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The historic period ceramic traditions of North Carolina are extremely varied. The earliest work was that of the Moravians, who came south from Bethlehem, Pennsylvania, in 1753 and settled in what is now Winston-Salem, Forsyth County. The first glost firing occurred in 1756, and the master potters Gottfried Aust and Rudolf Christ, among others, produced a wide range of products, including German decorated earthenware, English-inspired creamware and stoneware, and even some faience (Bivins 1972).

About 50 miles southeast of Winston-Salem is the town of Seagrove in southern Randolph County, the center of a distinctly different tradition. Here, in the counties of Randolph, Moore, Chatham and Montgomery, some 200 potters - most of them of British origin - made utilitarian redware and salt-glazed stoneware from the late 18th century to approximately 1930. This was the largest concentration of potters in the state, but their work remains undocumented. Only the 20th century craft revival called "Jugtown", which is located in northern Moore County and grew out of the old folk tradition, is well-known today (Crawford 1964).

The third major tradition - without question the most obscure of the three - is located on the western boundary of Lincoln and Catawba counties in the western piedmont. From the late 18th century until World War II, some 150 potters, the majority of German extraction, produced redware and more importantly, alkaline-glazed stoneware. One potter, the last in a long line, still burns his wood-fired groundhog kiln today.

Alkaline glazing is a distinctly Southern phenomenon, found in abundance from North Carolina south to Florida and west into Texas. The adjective "alkaline" simply designates the flux which is used, either calcined lime or wood ash. The former contains calcium; the latter, sodium and potassium as well as calcium. All are alkaline substances which serve to reduce the melting temperatures of the glaze. For their silica, the Southern potters drew on a variety of sources, notably sand, clay, quartz, feldspar and crushed glass. Thus, a typical alkaline glaze might consist of: (1) ground glass, (2) sifted wood ash, (3) water to make the mixture fluid, and (4) a small amount of clay to help the mixture adhere to the surface of the greenware. The result was a thick, runny, lustrous, glassy coating, very different in appearance from the ware glazed with lead, salt or Albany Slip (Figure 1).

A typical shop from the Lincoln-Catawba area is illustrated in Figure 2. The photograph, taken about 1914, shows from left to right two journeymen potters, Jim Lynn and Bob Canipe, and the shop owner Bob Ritchie. To the right is the pug mill, and to the left rear the groundhog kiln with the usual woodshed at the firebox end. A treadle wheel with a row of recently turned milk crocks is visible under the shed roof, and a few large jugs are drying on wooden racks out in front. The shop itself is no less characteristic, with a large loft for greenware and a shed on the side to store additional equipment such as the glaze mill. The chimney indicates

Figure 1. Half gallon jug by Thomas Ritchie (1825-1909), Corinth, Catawba County. Height 9½", alkaline glaze. The initials (TR), capacity mark (½) and incised bands on the neck and shoulders are characteristic of the area.

Figure 2. The pottery shop of Robert David Ritchie (1862-1929), son of Thomas Ritchie, Corinth, Catawba County, ca. 1914.

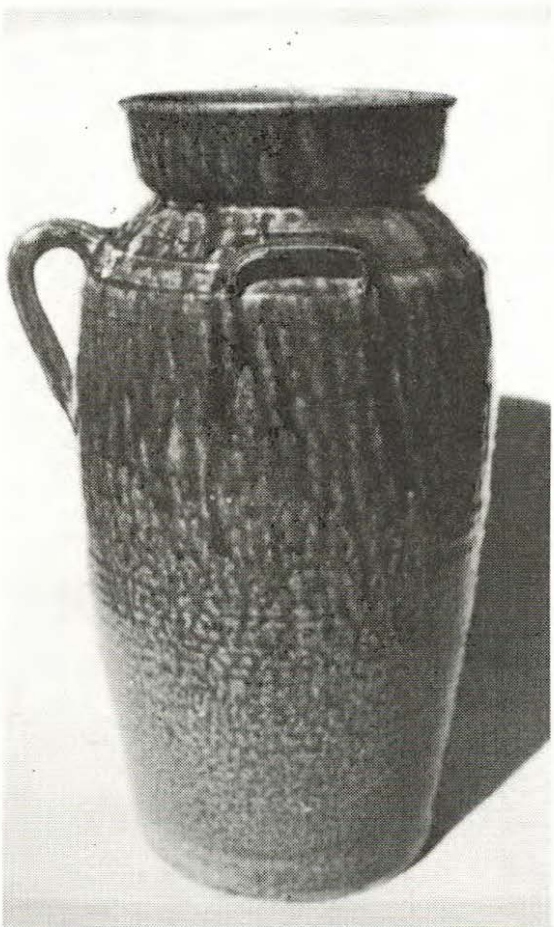

Figure 3. Four gallon churn made by Samuel Propst (1882-1935), Henry, Lincoln County. Height 18¼", brown alkaline (iron) glaze.

that inside is a long, low brick oven - about three feet square and running two-thirds the length of the shop - used to dry the ware as well as for heat in the winter. Generally, the methods used to gather the clay, grind it, and turn it on the wheel were typical of most traditional pottery shops. What truly distinguishes the alkaline technology are the glazing and firing processes.

Two traditional fluxes used in the Southern alkaline glaze were wood ash and lime, but only the former appears to have been employed in the Lincoln-Catawba region. Moreover, the North Carolina potters restricted themselves to two silica sources: iron cinders and glass. Possibly, these particular preferences will one day prove important to our understanding of the dissemination of this glaze.

During the late 19th and early 20th centuries, the preferred glaze was that made with iron cinders. The potters would haul a wagon load of chunks of slag from the furnaces at Iron Station, Lincoln County, and then grind them into fine powder. The resulting glaze was a rich, honey-brown color often with thick runs of glaze down the side of the pot (Figure 3). According to Fred Yoder, whose father Colin ran a shop from 1895-1905, "iron glazed ware came out of the kiln with nice vertical stripes that people liked. Prettier than the glass but no better to hold liquid" (Yoder 1976). Potters continued to use the iron cinders into the 1930's, but by then the supply had diminished, and the 20 mile journey to obtain them was no longer considered worthwhile.

Glass for the second type of glaze was obtained at hardware stores and cabinet shops. With the increasing availability of such Southern beverages as Coke, Dr. Pepper and R.C. Cola, glass became plentiful and by the 1930's was the major ingredient. The glass glaze is not always easy to distinguish from the iron, but it tends to have a more greenish hue and produces a smoother surface coating (Figure 4). For special effects, potters sometimes placed chunks of raw glass on the tops, shoulders or handles of the pots. As illustrated in Figure 5, the result was a series of wide, milky-white stripes running down the sides. In shape and color, this brandy barrel closely resembles a Southern watermelon.

A third variety of alkaline glaze - actually a hybrid form - came into popularity about 1900, when potters began mixing substantial amounts of Albany Slip with the glass glaze. Usually such pieces exhibit large areas of black and rust-brown, together with sheets of light blue fringed with milky white. At times the results were quite striking. Most of the potters were regularly mixing small amounts of local clays into their glazes, and it was a natural step to use the Albany Slip instead. Moreover, increasing the amount of slip saved both time and labor, as less crushed glass was required. Altogether, relatively little Albany Slip was used in this area, and almost invariably it was combined with the glass glaze.

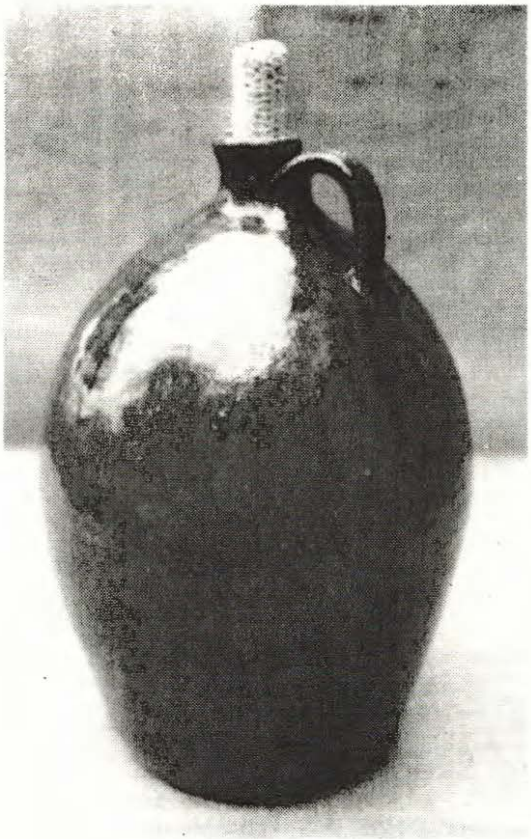

Figure 4. Jug made at the shop of Lawrence Leonard (1870-1944), Vale, Lincoln County. Height 11¼", green alkaline (glass) glaze.

Figure 5. Five gallon barrel made by Sylvanus L. Hartsoe (1850-1926), Lincoln or Catawba Counties. Height 19", green alkaline (glass) glaze with chunks of raw glass on top.

Most potters burned at least two types of glazed as well as unglazed wares. The large groundhog kilns were fired from one end only, meaning that the heat dropped off very perceptibly toward the opposite or chimney end. Through practical experience and no doubt many failures, the potters learned to place the iron cinder glazes directly in front of the firebox, next the glass glaze and then the Albany Slip. The unglazed pieces were positioned in and around the chimney, as well as along the sides, where the heat tended to be lowest. In short, there was a very practical need for a variety of glazes.

In preparing the glaze, the potter first smashes the iron cinders or glass bottles into small pieces, an inch or so in size. These fragments are ground into fine powder the consistency of flour. While various devices were used for this purpose - from a simple iron mortar and pestle to a more elaborate operation similar to a pug mill - the most widespread was the water-powered glassbeater. This entirely homemade device is built into a small branch or stream located near the shop. As illustrated in Figure 6, water flows from a spillway into a waterbox at the far end of the glassbeater. When the box is full, it plunges rapidly to the creekbed, simultaneously raising the near end of the beater, into which is fitted an iron rod, 1 foot long and 1½ inches in diameter. The water then spills out of the water box, and the iron rod drops back into the glaze box, pulver-

Figure 6. Water-powered glassbeater used by Burlin Craig, Vale, Lincoln County.

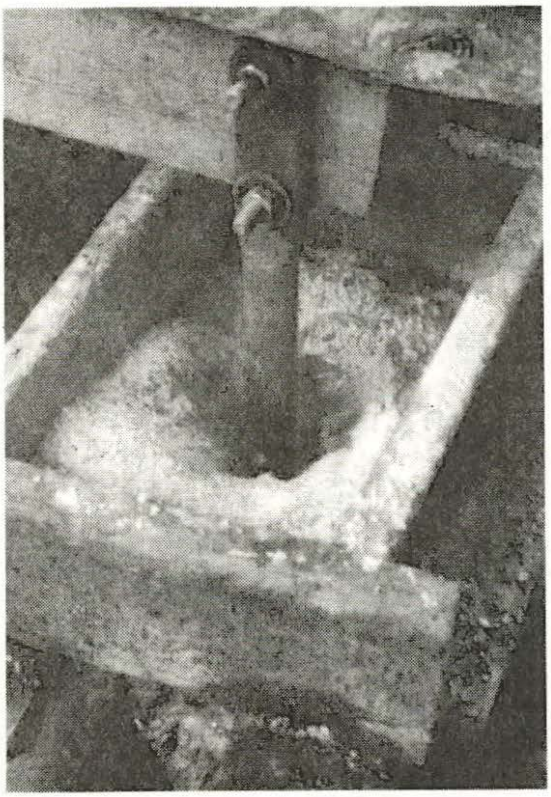

Figure 7. Glaze box on Craig glassbeater.

izing the iron cinders or glass fragments. Figure 7 provides a close-up of the glaze box and reveals the flour-like consistency of the finished product. Generally, the potter need only visit his glassbeater once per day, to sift out the fine particles and to refill the glaze box. Many residents recall that forty years ago and more the district was filled with the sounds of these metronomes signaling every minute or less that all was well with the pottery industry.

The potter, ready to glaze his greenware, mixed this finely powdered iron cinder or glass with sifted wood ash, water and clay. Generally, the glaze is a dirty gray color and is rather thin in consistency. Then the mixture is ground in a small, hand-powered stone glaze mill, and poured into a large tub where the greenware is dipped and rolled. When the glaze coating has dried, the piece is carefully stored in the shop loft or shed until sufficient ware is available to fill the kiln.

The most dramatic phase in the craft of pottery is burning the ware, and here, the all-important tool is the kiln. In the Lincoln-Catawba area, only two kilns remain, both of them constructed out of homemade bricks by Enoch and Harvey Reinhardt in the mid-1930's. Both were built from 100 year old arch boards - wooden patterns used to shape the arch - so it is reasonable to assume that these kilns are little different from their predecessors. Overall, these groundhog types measure 24½ x 11½ feet; the setting floor inside is 20 x 10 feet, and the top of the arch is 28 inches high at the center. At one end is the firebox, which measures 2½ feet deep, 4 feet wide, and 10 feet in length. The pine slabs which fuel the kiln are dropped in through three fireholes, approximately 1½ - 2 feet high and 1 foot wide. There are three draftholes which angle down about 45 degrees under each firehole and provide a constant flow of air into the kiln. At the opposite end is a low chimney, 4 feet 9 inches and 5 feet 9 inches on the two kilns, into which is built a loading port approximately 2½ feet high and 2 feet wide, which the potter bricks up during the firings. The walls and arch are 8 inches (one brick) thick and buttressed with large rocks and earth along the sides. The top of the arch is coated with clay and protected from the weather by a tin roof. Altogether, the kilns hold about 500 gallons of ware which rests on a tamped floor of sand and crushed quartz. Because the alkaline glaze runs in dramatic and unpredictable ways, the pieces are never stacked.

Only one man still fires this type of kiln, Burlin Craig of Lincoln County (Figure 8). Burlin learned to turn ware about 50 years ago under the tutelage of Jim Lynn, pictured in Figure 2, and still burns his kiln three or four times per year. He usually begins early in the morning by loading his kiln with the help of his family and friends. About 11:00 a.m. he drops a box full of crushed paper and a few pine slabs into the firebox. With a small fire going at the bottom of the firebox, he angles a few thin slabs into the three fireholes. At first the potter must work very slowly, building his fire almost imperceptibly to work the remaining moisture out of the kiln. Even at 3:00 p.m., some four hours later, Burlin is only placing five to six slabs into each firehole. The principle is to work the fire gradually forward into the kiln. This is done by observing carefully the soot on the inside of the arch. Initially black, the arch turns white as the soot is completely burnt out. Once this has occurred, Burlin angles his slabs in deeper and closer to the wares.

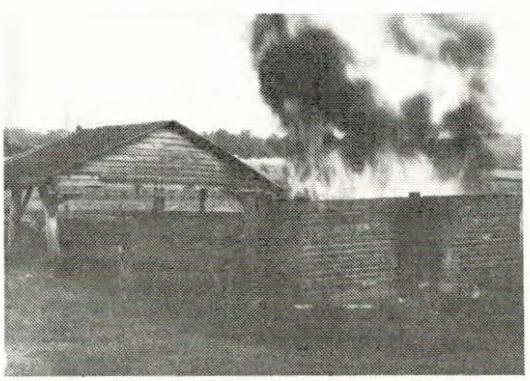

Figure 8. Kiln burned by Burlin Craig on June 29, 1977.

The heavy work begins about 7:00 p.m., when the last bit of soot has burned out of the back of the chimney. Now Burlin and an assistant begin to jam the fireholes with wood and "blast off" the kiln. At this heat, the slabs "crackle like ham in a skillet" to use Burlin's phrase, and disappear in one or two minutes. The potters, soaked with sweat, move in and out of the loading area every four or five minutes. Each time they reload, a continuous sheet of flame surges the length of the kiln and then up into the open air above the chimney. The kiln has an excellent draft because air is sucked in through the open draftholes, across the firebox and ware, and out through the short, open chimney. The draft is further aided by the slight upward slant of the kiln and the lack of a breastwall under the front end of the chimney.

Throughout these five minute cycles, the kiln atmosphere alternates between reduction and oxidation. When the fireholes are filled, the kiln is reduced, and a dense column of black smoke curls out of the chimney. Then - as the slabs burn away, the smoke clears, and the sheet of flame slips back inside the chimney - the atmosphere shifts back to an oxidized condition. But this is the signal for more wood, and the potters go in again.

The final firing is made at 10:00 p.m., at 10:30 p.m. the kiln is sealed with metal sheets, except for the draftholes. He calls a halt when the flame turns light orange and the glaze has liquified on the sides of the white-hot jars. Normally, the kiln is opened in 1½ days and unloaded through the chimney.

Today, Burlin is the only potter in North Carolina to make traditional alkaline-glazed wares. He sells his entire output at his shop, with about half going to local residents needing a kraut jar or a flowerpot, the rest to collectors and antique dealers. In earlier times, most of the pottery was hauled north and west into the mountains and across into Virginia and Tennessee. In effect, pottery constituted a rare export industry for the region, one which generated much needed cash as well as bartered staples like mountain apples, beans, cabbage, cheese and meat. Most potters were farmers as well and their operations were of modest size. The census information is admittedly scanty, but during the latter half of the 19th century, the shops averaged about 6,000 gallons per year and the going price was in the neighborhood of 12½ cents per gallon. Prices fell to 5-8 cents per gallon at the turn of the century and were about 10 cents during the Depression. As late as the 1930's there were at least 13 shops at work, all employing the old alkaline glaze technology to produce familiar utilitarian forms such as jugs, jars, pitchers, churns and crocks.

One intriguing question remains: just where did the Southern alkaline glaze originate? In 1970 Georgeanna H. Greer outlined one possible solution, by suggesting that the glaze came from the 18th century English potters, who, in turn, had learned the secret from the Chinese (Greer 1971: 155-70). Two other authorities, Stanley South (1971: 171-85) and John A. Burrison (1975: 377-403) have offered further variations on this English connection, but as yet no specific links have been proven.

The English potters of the Seagrove area of North Carolina never used an alkaline glaze (Figure 9). The potters of the Lincoln-Catawba region - all of German extraction, including Hartzoch, Leonard, Propst, Reinhardt, Ritchie, Seagle, Shufford and Weaver - are another potential source for the alkaline glaze. Take, for example, traditional glass-making. During the latter half of the 18th century, there were a large number of German-run glasshouses in the Philadelphia area, the place of origin of many piedmont North Carolinians. While no precise connections can be made, traditional glass technology involves some strikingly similar ingredients: (1) sand (the silica source), (2) ash (the alkaline flux - the Germans used oak, beech or pine, while most other Europeans preferred herbs, kelp or ferns), (3) lime (as a flux and stabilizer), and (4) broken glass or "cullet". Moreover, these materials were placed in a large clay pot, meaning that someone with at least rudimentary ceramic skills was directly involved in the operation. Finally, the batch was melted in a long, low furnace. The English converted to coal in the early 17th century, but the

Figure 9. Six gallon jar made by Daniel Seagle (1805-1867), Vale, Lincoln County. Height 17½", alkaline glaze.

Germans continued to rely on large logs cut from coniferous timber until well into the 19th century (Polak 1975).

All of these theories have intriguing possibilities. At this point, it seems reasonable to assert that the traditional alkaline glaze came into use in the South somewhere between 1800 and 1820. The two most likely areas of its origin are the Edgefield District of South Carolina (Greer 1971; Burrison 1973, 1975; Ferrell and Ferrell 1976) or the Lincoln-Catawba border of North Carolina. Much research remains to be done, but a fuller exploration of the history, forms and technology of the alkaline glaze should eventually provide some specific answers.

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