BAM

July / August 2019

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Blacksmith Association of Missouri

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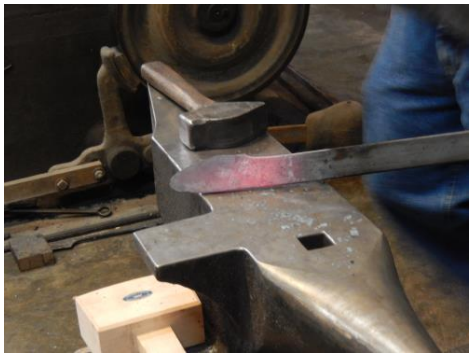

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The Newsletter of the Blacksmiths Association of Missouri is published six times a year and is mailed to members of BAM. The annual fee for regular membership is $30/year; a portion of this amount is for a subscription to this newsletter for one year. Editorial inquiries should be addressed to : Jon McCarty 815 Miller Street, New Haven, MO 63068; (636)432-4468, or send an email to: bameditor2015@gmail.com BAM membership inquiries should be addressed to: Bruce Herzog, 2212 Aileswick Dr. St. Louis, MO 63129 (314) 892-4690 or send email to bjherzog@charter.net.

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The Blacksmiths' Association of Missouri is an affiliate of the Artist Blacksmiths' Association of North America, and is devoted to the preservation and advancement of blacksmithing and to communication among blacksmiths in Missouri and surrounding areas. The Newsletter of the Blacksmiths' Association of Missouri's goal is to support these aims. Letters to the editor, tech tips, tools for sale or anything else which furthers these ends will be considered for publication.

President Report

By: Steve McCarthy

Willie and Tami Bagley did a remarkable job of ordering up weather for the August meeting. It was a little warm but nothing like normal August temperatures. Chillicothe is a bit of a drive from my house and not being the glutton for punishment that I was in my younger days, Lori, Aaron and I left the night before and stayed at a motel in Macon. Willie had spent the week before the meeting at Matthew Burnett's tire hammer workshop, so there was a brand-new hammer just sitting there itching to be used. Drew Johnson gave it a little bit of a workout as he demoed for the meeting. The trade item was anything made from a railroad spike, so Drew used a spike to make a style of hook that I hadn't seen before. After Drew's demo it was James Brown's turn. James had been the recipient of a BAM scholarship and attended a class at the Missouri School of Blacksmithing with Matthew Burnett and shared what he had learned as part of his scholarship payback. I think James was a little bit nervous doing his first demo {just like I was} but he did a great job.

For some time now we have been adding equipment to the conference trailer so that we don't have to borrow things from members for the conference demonstrators. One thing that we still needed was a 3rd anvil. Don Nichols has donated a 50 kg EuroAnvil for the trailer. It is just like the two we already have except that it is 50 kgs and the others are 75. Kent and Hollis Harbit are building a stand for it. Thank you, Don, Kent and Hollis.

At the August meeting it was voted on and passed that BAM would tell ABANA that we are willing to host the 2022 ABANA conference. BAM is one of at least 3 groups that have shown interest in hosting the conference, so it is now up to ABANA to choose a location. I know several BAM members are also ABANA members, I am not. Currently there is a pretty big conflict going on within ABANA. I won't go into it here as our newsletter isn't the place, and there is plenty to read on their Facebook page and other places on the internet. The only reason I bring it up is to let our members know that ABANA's conflicts are not BAM's conflicts. I hope that things are sorted out by time of the 2020 conference.

I spent Aug. 10th working at the BAM tent while Lori and Aaron went seeing the sights at the State Fair. Most years I don't do much actual work, but this time I took some stock and a nail header. It wasn't hard to see that it had been quite some time since I had made any nails. I finally got back in the swing of it and started giving nails to the kids that came by to watch. There were several people working at the forges the day I was there, but Kent Harbit spends the whole two weeks of the fair manning the tent and talking to the public about BAM. Kent has done this every year for I don't know how long. It is a great opportunity to spread the word and sell some of your work. You should really try to make it out there. It is a fun time and you get in for free.

Until we meet again, Happy Hammering.

Steve McCarthy

2019 BAM Conference Demo ~ Ray Rybar

By: Bob Stormer

Raymond Rybar is a Mastersmith (MS) in the American Bladesmith Society and specializes in bible verse damascus. The bible verses can be imbedded in knives, any cutlery or jewelry. Ray learned a lot about his style of damascus from Hugh Bartruck (sp?). For this demo Ray was assisted by Alan Hutchinson. Ray's repeated advice throughout the demonstration was think "Out-of-the-Box". The best way to make money at knifemaking is to find a niche that nobody else is interested in becoming an expert at and perfect it. Ray has certainly done that in his damascus bible verse knives. The longest verse he has imbedded in his knives so far is 29 words long. He is working on something longer but wouldn't be more specific. The primary contrasting steel he uses is pure nickel, not L-6 or 15N20, but pure nickel. To weld pure nickel the forge needs to be heated to about 2300º. For flux, he uses a product called Cherry Weld, which may not be available anymore. Any anhydrous borax would also work. He uses a 50/50 mix of nitric acid and water to etch it. For the hardening steel he primarily uses 5160 and 1095.

He had a lot of knives he had made with mosaic damascus verses and images in them. He also had premade pieces of jewelry, pendants and rings with verses and images. You can visit the 2019 BAM Conference pictures located in BAM Gallery that is accessible from the BAM website, BAM Photos Page, for more photos of the work he brought. I'll also include a few photos at the end of this article.

In this article, I'll try to summarize a lot of information he passed along rather than try to give you a step-by-step process. He was adamant about the idea that heat is essential, but too much oxygen is bad for forge welding. Coal forges tend to have less oxygen and higher heat, which is a good combination. He also said adding a chunk of coke to the back of gas forge would help reduce the oxygen, but I didn't understand why. You may be able to do some internet research on the topic.

If you have two different carbon steels you are welding together and want to stop the carbon from migrating from the higher content to the lower content, you can put a piece of nickel between them. Nickel will stop the carbon migration and help the higher carbon steel retain its better hardening properties. I had not heard of the following technique to ensure the center of the billet gets to the same temperature as the outer layers. What Ray does is to heat the entire billet to an orange color and flux a few times, then squeeze the billet in vice jaws that cools the outer layers while leaving the center fairly hot. When you put it back in the forge, the outer layers will heat faster and reach the same temperature at the same time as fairly hot center.

A few facts about identifying steel: The spark test is the most common method of determining if a steel has high carbon content, but it won't work for O-1 tool steel, which is a good blade steel. If you put nitric acid on a high carbon steel that has no alloys it, it will turn black. The final method of testing for high carbon is to heat it to non-magnetic (about 1500º) and quench it in water. Put it in a vice and hit it with a hammer and if it breaks instead of bending, it's high carbon.

When you use a press or flat dies to compress damascus, the center will compress more than the edges. If you are going to make mosaic damascus that is sensitive to distortion, you will need to pre-distort it. That is; you'll need to add a bulge to the center so when it compresses more the edges it will come out flat. Experimenting is about the only way to determine how to compensate. See Figure 1 for an example of a distorted pattern. If you are making a mosaic pattern, make sure you mark the top of the billet/cannister. Ray put a small piece of paper in the canister to burn any oxygen that may be trapped inside. He also made sure there was a very small hole that would allow the burning oxygen escape. Ray adds what he calls sacrificial steel or powder to the ends of the billet or canister so the good pattern will not get distorted on the ends. When Ray makes a canister, he welds the end caps inside the canister, not on the outer edges. He also said you don't need whiteout to line the inside of the canister to be able to peel off the outer layers after forge welding. If you want to be able to peel off the canister, you can use heat-treat foil, which is stainless steel. You will need to heat it to orange and let it cool before putting it in the canister.

On Saturday Ray spent most of the day discussing how to add text and symbols to the damascus without using an expensive technique known as EDM (Electrical Discharge Machining). He uses a paper called PnP (Press n Peel) to copy a pattern from an image on paper to a sheet of .030 steel. The PnP paper is available on Amazon and is typically used for etching printed circuit boards. Figure 2 gives the direc-

tions for using PnP paper that Ray provided, but it may not be readable in this newsletter version. You may need to go to the BAM Conference photos so you can enlarge the document. The way Ray starts out is to put his text/image on a piece of 8 ½ x 11 paper. He divides the paper into 30 blocks that each have the text/image in the block. He also includes a border between each block and around the edges. He then does the same thing with the reverse text/image on another sheet of paper. Ray then uses a copier to copy the text/images to the dull side of the PnP paper. You may be able to print directly to the PnP paper if you have the text/image on a computer. Both the front and back sides are printed on separate pieces of PnP paper. He then very carefully aligns one of the printed sheets, with the edges of steel and, with the dull, printed side of the PnP paper against the steel, and uses an iron to apply heat to transfer the text/images to the steel. If you look at Figure 3 you'll see what the pattern looks like after applying the text/image to the steel. He does this same procedure on the back side of the steel using the reverse text/images. This is where it is CRITICAL to have the text/images aligned perfectly. Both sides must line up perfectly so the etch resist (the blue stuff) is exactly registered from one side to the other. Figure 4 shows what is left after etching the steel sheet with the 50/50 nitric acid and water mixture. The next step after what is shown in Figure 4 is to break/cut the sheet into the squares and stack them into a billet of about 30 pieces.

When Ray stacks the blocks, he uses super glue to hold them in place before clamping them together. He then adds the nickel to all the cutout areas. Ray tries to fill all the openings with solid nickel shapes as much as possible and tries to use very little nickel powder to fill the voids. After adding the nickel and some sacrificial blocks on each end he welds the edges of the blocks together and then covers the entire side of the blocks with welds. Ray specifically mentioned that super glue is very dangerous when heated in the welding step. Make sure you have a fan blowing the gases away from you while welding. Also, make sure you mark the top of the text/image at this point.

The next step is to forge weld the billet as you would any normal damascus billet. The final dimensions should be such that the text/image does not get distorted. Since the text/image will only be visible from the end of the bar, you'll need to decide what method to use to get the text/image on the face of the knife or whatever you are making.
Figures 5 though 11 show some of Ray's mosaic damascus billets.

Figure 1

Directions For Using PnP Blue Paper For Etching

PnP Blue provides a simple, time saving, low cost method to convert any high contrast black and white image into a resist on metal, ready for etching. Utilizing any plain paper copier or laser printer, the process replaces the traditional technique of hand painting asphaltum. The procedure consists of fusing the toner image, plus an extra layer of plastic for stability, onto the metal using the heat from a household iron.

PREPARING THE IMAGE

Any high contrast black and white image can be used (ink drawing, line reference from books, etc.). If using a laser printer, original work can be created on the computer, using a drawing program. Since only toned areas adhere, outline line-finest or intricate images in black. The design transfers as a mirror image, so if direction is important or you are including lettering as part of your design, xerox image onto acetate first, then flip so the PnP is reversed.

The copier or laser printer should be adjusted to give the darkest image possible without smudging the clear areas. Feed PnP blue into the machine one sheet at a time with the emulsion (the dull side) facing up. THIS IS THE SIDE TO PRINT ON. Some machines require a backing sheet to feed properly.

The imaging on the PnP Blue sheets should be clean and crisp. The PnP is somewhat fragile, try not to let sheets stick together image side to image side. Sandwich between paper sheets until ready for use. Cut the image(s) out of the sheet leaving a minimum of 1/4" around image. Cut out piece should be slightly smaller than the metal to be etched.

PREPARING THE METAL -
COPPER, BRASS AND NICKEL SILVER

Metal must be flat.
File burrs off edges and sand smooth.
Clean metal thoroughly with Penny Brite.
When clean and grease-free, handle by edges.
Wipe with alcohol immediately before ironing.

TRANSFERRING THE IMAGE

Place PnP Blue with image face down contacting metal. Place the metal with film on top onto a piece of wood or similar insulating material. Set iron to hottest setting. Firmly hold down PnP sheet to metal with a finger and quickly tack down PnP sheet edges with tip of iron, iron outwards to tack.

Turn iron down to optimum setting as determined below* (generally one or two settings below maximum).

Apply heat with iron using a circular motion. Pay particular attention to the outer edges. You should feel image start to grab in a few seconds. Image should become more pronounced through backing sheet. Ironing should be smooth. If gritty, check for burns, and make sure iron is clean. Rotate metal, iron inwards from all four sides. If you encounter a burr, avoid ironing from that side.

The actual time needed depends on the size and thickness of your metal and the amount of black in the image being transferred. Thinner lines require less time to transfer than large areas of black. Smaller pieces of metal require less time than larger, heavier pieces. The type of toner used in your machine can also be a factor . . . For 3x3 in. 18 gauge copper, use five minutes as a starting point. A kitchen timer or stopwatch is useful.

Let cool. Removing piece to metal block speeds up cooling process.

With fingernail or Exacto blade gently peel up backing sheet from alternate edges. Leave sheet tacked in center. Observe transfer closely. If the image is not completely transferred (usually the edges) replace backing and give more time with iron. Not completely peeling off backing sheet makes re-registration somewhat easier.

When satisfied with transfer, let cool and remove backing sheet completely. The backing sheet should be clear—image should be entirely transferred.

If thin lines spread or fuse into clear areas, carefully scrape away excess with pin or exacto blade. Re-touch broken areas or pinholes with asphaltum or nail polish.

ETCHING

From this point etching is the same as traditional methods. PnP blue is easily removed with acetone and steel wool or Soilchlorite.

*Since irons vary in temperature it is critical to pretest your iron until you have a feel for the technique. Bottom of iron should be clean and moderately shiny. If necessary scrub (when cold) with acetone and steel wool to remove scorched on dirt. Use scrap of toned (black) PnP with a clean piece of scrap metal. Optimum heat setting is just below buckling point of backing sheet.

Figure 2

Figure 3

Figure 6

Figure 7

Figure 8

Figure 4

Figure 9

Figure 10

Figure 5

Tire Hammer Workshop at Matthew Burnett's Shop July 29th through August 2nd, 2019

By: Bob Stormer

I realize it's bad writing skills to start by telling the readers what I'm not going to tell them, but I think it's important this time. The purpose of this article is not to provide you with enough details to build a tire power hammer, but rather to inform you about what can be accomplished with a dedicated crew and a few leaders who know what they are dealing with. For the tire hammer details, you will need to buy the plans from Clay Spencer.

Matthew Burnett and Samuel Steinhauser organized a one-week workshop at Matthew's Missouri School of Blacksmithing to build 15 tire power hammers. The plans for the project, as noted above, were purchased from Clay Spencer. Early on in the process of determining who was interested in participating, a letter was sent by Matthew to explain what the cost range of the project was expected to be, any changes they were expecting to make from the Clay Spencer plans and how long the workshop would take. The completed hammers were expected to cost $2100.

About 2-3 weeks prior to the workshop, Matthew sent everyone a second letter to explain what kind of equipment was going to be needed by each participant, and that the normal work schedule would be 8 to 5, with later days if required. The hammers were expected to weigh between 700 and 1000 lbs., so participants were asked to bring an appropriate way to haul them home.

Prior to arrival at the workshop on Monday, July 29th, Matthew and Samuel had bought all the steel, totaling about 11,000 lbs. according to Samuel. They had also cut some tubing to length, and even machined the slots in the 75 lb. hammer head. This pre-workshop machining was done at Samuel's shop known as Steiny's Machine Shop in Stanberry, MO. There was still lots of cutting, grinding, welding, and drilling to be done.

After we introduced ourselves at the beginning of the first day, Matthew and Samuel gave a description of what was going to be required, and started asking for volunteers to do certain types of jobs. Some of the folks who were going to take hammers home brought additional help for building them, so we had more than 15 workers. Matthew also had a few extra volunteers. In short order, everybody had a job to start on.

Most of us were cutting stock to certain dimensions and grinding any edges that needed welding. Figure 1, which was taken at the beginning of the second day (we forgot to do it the first day), is a photo of everyone taking part in the workshop. Since it was the first day, this was the first one of Matthew's lunches we got to enjoy. All the participants looked forward to lunch every day, not only for the rest, but for the delicious food Matthew and his crew prepared.

Samuel's shop also provided some fairly specialized tools that most DIYers don't have. One of the first tools I saw that was very useful was a magnetic base drill press used for drilling the ½" holes in the 24"x24"x¾" baseplate that weighed 130 lbs. See Figure 2. He also provided a plasma cutter for cutting the ¼" crank plates that holds the crank pin and is welded to the wheels. A trick Samuel showed us was how to tap holes in the hammer by using a battery powered drill instead of the manual method of using a "T" handle to turn the tap. That saved a bunch of time since we had 6 holes to tap in each of the 15 hammers. For the ¼" holes, a 2 flute ¼-20 tap worked very well. For the ½" holes, we had a three flute ½-13 tap and Samuel was the only one who could master that. Another skill Samuel showed us was that the S-7 dies had to be heated prior to welding the base. They were first aligned on the mounting blocks on the specific hammer and anvil they would go on and tack welded prior to heating. Figure 3 shows Samuel welding them while they are still very hot.

A very specialized talent that is CRITICAL to the success of a project like this is 3 or 4 people with "commercial" welding skills. Backyard and hobby welding skills are "NOT" enough. I think I counted 7 welders at use at one time or another. We used arc (stick) welders, and MIG welders, in addition to the plasma cutter and an oxy-acetylene torch. All but one of these were the commercial grade welders, some provided by the participants, and some by Matthew and Samuel. Our group was very fortunate that we had 4 top notch welders, excluding Samuel, who were kept busy for 4 of the five days. That's how much welding is required for the current design. Since I wasn't part of the welding crew, I'm not sure how many fixtures were used, but I think Matthew and Samuel made three or four prior to the workshop, when they made

the prototype hammer. Figure 4 is a jig to help align the hammer and the anvil. There are a lot of jigs that are required to align the parts with each other. Figure 5 shows one of the jigs Willy Bagley used to weld up the upper arms that connect to the crank pin. Figure 6 is a photo of John Sherwood setting up his jig (a wheel with a handle on it) to use the plasma cutter to cut out the round crank plates. To quantify the amount of welding required I tried to calculate how many linear feet of welds are on each hammer, and came up with about 22 ft. for each hammer, 330 feet for all 15 hammers. Figure 7 shows the quality of the welds our welders made. I didn't just pick the good ones for the photo; they were all like this. I can't stress enough how important the welding talent was to the success of this project.

Another major activity involved drilling holes. We kept four drill presses busy for four days drilling holes. This was in addition to the magnetic base drill mentioned above. Wherever practical, fixtures were used to aid with the accuracy of the holes. Cutting/lubricating fluids were used extensively to extend the life of the drill bits. I don't have a copy of the plans available now, but I'm guessing there at least 40-50 holes that had to be drilled for each hammer.
Cutting the 5" square tubing and many sizes of flat stock was also very time consuming. I believe there were three traditional chop saws in addition to the one provided by Samuel that used a carbide tipped saw blade to cut the square tubing. The cutting operations lasted for all five days. At one time or another, everyone who was not welding had a job that required cutting steel. Another time-consuming task related to cutting steel was grinding and deburring edges so the parts could be welded. There were two 2x72 belt grinders and at least a dozen 4-1/2" grinders used. Facility preparation is as important as any tools for the success of a project like this. Matthew's facility was the same one he uses for his Missouri School of Blacksmithing just outside of Cameron, MO. The building is open on the east side and has large doors on the north and south ends for good ventilation. Although the workshop occurred in late July and early August, the temperatures were only in the low to high 80s, much better weather than usual for Missouri. Matthew had several large shop fans to help circulate air when the breezes slowed down. I believe he added some circuits to cover all welders, grinders, drill presses, chop saws, etc. I'm only aware of one circuit breaker popping during the five days of activity. Most of the heavy steel items, such as the 300 lb. anvils and the 75 lb. hammers were on pallets, and there was a skid steer with forks to handle those items. The long sections of square tubing were left on trailers until they started being cut up into appropriate lengths. For Matthew's School, he has 6 coal forges set up in a row and used those to keep the 20" lengths of flat stock and small round and square stock handy for cutting into the right lengths. See Figure 8. The largest flat sheets I saw were about 2'x4'x1/4" used for cutting out the round crank plates. As mentioned above, that's where the plasma cutter came in very handy.

SUMMARY NOTES:

If you are planning to host a hammer building workshop, I would advise you to talk to someone who has already done it, like Matthew Burnett. Build a prototype so you have an idea where the critical activities and the most probable trouble spots are. Since you are likely to not be able to pick participants with certain fabrication skills, you may want to line up some talented help ahead of time in case you need it. As stressed above, people with welding skills and equipment are critical. Facility preparation is also important since there is lot of raw material, some of it very heavy and/or long, that will need to be handled, and sufficient power sources for the power tools that will be running simultaneously.

It was Friday afternoon when Matthew and Samuel started testing the hammers. Of the 15 hammers started, one was not finished due to a bolt that was stuck in one of the anvil holes and couldn't be drilled out with the tools on hand because it was a hardened bolt. Matthew is keeping that one at the School and will finish it later. Of the other 14, only one gave any trouble working when the switch was turned on. There were too many shims in the hammer guide, and the hammer couldn't move freely. After a minor disassembly and a little cleanup, it was also working well. With 13 of 14 running at first startup that's a 93% success rate. Considering the complexity of the hammer, and a hundred or so fabricated parts, most of which were made by semi-skilled participants, leads me to conclude that the project organizers, Matthew and Samuel, did a remarkable job of planning and execution.

To determine who would receive each hammer they were stamped with a number from 1-15 and at the end of the assembly on Friday evening we each drew a number. Figure 9 shows the proud owners with their hammers.

Figure 1

Figure 2

Figure 3

Figure 4

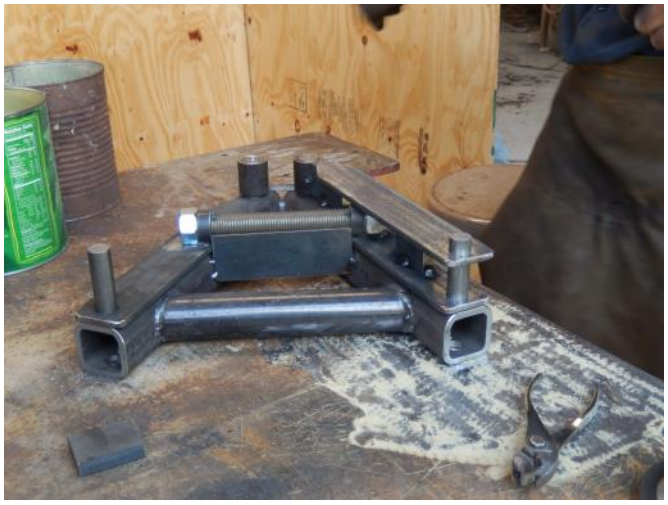


Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Bernie and Patty's Old Retired Guys & Anybody Who Wants to take a Vacation Day
5th Annual Hamer-In July 25 2019

By: Don Anders

You will notice that I put 5th annual Hammer-In. I hope that I am correct. I counted up the ones that I have made and the one's that I knew that I had missed and came up with five. Please feel free to correct me if I am wrong but please do the correcting in groups so that we can hold it down to five or six if possible.

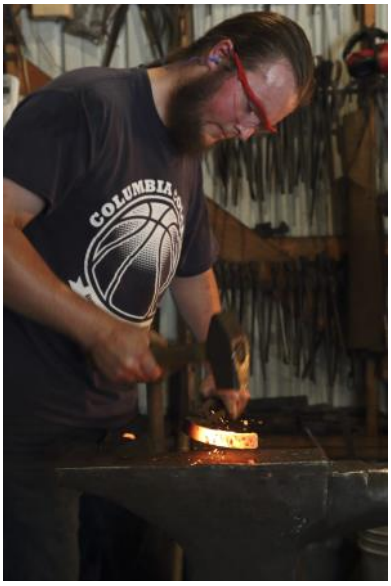
I believe that I saw a count on the sign-in sheet of seventy-two attending. A good turnout, about what has become normal I think. I am going to jump ahead to lunch. Lunch was fantastic quite possible the high point of my day. Sorry Bernie but I probably ate my share and your share of the baked beans, they sure were good. Who would have thought that Mike G. was so talented.

Now getting back to the blacksmith shop, Bernie had the normal set up inside the shop and around back the normal set up of forges and anvils with one major exception. The new BAM Murray power hammer was set up and running. I was a bit under the weather so I didn't try out the Murray myself but I did see Pat McCarty and Ken Jansen using it. I didn't get a chance to ask Ken what he thought but I did hear Pat say that it sure did hit hard. I also heard that there is a demonstration being planned for the Murray. Details are still in the works, so we will have to wait for the official notification.

Bernie and Ken Jansen worked on a replacement part for a church bell in the morning. I saw Pat McCarty making skulls using the Murray and Bernie's power hammer. I worked my way around back of the shop a few times and it seemed that every forge and anvil were busy most of the day. As usual there was a mix of ages from teenagers to the senior blacksmiths. I know that Bob Stormer and maybe others took pictures that can be accessed through the BAM website.

Thanks to Bernie and Patty for hosting the Hammer-In I know that it takes a lot of time and effort but everyone enjoyed the activity and chance to catch up.


KINGSFORD


COLUMBIA

Meeting Minutes ~ August Meeting

By: Bob Stormer

President Steve McCarthy opened the meeting by thanking Willy and Tami Bagley for hosting the meeting, and Drew Johnson and James Brown for demonstrating.

Bruce gave the financial report. All the conference bills are in and the facility rental was a little less than expected resulting a conference profit of a little over $6,000.

Matthew Burnett spoke briefly about the spare tire hammer workshop conducted at his shop the week prior to this meeting. Matthew gave a special thank you to Michael McLaughlin for his help prior to the workshop. Since Willy Bagley was one of the workshop participants, he had one of the completed hammers at his shop for the demonstrators to use.

Michael Gorzel gave a 2020 conference report. He is in the process of firming up the conference demonstrators. The 2020 conference theme is “Preserving the past with a mission to the future”.

Mike McLaughlin presented a BAM scholarship report by saying that James Brown, who gave a demonstration at this meeting, was the first recipient under the new scholarship rules. He also mentioned that Scott Payne had taken a class under Jerry Darnell and will provide a video to cover his scholarship responsibilities. Mike also mentioned that there is still scholarship money available.

Steve McCarthy reminded everyone at the meeting that BAM had been short one anvil for the conference demonstrators, and that Don Nichols has donated one to BAM. Don wasn’t at the meeting, but got big “Thank You” from the attendees.

Kent has state fair tickets available for BAM demonstrators. If you can help at the BAM tent at the state fair please call Kent at 660-647-2349.

Bob Stormer had BAM business cards that members could take to hand out at any public events they attend. He will also bring them to future meetings for distribution.

Sheri Stormer thanked the BAM members who helped Bob solve his truck problems that occurred on the way to the spare tire hammer workshop. Willy Bagley and John Sherwood were good examples of the “BAM Family Spirit” that is one of the benefits of belonging to BAM. If you need help, call a BAM member.

Steve McCarthy reopened the discussion from the last meeting about whether BAM should apply to ABANA to host the 2022 conference in Missouri. Jon and Pat McCarty answered some of the questions that had come up at the previous meeting. BAM members are not required to be ABANA members to volunteer for the conference. Volunteers will need to pay conference admission fees and there was no information on whether spouses are required also pay. ABANA handles all the registration and budget arrangements. They also work with the facility arrangements. Denny Quinn made a motion to submit our name for possible candidates for the ABANA 2022 conference. With the motion made and seconded a few other comments were brought up before the vote was taken. We need to have a BAM member on the ABANA Conference Board. Matthew Burnett questioned whether teaming up with ABANA would further the mission of BAM. With those comments a vote was taken and the members in attendance approved the motion. Jon McCarty will submit BAM as a candidate to host the 2022 ABANA conference.

An issue regarding approval for use of the MTS trailer was discussed. In the past when a member asked to use the trailer, all of the conditions for use were discussed at a BAM meeting and then a vote was taken at the following meeting to deny or allow the use. This became very cumbersome for BAM and the requestor. A decision was made to form a committee with the authority to negotiate the conditions and approved the use pending a review of the conditions by Bruce Herzog with our insurance carrier. The committee still needs to be named, but this will be the process used in the future for MTS trailer usage. Don Anders is the MTS coordinator and will be involved in all discussions regarding usage.

The meeting was adjourned.

Photo Gallery ~ August Meeting

Iron In the Hat - August Meeting

Donated by	Won By	Item
Mark Lawson	Bill George	Chain
Mark Plummer	Mike McLaughlin	1-1/2” Mild Bar
Mike Morton	Dennis Jacobs	Railroad Spikes
Tom Patterson	Michael Gorzel	Wrought Iron & Door Spring
Drew Johnson	Bill George	Dozer Plow Blade
Dennis Quinn	Willy Bagley	Wire Brush
Fred Arnhold	Jon McCarty	Coil Spring
Bruce Miller	John Schoenfeld	Dock Plate Spring
Bruce Miller	Mark Plummer	Industrial Door Spring
Richard Stubblefield	Mike Gentzsch	Bundle Clamp
Tom Patterson	Helen Arnhold	Wrought Iron & Door Spring
Tom Patterson	Denny Quinn	Wrought Iron & Door Spring
Richard Stubblefield	Tom Lutz	Magnet
Don Anders	Mel Robinett	Wheel Drums (Forge?)
Mike Morton	Dennis Jacobs	Railroad Spikes
Richard Stubblefield	James Brown	Books
Karen Bouckaert	Bernie Tappel	Cat Litter Buckets
Bill George	Mark Lawson	Hay Fork Tines
Pat McCarty	Mike McLaughlin	Skull
Bob Eckert	Steve McCarthy	Railroad Spike Clamps
Richard Stubblefield	Mark Lawson	Books
Mike Gentzsch	Robert Owings	Burgers BBQ Set
Donald Davis	Bernie Tappel	Oxy Orange
Bill George	John Sherwood	Hay Rake Tines
Mike Gentzsch	Helen Arnhold	Balloon Gas Tank Forge Kit
Denny Quinn	John Sherwood	Wrought Iron

Trade Items ~ August Meeting

Made By: Alex Tappel
Traded To: Bob Eckert

Made By: Yoo Jung Lee
Traded To: Daniel Wedemyer

Made By: Colton Kiso
Traded To: Tom Patterson

Made By: Drew Johnson
Traded To: Colton Kiso

Made By: Brandon Redford
Traded To: Jon McCarty

Made By: Bob Eckert
Traded To: Steve McCarthy

Made By: Bill George
Traded To: Willy Bagley

Made By: Mike McLaughlin
Traded To: Cameron Redford

Made By: Tom Patterson
Traded To: Denny Quinn

Made By: Willy Bagley
Traded To: Yoo Jung Lee

Made By: John Young
Traded To: Matthew Burnett

Not Pictured:

Made By: Daniel Wedemeyer
Traded To: Larry Lutz

Made By: Dan Wedemyer
Traded To: Pat McCarty

Made By: Cameron Redford
Traded To: Drew Johnson

Made By: Aaron McCarthy
Traded To: John Young

Made By: Bernie Tappel
Traded To: Aaron McCarthy

Made By: Mark Lawson
Traded To: Brandon Redford

Made By: Pat McCarty
Traded To: Mike McLaughlin

Made By: Denny Quinn
Traded To: Dan Wedemyer

Made By: Steve McCarthy
Traded To: Alex Tappel

Made By: Mike Morton
Traded To: Bernie Tappel

Made By: Jon McCarty
Traded To: Mark Lawson

Made By: Larry Lutz
Traded To: Bill George

2019 BAM Meeting June 22nd ~ Charlie Carpenter Demonstration

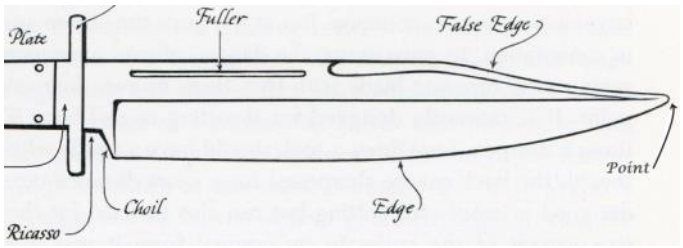
By Bob Stormer

Charlie Carpenter has been making knives for about 5 years, but if you ever examined one of his knives you would think he has a lifetime of experience. A week or two before this demonstration Charlie successfully earned his American Bladesmith Society Journeyman Smith ranking. According to the American Bladesmith Society **"In order for an Apprentice Smith to earn the rating of Journeyman Smith in the American Bladesmith Society, he or she must first pass a pre-determined set of tests that measure his or her ability to make a knife that will not only perform to a remarkable level, but will exhibit a level of fit, finish and design that is among the best in the world." - www.americanbladesmith.com**

This ranking is earned in two phases; 1. A performance test to prove the smith's ability to heat treat and temper a blade that will perform at a remarkable level 2. Once the performance test is successfully completed, five finished blades must be presented to a panel of Master Smiths to be juried for fit and finish. His performance test was performed at V.J. McCrackin's shop. The performance test consists of the following steps. First the blade must be shaving sharp and must be exhibited by the smith shaving hair from his or her arm. Next, the smith must cut a free hanging 1" hemp rope with a single pass. Next the smith must chop two 2x4s in half. Following this step, the blade must be examined by the witnessing Master Smith to make sure that the blade has taken no damage from the tests. Then the Smith must again prove its continued sharpness by once again shaving hair from his or her arm. The final part of the performance testing is the bend test. This involves the smith clamping the first three inches of the blade in a vise and bending the blade to 90º without breaking. Once the performance test is successfully completed the applicant must then present five finished blades along with the bent performance blade to a panel of five Master Smiths at the Blade show in Atlanta to be judged for exceptional fit and finish. The judging standard that the Master Smith panel applies for the Journeyman Smith ranking is near perfect to perfect. Charlie successfully completed these steps and earned his Journeyman Smith ranking earlier this year at the Blade Show in Atlanta.

As Charlie mentioned a few times during his demonstration, he tends to work slowly and deliberately. That may explain why his forge-to-shape forging looked so good when he finished his demonstration. Charlie really enjoys the forging process and by taking your time during this step, you will save much more time in the finishing process. According to Charlie "You can rush through the things in life you don't enjoy." He believes that he always gets the best results by using new steel from a reputable supplier such as Admiral Steel (http://www.admiralsteel.com/) or New Jersey Steel Baron (https://newjerseysteelbaron.com/). While knives can be made from steel from everyday items the only way to truly know exactly what you are putting your name on when you're finished is to start with new steel. He also mentioned that he prefers the use of a coal forge in his shop for forging his blades to shape but does use a gas forge for creating Damascus billets. "The steel behaves much differently when heating with coal verses gas and tends to feel more malleable when heating in a coal fire."

He started the demo with a piece of 5160 bar stock that measured ¼"x1-1/4" and was long enough to not require tongs for handling. Charlie began by hammering on the corners to shape the point that ended up pretty close to centered on the steel. See Figure 1. The next step was to forge in the distal taper which thins the spine to a constant taper from the intended ricasso to the point of the blade. Starting on the edge of the blade Charlie started by forging the choil down while leaving the beginning of the ricasso untouched. Once the choil is set he began forging the shoulders for the step from the ricasso to the blade what will become the blade edge toward the tip. This helps with the balance of the blade when finished. He then defined the blade length further by forging the base of the ricasso up to the desired height, being careful to not damage the ricasso area which should remain perfectly flat. Next he continued to draw the Coil area down drawing down the edge that will define the front of the ricasso, and the back of the blade. The next step was to shape the blade by thinning the edge from the ricasso to the point. See Figure 2. Charlie tries to leave the edge about the thickness of a nickel before starting the grinding process.



The next step is to draw out the tang, in this case it was a hidden tang. Charlie started by using a hardy hot cut to cut the excess steel from the handle. In his shop he uses a fuller to define the back edge of the ricasso. At this demo he used the edge of the anvil to define the back edge of the ricasso. See Figure 3. Charlie likes the ricasso to be ½" to ¾" long but may vary based on the overall design and size of the finished knife. He reiterated again that as you are shaping and straightening the blade, try to avoid deforming the ricasso. This is helped dramatically with the use of a wooden mallet to avoid deforming the blade. The lack of damage means the final thickness of the ricasso is closer to the original thickness of ¼" when you start grinding. Figure 4 shows the forged-to-shape blade.

The rest of the demo was spent answering questions about the specifics of finishing the blade. Prior to heat treating the blade, Charlie grinds it to a 120-grit surface. He uses Parks AAA quench oil for hardening of 5160 steel, but different steels require different oils to reach the steels greatest potential. He also prefers differential heat treating when using single steels, which generally involves only heating about ¾" of the cutting edge of the blade to non-magnetic and quenching the entire blade excluding the tang. He noted that once the blade is quenched it will continue to harden until it reaches its full hardness, so you typically have about 20 seconds after quenching to try to straighten the blade. If it happens to warp and it becomes too brittle it will easily break. Unfortunately, there is no warning sign that this window of time is closing until it is closed and the blade breaks.

Finishing

For the majority of his knives Charlie normally makes the handle about 5" long give or take unless it's a very short blade. Typically, he uses one pin as a mechanical fastener. To affix the handle, he uses an epoxy product named Acraglas from Brownell's.

Charlie showed us a couple of jigs/fixtures/tools he uses to aid in the finishing. Figure 5 shows a jig to help drill the tang hole in the handle more accurately. The jig must be lined up with the center of the drill bit and clamped to the drill press table. In drilling holes for the tang, mark the bottom of the block where the bit should go to as well as the top of the block where the drill bit should enter. Set the bottom mark on the point of the fixture and simply drill from the top. When the drill bit enters the top of the handle it can only go toward center of the jig. This forces the bit to stay on track inside the block and not let it wander side to side and create issues when finishing the handle to its desired shape later.

Another tool shown in Figure 6 is the broach he uses for cleaning out the tang hole after drilling to help get a snug fit. He buys these from John Perry but you can also make your own by grinding an old file.

Figure 7 is another very handy tool for getting clean grind lines on the blade. It is sometimes called a "file guide". The blade is clamped between the two sections with the carbide side facing the belt when grinding. You can also use this tool to get the shoulders for the guard perfectly square and even.

Another tip was when you need to drill a series of holes in a straight line, such as for fitting a guard to the tang, you can put a small straight groove in it using a little cutting wheel in a Dremel tool or something similar. This way all of the holes will center on the groove and ensure that all of the holes are in a straight line.

Charlie added that he uses a milling machine for cutting the tang hole in guards before fine tuning it with a file to its exact finished shape.

Charlie also spent some time answering questions about his episode of Forged in Fire and gave a lot of behind the scenes insights of the filming of the show and the time he spent there.

There were a few young folks in the audience for the demo, and I think Charlie helped pique their interest in blacksmithing in general and bladesmithing in particular.

Figure 1

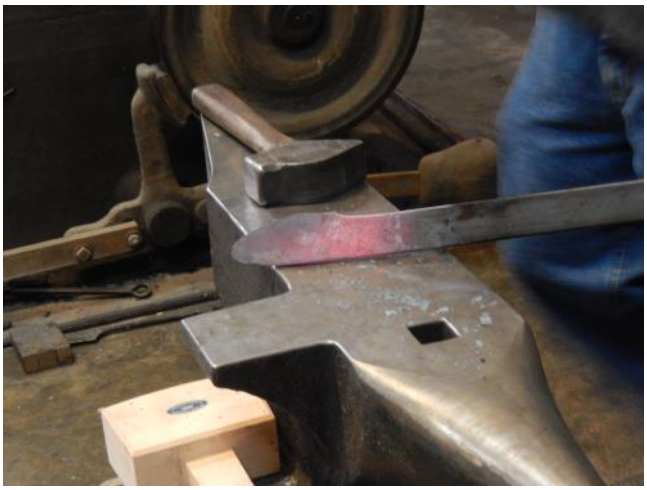


Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Scholarship Application

Name:

Address:

Phone & Email:

What class or event do you wish to attend?
Where:

What is the cost?
Tuition:
Travel:
Lodging:
Other:

Briefly, describe how attending the particular class/event will advance your blacksmithing skills and be helpful in promoting the craft of blacksmithing. Identify the specific skills you expect to learn during this learning experience. (Additional pages if necessary)

I understand that as a requirement of receiving this scholarship, I will be required to submit an article about the education experience attended with appropriate notes and diagrams to the BAM newsletter no later than 3 months after attending the event AND within 1 year of the event, I will present a demonstration of the newly learned skills at a BAM meeting or complete a video to be placed on the BAM library. One third of the total scholarship amount will be awarded before the event, one third on submission of the article to the newsletter editor, and one third after presenting the demonstration at a BAM event.

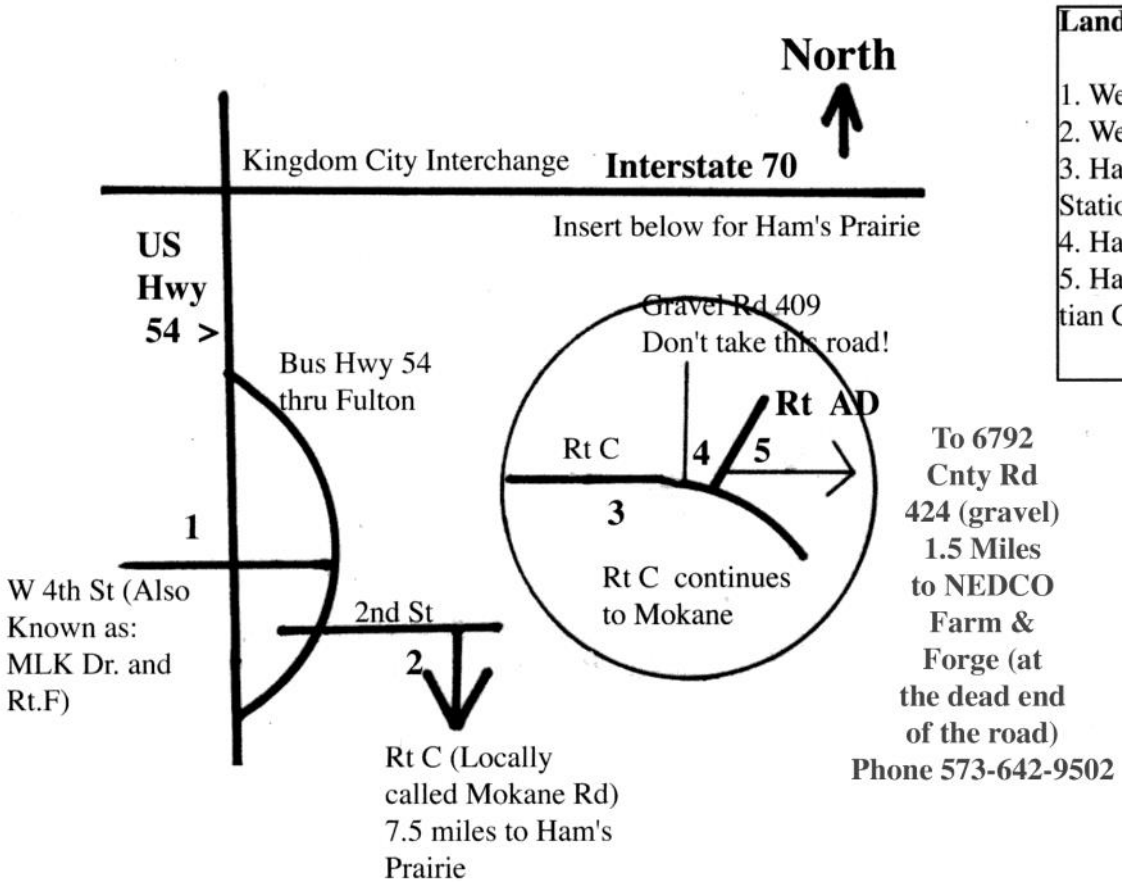
Signed_____Date_____

Send Scholar ship applications to:
Mike McLaughlin, 122 Milwaukee, Lawson, MO 64062
cowpie42@hotmail.com 816-296-3935

This page may be printed

Next Meeting: September 14, 2019

Hosted By: Ned Digh
6792 County Rte 424
Fulton, MO 65251



Food will be available
Please bring 2 canned meats per person in exchange for lunch which will be donated to the local food pantry. For those forgetting canned meat, a cash basket will be present.
Trade item: Anything forged from a horseshoe
Demonstrator: Neil Poort
Ladies: Esther will have a program for the ladies and any man not interested in blacksmithing.

UPcoming EVENTS

November 2, 2019 - Meeting @ Mark Lawson's Turney, MO

November 23, 2019 St. Clement's Day (Blacksmith Holiday)

November 29, 2019 Black Friday Hammer In, Ken Janson, Moscow Mills, MO

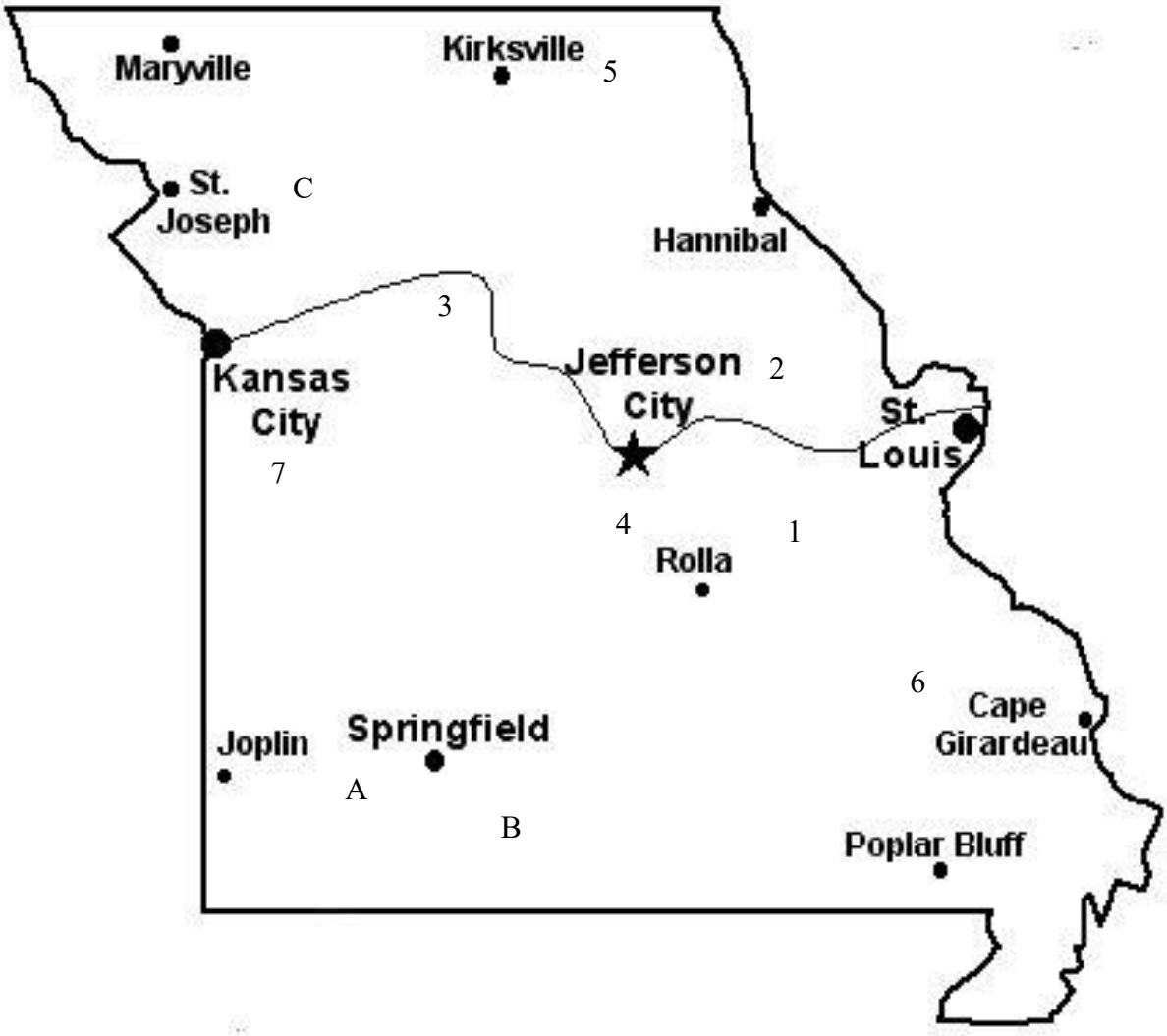
January 1, 2020 Hammer In Pat McCarty, Washington, MO

April 30 - May 3, 2020 - BAM conference

If there is an event that is not listed or a meeting that you are interested in hosting please contact us at BAMeditor2015@gmail.com.

Coal Stations

Price per bag:
BAM Members $15.00
Non Members $20.00
Member's pickup at Bob Alexander's - $13.00
Coal keepers earn $3.00 per bag
Bags are approximately 50lbs. each



BAM Coal

1. Bob Alexander (636) 586-5350
   14009 Hardin Rd.
   DeSoto, MO 63020

2. Ken Jansen (636) 295-5844
   2257 Carter Rd.
   Moscow Mills, MO 63362

3. Doug Clemons (660) 631-1257
   29377 Durango Ave.
   Malta Bend, MO 65339

4. Jerry Rehagen (573) 744-5454
   390 Bozina Valley Trail
   Freeburg, MO 65035

5. Joe Hurley (660) 988-8872
   or (660) 626-7824
   26306 State Hwy D
   Downing, MO 63536

6. Bob Maes (573) 866-3811
   Route 1 Box 106 K
   Millersville, MO 63766

7. Bryan Lillibridge (660) 638-4536
   1545 NW 300
   Urich, MO 64788

Non BAM Coal

A.Tim Johnson, Springfield, MO 417-886-8032 - $.40/lb. check, $.35/lb. cash. Bring your own containers.

B. Good blacksmithing coal for sale $12 per approximate 50 lb bag with bulk delivery available.
Matthias Penn Rt. 1 box 479-S Ava, Mo. 65608. (417)-543-2148.
Or e-mail tytheblacksmith@yahoo.com.

C. Coal for sale $14 per approximate 50 lb. bag. Missouri School of Blacksmithing
Matthew Burnett 816-575-2798, 3100 NW Winchester Rd Cameron, MO 64649

Coal Specifics

A few notes on our coal:
1)Not all coal is created equal. The coal we buy is fro the West Virginia to Pennsylvania vein and is a high metallurgy grade unlike coal from other areas.

2) Raw coal from the bagging company is stored outside which allows it to get rained on, (rain is water which weighs 8.4 pounds to the gallon). If the coal is bagged wet and then dries out the weight will change.

3) The coal fines which when mixed with water to form a paste burns along with the chunks of coal but during shipping and handling may sift out of the bags causing a weight loss.

So, the bottom line to all of this is we are selling coal in approximately 50 pounds bags.

BAM Tailgate
Buy, Sell, Trade

Individual Classified ads:

For Sale: Anvil's Ring Magazine collection Sept '73 thru Present. $350 Bob Woodard Edwardsville, IL 618-692-6508

Commercial / Resource ads:

Beverly Shear Blades Sharpened. Remove blades from shear and ship to Clay Spencer, 73 Penniston Pvt. Drive, Somerville, AL 35670 $41 includes return postage, additional cost for deep notches or blades previously sharpened at angle.

Little Giant-- We can do repairs on any or all components of your Little Giant front assembly. Contact Roger Rice, Midwest Machine, 6414 King Road, Nebraska City, Nebraska 68410. (402) 873-6603

Roller Blade Treadle Hammers (Clay Spencer design) for Sale or Workshops led to build hammers. Bob Alexander, e-mail to scruboak4@netzero.com, or call 636-586-5350.

Information / Education:

Missouri School of Blacksmithing
Cameron, MO
Instruction by Matthew Burnett
Group and Individual classes offered.
816-575-2798

Tong Making Class-Weekend Course, 4 people per class - $125 per person. Contact: Charles Comstock, Rt.1 Box 20, Deerfield,
MO. 64741 (417) 927-3499, or (417)-321-2286 cell

Back issues of Jerry Hoffmann's Blacksmith's Journal, Call 1-800-944-6134 for more information.

Classes offered, The Ornamental Iron Shop
Contact the instructor to register and customize your class.
John D. Thompson – Metalsmith
3923 Hwy 25; Hodges, SC 29653 864-374-3933

Classes at Pieh Tool Company, Inc. - Camp Verde, AZ
The Bill Pieh Resource for Metalwork.
Call now for more information and to enroll:
(928) 554-0700 or (888) 743-4866.
www.piehtoolco.com.

Mathias Penn is offering introductory & beginning blacksmith classes. 417-543-2148
Tytheblacksmith@yahoo.com

oldschoolcrafts Blacksmith School, Joe Davis 12625 Lawrence 1175, Mt Vernon, MO 65712 phone 417-461-0387 on the web www.oldschoolcrafts.org E-Mail oldschoolcrafts@hotmail.com

David Norrie blacksmithing school in Colorado
David Norrie 303-859-0770 http://www.forgewithintention.com
or http://www.davidnorrie.com

The Upper Midwest Blacksmiths Assoc (UMBA) video library. An index list can be viewed at www.umbaonline.org
They are VHS or DVD-R Cost is $5 each with $2 per order shipping there is no return date, you keep the video for this price. All videos are made at group demos, no commercial titles.

Blacksmithing E-books on CD
Now eight titles are available on CD, $4/each, or all eight books, $24 postpaid. More books are in production and will be available soon- order on-line at www.blacksmithingebooks.com, or check/MO to Brian Gilbert, 3404 Hartford Dr,. Chattanooga, TN 37415.

Tire Hammer Plans by Clay Spencer
Send Paypal for $30US to clay@tirehammer.com. Or check/money to 73 Penniston Pvt. Dr.,Somerville, AL 35670. I can mail a copy or email PDFS.
Beverly shear blades sharpened. Remove blades, mail in small Flat Rate box, include check/money order for $50, includes return postage. clay@otelco.net, 256-558-3658.

New England School of Metalwork
www.newenglandschoolofmetalwork.com 1-888-753-7502

Power Hammer page
I've taken some time to collect and post old info, catalogs and brochures on power hammers. The link of our NEB web page to this information is: http://www.newenglandblacksmiths.org/power_hammer_info.htm Ralph Sproul

Rochester Arc & Flame Center! Featuring Blacksmithing, Welding & Glass Blowing, over 30 classes available for all levels of interest, rocafc.com 585-349-7110

Products:

Forge-Aprons offers seven different styles of leather blacksmith aprons; the Original bib, the Short bib, the Full-Cut bib which offers greater chest coverage, the Lap apron, two sizes of Kid's aprons, a Budget apron and our brand new, limited edition Flame apron which features flame imprinted buckles and an anvil engulfed in flames on the logo pocket. www.Forge-Aprons.com

Heavy-Duty Fry Pan Blanks 9" diameter, tapered sides 12
Or 13 gauge steel (approx.2 pounds) no predrilled holes for the handle $14.00 each..1-4, $12.00 each.5-9, $10.00 each...10+. Shipping: $5.00 plus$1.00 each frypan Bob Tuftee 563-349-3369 21718 277th Ave LeClaire, IA 52753

L Brand Forge Coke now packaged in 50 pound bags on pallets. Send your zip code for a quote on price including delivery.1-678-360-3521 or LBrandForgeCoke@aol.com.

Chile Forge- Next generation gas forges www.chileforge.com David Starr 520/360-2141

Kayne and Son Custom Hardware, 100 Daniel Ridge Road,Candler, NC 28715. (828) 667-8868 fax (828) 665-8303, e-mail: kaynehdwe@charter.net, web site: www.blacksmithsdepot.com.
Offering a full line of blacksmithing equipment. We ship and accept Visa and Mastercard.

D.L. Schwartz Co. Blacksmith and Farrier supplies. 2188 S. US 27, Berne, IN. 46711, 1-800-955-3064

SOFA fire pots are once again available. For information contact Bob Cruishank, 1495 W. Possum Rd., Springfield, OH. 45506 Phone: (937) 323-1300 or www.creativeironforge.com or www.sofablacksmiths.com

USA Dealer for REFFLINGHAUS ANVILS, 77 to 1250 lb.
European 2 horn with or without upsetting block & side shelf.
Over 100 sizes and styles available. Guaranteed face @ HRC59
Dick Nietfeld www.blksmth.com Phone (308) 384 1088

Wanted:

Blacksmith business cards. I would like to put together a collage of Blacksmith business cards.
Bring them to a meeting or mail them to me with your dues.
Bruce Herzog
2212 Aileswick
St. Louis, MO 63129
Demonstrator List
Fred Weisenborn has started a list of members available for demonstrations, fairs, historic events, and festivals, etc. 417-589-2497 e-mail: jweisenb@llion.org

Around the Anvil BAM has its very own E-Mail news group. If you would like to participate there is a sign up link on the bamsite.org or send an E-Mail to Terry Humphries at thumphr@south40.org and he will get you signed up.

Check out back issues of BAM newsletter on www.bamsite.org. It now has a search feature to help you find old articles.

Ad Policy: Blacksmith related ads are free to BAM members. Personal ads will run for two issues. Resource ads are ongoing at my discretion. Send to BAMeditor2015@gmail.com, or call 636-432-4468

BAM
2212 AILESWICK DR.
ST. LOUIS MO 63129

Please send changes to Bruce Herzog, 2212 Aileswick Dr., St. Louis MO 63129 or e-mail to bjherzog@charter.net

For Next Meeting map, see page 26 of this Newsletter.

BAM doesn't just turn iron into beautiful items. This organization is a family like no other. In these pictures you see here is a quilt that was made by Evelyn "Dolly" McCarty, Pat McCarty's mother. She passed away this past December. The pattern in the quilt, is what Dolly called an "anvil" pattern. She was an avid quilter and had this quilt pegged for Pat and was unable to finish it before her passing. The quilt was unfinished and Pattie Tappel and Eileen Sherwood were able to finish it for Pat. It was given to him at the hammer-in in July. It turned out absolutely beautiful.