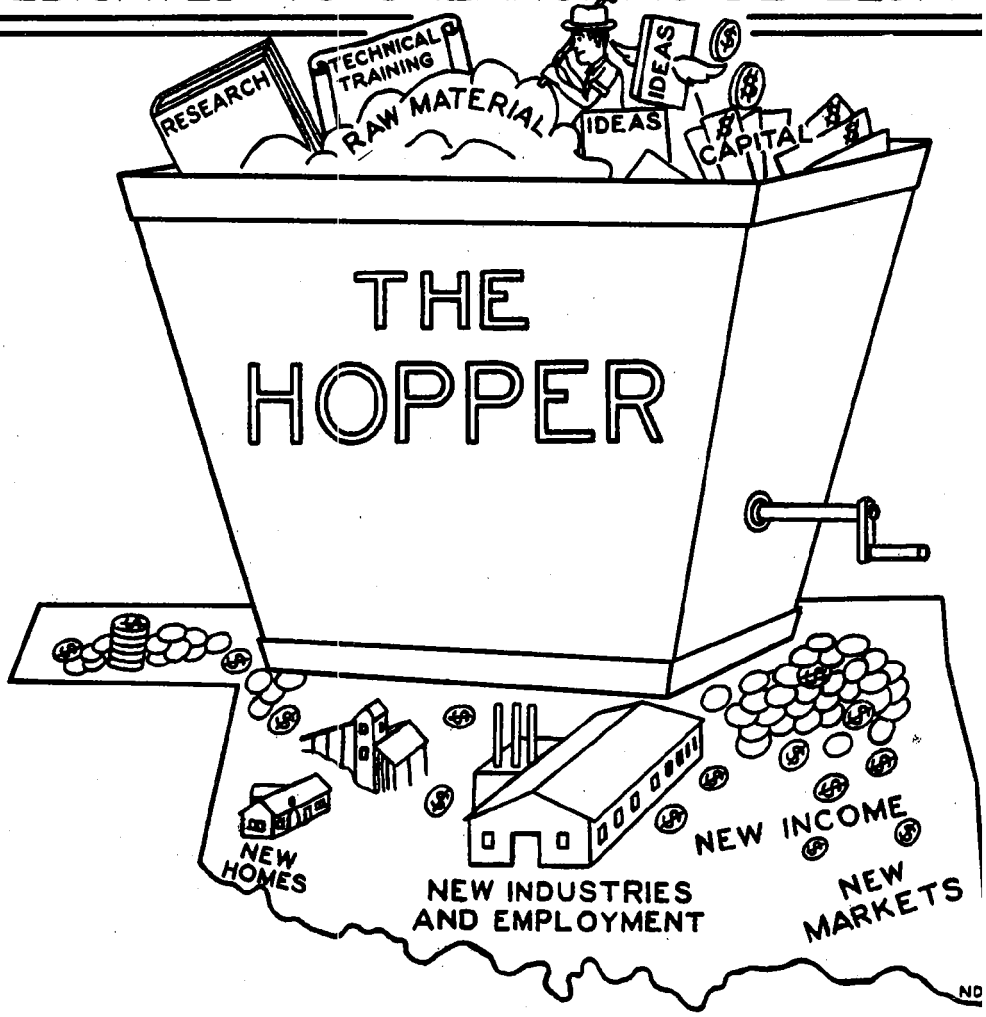
DEDICATED TO OKLAHOMA'S DEVELOPM



PUBLISHED IN THE OFFICE OF THE
OKLAHOMA GEOLOGICAL SURVEY
NORMAN, OKLA.

Vol. 11, No. 9 September, 1951

POTTERY INDUSTRY OF OKLAHOMA

by
Virginia Butcher, Assistant Geologist
Oklahoma Geological Survey

I. Development of Primitive Pottery

The history of making pottery extends far back into the early Stone Age. Only in one or two instances have fragments of what has been described as pottery been found in remains of Palaeolithic man. However, in the next recognizable stage of the Stone Age--Mesolithic time--there are many remains of pottery available for study. Among these the first crude attempts at decoration of the pots are found. These decorations are usually lines made with a stick or impresses of the finger of the potter. Neolithic man, living in the last stage of the Stone Age, had evolved a civilization based upon four great developments: (1) agriculture, (2) domestication of animals, (3) manufacture of pottery, and (4) tool-making by a grinding and polishing technique. A significant role in the refinement of the home must be granted the potter. The surface of the unfired pot simply called for decoration of some kind, and in yielding to this desire to adorn the vessel, it is possible we can say that art for art's sake is in large measure coincident with the discovery of pottery making. The Neolithic man decorated vessels by both painting and engraving. He often rubbed a white or colored material into the engraved lines, and on many of his vessels achieved a striking and beautiful effect.

The manufacture of pottery, an outgrowth of the need for more and better receptacles, was greatly stimulated by Neolithic man's development of agriculture. Baskets, skins, gourds, and other natural objects could be used to serve a part of

these purposes, but over all these, pottery had the one great advantage--it could be brought into contact with fire and not be destroyed.

Pottery-making among primitive peoples was not universal, partly because under some cultures, such as a true nomad existence, it would be difficult to carry on, and, because in some places suitable materials were not available. At one time the knowledge of pottery-making was believed to mark a stage in the cultural development of mankind. However, its presence among such peoples as the Eskimo, Bushmen, and Hottentots and its absence among the advanced Polynesians lessens the importance of pottery as a measure of cultural advancement.

The manufacture of pottery falls into five stages: preparing the "body" or raw material; shaping the pot; drying and firing it; decorating it; and varnishing or in some other way rendering it non-porous. The first four stages are used in the manufacture of the simplest wares, but the last is most often completely lacking in the pot-making of primitive people.

The chief raw material needed for the "body" is the clay which is often seasoned for a period of time after digging. Clays vary greatly. Clays which are highly plastic and hold the water, though convenient for the potter to handle, are likely to crack because of excessive shrinkage in the drying and/or firing of the vessel, and must therefore be "opened" by mixing with a non-plastic material. Sand is often used for this purpose, or carbonaceous materials such as chopped grass, cinders, dried cow or donkey dung; frequently old potsherds are ground for this purpose. Ground clam shells or bones were preferred as tempering material by a large number of the early potters. In mixing the "body" the proportions of clay, "opener", and water necessarily varies greatly and is judged empirically by the potter.

The "body" having been prepared, the next stage is the shaping. The three ways of doing this (on which all modern methods are based) are: by hand, with the aid of a few simple implements; by moulding; and by throwing on the potter's wheel. The hand method, the first to be developed, was by far the most common. The two hand techniques are easily traced back in the earliest pots--modelled and coiled. The simplest way in which a pot is modelled is that still used by the women of the Baronga in South Africa. Having kneaded the body into a very soft ball, the woman starts working out a hole in the ball enlarging it very slowly and by degrees molding the walls into the desired shape. If the pot is to be a large one the initial lump of clay may not be sufficient and more is added to build up the walls of the vessel. In the coiling technique the raw material is rolled out into a slender rope which is coiled upon itself. The coils are carefully worked together with the fingers and unevennesses smoothed away so that no trace of them is found except for occasional faint ridges on the inner surface. The modelled and coiled techniques may be combined--the base being modelled from a lump and the coils used to form the walls of the desired vessel. Certain tribes used baskets for moulds. These were burned in the firing, thus destroying a mould for each pot made. Pots moulded in this fashion can be easily identified by the impressions left in the clay from the rough woven basket.

Shaping a pot by means of throwing on the wheel is little known among primitive people. Years of training are required to learn to throw expertly. Primitive potters can make by hand pots which rival in symmetry those thrown by the expert. It is interesting to note in connection with the use of the wheel that only men operate this in the primitive culture; that conversely women reserve to themselves the making of the pottery by the hand and moulded techniques. In some very primitive

cultures it is taboo for a man to approach or even speak to a woman who is working on a vessel. His very presence is judged to be inimical to the successful completion of the work.

When the pot is finally shaped, it is necessary to harden the clay by firing it. If the pot is only sun-dryed, it will still retain a quantity of combined water which will be freed only by the pot being heated to a temperature of 350 to 400 degrees Centigrade. When the combined water has been driven off by firing, the composition of the clay is chemically no longer the same and it is impossible for it to become plastic again. Therefore, except for those vessels made to contain grains and other dry goods, all must be fired.

The pot is set aside to dry for some hours and then it is ready for the firing, usually done in the open. A pyre is carefully built and the pot or pots so arranged that the heat can circulate freely. The only genuine kiln which has been recorded as developed by a truly primitive people is a bee-hive like structure developed by the natives of the Lower Congo region. The more common practice among primitive tribes was to bake the ware in a hole in the ground. Even this practice simple as it sounds required a great deal of ingenuity. Charcoal is used for the heat and openings are cut through the soil to the fire chamber to permit the use of bellows to sustain the necessary heat. Firing time ranges from not more than half an hour to as much as two days. Pots which have been fired a short time are, in general, less durable than those fired for a greater length of time. There is great diversity of shapes and an amazing similarity in wares widely separated from each other in time and space. Some elaborate forms have a utilitarian purpose, others a religious significance, and others appear to be the outcome of the potter's desire to create an object of beauty. In many cases the pots are modelled in imitation of natural or

manufactured objects which served the people as vessels before the introduction of ceramics.

In most primitive pottery the decoration is done by means of incised lines made with a pointed stick or the fingernail of the potter. Sometimes wooden stamps are used or the beater, with the aid of which the pot is modelled, is wrapped with string and the marks made on the surface are left there as a form of decoration. Less common are objects applied to the surface such as knobs, scrolls, and figurines. Raised designs were also produced by pressing out the wall of the pot from within. Another method is that of scraping away the surface leaving figures in relief.

The color of the vessel is to a great extent dependent upon the composition of the body and the method of firing. Of materials present in clay bodies, iron is usually the only coloring element. This, on being subjected to heat under oxidizing conditions, is changed into a red iron oxide and gives shades ranging from yellow to an orange to a red; under reducing conditions colors are produced which range from light bluish gray to a deep, sometimes metallic, black. A dark color was once thought to be indicative of poor firing, the result of the pot having been accidentally smoked. Among the Ashanti it is purposely brought about by setting the vessel, while still red-hot from the furnace, on a heap of dry tinder. The tinder is ignited by the heat of the pot and water is poured on and the pile is left smoking. This smoke permeated the heated clay depositing on it and sometimes through it a mixture of finely divided tar and carbon resulting in a non-porous vessel. Decoration by means of "slip" is occasionally found, but true painted pottery is extremely rare among primitive peoples.

Fired pots are nearly always porous, and the surface may be treated with a resin, gum, fat, or a

gelatinous substance in order to water proof it. Some are varnished. The art of glazing was learned by very few primitive peoples. The product most common to the primitive potter was the different vessels, however other things such as tobacco pipes, drums, toys, and figurines were made.

II. Primitive Pottery of Oklahoma

(General information concerning the pre-historic pottery of Oklahoma was obtained from Dr. Robert E. Bell, Archaeologist, Chairman of the Department of Anthropology, University of Oklahoma.)

Long before the white man knew of the Father of Waters the red man of the Mississippi Valley area was modelling and firing pots! By measuring time elapsed through the use of radio-activity, archaeological authorities estimate pottery was made in what is now the state of Oklahoma at least 2,000 years ago.

Not only did the red man make a variety of vessels but the importance of the raw material, clay, to his culture cannot be over-emphasized. The vessels had become an article of commerce, being found in village sites long distances from the indigenous area. Clay, itself, had entered into the trade lists, large lumps being found carefully buried with the owner to provide for the necessary vessels in the happy hunting ground should those included in the burial be broken.

The clay was used as caulking for the walls of the houses, and for items such as pipes and figurines. A striking feature of the use of the clay by the American Indian was for flooring in some of the houses. A space for the floor of the house was cleared and scraped clean, and a layer of the clay carefully mixed with water (no matrix added) was

smoothed over the chosen area. This was allowed to dry, then a huge fire was built upon it. Many of these floors are found today and the archaeologists report the clay as fire-hardened to a depth of 1½ inches. Sometimes the Indian had brought the floor up at the sides in a gentle curve to provide a baseboard of a few inches in height. Occasionally in these houses a bench or platform of baked clay is an added feature of comfort and utility.

The Red Man of the Oklahoma area preferred ground shells for his "opener", however other materials were used, including sand, pebbles, old potsherds and bone fragments. The quality of the pottery varied from tribe to tribe. Some of the tribes made a very fine pottery. Numerous types of designs were developed, but never the ability to glaze. A type of beautifully burnished black ware was developed by the smudging process. The burnished effect was accomplished by polishing the fired pot with a stone. The decoration was primarily by incising or sculpturing the vessels. Some vessels were decorated by the application of red and white as paints.

For many years students of the Oklahoma Red Man believed no pottery had been made in the State --that it had been carried into the area chiefly over the Trail of Tears. While undoubtedly some was brought in by this route the amount of vessels and potsherds found at different sites soon convinced the investigators that most of the tremendous number of vessels represented were made locally. Burial mounds, kitchen middens, and villages have been found distributed throughout the state but the richest archaeological finds are located in the eastern half of the state.

Pottery, by its inherent indestructibility, compared with other developments of a culture such as woven cloth, leather goods, etc., is a major factor in drawing for the scientist a partial pic-

ture of life and customs of a people long since vanished. The use of the various pots can only be surmized in many cases. However, it is believed that many of the tribes had evolved certain types of vessels which were used only as burial offerings and were evidently made for that express purpose. The burial grounds, known as the Spiro Mounds in Le Flore County, Oklahoma, have been a vast treasure house to the archaeologist.

"Cultural Material" (Kenneth G. Orr, American Antiquity, Vol. 11, No. 4, 1946, pp. 231-232)--"The quantity and elaborateness of Spiro artifacts are almost legendary. Even after the commercial diggers had dispersed artifacts to numerous collectors and several museums, a sufficient quantity remained to give a comprehensive picture of the culture. * * * An estimate of over a thousand individuals is probably not in excess of the original number buried in the Spiro mounds. Fully two hundred eighteen complete or restorable vessels came from the Craig mound,"in the Spiro group."* * * The village yielded thousands of sherds and a limited number of types of artifacts; which material represented a utilitarian complex contrasting sharply with the more elaborate ceremonial artifacts."

The Spiro Mounds are divided by Orr into three time horizons--the Early, Middle, and Late Spiro. Components with definite ceramic types developed in each. The ceramic types of Early Spiro include: (1) square based jars, (2) bowls with triangular cross sections, (3) conical bowls, (4) square based cylindrical jars. Designs with stipled background are found in Early Spiro but are not dominant. Thin, highly polished, brown and black ware with engraved designs based on spiral and scroll motifs are dominant funeral pottery of the Middle Spiro. Late Spiro ceramic designs included scroll-derived meanders, crosshatching, negative elements defined by background hachuring, and linear spurs.

Ceramic types of the Spiro Mounds, after Orr, 1946, p. 234, American Antiquity, Vol. 11, No. 4.

The Spiro Mound dwellers were originally placed as recent as 260 years ago or ranging in time from 1500 to 1690. Later investigations have developed proof that the mounds are definitely pre-Columbian. Archaeologists are not in complete agreement on a date but the time has definitely been pushed back to place the mound builders as living in their villages in Le Flore County, Oklahoma, between the years 950 and 1350 A.D.

The Indian continued to make pottery in Oklahoma until about 1860. He ceased to mould and fire his pots because it was easier to trade with the whites for iron pots, etc. that the trading posts were able to supply. With the passing of the Indian potter, the clays of Oklahoma were to lie for over half a century undisturbed save for use as brick and tile. One firm made stone ware for a time in Ada, that too, closed. Flower pots were made at Oklahoma A. and M. College, Stillwater, for a short period of time. Almost coincident with the discovery and exploitation of the Spiro Mounds by commerical diggers in 1933, John Frank, then of the University of Oklahoma, Ceramics Department, was experimenting with clay of Oklahoma, determined to prove that beautiful, durable art ware could be made of Oklahoma clay.

(To be continued)