FOSSILIFEROUS SHALE: A "NEW" TEMPERING AGENT IN CERAMICS FROM WESTERN OKLAHOMA,

Michael C. Moore

Past descriptions of pottery from sites in western Oklahoma have listed a variety of of calcium carbonates and other materials as temper additives. Through the years, the consistent identification of such resources as caliche, shell, limestone, and sand resulted in these materials being the expected tempers in pottery recovered from sites within the Quartermaster Creek watershed of Roger Mills and Custer counties. A survey of Quartermaster Creek and several of its tributaries was conducted by the Oklahoma Archeological Survey between the summer of 1982 and the fall of 1984 (Baugh 1984; Moore 1987).

As the survey progressed, routine microscopic examinations of sherds from sites recorded along Quartermaster Creek were performed. These inspections determined that most sherds, whether plain surface or cordmarked, were tempered with a material unlike any mentioned in previous studies. This particular material was quite distinct as it exhibited a blocky appearance with alternating red (sometimes yellow) and white layers. Fortunately, several small cobbles similar to this material had been collected because of their curious appearance, and they were available for comparison. After determining that these cobbles were indeed the source of the unidentified temper, a sample was taken to the Oklahoma Geological Survey at the University of Oklahoma. Staff geologists identified this material as a fossiliferous shale, consisting of fossil oysters (Texigraphea) imbedded in Permian age shale. This determination was interesting in that a new tempering agent for western Oklahoma pottery had apparently been discovered.

Continuing investigations throughout the watershed revealed that fossiliferous shale was a common material that could be found almost anywhere as either small to medium cobbles in the numerous upland gravel deposits or in large blocks that outcropped along the Washita Valley. Although the first pieces of fossiliferous shale recovered during the survey were red, most specimens observed in the field were yellow. A kiln experiment indicated that heat turned this material from yellow to red (kiln temperature of 300°C). The majority of fossiliferous shale-tempered sherds from Quartermaster Creek exhibited red tempering particles; a small percentage had yellow particles. It was suggested that fossiliferous shale was unheated before being ground and added to the clay, and that the pottery firing process turned the temper particles red. However, the recovery of several cobbles of red (heated) fossiliferous shale supported the opposing argument, namely that this material was also heated prior to mixing it with the clay. More research and experimentation is needed to provide a more difinitive answer to this question.

No references concerning fossiliferous shale have been made in the archeological literature prior to the Quartermaster Creek investigations. However, Jack Hofman (1980) described a sample of limestone and fossil shell-tempered sherds from the Lamb-Miller site (34RM25) along White Shield Creek in Roger Mills County. A subsequent examination of this sample determined that nearly 100% of these sherds were tempered with fossiliferous shale. As mentioned previously, much of the pottery from sites near Quartermaster Creek had been described as having such tempering agents as caliche, limestone, shell, or sand. The substantial number of sites with fossiliferous shale-tempered sherds suggested that some previous temper identifications were needing revision. Recent research throughout west-central Oklahoma has begun to identify fossiliferous shale as an important temper for pottery. For example, 99.5% of the Heerwald site assemblage was so tempered (Drass, Baugh, and Flynn 1987). Also, the Linville II site (34RM492) contained over 80% sherds with this temper (Drass and Moore 1987). A reexamination of sherds from the Mouse (34Cu25) and Edwards II (34Bk44) sites revealed that previously unidentified fossiliferous shale was present in substantial quantities.

The purpose of this brief article has been to bring fossiliferous shale to the attention of researchers interested in western Oklahoma pottery. Temper identification is a basic, but integral, part of any ceramic assemblage description. Therefore, the archaeological community should be aware of this relatively unknown, yet often utilized, resource.

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More on Flint or Chert, Bill Dennis

I enjoyed Lee Woodard's comments in the December newsletter. Through the years the oil men would say something about chert but I paid no attention to it. I asked a friend who is retired from ARCO Oil Company and a geologist and petroleum engineer and has worked all over the world, "What is chert?" He said the white or light colored material they called chert and the darker colored material they called flint. They are both very hard and fracture the same and to him it was the same kind of rock but a different color.

He said that in 1953 they moved a drilling rig on a location just west of Durant, Oklahoma. There was an outcropping of quartzite and chert on the surface. The people around there called it flint. They drilled 100 feet deep and had used 96 drilling bits! They laid down the derrick and went to another location. Around here (Jacksboro, Texas), two bits will drill anything.

In 1965 at Ouargla, Algeria, he saw an Arab sitting in the shade by an old French water well making arrowheads. He was beating on the flint with a stick smaller than a broomstick and about 15 inches long. The flint blades were about 4 inches long and were good looking arrowheads. The Arabs could make them pretty fast and sold them to the stores in town. Then the shop keepers sold them to the tourist for a high price. They were a good tourist item.

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Some Beads from Beaver County, Alvie Laverty

I've been wanting to get a note sent ever since I read the article (by John Paddock) in the September 1987 newsletter about the beads. I have two similar ones (illustrated on the following page).

This summer while on vacation my family and I stopped at Pecos pueblo New Mexico. In their new museum are some beads very much like mine. They were identified as rosary beads. In contrast to mine, those at Pecos were milky white; mine are cobalt blue. I wonder if sunlight has caused the blue color (as it is like that common in old glass). Both my beads and the Pecos examples show the swirling effect as described by Mr. Paddock.