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AN ETHNOARCHAEOLOGICAL STUDY OF EARTHENWARE PRODUCTION SYSTEM IN LOISINGHA BLOCK, DISTRICT BOLANGIR, ODISHA

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Studies on Ceramic ethnoarchaeology provide valuable insight into the early pottery-using communities and the modern potters for both the archaeologists and the anthropologists alike. Pottery recovered in excavations and explorations from different parts of western Odisha provide data about the ancient settlements and also shed light on the diachronic developments of different cultural periods of this region. Unfortunately, we know very little about how pottery making technology was organized at that time and also about its use and distribution. Thus the area of Loisingha block of district Bolangir has been selected for the present study mainly to record and understand the earthenware production techniques, raw material procurement strategies, distribution pattern, ceramic function and use among the modern potters of this region.

Introduction

Ethnoarchaeology has Western intellectual roots and was launched in an era of Western expansionism in the late nineteenth century (David and Kramer 2001: 14–32; Longacre 1991: 1–5). Sinopoli (1991) defines, "ethnoarchaeology as a discipline explicitly concerned with examining the archaeological relevance of contemporary phenomena, including such topics as site formation and depositional processes; documentation of traditional technologies, community forms, and settlement patterns; the relations between humans and their environment; and the study of the material implications of a variety of social systems and social strategies, as well as of ideologies and belief systems". However, the ethnographic record doesn't always reflect the full range of variability in human adaptation, as they existed in the past. Thus, the archaeologist while utilizing such data is in danger for producing as well as interpreting distorted picture of the archaeological records. We know ceramics are very important material remains, which are abundantly found in archaeological investigations and among all other ceramic artefacts pottery is the most significant source of information to produce a reconstruction of human behavior in archaeological studies. It is the most useful material remains for archaeologists not only to identify the resident culture, but it is also used for developing a chronological framework for a region. In the last few decades number of researches has been carried out in ceramic ethnoarchaeology worldwide, covering important topics such as ceramic production, technological change, use and distribution, social boundaries, etc., (Deniel 1977; Arnold 1985; Husain 1992;

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Kramer 1992, 1994, 1997; London 2000; David and Kramer 2001). Few ethnoarchaeological researches have also been undertaken by some archaeologists and anthropologists in different parts of India to describe and explain the construction and development of ceramic production (Behura 1964, 1978; Saraswati and Behura 1966; Gupta 1969; Bose 1982; Ghosh and Bhattacharya 1997; Sinopoli 1988, 1991; Kramer 1992, 1994, 1997; Krishnan 1994; Bala 1997; Shrotriya 2007).

Recent investigations in the Western parts of Odisha have brought to light ceramic assemblages belonging to different cultural periods *viz.* Neolithic through the Chalcolithic, Iron Age to the Early Historic periods, (Behera 1982; Behera 2006: 22-62, 2013: 124-134, Yule 2006). Some of the important sites are Hikudi (Neolithic and Early Historic), Khameswaripali, Kumersingha, Kurumpadar and Nuagarh (Chalcolithic, Iron Age and Early Historic), Narla-Asurgarh, Manamunda-Asurgarh, Badmal-Asurgarh and Taraporegarh (Iron Age and Early Historic). The ceramic assemblage of Neolithic period is represented by handmade, sand and lime tempered, red colour, cord-impressed pottery of various sizes and forms, whereas the Chalcolithic pottery is mainly represented by plain and painted black-and-red ware, black burnished ware, plain and painted red slipped ware and plain red ware of different shapes such as bowls, dishs, small vases, *handis*, lids etc. Ceramic assemblages of the Iron Age period are mostly represented by black-and-red ware and plain and painted black slipped ware of fine fabric and red slipped ware of fine to coarse fabric. The important shapes are bowls, dishes, vases, *handis* etc. During the Early Historic period the existing shapes are continued but black-and-red ware is found in less quantity with a degenerated form and more emphasis is given to red ware and red slipped ware for the production of different types of vessels.

Thus among the various socio-cultural aspects of Odisha, the tradition of ceramic production constitutes an important component from the ancient times. However, except the work of N. K. Behura (1978) almost nothing has been done in the field of ceramic ethnoarchaeological studies in the state of Odisha in general and in its western part in particular. Thus a small attempt is made here to understand the processes involved in production of earthenware in ancient times, through the detailed documentation and study of the living ceramic tradition, particularly how the earthenware production is organized in Loisingha block of district Bolangir, Odisha. This particular region has been chosen for the present study mainly because of two reasons *viz.* first, there is a large concentration of potters' community in this region which will facilitate the present investigation pertaining to record variability in ceramic production system. Second, the study area lies in an archaeologically most potent zone, having dense concentration of Protohistoric and Historic settlements in Suktel, Tel and Mahanadi Valley. The methodology adopted for the present study is mainly based on intensive survey, detailed documentation of various practices involved in the ceramic production system and a comparison between ceramic samples from both archaeological and ethnographic contexts.

Area of Present Study

The *tehsil* headquarters of Loisingha block is situated at a distance of 18 kms from Bolangir district headquarters on the National Highway 201. It is divided into 18 *Grampanchayats* and it is one of the densely populated areas of Bolangir district. The Loisingha Block spreads over an area of about 464.90 kms^2. As per the 2001 census report (2011 census report of the block is not available) it has a population of 138,701, which also included tribes like, *Gond, Kandh, Binjhal, Turi, Dumal, Sahara, Mandali* and *Kuda*, who mostly reside in the forested areas of the block. The climate of the area is characterized by a very hot-dry summer and well distributed rain in the south-west monsoon. The average annual rainfall in the area is 1400mm. Agriculture is the chief source of livelihood for the people of this region; however they also depended on different forest products during various seasons of the year for their diet and other consumption requirements. Apart from agriculture, people also involve in various other occupation of art and craft, which also include ceramic production. The potters or *Kumbhars* as they are locally called, are inhabited in about 12-15 villages. They belong to different sub-castes *i.e. Magadha, Adhurkulia, Tengta, Sikili, Bhanga sagad and Suali.* All the potters are Hindu, and they perform a common communal ceremony village-wise or group-wise. This ceremony is performed every year on *panchami* in the month of *Margasira* (November-December) for three days, to worship their wheel. There is a quotation "*Tale Meru Khuta, Upare Khala, Tar Upare Rojagar Kala"* (Below there is wooden base, wheel is fixed above it and then the potter manufactured the vessels for his livelihood), which indicates the communal occupation of the potters. From the research point of view and also for a better understanding of the present problem, only seven villages, located in different parts of the block are selected for the present study. The names of the sampled villages are Kusang, Sargad, Buromunda, Pandarani, Jharmunda, Kandajhuri and Maharpali.

Processes Involved in Ceramic Production

Of all the materials and processes involved in making a ceramic, the most important is clay and its manipulation. The durability and finishing of vessels depend largely upon the quality of the clay (Rice 1987: 31-110). On the basis of colour, texture, and composition of the soil (locally called as *mati*) of Loisingha block is divided into four categories *viz.* 1. Compact white clay mixed with lime concrete (*Khalia mati*), 2. Sandy soil (*Balia mati*), 3. Black soil (*Badmatta or Kanhar mati*) and 4. Loamy soil (*Pankua mati*). Among these four *Badmatta or Kanhar mati* is suitable for manufacturing the ceramic products.

Tools and Implements

A potter's tool ranges from natural material to high technological equipment. During our survey we documented the following equipments and their uses for

manufacturing the earthenware in all the sampled villages. In Odisha two types of wheel are used by the potters i.e. Pivoted spoked wheel and Socketed spoked wheel (Saraswati and Behura 1966: 1-15). Our observation states that the potters of Loisingha block use Socketed spoked wheel. This type of wheel has got a wooden nave, a felly and connecting spokes. The potters of the sampled villages use a socket made of quartzite (*Gundia Pathar*) embedded at the centre of the undersurface of the wooden nave (*Sula Khuti*) and the pivot is fixed separately on the ground. Other tools used in the manufacturing process are Beater, Anvil, Beating Base, Wooden Mallet, Cutter, Sieve, Scraper, Engraver and Paint Brush.

Following stages are involved in the process of earthen ware production which was observed during our survey in Loisingha block.

1. Source of Clay

Usually Potter of the sampled villages collect the clay from those fields which are either left uncultivated for one or two seasons or those lands which have an uneven surface and are not very useful for cultivation. These activities are not only beneficial to the potters but the land owners are also equally benefitted because potter level up the land and bring underlying clay to the surface, and making the land ready for the next cultivation season. Tractor, Bullock cart and *Bhar* (weight carrier) are used as mode of clay transportation. Tractor is only used by the potters of *Pandarani, Sargad, Buromunda* and *Kushang* village. River sand which is available in the nearby river bank is used as the only tempering material.

2. Preparation of Clay

Clay is collected in large quantity throughout the year except during rainy season depending upon the need of the potter. The collected clay is kept on an open verandah or in one corner of a room, another method is to dig a pit and preserve the clay within the pit. After the procurement of raw material the next task for the potter is to make it ready to use for pottery manufacturing. Firstly the clay is thoroughly dried until it becomes fully free from moisture, than the dried clay lumps are pounded by a wooden hammer. All unwanted particles like pebbles, grit and organic materials such as plant roots etc are carefully removed. It is then sieved two three times through different sieves until it is desirably fine.

After that water is drained into the clay and kneaded thoroughly by hand and while kneading, if some unwanted material is traced out, it is eliminated forthwith. The kneading process is completed in 3-4 rounds and each round take 30-45 minutes. In course of kneading, a small quantity of sand or ash is used to absorb water from the clay and also to prevent sticking of clay into mixing surface. The clay may be stiffened or softened by kneading, according to the requirement of the potters, and its consistency is increased thereby.

3. Manufacturing Techniques

Several stages of operation follow one another in succession before a vessel is turned out of a lump of clay (Saraswati and Behura 1966: 48-75). This process is called "throwing". In throwing, a lump of clay which is cylindrical in shape placed carefully at the center of the wheel otherwise the pot will be asymmetrical and uneven in thickness. The size of the lump of clay varies according to the type of vessel that potter wants to manufacture. The clay is opened by inserting the thumps into the center when the wheel rotates. The vessel is shaped by lifting the clay with one hand inside and the other outside to draw the walls upward and outward, thinning them at the same time. Finished vessels are cut from the wheel with a thread while the wheel is rotating.

We observed three main manufacturing techniques in our ancient assemblage such as completely wheel thrown, partially wheel thrown finished by beater-anvil technique and handmade. Among these former two techniques are recorded during the survey while the later is not in use.

(a) Completely wheel thrown: The presence of spiral marks produced by cutting on wheel with a string at the flat unturned base of small bowls and pots indicate that these are completely made on wheel and no secondary process is involved in their finishing.

(b) Partially wheel thrown, finished by beater-anvil technique: A number of medium and large bowls, pots and globular jars bear a slight depression on the inner surface of the base and sometime below the neck is the indicative of beater-anvil technique. These vessels are made in two stages, first by throwing on the wheel and then enlarging by with the help of beater and anvil.

Both the techniques are encountered during our survey in the process of pottery manufacturing in the study area.

4. Slip treatment

Most of our ancient vessels are coated with a slip. In some pots slip was applied on the neck and shoulder of the pot or only on the outer part, while in dishes and bowls slip was applied on the both surfaces. The purpose of the slip may be to do away with too much of porosity in the vessel. Another purpose, which is apparent from the results of firing, is to give lustre to the pot. The potters of the Loisingha block coated their vessels with yellowish or red colour ochre, which gives bright to dark red or shining black pot, according to the condition of firing. The ochre is locally called as *Geru.* The potters obtained this from market. After the *geru* has been powered and diluted in the water for 2 to 3 days, applied on the pots when it is dried. Another method of slip preparation is to bring out the locally available *nalmati* (Red clay), and diluted with water in a pot. When the sediments are settled down, boil it until it becomes a thick paste. The paste is dried in sun and preserved for further use in future. This gives us an example how the slip was applied in the ancient time.

5. Decoration

Our ancient ceramic assemblages provide us data that the vessels are decorated both in pre and post firing stages. We also found the use of both pre as well as post firing decorations on the pottery in this region. The pre-firing decoration mostly consists of appliqué and incised technique. Number of geometrical decorative patterns are drawn on different types of pottery, when it is in leather hard condition by affixing additional clay on the outer surface or by impressing or removing clay with the help of sharp engraving tools like iron nail, sharp wood or finger nail. For decoration potters choose only part of the vessel rather the total surface i.e. around the rim, neck or shoulder.

There are very few vessels which are decorated after firing and particularly white colour is used for painting these vessels. The colour is prepared from rice powder or from lime-stone. The paint brushes are made of cotton and strips of cloth. The painting motifs are included both geometric design like concentric lines, wavy lines, oblique and parallel vertical lines, triangles and dots and natural figures like birds, plants, flowers etc.

6. Drying

Drying appears to be a very simple process but it often presents problems to the inexperienced potter because the pieces that are dried too fast tend to crack and pieces that have not been dried thoroughly enough, explode in the kiln (Mirmira 1987; 60-63). Thus to avoid this, the potters of this region dried vessels first in the shade for 1-2 days, then allowed to sun drying for a period of 4-5 days and even more than a week depend upon the vessel type.

7. Firing

The potters of this region follow open firing technique. Although procedure for open firing of pottery is vary from region to region, but they share certain general characteristics. In this area first a circular platform consists of wooden logs, straw, dry leaves and cow dung cakes is prepared, the pottery to be fired is placed over this and more fuel is placed around and on the top of the pottery. Then the fuel is ignited usually beginning with the lower layer, after few minutes additional fuel is added. The firing takes 6-10 hours. After the firing is over vessels are allowed to cool before taken from the ashes which also take at least 1 day. Sometime more than one potter fire their vessels in one kiln. But they give marks on their own vessel to identify after firing. The place of firing locally called as "*Ua Saal"* lies at the backyard of the potter's house or at the end of the potters' hamlet.

8. Finished Product

We divided all the finished vessels recorded by us during the survey into four broad categories as per their function and use *viz.* Utilitarian, Storage, Ritualistic and Decorative.

1. Utilitarian Pot: This includes all those vessels which are mostly required in connection with food i.e. *Handi* (vase with open mouth), *Sarei* (a variety of handi but small in size), *Telani* (large dish) and *Tad* (big size vase).

2. Storage Pot: The main function of this variety of vessel is to preserve or store grain, seeds, water and liquid. Pots used for this purpose in the region are *Kuthula* (big Jar), *Mathia* (Water pot), *Gurmathia* (for storing sweet thick liquid of sugarcane), *Handi*, *Mathul* (jar of small size) etc.

3. Ritualistic Pot: Vessels of this category includes all those which are used during different types of religious functions i.e. marriages, during worship, funeral and mortuary purification rites etc. The pots of this group are *Kalasa*, Small size *Handi, Kanchi* (a variety of bowl), *Dhupali* (saucer shaped open pot with a handle), *Akhanda Dipa* (large earthen lamp), and *Vivah Jugar* (cylindrical shaped middle size vase).

4. Decorative Pot: Besides all these, some vessels are also made for decorative purpose i.e. *Rukha* (cylindrical shaped small size vase), *Kalasi* (a variety of *Kalasa*) and *Gamla* (wide mouth large size bowl).

Distribution

The potters manufacture and distribute the vessel as per the consumer's demand. So the distribution system divided into three categories as per the requirements *viz*. internal requirement, external requirement and specific Items. Products belong to internal requirement are of two types such as seasonal and perennial. The items manufacture during a particular season is called seasonal products i.e. *Umbhei* from October to January, *Rukha* from March to July, *Gurmathia* from April to May, ---*Surei and Kuthula* from March to June etc. Potters manufactured the perennial items i.e. *Handi, Mathia, Telani, Gamla* etc almost throughout the year. There are very less external items manufactured by the potters like *big Handi, Tad, Gamla* etc. as per the demand in different time. Again as per the demand potters manufacture specific items like *drum, mrudunga, tasa, tabla, dungi* etc. The potters circulate their products primarily at the local areas, but there are some items like *big Handis, Drums, Tad,* and *Vivah Jugar* are circulated to distant places. Most of the items of internal requirement are sold at the nearest weekly markets. There are several modes of transportation used by the potters of the sampled villages for carrying the products from their workshops to other places like bullock cart, bhar, bamboo basket, bicycle etc.

Discussion

Despite the modern technological advances, ceramic industries still occupy a prominent place in the rural communities of India. Even one can find functionally different earthenware vessels, in good quantities in the urban markets. The foregoing ethnographic observation of the earthenware manufacturing tradition of the

Loisingha block clearly indicate to the fact that in this part of Odisha ceramic production is a caste based labour-intensive specialized craft. The present study reveals various aspects of the earthenware production system i.e. method of raw material procurement, different processes involved in the production and their socio-economic contexts. Though the result obtained from the present ethnographic survey conducted in the sampled villages of Loisingha block is useful in understanding development in the pottery manufacturing technology, exchange mechanism, organizational aspects of ceramic industries and other cultural phenomenon but we are not able to find much variability in vessels type, as we encountered in our ancient assemblages. Thus large-scale systematic ethnographic investigations of the potter communities living in different pockets of western Odisha, in the future will definitely provide valuable insights into the various aspects of the socio-economic-religious and cultural life of the ancient settlers of this region.

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