Rocky Forge News

Volume 11, Issue 3 – March 2012

Next Meeting – March 10

The next Rocky Forge meeting will be March 10th at Ted's shop. Coffee and doughnuts will be ready by 8:30AM, so come early and be ready to forge. The way this recent weather has been we should be able to work comfortably outside. The first item on the agenda will be KJ showing us a new gas forge he recently bought that is capable of getting hot enough for forge welding. (He claims to be welding A-36; rub it in KJ.) He will bring it to show us how it works. Ted recently acquired propane cylinders used for fork trucks that he modified for use on a gas forge. The modification process and the advantages of the cylinder will be presented. If anyone else has any new tools or things to discuss or show please let me know.

With an open forge time we should work on making tools for the blacksmith shop that we are preparing to raffle.

Lunch will be cold meat sandwiches, so bring whatever you want to go with the sandwiches and to share. I'll bet we will get a lot of chips!

We will have our usual Iron-in-the-Hat drawing so bring some goodies for that drawing. I need to say that our group still has one of the very best Iron-the-Hat drawings in the state. Let's keep up the quality.

Looking forward to a good meeting on the 10th and seeing all of you. Ted and Carol

Last Meeting-2/11/12

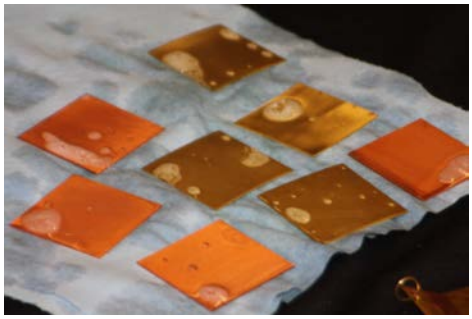
At our last meeting, with Andy Davis demonstrating Mokume Gane, we had a great turnout. There were 54 at the lunch tables. His demo and exhibit of knifes and swords were really good. Many of us had our picture taken holding the famous sword Andy made the featured sword for the movie "THOR". Vic Eichorn, Gene Hollingsworth and others had some very nice copper pieces on display. It was a wonderful day with many visitors from afar and near. (Don Neuenschwander, Roger and Janet Lorance and Tom and Doc (Vicki) Schertz, et. el.) We have had some very good meetings, but this one ranked up there very high. Thanks to all those who helped make it possible.

Andy Davis from Ball State University discusses Mokume Gane, the fusion of non-ferrous metals with heat and pressure.

30 layers of copper and brass being forge welded in a special holder. The layered ingot can then be shaped in various ways to get a desired final pattern.

Andy Davis Demonstrating Mokume Gane

Andy at Ted's for February meeting.



Careful cleaning of metals is needed.

Snopake helps release welded metals.

Stacking copper and brass in holder.

Forge welding in gas forge.

The finished 2"x2" fused ingot.

Different patterns from this process.

A finished patterned bracelet.

Sword from the movie "Thor".

Dates to Remember

April 14, 2012: Rocky Forge meeting.
April 28-29, 2012: Mountain Man Rendezvous, Brigeton, IN.
June 1-3, 2012: IBA Conference, Tipton, IN.
July 18-21, 2012: ABANA Conf., Central States Fairgrounds, Rapid City, South Dakota, "Reunion on the Great Plains".
July 20-22, 2012: Illiana Antique Power Show.
September 14-16, 2012: Potawatomi Fest, Attica.
September 22-23, 2012: Feast of the Hunters' Moon
September 28-30?, 2012: SOFA Quad-state Conf.
October 5-6, 2012: Gaither Fall Festival, Alexandria, IN.

Interesting Web Site

Mad Dwarf Work Shop
(http://maddwarfworkshop.com)
Mountain Man Rendezvous, Brigeton, IN.
http://www.festing.com/detail.cfm?festid=29768

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Patinas on Copper

By Dominick Andrisani

Copper is a wonderful metal for the creative blacksmith. It is soft under the hammer, corrosion resistant, and its natural color is quite attractive. An added plus is that copper can be chemically treated to achieve a wide range of surface colors called patinas.

The project I wanted to make was a wood and copper candlestick holder resembling a flower on a tall stem. Wood, which formed the base and stem of the flower, was turned on my wood/ metal lathe. The copper flower consisted of three layers of sheet copper (21 gage, .028" thick) cut into the outline of petals and hammered into a three dimensional shape. The inner layer of petals held the candle. It was on these copper petals that I wanted to put various different colored patinas.

Natural chemicals in the air and rain (acid rain) will create a patina on copper and bronze by oxidation over an extended period of time. Shown below are three pieces of copper from an old gutter that oxidized over many years. From this you can get some sense of the colors that naturally occur and of the generally non-uniform coloring that is typical with patinas.

Manmade patinas are typically created in the shop by a multi-step chemical process that is not particularly obvious. To learn how to correctly handle chemicals, be sure to consult the three references.

Natural patina on three pieces of copper gutter.

To safely apply chemicals that cause patinas you need the right chemicals and a safe place to apply them without hurting yourself. The figure below shows the corner of my shop that I converted into a "chemistry lab". Note the fan and open window required to insure adequate ventilation.

Shop "chemistry lab" with fan, open window and gloves.

I bought a "Patina Sample Kit" of chemicals in 6 oz. bottles from the Sur-Fin Chemical Corporation for $95 (Reference 3). This consisted of 6 different patinas, 2 lacquers, and a metal cleaner (Brush N. Clean). The products I used for this article are shown in the following photograph.

An array of chemicals and metal cleaners.

The first step in getting a consistent patina is a thorough cleaning the metal. I cannot overemphasize how important this step is. **Clean the copper well**. The pieces of copper I needed to clean had been hammered, work hardened, and annealed several times, and had lots of black scale on the surface and pounded into the surface. I followed this multi-step cleaning procedure.

- Don gloves and never touch the copper with bare hands once cleaning is started.
- Clean the copper in a mild acid pickle (like pH Down available at your favorite pool store) then rinse thoroughly in water.
- Use a non-chlorine abrasive cleaner to get the last of the surface scale off the copper. At this point the copper was perfectly clean and shiny.
- Brush on "Brush N Clean" and wipe off with a clean wet cloth.

With the metal cleaned and in my gloved hands, I went to my "chemistry lab" to apply the chemicals to bring out the patinas. I used these chemicals from Sur-Fin: "Verde Green Patina" for the outer layer of petals, "Blue Green Verde Patina" for the middle layer of petals, and "Superantik 30 Antique Finish" on the inner petals. After several failed attempts with the green patinas, I learned the following successful coloring procedure.

- With all chemicals and metal at room temperature, apply the chemical with a brush. Then wipe it off with a paper towel or clean cloth. Wiping off is important so that there is not too much oxidation that will simply flake off or wash off in the next step.
- Wait an hour or so for the patina (greenish color) to form. Rinse thoroughly in running water. Use your gloved fingers to rub the patina as you rinse. If the patina is going to rub off you might as well do it now.
- Set the copper aside and wait another hour. The patina will again form from residual chemical that remained after rinsing, and this time the patina should be more lasting. Rinse again under water and rub as before.
- Repeat this process until you get a patina that will not disappear when rubbed during rinsing. If the patina is not vibrant enough, apply some more chemical and start the coloring procedure over again.
- As a final step I applied a NC-8 Flat Lacquer (from Sur-Fin) to the completely dry colored copper. The results are shown below. Imaginate and Patinate!

References

1. Charles Lewton-Brain, *Patinas for Small Studios,* published by the author, 1985 (available in the IBA library), revised 2007, available from Brain Press (http://www.brainpress.com/Books.html).
2. Richard Hughes and Michael Rowe, The Coloring, Bronzing and Patination of Metals, Watson-Guptill Publications/Whitney Library of Design, 1991.
3. Sur-Fin Chemical Corporation, Los Angeles, CA, 323-262-8108, www.surfinchemical.com.

Lower side of petals. Green patina was used on the left.

Upper side. Blue-green patina was used on the right.

Finished flower with three different patinas.