strap along the whole length, and bent it into a circle over the horn. Since I have an end-loading gas forge, this was the last heat—once bent in a circle, the hoop is too large to go back in my forge. It took me a little bit to figure out how to best tweak the hoop from egg-shaped to truly circular. I found it easiest to put more curve in the flat spots by laying the flat spot over the cutting step of my London-pattern anvil, in line with the horn, and tapping with a ball peen. Likewise, to straighten areas that were bent a little tightly, I put the hoop over the horn until the tight bend was over the step from side to side, and tapped it down. All this adjusting can be done cold.

12. Once I got the hoop circular, I prepared my rivets. I wanted the round head out, so cut the rivets, which were quite long, leaving a shaft of about 5/8”. I determined this length by measuring the thickness both straps together, plus a little extra for the inside head. I usually allow one and a half times the thickness of a rivet for the head, so, for a 1/4” thick rivet, I leave 3/8” for the head.

13. I cut the rivets hot, but then quenched them and did all the riveting cold. I put my rivet header in the post vise (see sidebar), pushed a rivet through both straps, then used a pair of tongs to hold the straps tightly together while I riveted the inside. The holes for the second rivet may not line up exactly. Technically, the outside strap needs to be a little longer, but when I peened that part of the strap, the peening made it slightly longer. If it is still slightly off, you can peen the strap with the shorter holes, making it a little longer, until the holes line up perfectly. Then place your second rivet.

14. I heated my hoop up as best I could right where it was riveted, holding it in front of the forge (it would no longer fit inside). This last heat was to allow me to tweak the outside end of the strap down tight, and to let me put my touchmark on, right between the rivets.

15. Use your preferred finish on the metal, and set the corks in. I found it easiest to just set the hoop on a flat surface and put a line of corks around the inside of the rim, then a line of corks inside that, and so forth until the hoop is completely filled. Use a hammer to push them all flat. This will leave the strap at the bottom, not the center of the corks, but you will find that it is pretty easy to push the corks up one by one. This arrangement will be sort of tight, but you will want to jam a few more in to make it super tight. The way I do this is to find an area where you want to add a cork, then push three or four adjacent corks in that area up from the bottom until about 2/3 of the cork are showing. Sticking up like this, you can spread them apart and add a cork in the middle, then hammer them all back down again. Repeat this until it seems tight enough. There may be a way to glue the corks together without making a mess, but I found the whole thing stable enough that I didn’t think I needed to bother. I thought about using corks that had been stained by red wine, strategically placed in the shape of a heart, but I think that will require a little larger trivet to come out well.

Bon appétit!

Robert Fox—BOA member
NEXT NORTHEAST MEETING

The January NEAC BOA meeting will once again be held at Jim Soehlman’s shop. His address is

462 Greene 731 Road
Jonesboro, AR 72401

The meeting will be held on the first Saturday of January (the 3rd). Lunch will be Lasagna

The meeting will start at 8:00 am, and end at 3:00 pm.

From Lake Frierson State Park entrance (about 12 miles due north of Jonesboro on Hwy 141), continue north on 141 for one mile, then turn right (east) on Greene 731, go 1/2 mile. You're there!

Jim Soehlman—NEAC BOA

NE ARKANSAS DECEMBER MEETING

We had our meeting on the 13th. Dusty Elliot and Jim Soehlman were in attendance. Dusty made a sprinkler can for her forge. Jim made a wall hook and a steak turner for Dusty. Rebecca Soehlman made chili that we enjoyed for lunch.

We discussed how we are going to start promoting our local monthly meetings in the Jonesboro Sun and any local free papers that run, in order to raise more awareness. Also we are going to start displaying signs in our yard and possibly at the intersections nearby. When spring gets closer, we are going to try and perform demos at the 2 local state parks, also to draw an interest in people that may be unaware we have a local group. Looking forward to getting the two signs.

“We are going to start promoting our local monthly meetings in the Jonesboro Sun and any local free papers”

The NEA group wishes everyone a safe and happy holiday season.

Merry Christmas

Eddie Mullins will be sending out a reminder email to all the group of the next meeting.

Eddie Mullins—NEACBOA Steward.
Smelting is a very old human industry, starting very simply as a plug of earth being removed, ore and charcoal placed in, the plug replaced and a bellows used in an attempted to extract copper from ore to make Jewelry or a small knife. Copper may not hold an edge, but it’s more durable than a knapped rock. Smelting grew to include other metal ores such as iron. Before you smelt the iron you must roast the ore to remove trapped water and volatile minerals like sulfur and phosphorous.

Our own iron ore roast took place on December 27th, 2014 with Dale Custer, Herman Ginger, Ross Wilkinson and his father Charlie, Garrett Sheeks, and Ron and Bertie Wells and their daughter. The roast began around nine with a fire started in an old metal wheel barrow containment pot. After the fire burned down to make a hot coal bed we began to add the ore slowly at first with more wood of top. It became clear that one pot was not enough so Charlie scraped another one and pulled the fire into it to starting and added ore as in burned down. We broke for lunch when Dawn brought us pizza. After lunch more wood was split to add to the fire and some ore to large was busted up and added. We tended the ore to evenly heat-check for a red color showing that it was getting hot enough to burn out the volatiles. At the end of the roast a few pieces where cooled then hit to test if they had become easier to break up. It had a little.

There was some concern if the roast was a success and if a second roast was need and with that we let the fire burn out and slip to go home.

Garrett Sheeks—BOA Member
The Northwest Area BOA December meeting was hosted by Clyde and Connie Foster. Clyde provided some rather clever signage to guide members to his home, and had two forges ready for a great day of smithing. The day was beautiful, warm and sunny. This meeting was well attended, with a number of guests and potential new members watching the working blackssmiths. Connie and Clyde served up a delicious lunch of chili, hot dogs, and chips, with fragrant, from-scratch peach dumplings and Christmas sugar cookies for dessert. The Fosters' beautifully decorated living/dining room was filled to the brim with hungry blackssmiths!

BOA members in attendance at this December 8 meeting included Dale Custer, Joe Doster, Harold Enlow, Clyde Foster, Sam Hibbs, Jerry Holmes, Drew Janes, Betty Jones, Bob Lock, Nathan Low, Steve Low, Heidi McLaughlin, Robert Meuser, Cheryl Miskell, Ed Osoris, Jimmy Owen, John Petersen, Luke Roberts, Richard Ross, Judi Sartwell, Sonny Sartwell, Hardy Todd, Ron Wells, and Ross Wilkinson. Guests included Brennan and Jacey High, a young couple who may join BOA; Craig Foster, Clyde and Connie’s son; Blake Holmes, Jerry Holmes grandson; Ira Collins, Clyde’s friend; and Albert Wilkinson, Walter Wilkinson and Daniel Wilkinson, Ross’ sons. This total of thirty-two attendees certainly supports our group’s primary functions: educating our members and exposing the public to the art of blacksmithing.

Dale Custer called the meeting to order after lunch, first thanking Clyde and Connie for hosting this meeting.

Old Business: Dale discussed the upcoming smelt at length. The Saturday after Christmas, participating members will “roast” the ore. Roasting the ore removes water, drives off volatiles like sulfur, and allows for smashing up the ore.

January 21-24 is when the smelt will occur, at the Eureka Springs School of the Arts (ESSA). Peggy Kjelgaard, Executive Director, is our contact there. Ms. Kjelgaard has agreed to allow people to “camp” on campus, and will provide sinks and toilets. Participating BOA members can have a bonfire (and can imbibe beer around said bonfire). Eight BOA members plan to be there for all four days, and five will be there for Saturday only. “Consolidating the bloom” on Saturday will require LARGE sledge hammers, and COORDINATED sledge hammer work.

Per Dale, we’re in good shape with the charcoal required for the smelt. Hardy and Clyde have provided the amount necessary. Participants in the smelt will have to make sure the charcoal is the correct size, to insure the iron stays solid, and the slag can be removed.
The smelt requires specific steps over the four days allotted: 1) build the platform, 2) prepare the clay, 3) fire the “bloomery furnace,” and 4) fire the inside of the furnace, cutting the tap arch and poking a hole for the “tuyere” (French for “iron pipe”). Our tuyere will be copper. It is twelve inches long and 3/8 inch thick, with an inside diameter of 3/4 inch and an outside diameter of 1 and 3/4 inches.

Keith Heffelfinger has made two of the “pokers” necessary for the smelt. Hardy Todd is providing the fulcrum for the pokers. Herman Ginger is providing a blower. Steve Low is providing a charcoal bucket. Sam Hibbs has some wood and Ron Wells has agreed to get it to Eureka Springs. Sonny Sartwell suggests that participating members bring extra hand-held hatchets to split up the wood.

Joe Doster suggested that we archive this event. Jerry Holmes suggested using Fred McClure, a friend of his.

Dale asked when members had received their hard copy of the newsletter. Clyde, Hardy, and Ross received their hard copies yesterday, December 12.

Dale passed out the new business cards. Everyone received a bundle to pass out. Membership application information is on the back of each card.

BOA has the new sandwich signs. Steve Low picked up the signs. Each of the three chapters of BOA will have two signs. Herman Ginger will do the frames for the Central Chapter. We will have to find someone else to do the others.

Regarding the BOA trailer: Sonny and Judi Sartwell got new tires for the trailer, and kept the best old tire for a spare. The spare is inside the trailer. Sonny suggested adding a couple of more metal screws on the fender, to make sure it stays put. Tim Huddleston will come up with a design for the signage on the sides of the trailer. Per Sam Hibbs, this signage will be a vinyl “sticker,” produced with a process similar to a CDC. The process makes “BIG vinyl stickers,” 3’ X 3’ on the sides and 2’ X 2’ on the back. The signage can be white on black, or black on white.

Thanks to Jerry, there are at least fifteen new members since the last meeting. Ron contends at least sixteen. Dale welcomed the new members present, Heidi McLaughlin and Betty Jones.

New Business: A group around Ft. Smith wants to form a new chapter, called the “River Valley Chapter.” The BOA Board will have to vote on this issue.

UCA wants BOA to sponsor a blacksmith “intern.” The intern will have to participate in blacksmithing activities for six to nine hours a week, write two articles, and make a “capstone project” (something forged) and submit a draft grant proposal for a forge at the Faulkner County Museum in Conway. Robert Fox will be the intern’s mentor.

Ron Wells needs members to call or email him if they want coal. This is the only way you can insure that you will get coal at a meeting, because “first come, first serve” doesn’t help those who arrive after the last bag is sold.

Ron expressed deep gratitude for the money that was sent to him for his son, Jacob. Ron wrote a check for the Friends of the Library in Newton County to fund a “Dolly Parton Imagination Library” for the youngest readers in Newton County. This non-profit initiative sends one book per month to all children ages 1-5, so each child will receive sixty books through this amazing program. Ron shared that this is a program that Jacob funded generously. The program is close to Bertie’s heart, and they are honored to get to help the children of Newton County.

Speaking of children, Ron observed that BOA has a few new members that were not mentioned earlier. Justin and Ashlee Jones welcomed new member Elizabeth Jones, born on November 14, 2014. David and Traci Snyder welcomed new member Daniel Lee Snyder, born on December 11, 2014. Stosh and Sabrina Japczynk welcomed new member Townes, born five months ago. Sam and Laura Stephens’ son Leif was born six months ago. Congratulations, all, on the births of these new members! (I wonder if they make baby sledges…)

The January 3rd meeting of the River Valley Chapter will be at Jan and Jerry Holmes’ home at 1604 Daugherty Rd, in Van Buren.

The meeting was adjourned.

Cheryl Miskell, NWACBOA Secretary
The December meeting of Central Arkansas Chapter of the Blacksmith Organization of Arkansas (CACBOA) was held on Saturday, December 20th in Pine Bluff at the home of BOA member Herman Ginger.

This was our second annual CACBOA Christmas party. Instead of our usual 9:00 am to 3:00 pm, we met from 3:00 pm to 9:00 pm. Suzanne prepared a Christmas feast, for which Herman attempted to take credit (we all knew better). There were twelve of us there, including four spouses and significant others. It was very pleasant to see the better halves of our members!

Dale Custer brought a copy of the *Ore to Axe* DVD, and we watched the sections on ore collection, ore preparation, building the furnace, firing the furnace, and extracting and dividing the bloom, pausing the video frequently to discuss and explain various aspects of our upcoming ore roast and smelt.

The trade item this month was a forged gift, wrapped for trading. We opened them after supper and admired our handiwork. I was especially impressed by Dale's new touchmark, which he had used on the top set cutting tool of his that I drew. The touchmark was a joint development effort between Dale and Harold Enlow.

In our brief business meeting, Dale talked about the proposal to form a new “River Valley” BOA chapter in the Fort Smith area, and about the proposal to sponsor a blacksmith internship program for UCA, both of which will go before the board on December 22nd.

In our usual meetings, we spend hours standing around the forge swapping stories, but the Christmas Party meeting is quite different. At this meeting, we sit around a table of food for hours swapping stories. Entirely different!

Thanks again to Herman, and especially to Suzanne for hosting what is now a firmly established CACBOA tradition!

Robert Fox, CACBOA Secretary
1. Upset a square bar, moving material to one side.

2. Split opening for mouth. Throat can be made deeper with a narrower chisel of the type used to drift open a chisel cut. Spread mouth to accept a piece of round stock.

3. With neck in vise and round stock across vise jaws, use a set hammer to shape the top of nose, leaving brow as a shoulder.

4. Fuller either side of nose. Use eye punch behind fuller under brow. Fuller behind eye.


6. Set teeth back from lips with butcher that is close to square.

7. Punch out between teeth with narrow butcher to leave fangs. Punch nostrils.

8. On top of head, behind end of eye fuller, use larger fuller in center of head. Butcher outward the tips of what will be ears.

9. Use teardrop tool to depress under sides of ears.

10. Butcher upward and reshape ear with tear drop tool.

11. Put round stock back in mouth. Because the teeth were driven back into the mouth, you may need to use a smaller diameter round stock. Use wood mallet to bend head forward. Pick up ears with butcher and teardrop tool. Planish and file neck behind the ears.
The apprenticeship form of training in a craft, as we understand it today, developed in Europe, where two different things were going on: First, the practice of indenturing children to a trade became common. Second, crafts were becoming increasingly self-regulated, standardized and exclusionary through the formation of craft guilds. These two practices came together to produce what we now recognize as traditional apprenticeships.

**Indentures**

Many tradesman chose to pass their skill only to their own sons and daughters, thus keeping the craft secrets and profit in the family. The child was expected to one day take over the family business. In that time, the type of job one did was much more of a family identity than it is today.

But in many cases a family produced more children than could possibly inherit the family business, while other families had no children of their own to inherit. In these cases, it became mutually beneficial for a tradesman in need of help to "hire on" a young boy or girl. Legally, this took the form of an "indenture." With the parent's consent, the child would be taken in to the tradesman's home, provided room and board (but no salary), and in return the tradesman would teach the child the secrets of his craft. Most apprentices were males, but female apprentices were found in crafts such as seamstress, tailor, shoemaker, baker and stationer.

In most cases, there was more demand than supply for the more menial forms of labor (farming, housekeeping), so a master farmer would have to pay a parent before taking on their child in his trade. The more respected trades (smith, miller) were so much more sought after that parents would usually have to pay a master smith to take on their child as an apprentice. However, this was not always the case. Even smiths often had to compensate a parent before taking on their child. When you recall that the smith relied on human strikers and manually operated bellows, you can imagine how handy it would be to have a strong young apprentice at hand. The parents or guardians of a minor would agree with the master tradesman the conditions for an apprenticeship—conditions which would bind the minor for 5–9 years (e.g. from age 14 to 21). They would pay a premium to the craftsman and the contract would be recorded in a contract known as an "indenture."

Upon completion of the indenture, usually around seven years, the apprentice would receive some form of settlement, usually a suit of clothes and a small amount of money, but sometimes tools or even the opportunity to continue working for the tradesman on a salaried basis. In the city of Coventry, those completing seven-year apprenticeships were entitled to become freemen of the city.

The separation of home and workplace is a relatively modern practice. In the Middle Ages, most craftsmen, including blacksmiths, worked out of their homes. The workshop might be a separate building on the property, but in many cases it was actually part of the house itself. For this reason, an apprentice working alongside his master at his master’s home created something of an artificial family relationship, in that the articles of apprenticeship took the place of kinship. When a young man or woman left their home to learn a trade, they entered the home of the master. This was true even if the apprentice’s parents lived only a short distance away. It is important to understand that, at this time, the family trade was the identity of the family (see sidebar on family names derived from trades). Only then can you understand the significance of a young person leaving their family’s home and trade to enter the home and trade of another.
An indenture was closely akin to an adoption. Often, the young person changed their surname at the conclusion of the apprenticeship. For instance, Thomas Miller the miller’s son, would be known as Thomas Smith (Thomas the Smith) once he completed his indenture with a master smith.

The word “indenture” comes from the practice of tearing notches, or “indentations” in duplicate copies of apprenticeship forms. This uneven edge identified the copy retained by the apprentice as a valid copy of the form retained by the master. In those days, both the original and the copy of the indenture were signed by the master and the parent or guardian of the apprentice, who was usually under 15 years of age. The following actual indenture is typical:

"Know all men that I, Thomas Millard, with the Consent of Henry Wolcott of Windsor unto whose custody and care at whose charge I was brought over out of England into New England, doe bynd myself as an apprentice for eight yeeres to serve William Pynchon of Springfield, his heirs and assigns in all manner of lawful employmt unto the full ext of eight yeeres beginninge the 29 day of Sept 1640. And the said William doth condition to find the said Thomas meat drinke & clothing fittting such an apprentice & at the end of this tyme one new sute of apparell and forty shillings in mony: subscribed this 28 October 1640."

Washington State Department of Labor and Industries

Most indentures were agreements between a child's parents and a master tradesman. However, under the Elizabethan Poor Law (1601), "parish" apprenticeships came to be used as a way of providing for poor, illegitimate and orphaned children of both sexes alongside the regular system of skilled apprenticeships, which tended to provide for boys from slightly more affluent backgrounds. These parish apprenticeships, which could be created with the assent of two Justices of the Peace, supplied apprentices for occupations of lower status such as farming, brickmaking and housekeeping. “Selling” orphan children into indentures may seem cruel by today's standards, but it served as a way of providing the child with career training and compensating the state to some degree for the expenses of caring for orphans.

These state-sponsored indentures where also found in colonial New England, where many children less than 10 years old whose parents could not support them were indentured to masters who agreed to teach them a trade. This practice was legalized by the "poor laws." The indenture below, for example, required a youthful apprentice in 1676 to serve more than 12 years to learn masonry. As apprentices then were usually bound to masters until they were 21 years old, apprentice Nathan Knight apparently began his service when he was about 8 ½ years. These were the conditions of his servitude:

"This Indenture witnesseth that I, Nathan Knight...have put myself apprentice to Samuel Whidden, of Portsmouth, in the county of Portsmouth, mason, and bound after the manner of an apprentice with him, to serve and abide the full space and term of twelve years and five months...during which time the said apprentice his said master faithfully shall serve...He shall not...contract marriage within the said time. The goods of his said master, he shall not spend or lend. He shall not play cards, or dice, or any other unlawful game, whereby his said master may have damage in his own goods, or others, taverns, he shall not haunt, nor from his master's business absent himself by day or by night, but in all things shall behave himself as a faithful apprentice ought to do. And the said master his said apprentice shall teach and instruct, or cause to be taught and instructed in the art and mystery as mason; finding unto his said apprentice during the said time meat, drink, washing, lodging, and apparel, fitting an apprentice, teaching him to read, and allowing him three months towards the latter end of his time to go to school to write, and also double apparel at end of said time..."

Washington State Department of Labor and Industries

Unfortunately, not all state-sponsored indentures were civic minded. In the early colonial period, it became common for southern plantation owners to exploit the poor and the imprisoned in Europe by purchasing their indentures for much longer periods (12 years was common), offering very little in terms of learning a trade. Ships captains and European agents profited from this trade until public sentiment brought an end to the practice. Unfortunately, this trade in indentured poor was

Continued on page 18
then replaced by outright trade in slaves. Slavery, of course, was much different than indentures. A slave was considered property, not human. A slave owner did not pay his slaves, and since their slavery was for life, there was no obligation to teach a slave a trade.

That said, during the years of indenture, the life of an apprentice, in many ways, was similar to the life of a slave. The master would control every aspect of the apprentice’s life, commanding them at will to do absolutely anything the master desired. The apprentice did enjoy some basic legal rights, but those rights did not extend very far at all. Bob Patrick told me the following story about the power of a master smith over his apprentice in Germany:

“My late friend, Mike Clapp, an early BOA member and blacksmith, learned some of his smithing from Emil Necker, who was from Germany. Emil told him that when he was an apprentice they were required to make a small coffee can of nails after work ended from scraps in the shop. The master smith would sell the usable nails and chastised the apprentices for any poor ones. Emil also told Mike that the other apprentice (this was in the 1920’s or 30’s) was told by the master smith to get his hair cut. When he didn’t have it cut the next day the master told him again to get his hair cut. When he hadn’t done it the next day the smith dragged him by his hair to the forge and burned his hair off. Master smiths were allowed to do that in Germany then.”

**THE DEVELOPMENT OF GUILDS**

It’s inevitable that, when a craftsman develops a reputation for quality of service, someone will try to capitalize on that reputation by offering inferior products and services at a cheaper rate. This not only takes away trade from honest craftsmen, it can damage the original craftsman’s reputation by association. This is true today where a few bad experiences with a particular type of contractor or tradesman can, in the public mind, condemn the whole profession.

By the 13th century, historical literature begins to record the presence of “craft guilds,” emerging in Western Europe. In these organizations, guild members supervised the product quality, methods of production, pricing, and work conditions of their craft. The guilds were controlled by the master craftsmen, and the recruit entered the guild after completing his training as an apprentice—a period that commonly lasted seven years. These guilds initially claimed control only at the town level, but within a short time, the town guilds banded together into regional and even national organizations, setting standards for testing the skill level of prospective members, setting process for products and services, and controlling when and where master craftsmen could locate new businesses.

Guilds usually had at least three “levels” of membership. The lowest level, the apprentice, was considered subject to the rules of the guild, but having none of the privileges of guild membership. They could not sell their wares and had no say in guild decisions. They were not paid a wage, and received only room, board, and clothing.

In England, early apprentices were required to make a “journeyman piece” after completing their apprenticeships. This sample of work was submitted for inspection by a group of masters to gain guild recognition of their status as “freemen.” In the textile trade, for example, apprentices were required to produce several pairs of silk stockings before being freed. Shoemaker apprentices were required to make shoes and needlemakers submitted examples of needles of various sizes that they had made.

**JOURNEYMAN STATUS**

After completing their apprenticeship, the recruit was promoted from apprentice to “journeyman,” or more informally, a “jack” or a “knave.” A “jack of all trades” was literally someone who had achieved competency in many crafts, but mastery of none.

Journeymen could sell their wares at guild prices, but were not allowed to set up their own businesses or train their own apprentices. Although they still had to work in the shop of a master smith, unlike an apprentice, the journeyman received a wage for his labors. For the most part, they were paid to make items for the master smith, however, the journeymen were usually allowed some non-salaried time to make their own tools, work on their master piece, or make items of their own to sell (with permission of the master of the shop). Senior journeymen might use their earnings to “rent” space in the shop of a master smith and work relatively independently, though technically still subject to the master’s oversight.

A journeyman is an individual who has completed an apprenticeship and is fully educated in a trade or craft, resulting in a license to practice in a regulated profession. The journeyman has been deemed to have the necessary skill to receive wages for his labor. In fact, the word journeyman comes from the French word journée, which means a day’s work or a day’s travel. The title refers to the journeyman’s right to charge a fee for each day’s work.

While an apprentice lived with the master as a member of his household, a journeyman would live apart and might have a family of their own. The German word for journeymen was “geselle” – literally a person living in shared accommodations (“saal” is German for...
It seems more than a coincidence that we are considering taking on two UCA students for a blacksmith internship during the same month when the VOICE is diving deeply into the subject of traditional apprenticeship programs.

The charter of the Blacksmith Organization of Arkansas (BOA) includes a statement about our intention to educate our members and the general public on the techniques and traditions of blacksmithing. We can introduce a large number of people to blacksmithing through our many public demonstrations, but this is inevitably a brief, rather haphazard encounter. In order to learn more, a person will need to follow up that encounter by coming to one of our meetings. Indeed, a great many people do just that. Our enrollment is growing very quickly these days.

But a more focused and systematic way to educate the public about blacksmithing would be to take a young man or woman and put them through a guided apprenticeship. We won’t be able to provide an apprentice with room and board for the traditional seven years, even if we follow the practice of not paying them a dime, but if we really want to raise up another generation of master smiths, rather than the casual hobbyists most of us are, we need to dedicate ourselves to a deliberate, formal education program.

It is my hope that this internship turns into a recurring program, growing in structure and reputation. I would like to see the program require a 3-5 day bootcamp under a qualified master smith like Bob Patrick or Daniel Casey.

Where is the next generation of serious smiths going to come from if not programs like this?

Robert Fox, BOA Editor
tailors, etc., are expressions which we commonly meet with in the old charters of ancient towns [...] As to have wrought seven years under a master properly qualified was necessary in order to entitle any person to become a master, and to have himself apprenticed in a common trade; so to have studied seven years under a master properly qualified was necessary to entitle him to become a master, teacher, or doctor (words anciently synonymous) in the liberal arts, and to have scholars or apprentices (words likewise originally synonymous) to study under him."

In Medieval Europe, studying for a master’s degree or certification involved at least 4 to 6 years of practical work experience, often supplemented with book study. In addition to the “master piece” which many crafts required to be submitted to prove skill level, there was a board examination (similar to a doctor passing board examinations today). The examination included theoretical, practical and oral parts and took 5 to 7 days (depending on the craft).

A master was allowed to run their own business and train their own apprentices, subject to the rules of the guild. At one time, a journeyman could not be elevated to master status until an “opening” was created by the retirement or death of a master. This served to preserve the relative number of master craftsmen and maintain the level of competition.

Modern Germany has a well deserved reputation for the quality of engineering and manufacturing, partly because most of the skilled crafts in that country still use the apprentice/journeyman/master training program. A German company is not allowed to practice a craft unless the shop is run by a certified master craftsman who has demonstrated mastery of both the practical and theoretical aspects of the trade. German master craftsmen are in demand across the European Union as a result of the high quality of vocational education in Germany. This is true in many construction-related trades in America today. You cannot build a home without a licensed master electrician, a master plumber, and a master heating and air technician.

The highest level of the guild organization would be one or more “grand-master” craftsmen. These offices set guild policies, prices, and often when and where newly elevated master tradesmen could set up their businesses. In some countries, the grand-master tradesmen participated in the government.

Governments took a great interest in the powerful guilds, which monopolized trade, could levy fees against outsider’s products, and could sometimes restrict apprenticeships to the sons of guild members or wealthy patrons. In 1563, the English government passed the Statue of Artificers in an attempt to limit these exclusionary practices and to ensure adequate labor.

Regarding the guilds specifically related to the working of metal, it is possible to trace the growth of specialization by the increasing numbers of smith guilds over time. In London, England, metalworking guilds first appear in 1298, when 16 men, including three cutlers and a bell-founder, were charged with illegally attempting to form a fraternity, calling themselves “masters of the trades of smiths.” By 1376 there were six iron-working guilds in existence: general-purpose blacksmiths, armorers, spurriers, harness makers, ironmongers and cutlers. By the year 1422 more guilds had formed for clockmakers, wire-drawers, pinners, nail-makers and locksmiths.

**Early American Apprenticeships**

When America was settled, craft workers coming to the New World from England and other European countries brought with them the practice of indenture and the system of master-apprentice relationships.

American patriot Paul Revere was a member of a famous family of silversmiths. Paul and his younger brother, Thomas, learned their craft from their father. In turn, two of Paul’s sons served apprenticeships in the family’s Boston shop. Paul Revere’s skill in crafting silver can still be appreciated today. As many as 500 of his pieces are known to exist. During his lifetime, he produced a great quantity of church silver, flagons, christening bowls, tankards, cups, spoons, tea sets, and trays.

He also became a coppersmith and cast church bells that may still be heard in New England cities. He founded the American copper and brass industry when, in 1802 at the age of 67, he set up in Canton, Massachusetts, the first copper-rolling mill. This mill remained in operation under its original name for 100 years. Later the business became part of the present-day Revere Copper and Brass Co. In many of the plants of this company, apprenticeship programs in the metalworking trades are conducted today. On a personal note, my wife and I received a full set of Revere-ware pots and pans as a wedding gift. We passed them on to our daughters, who still use them.

A famous contemporary of Paul Revere — Benjamin Franklin — was indentured in 1718 at the age of 12 to his elder brother, James.
Their father paid James 10 pounds to teach the printing art to Benjamin and to pay for Benjamin's food, lodging, and other "necessaries." The indenture provisions were especially generous for those days. They specified that Benjamin was to receive a journeyman's wage in the last year of his apprenticeship just before he became 21 years old — if he remained on the job that long. Moreover, when the precocious Benjamin was 15 years old, he arranged for a cash payment for his food. This was a big financial advantage to him because he had become a vegetarian and found vegetables and fruit cheaper than meat. Out of his savings he was able to buy books. He says in his autobiography that he was frequently able to subsist with only a "bisket and a stick of bread, a handful of raisins and a tart from the pastry cook's, and a glass of water." Benjamin quit, however, before he completed the 9 years of apprenticeship specified in the indenture because of quarrels with James who, he says, sometimes beat him.

There were important differences, however, between the American and European apprenticeship traditions. Due in part to the public outrage over foreign interference in local trade, and in part to the high demand for skilled craftsmen, there was very little guild regulation of pricing or in limiting the number of active businesses. The apprentice program in America was almost entirely a way of educating young men and women in a valuable trade.

Another factor in the American system was the seemingly unlimited opportunity of the western frontier. In the European system, a qualified journeyman may wait for over a decade for a posting to become available where he could open his own business. In America, journeymen were acutely aware of the expanding frontier and the desperate need for more tradesmen. In fact, unless a craftsman-in-training felt they stood a very good chance of inheriting an established business, it was very common for the student to simply disappear once they felt they had learned enough to set up an independent business in one of the towns springing up further west. For this reason, the American system put much less emphasis on the title of "master."

**Modern Apprenticeships**

The Industrial Revolution altered attitudes toward training in many ways. The effect of the modern system of division of function began to make itself felt in the first half of the 19th century. In many trades, craft workers who in the past had engaged their apprentices for five years to teach them all aspects of the trade began to teach them only one part of the job that could be learned in a few months. Early in the 20th century, assembly-line methods expanded the number of unskilled or semiskilled jobs, which made the long period of apprenticeship for skilled occupations unattractive.

In modern America, apprenticeships also take the form of corporate internships for college students and work/learn programs at technical colleges. Young men and women learn practical, on-the-job experience while studying theory and business skills in school. The internships may or may not be paid, and the student lives either at school or at home. At the end of an apprenticeship, the student is often hired by the company which sponsored the internship. The company invests some time and money in training the intern, but receives in turn a qualified candidate who has already been "tested" regarding skills and attitude. Unfortunately, there are not many governmental incentives for this very effective training method. Instead, many students sink hundreds of thousands of dollars in university educations that may or may not lead to gainful employment. This is a very risky way of training for a career — one which leaves many graduates unemployed and deeply in debt.

In Europe, many countries have implemented a system known as "dual education" that is just this sort of work-while-you-learn program. Students divide their time between practical, paying work and theoretical classroom learning. The student must pass not only the academic curriculum, but must also pass a board examination in their field — an examination composed of both practical and theoretical components. This is similar to an electrician in America passing their master certification examinations.

After completion of the dual education the student receives a completion certificate. A baker is allowed to call himself a bakery journeyman (in Germany, a Bäckergeselle). After the apprenticeship the journeyman can enter the master's school (Meisterschule) and continue his education at evening courses for 3–4 years or full-time for about one year. The graduation from the master's school leads to the title of a master craftsman (Meister) of his profession: a bakery master is entitled Bäckermeister. A master is officially entered in the local trade register, the craftspeople's roll (Handwerksrolle). A master craftsman is allowed to employ and to train new apprentices.

Corporations in Europe receive tax incentives for participating in these internship programs. In some mostly safety-related professions (electricians, for example) the government requires that only a master is allowed to found his own company. The government also requires that certain other positions within all companies can only be filled by tradespeople who have received this practical and theoretical, board certified training, insuring that students find the dual education program attractive. Because the students earn money while attending school, this also results in a much lower cost of education and less debt upon graduation. Finally, studies have shown that students in American-style programs (study now and hope you can find a job after graduation to pay for all this) spend more than five times more time at parties, etc. than students in work/learn, because those students have less idle time and more immediate incentive to be serious about their learning.

Perhaps America should consider legislat ing similar incentives for companies to invest in a dual education as an alternative to the rising costs of higher education for many trades. There is clearly a lot to be said for a return to an apprenticeship system. Especially if you don't like long hair.

Robert Fox—BOA Editor
BOA T-SHIRTS ARE BACK!

BOA t-shirts are only $10. You can’t beat that with a rounding hammer! Get the black if you are worried about coal grime, or the grey if you are worried about the heat. Or get both for the winter, and layer up!

The silk screening process requires that we save up orders until a minimum number is reached. Fill out the form below, but send no money. You will pay when the t-shirts arrive.

The design on the back of the shirt The right-front pocket area

Enter the quantity of each color and size below. White is also available with black ink.

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- □ With Pocket
- □ Without Pocket
- □ Tall Sizes

Big Boy (3X & 4X) and Tall sizes are $2 more.

Indicate if you are interested in getting a cap. □ Yes □ No

Your Name___________________________________________________

Address______________________________________________________

City, State, Zip______________________________________________

Phone # {in case we need to contact you}__________________________

Bring this form to the next Meeting. Do not include payment.
Pay when T-shirts are delivered
BLACKSMITH ORGANIZATION OF ARKANSAS
MEMBERSHIP APPLICATION

Name*: 
Address: 
Primary Phone: 
Email*: 
Email: 

Special areas of interest:
- Knife making
- Gunsmithing
- Architectural Restoration
- Buck Skinning
- Medieval

Membership dues are $25 per year, due in January**.

Make checks payable to “BOA (Blacksmith Organization of Arkansas)”
Mail to:
Ron Wells, BOA Treasurer
HCR 32 Box 141
Mount Judea, AR 72655

Or bring to the next meeting and give to the Treasurer or Steward

* BOA’s membership is a family membership. For the payment of one membership, all the members of a family would be afforded all the benefits and privileges of full membership. They would, however, have ONE vote on BOA business per family membership.

** BOA’s Newsletter is available as an electronic newsletter. It is only distributed to active email addresses. Please make sure your email address and those of your family members are entered correctly above.

*** Membership dues are paid with the submission of this application; thereafter, they are due each January. If the dues are paid in the last three months (October, November, or December) of the year, membership is paid up for the following year. If dues are not paid within the first three months (January, February, or March) of the year, the member is removed from the membership.

ABANAA
MEMBERSHIP APPLICATION
Also available online at: www.abana.org

Name: Email:
Address: WWW URL:
City: Phone:
State: Zip: Fax:

Type of Membership:
- Regular $55
- Overseas $65
- Student $45
- Contributing $100
- Senior $50
- Library $45

Credit Card Information:
- Visa
- Mastercard
Card #
Expiration:

There is a $5 discount for 2-year memberships and renewals

The Blacksmith Organization of Arkansas (BOA) is an ABANA Chapter Affiliation
Submit check, money order (US banks only), or credit card information using this form to
Artist-Blacksmith’s Association of North America, Inc.
259 Muddy Fork Road
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Phone: 423-913-1022
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BENEFITS OF BOA MEMBERSHIP
BOA members continue a tradition of educating our members and the public in the techniques and history of blacksmithing, the king of crafts.

In addition to our monthly meetings, newsletter, and email chatter, our members are active in their communities with many interesting events and demonstrations.

Members also receive discounted prices on coal and stylish BOA apparel.

BOA membership is a family membership. For one membership fee, all the members of the family are considered active, and each may receive an electronic newsletter

BENEFITS OF ABANA MEMBERSHIP
With your ABANA membership, you receive a subscription to both The Anvil’s Ring and The Hammer’s Blow. As well as discounted conference registrations and discounts at many web sites.

The Anvil’s Ring, devoted exclusively to the craft of blacksmithing, is the association’s quarterly magazine which presents articles on topics such as architectural iron, decorative design, hand forged tools, historical references, advice to beginners, etc.

The Hammer’s Blow, also a quarterly publication, is a black and white magazine full of “how to” tips and techniques for professionals and beginners alike.
BOA Member Showcase—Robert Fox

OK, I've run out of pictures of our members stuff. This month, you’re stuck with one of mine. I made these dice for the CACBOA Christmas party gift exchange. I used a chop saw to cut cubes off a section of 3/4” mild steel square stock. I heated them in the forge and knocked down the corners and edges. The dots were set cold with a center punch.

To make correct dice, the dots on any two opposite sides must add up to seven (six is opposite one, five is opposite two, and four is opposite three).

If I make any more, I'll use my touchmark for the number one.

I know, this is pretty lame, so stop complaining and send me some pictures of your good stuff!