

Rocky Forge News

Volume 4, issue 2 – February, 2005

It's that time again; for another newsletter. This time I have input from the membership. Thank you Jeff and Ted. With your help I have the unusual problem of how to fit it all in.

This Month's Meeting

January Meeting:

From Ted:

The meeting will be February 5th, the first Saturday of February. The date was changed to accommodate a joint meeting with the Rural Smiths of Mid-America. Meeting time is 9:00 A.M. (Note 9:00). Shane Stegmier will be demonstrating medieval hinges. If you have not seen this demo then you are in for a treat. Shane makes some very nice decorative hinges. Bring a friend and help keep Rocky Forge on a growing curve. Also, you will be able to meet a lot of new faces since we are meeting with the Rural Smiths.

Be sure to bring iron in the hat items.

Carol will be clerking an auction for Stout Auctions, so other wives are going to help with the food. Please bring a covered dish to supplement the meal.

Anyone willing to bring the doughnuts please give me a call; you will be reimbursed for the cost.

There are two blacksmiths post vices and a unique wood carpenters vice for sale at Ted's shop. They are very low priced and if you need a vice this is a good opportunity. See Darrel Schlutze.

Ted is trying to arrange a joint meeting with the Wabash Valley Blacksmith Club from Terre Haute. My last Email from them said that the rank and file have not heard of any such. I will be at their Feb. meeting and will bring it up. It would be nice to have some presentation in mind to present to them, Ideas please.

Last Month's Meeting

Demonstration of Patterned knife-making by Billy Merritt; The weather did permit, Billy works for the highway department and in spite of the mild snow the demonstration successfully occurred. There were twenty attendees; including four new faces. Iron in the Hat generated \$104 and all had a good time.

The following was submitted by Jeff Rattray on the subject of Billy's presentation and lightly edited.

For pictures of what we learned about, see <http://www.iforgeiron.com/Archive/Poss-um-04/Possum04-4.htm>. (That's not our meeting; this stuff was already on the web.)

What Billy was teaching us was how to make Damascus steel - the beautiful ripples-of-water stuff that you see in the photos. He applied this to knife making, but it could be applied to knives, forks, spoons, swords, chisels, belt buckles, golf clubs, etc. He had examples of all of these that he brought with him.

Some notes:

A good knife (or chisel) is made out of all tool steel. Any non-hardening steel can become part of the edge and that portion of the edge will not hold an edge. For example, Schedule 60 or 80 rebar makes good chisels, (the 60 and 80 are the points of carbon contained in the alloy and determine how hardenable the steel is), and the L6 steel found in an old circular saw blade is a good base. Carbide tips aren't a problem. They come off when the blade is heated, and are lost in the forge. The saw blade (or other stock) is folded over itself several times then forge-welded into a steel billet about 1" by 4" by 1/4". This is smoothed out on a grinder and cut into 1" squares. The size of the billet and subsequent "steel sandwich" depends on the size of the desired final product; this 1" by 4" starter will make a small knife or a chisel.

The Damascus patterns are made by welding in layers of different types of steel, for example old bandsaw blades or banding steel. With 4 1" squares of tool steel, Billy would make a sandwich of squares with thin squares of bandsaw and banding material between the layers (see website referenced above for photos). These are stacked up nice and square and tack-welded down 2 faces with an arc welder to keep them together, initial forge welding needs to be in the direction that the sandwich is held together to keep it from coming apart. A temporary handle is welded on one side, and the whole mass forge-welded together to make the Damascus steel. It can then be worked down into a knife blank.

Notes on forge welding:

(1) Fluxing is very important. Billy would flux a piece several times before hitting it. He would pour flux on one side and end of the sandwich two or three times, re-heating each time, until he saw flux coming out of the opposite side. Then he would work the flux the other direction before hitting it. You need to ensure an escape route for the flux to the outside; trapped flux will cause an unwelded area.

(2) It is not necessary to strike very hard to make a good forge weld. Billy demonstrated this very dramatically by making a weld with a hammer handle - no head, just a wooden handle.

(3) Do not try to weld if you have overheated the work piece - let it cool down until it has stopped sparking. Once the steel sandwich has been worked down into a billet, cut it free and grind the remains of the arc welds off both ends. Then grind both sides smooth on a bench top sander (a welding magnet makes an excellent work piece holder) and cut the billet in half. Put the two best faces together, tack weld on a new handle, and forge weld them together again. You have just doubled the number of layers in your piece. Grind the sides again and inspect it. Once you have a nice piece, forge it into a rough knife shape and then do the final form by grinding. Alternately you can do most of the forming on the anvil. Each method works, but produces different

patterns in the steel. More complicated patterns can be made by spot-facing or grooving the billet before working it into its final shape. Billy pointed out that you can do all of this with very basic tools. He also pointed out that the bigger tools, such as a power hammer, make it much easier and faster to do.

After doing a basic steel sandwich, Billy worked two other examples - a billet made up of old roller bearings, and another one made from a chainsaw blade. These make for different damascene patterns in the final product. The chainsaw blades take a long time to do as they tend to entrap air spots and flux and require more reforgings.

Billy didn't actually do any tempering or hardening while he was with us, but he did offer some advice on the subject. Some quick points:

--Quench you Damascus steel in oil, not water. He uses olive oil, but other oils work too.

--DO NOT agitate the work piece while quenching - slip it into the oil and hold it still. If you wave it around, you will create a temperature imbalance that can warp the blade. --Use a magnet to test your work piece - you need to heat it until it is demagnetized, then quench it. Spots that are still magnetic will not harden.

--You need to move the work piece from the forge to the oil bath very quickly. The time you have depends on the carbon content of the steel, and can be as low as 1.5 seconds. Your shop setup becomes very important here.

Newsletter

Several things that I have been asked about that I would like to see in the newsletter:

Equipment or tools to buy, sell or trade; especially things for the beginner and the poor.

Projects- Things you have done, would like to do, or learn to do. Maybe even something you need help on or want to teach others.

Help wanted- for instance I have a disassembled round metal grain bin that will

house my shop someday. I could use some more hands to bring someday closer.

Input from you- Articles, pictures, advise, anything that I don't have to create. I would like to make up a calendar with us as pictures and art.

I have not heard from anyone about the items in the previous section that I included again. I have come up with a few things in my travels that may interest you.

Announcements

The Wabash Valley Blacksmithing Club has tools that they bought to equip their hopefully soon finished, new shop at Fowler Park, Terre Haute. They had a sale of the excess and all went well. Now they have a few tools left that they would like to clear out. They have mostly bolt tongs, flat stock tongs, cutoff hammerheads and a small amount of miscellaneous left. These are the leftovers and are not nice, but they only want \$3 each and I think I got all of the unserviceable or in need of repair tongs. There were 50-100 pieces left last I heard. I thought I had Max's phone #, but can't find it. I do have his email: Max E. Hoopengartner E-mail Address: commeh@uhhg.org

The IBA has money earmarked for scholarships and a lack of applicants. I have not checked much on this. I do not know who to contact with the IBA or definitely what these will cover, but the board of directors would like to see this money used. I would like to see someone get this money also. The only mandatory condition that I have heard is that the recipient demonstrate/ teach others what they have learned. I would like to find out what the application process is and what it will cover along with some suggestions as to available courses and what people who have taken the courses thought of them.

Mike Frasier, (765) 548-0604, is still looking for a 75 to 100 lbs anvil. He is not a collector and wants a decent anvil for use with decent edges and a ring.

I have 3 or 4 leg vices beyond what I need: 4" to 5" jaw width most have springs and mounts. I also have a hand made wrought iron leg part of a leg vise that I would like to use or see used, but I doubt that I can make the missing part but would like to try, any suggestions? David Childress (765) 492-4904.

Now I have included some items of interest it is time for some input from members. I never have enough time to include everything I had hoped to include. Anything YOU want to have seen will be included, call it my motivation.

There is a two page article in the February/March 2005 Mother Earth News "A Democratic Axe" that shows an outside the art view of blacksmithing. Any effort to preserve the art seems to be beyond the public awareness. The article covers an interesting project but I am sure that very few usable axes will come of it. I doubt that I could make anything useful from the directions and some of it is either wrong or near incomprehensible. I am going to try to get this on the website.

The Rocky Forge News is now available by E-mail as well as on our website (<http://www.rockyforge.org/>). If you wish to receive the newsletter via E-mail sent Dave Childress a note at trollkeep@ccsdana.net, or write directly to the guild at rocky@rockyforge.org.