Rocky Forge News

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February Meeting Cancelled

Hello everyone, in case you have not noticed it is still winter, big time. The weather for our scheduled meeting time this coming Saturday, February 10th, looks questionable. If you look at three weather reports you get three answers. Most are predicting rain, snow and ice. It is for that reason and others that I am, with hesitation, cancelling our meeting for Saturday.

The other reasons are: several members have prior commitments, I have not been feeling well to get the shop ready and with the flu rampaging the population and with my immune system being compromised we think it best to skip this months meeting. Hopefully, we can have a real zinger of a meeting in March.

Ted and Carol Stout

Dates to Remember

June 27-30, 2018: ABANA 2018 Conference will held in Richmond, Virginia at the Meadow Event Park.

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Rob Durrett gives a great talk about Lewis and Clark at our last meeting.

Forging Naval Brass

By Dominick Andrisani

Naval brass is a terrific metal to forge. However, as I recently learned, it has several idiosyncrasies that must be understood in order to avoid forging disasters.

During our IBA Conference in 2015 Michael Bendele, one of our demonstrators, talked about the forging properties of various alloys. In his handout entitled "Non-Ferrous Metal Tips" (see The Forge Fire, June 2015) Michael made the following comment about naval brass. "This is a very nice alloy to work with".

Based on this, I decided to buy some naval brass (C464) from OnlineMetals.com. I paid $23.20 for four feet of 0.4375 inch round bar. That is only 70% as expensive as silicon bronze (C655), a similar material that I am more familiar with. Naval brass is an alloy of copper and zinc with a little bit of tin and iron and when polished has a yellowish-golden color. Silicon bronze is an alloy of copper, silicon, zinc, manganese, with a little bit of iron, nickel, and lead and when polished has a reddish-golden color.

According to Michael Bendele, the hot working temperature of naval brass is 1200-1500 degrees F. That's 100 degrees cooler than for silicon bronze. As a result, I decided to heat the metal to a "just barely radiant temperature". This turned out to work just fine.

I made split-crosses (Friedrich crosses) out of 0.4375" round stock naval brass. After making the necessary cuts with a band saw, I heated the metal to a "just barely radiant temperature" and found that I could open the split-cross with almost no force. In fact, I could fully open and adjust the split-cross with only a paint scraper. Said another way, I did not need a hammer to open, flatten or adjust the primary shape of the split-cross. Surprisingly, the hot metal had a consistency more like molding clay than metal! I have never worked with a metal so soft!

So the first idiosyncrasy of forging naval brass is to heat the metal to a "just barely radiant temperature". This temperature gives the metal the dullest faintest red color, i.e., the first color you can barely perceive in a dark shop.

The second idiosyncrasy of forging naval brass is if you get the metal too hot it is likely to fall apart in the fire or when you touch it with a tong. Too hot is a bright red forging temperature. This is a property that naval brass shares with silicon bronze, although for silicon bronze the "fall-apart temperature" is at a more orange forging temperature. The photograph below shows two pieces of a split-cross that broke in the fire because I got the naval brass too hot.

The third idiosyncrasy involves forging cold. When making silicon bronze split-crosses, I have often hammered at a cold temperature when doing the final surface texturing to give the hammered look. This makes a very good demonstration. Once in a while I might get a small crack or chip, but this is rare. Never has a silicon bronze split-cross broken while being forged at a cold temperature. On the other hand, when forging naval brass in a cold shop on a cold anvil I successfully cold forged nine split-crosses but the tenth cross broke near the center when I was flattening it. See photo at right. Naval brass seems to work harden more than silicon bronze. So the third idiosyncrasy is that naval brass should not be forged cold in a cold shop on a cold anvil. Reheating once or twice while forging to normalize the naval brass is the safe thing to do.

In summary, I agree with Michael Bendele that naval brass is a great metal to work with if you respect its idiosyncrasies. The end result is a beautiful and weatherproof product shown below.