

EARTH, SALT, and FIRE AAEA Workshop, Fall '12

Larry Percy and Heather Marusiak

General Intro Notes from Larry:

I did not get a chance a chance to go over the handouts the way I wanted to during the loading session Friday morning, so I will try to hit the highlights here. The pages handed out at the conference and attached here are actually notes from my ceramics professor at Southwestern Oklahoma State University, Mr. Montee Hoke. I had returned to SWOSU in the mid 1980s to get my M.Ed. in Art Education and as a graduate student, assisted him in a number of workshops. During my graduate work, we experimented extensively with this “low tech” firing methods, which compared to traditional high firing methods, were relatively quick and much cheaper firing methods, highly ‘serendipitous’ and spontaneous in terms of colors and surfaces produced.

I have actually included a handout here that was not in the original handout packet on “Low Fire Salt”. These handouts describe three distinct methods from which to approach these low fire, low tech methods, but in the years since these initial explorations, and especially in the development of my MFA graduate work at the University of Kansas, I began to meld the materials and process involved in a number of these into what is today commonly known as “saggar firing”. Though, to truly saggar fire efficiently, you need “assistance” from a more efficient fuel and burner system such as propane or natural gas.

I have typed in a few of my own notes in red under a couple of these methods, especially my thoughts and reflections on the fire on the beach. I hope this information is beneficial to you and happy firing in the future!

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Primitive of Pit-Fire Session

A good dense whiteware talc body which is close to maturity at C/04 seems to work best for me. However, both my whiteware and stoneware bodies bisque at C/08 have produced some interesting surface colors.

The length of the fire and the atmospheric pressures also seem to have certain effects, examples slow fire, low barometric pressure and fast fire, during high barometric pressure, not enough conclusive information but the low pressure, slow fire seems to produce the best results for me.

Of course, the most critical part of the Pit-Fire ala 55 gallon drum or 30 gallon garbage can is the combustion materials used, you will find your favorite somewhere along the line. I seem to have the best luck with hardwoods, oak, hickory, blackjack, elm and hardwood sawdust from our I.T. program. I do spend some time soaking various materials in a salt solution then drying- grasses, hay and wheat straw to name a few organic materials. I also soak burlap and certain hemp and soft fiber rope like "jute". At one workshop we also use discarded veggies and fruit from the Farmers Market, but not enough experimentation to come to any conclusion, but I think there is a possibility. Then there are various salt and chemical addition which definitely have their effect, copper carb., copper sulfate, iron sulfate, cobalt sulfate, and iron chloride to name a few I have used.

The use of the pit is probably the most miss-used term since everyone has his or her own special idea of kiln. I use the 55 gallon drum because it keeps everything contained, particularly out in windy western Oklahoma. I have found that anything which will contain the burning material will work as a pit-fire kiln.

We will fire one of the pit-fires from the bottom up, meaning we will start a good fire to create hot coals then add the combustibles to the top of these coals along with the piece to be fired. The other kiln will be stacked with pieces and combustion materials pack in around the pieces and the fire started from the top to burn down, while the other will burn up. I've had success from both ways.

People who like this process should look into the possibilities of the various terra sigillata slip and the course burnishing or polishing the raw clay surfaces.

NOTES ON PRIMITIVE OR PIT-FIRES

PERCY NOTES ON THE PBR Beach Fire/AAEA Fall Conference 12: Lit fire shortly after 9:00 a.m. 900° by 10:30. Slowed fire down. Temp dropped and hovered to 600-700. At 11:30, opened air back up and stoked fire to 1000°. Held for 1.5 hours. Made 1100° right at end of fire. Did not develop near as much color as expected or desired, but in reflection, we probably did not generate enough heat to activate the salt (see Low Fire Salt section). It was noted that most of the color developed on pieces that were in the middle of the stack in the barrel and this would make sense in light of that is where the most heat would be generated and held. There were hints and "flashes" of color that would indicate we were on the right track. Slip cast pieces showed most color...Something I thought about on the way home: One of the

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major deflocculates used in casting slip is **sodium** silicate...the "salt" was already *in* the body. Would there be a way to manipulate this variable in or on non-slip cast clay bodies?

Low Fire Salting Process

To begin with this is not a glazing process this could best be described as a fuming process as the salt is used to help put the other chemicals into suspension. The process works at the temperature salt begins to vaporize, which is in the area of 1500° F there are still a lot of questionable statements and attitudes about this type of fire. I will try to justify my attitudes about this process during this workshop.

I have used a variety of different slips:

Basic slips by volume:

1 Gretsley Borate	1 Silica	1 Silica
1 Silica	2 Gretsley Borate	1 Gretsley Borate
4 Koalin	3 Koalin	1 Koalin

Copper 3% produces yellow, orange, pinks, reds, magentas

Copper 3% + 1% cobalt produces soft to harsh blues.

Copper 50% iron ox 50% Black calligraphy lines – halo effect.

Iron 2% Copper 2% cobalt 05 soft hues of blue with pink halos.

Mason stains can be used 5% -10% for a greater variety of color.

The bodies I have used and had success with were high iron content (Red Art Clay) and a white body using Tile #6 Clay I personally like the white body the best, but the Red Body still intrigues me. I will discuss these bodies with anyone who wants the information. Again, the use of Burnishing and Terra Sigillatta has great possibilities in this type of a fire and there will be a lot of personal preference for the people firing this way.

I bisque fire the most of my pieces at C/.08 or lower and have even on occasion single fired pieces with success.

The loading and stacking of the kiln seems to be the most critical part of this fire. My kiln is a hard brick base and bottom 36" x 40" with a fence wire top with 3" of pyro bloc fiber (Babcock-Wilcox) tied into it with Kanthal wire, fired with modified Venturi burner system on natural gas. The same type burner can be used with propane, but with a much smaller orifice.

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In loading and stacking this kiln we use a number of combustibles, sawdust (fine & course) hard and soft wood, shards and broken kiln shelves, and almost anything which will burn. One time we used a dead bird. I have even talked to people who use road kills to make their brushes- for decorating. The length if the fire is sometimes related to the atmospheric condition also and I have not reached an opinion as to fast fire, fast cool or slow fire, slow cool. This attitude may change in time.

You will want to make notes on where and what combustion materials are around your piece in the fire. I may want to ask questions.

NOTES ON LOW FIRE SALT:

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NEWSPAPER KILN

(see illustration next page)

I have no idea as to whether this will work satisfactory, but I have become tired and disenchanted with the standard 55 gallon drums and the "pit-fires". It seems reasonable and feasible that it will work if not fired too fast.

First a fire trough must be dug in the ground 6" deep, 30" long and 8" wide this will then be covered by a grate, screen or bricks on edge. I also plan on using old pots shards on the bottom to help distract the direct heat from this trough.

On top and around these shards the stacking of the kiln will start. Extra care in stacking will be taken as the pots and combustibles begin to move up, you will start wrapping paper or burlap around the kiln to hold combustibles in. this covering will also act as a shield from the final covering of newspaper dipped in slip which will cover the entire stack to about 3 or 5 layers of double sheet newspaper dipped in clay slip. It will now look like a "mud dobbers" nest or a "beehive", the flue will be a small coffee can with the bottom removed, placed at the top of the stack of pots on the shard and sealed in with the newspaper and slip.

The kiln will probably be started by placing a propane weed burner in the trough for 15-20 minutes. To ignite the hard wood logs then sealed off.

NOTES ON NEWSPAPER KILN: I HAVE actually tried this, with a high school crafts class no less. Though we substituted large sheets of a medium weight slick white paper – remember that slick papers have CLAY in them as well as wood pulp. I challenged my students to think this problem through by presenting just the concept of using paper for the outside of a kiln and the knowledge that there are papers that have clay in them. With just a little prompting, they did a great job of arriving at the concept that if we coated the paper in clay, that the paper would not "burn" but would harden and form a hard clay shell as the kiln fired. In fact, one of them observed: "Mr. Percy, we are just building a giant pot and firing all of ours inside it"! This fire lasted almost 8 hours and we burned 6-8 cubic feet of scrap and firewood. We did not use a pyrometer, but from the color of the heat inside, I estimate we were in the 1600° - 1800° range towards the end of the afternoon.

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