Wood Firing and Reduction Firing

Condensed from an article By Pam Owens

Wood firing is an integral part of the North Carolina pottery tradition. The early kilns of Moore, Randolph and the surrounding counties were called groundhog kilns. This is because they were built into the ground with low walls. Bricks were not readily available in the eighteenth and nineteenth Century so it was important to use the ground for support and insulation. In this way a very simple kiln was designed with a fire box at one end, then after a step up of about two feet the pots were packed in to an area approximately 6 by 12 feet by 3 to 4 feet tall with the chimney at the back. A cross draft was created when the fire was built rendering the pots near the firebox the hottest with the pots near the chimney a lower temperature.

These groundhog style kilns produce pots that tell the story of their firing. Ash runs, or golden to greenish drips in salt glaze wood firings, form from the build up of dry ash during the heating process and then melting as the firing reaches top temperature. These can be light like honey to deep green like dripping molasses. A reducing atmosphere is created by building up the fire with wood, while closing down some of the chimney space. The smoky fire gives an enriched and often green or iron color to the clay body. Through this process of reduction (smoky) and oxidation (clean) atmosphere during firing, the oxides especially in glazes change colors. For instance copper can be green or turquoise in oxidation and red, burgundy or other related tones in the color spectrum in reduction. Iron can go from a light golden color to a rich red brown color. Reduction is a carefully monitored process that can make a pot beautiful or destroy it, for if you reduce too heavily the gases formed within the clay body will not be able to escape without ruining the pot.

Every reduction firing is in itself a new challenge in the same way that every new day presents its own new challenges. Small changes occur that require calculations and adjustments and there are always risks in the firing process. A pot goes through many steps before it is completed and wood and reduction firing is always a test of the skill acquired from each firing that has come before.