Annals of Anthropological Research & Reviews *Vol. 2 No. 1 (2022)*
© Sidho-Kanho-Birsha University *ISSN: 2583-0570*
DOI Link: https://zenodo.org/record/7100803#.YysCXHZBzIU

A review of Material Culture in Archaeological findings: an ethnoarchaeological approach.

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ABSTRACT

From the time immemorial the archaeologists claim to know past objects in a variety of ways. Some argue for cross-cultural comparison of objective data. Others argue for contextualized interpretations of local meanings. Thus, the tussle leads to a journey of ethno-archaeology from primarily a technique to a discipline in itself. The present paper is an attempt to understand and review this journey from a more holistic way. The contribution of anthropological works and specially works which highlights the material culture is immense. It played a vital role to give explanations to many unanswered queries for archaeologists to their findings. Though the interpretations of historical archeological findings are supplemented by some or other form of written records, prehistoric archeological findings are disadvantageous in absence of any supplementary records. This present work not only helps to review the earlier studies contributing to the discipline of ethnoarchaeology but will try to give a direction to find the new avenues in the research areas in the field of ethnoarchaeology.

Keywords: Review article, ethnoarchaeology, material culture, artifacts.

INTRODUCTION

The objects which are surrounding us in our day to day lives enhance our personal, and even spiritual welfare beyond their utilitarian functions. These artifacts form the cornerstones of material culture that point out not only what we like, dislike and desire, but are also portals to cultures and behaviors of the past. In this way, the study of material culture is a useful venue to help us comprehend cultures and societies (Glacken 1976).Studies related to material culture can be approached by a variety of theoretical frameworks, each one adding value through particular insights and epistemologies. On Theoretical Approaches to the Meaning of Objects Archaeological theory explores how people lived through interpreting the symbols and functions of artifacts. Gamble (2015) argues that the commonly shared knowledge or paradigms of anthropology are premised on cultural-historical, archaeological theory, anthropological, and postmodern elements. These approaches enlist an inductive method that aligns objects in their appropriate spatial and historical order. Yet, its descriptive approach, reflecting its theoretical development during

European expansionism and colonialism, often Material Culture' is the key to Ethnoarchaeological investigation (Said 1979).

Ethnoarchaeology is a method used in archeology as well as anthropology to reconstruct the behavior of past (prehistoric and protohistoric) people with the help of ethnographic analogy. Since it is not possible to direct observe the human behavior in archeological data, it is a need to scientifically analyze the artifacts and their distribution within the site. The interpretations of these excavated and explored materials are carried out to understand the range of variability, thorough classification of archaeological materials with the help of measurements, description and analysis. Comparison of these archeological assemblages, stylistic differences, exchange, chronology, spatial distribution, its ethnic linkage, demography and economic variation in the population possessing these artifacts provide valuable information about the creators of that culture. Assemblages or artifacts not only indicate the estimation of population and duration of the occupation but also post-abundant behavior and to identify different non-cultural process affecting cultural materials in the formation of the archeological record. The interpretation of archaeological data depends on an understanding of how human beings behave at the present time and particularly of how this behaviour is produced in the material culture. In order to understand the behavior related to archeological findings archeologist make a systematic comparison of archeological and ethnographic data. Thus, this conjunction of archaeology and anthropology (mainly ethnography) is needed to understand the artifacts more holistically (Tylor, 1952).

Ethnography is an essential part of ethnoarchaeology consisting of qualitative methodologies that can be found within social research today. In the early nineteenth century, it is complementary to, 'ethnology', which referred to the descriptive, historical and comparative analysis of non-Western societies and cultures. Levine (1968) has stated that, "*Prehistory which seeks to reconstruct ancient cultures can do so only by applying lessons learned from ethnology*". Ethnology was treated as the core of anthropological work, and described on the individual ethnographic accounts which were initially produced by travelers and missionaries. Over time, the term 'ethnology' was replaced with 'ethnography' as anthropologists began to do their own fieldwork. 'Ethnography' refers to an integration of both first-hand empirical investigation that offers to study the beliefs, social interactions, and behaviors of small societies, involving participation and observation over a period of time, and the theoretical and comparative interpretation of social organization and culture as a whole. It can be further added that where there is no major shift in the population, ethnographic data concerning tribes that had lived in the region in historical times could be used relatively

straightforward to explain prehistoric archeological data. (Hammersley & Atkinson, 2007; Naidoo 2012).

Ethnographic data have long been used by archaeologists for interpreting and explaining things found in the archaeological record. According to the Stiles (1977) ".... concept to use ethnographic information in archaeology is not a new one as it was used as early as the seventeenth century by De Jussieu who compared prehistoric stone tools found in France with similar forms still in use at that time in the New World to explain their use, and thus made one of the earliest use of the ethnographic analogy". In the later part of the nineteenth century works of Morgan and Tylor put forward the idea that on comparing the survivors (material and nonmaterial) with contemporary savage people, the earlier stages of cultural development can be understood. The book 'Ancient Hunters' by Sollas (1911) emphasized on the classical evolutionary viewpoint that is applied to archaeological material, where there was an existing culture representative of each stage of prehistory.

Review of existing literature

In World Context

At the end of the nineteenth and early twentieth centuries 'Comparative method' (Morgan and Tylor) was replaced by the 'Historical method' (Boas), which define archaeological cultures and its origin in terms of diffusion and migration (Fewkes 1893; 1900; Hodge 1897; Sapir 1916; Kroeber 1916). In 1940's onward the foundation of Ethnoarchaeology is being laid out in various approaches of the study which essentially brought out the Ethnoarchaeology in the current form some of the experts from these works are worth mentioning. Parsons (1940) stated the idea that the information from any ethnographic source was not merely utilized to support one's own hypothesis only it should be examined properly. By quoting the example of Kiva and its social position (clan) he argued that "Information from the other partner should not be used merely to support one's own hypothesis; the integrity of the other is to be considered if only to preserve one's own integrity". There is no dispute that the living culture has light to throw upon the buried one. Archaeology would not only be broadened and redirected but its ethnographic gaps, particularly in material culture, would be recognized and filled out, and its ethnology-ecology, social psychology, analysis of cultural process- would be greatly profited.

Heizer (1941) described the importance of direct historical approach towards explaining the then archaeological findings of the Late cultural phase of California consisting of Prehistoric, protohistoric, historic or post contact to understand the factors involved in the transition of native central Californian cultures from prehistoric to the full historic period and beyond. And also, to trace the possible co-relation of the three-primary source of information which are archaeological, historical and ethnographical. Further interest in ethnography by archaeologists was stimulated by Steward's (1942) 'Direct-historical approach'. Bullen (1947) tried to correlate some findings of archaeology and ethnology in relation to archaeological problem of fetishes and toys. The problem of analogy he focused on is the findings of some fetishes that are unearthed during the excavations of American sites and are not adequately interpreted. Thus, he came up with ethnographic parallel with the toys made by contemporary Navaho children living in the region between the Chaco and Blanco Canyons, New Mexico. He countered the standardization of interpretation of the ceremonial use of the fetishes that were excavated. Tschopik (1949) gives an account of the pottery making techniques of a contemporary Andean Indian group -the Aymara-that serve to shed some light on the question of ceramic technology during pre-Columbian times. He further suggests that the pottery traditions explain more fully the cultural processes that have been operative in the persistence of some pottery styles throughout the several centuries of Andean cultural development. In 1960's several research works were carried out around the world which were explicitly archaeological ethnography or closely related to human ecological studies, with great emphasis on the hunting and gathering societies still in existence. Ascher (1961) published an important paper that directly defines the term 'Ethnoarchaeology' and its field of investigation. In 1960's several research works were carried out around the world which were explicitly archaeological ethnography or closely related to human ecological studies, with great emphasis on the hunting and gathering societies still in existence.

Naroll (1962) utilizing log regression, that is, a linear regression of the logarithms, total area of the dwelling floors and total population of the largest settlements of eighteen societies show a loglog regression which suggests that the population of a prehistoric settlement can be very roughly estimated as of the order of one-tenth the floor area in square meters. Gould (1967; 1968a; 1968b) Gould et. al. (1971) carried out a study among the Ngatatjara, Nyatunyatjara and Ngatjara speaking Aborigines of the Western Desert of Australia between 1966 and 1969.Statistical and microscopic studies were carried out on the stone tools used by these Australian Aboriginal. The study reveals patterns to correlate with the known uses, techniques of manufacture, and native classification of

these tools. The work proved statistically, the most significant correlation occurs between the angle of the working edge of the tool and the classification and function of the tool. Steep-edge flakes are classified as purpunpa and serve as woodworking scrapers, while flakes with acute edge-angles are classed as tjimari and are used as knives for cutting skin and tendons by these Australian aboriginals. Microscopic study has further revealed that woodworking scrapers show a distinctive pattern of use-wear. The comparisons are done between ethnographic Aboriginal woodworking scrapers and Quina-type scrapers of Bordes' Quina-Ferrassiefacies of the Mousterian to establish a kind of baseline for quantitative as well as qualitative comparisons with other ethnographic stone tool assemblages and, more importantly, with certain archaeological assemblages or tool types. The classification and uses of the tools which make up the Western Desert assemblage are known ethnographically. Thus, according to the study, it may be possible to make comparisons with archaeological materials in at least two ways that are direct historical approach and by means of comparisons of tool form. Similar works have been done by Heider 1967; Stanislawski 1969; Strathern 1965; White 1967; 1968; 1969; Woodburn, 1968 these works lead to the scientific approach to Archaeology that enables testing different hypotheses related to continuity of trait and probable use of archaeological findings. The primary use of ethno- graphic parallels Ucko (1969). It is to widen the horizons of the interpreter. The careful use of ethnographic data has served to do one major thing – to present the possibility of varied and heterogeneous reasons or causes for a practice. The use of ethnographic parallels can only in very exceptional cases suggest a one-to-one correlation between the acts of tribe A and the remains of culture B, but what they can do is to suggest the sorts of possible procedures which may result in the traits characterizing culture B. The useful ethnographic parallel is almost bound to add variability to archaeological interpretation and to an archaeological approach. With the help of various ethnographic studies that supported his view on different interpretations that are generally being put forward by archaeologists must be examined properly. He quotes various examples like grave goods do not always support the afterlife view, hierarchy in status, difference between poor and rich that are common interpretations are to be contextually interpreted. He further states that Burials and funerary structures that are uncovered in excavation are the result of various social processes. It is significant that it is standardization which characterizes the archaeologists' concept which must be avoided and utmost care is to be taken for interpretation. Binford (1971) explanations of burial customs provided by previous anthropologists especially Tylor, Frazer, Krober and are examined at length together with the assumptions and data orientations that lay behind them. Cross-cultural survey drawn from the Human Relations Area Files shows that associations exist between measures of mortuary ritual

variety and the structural complexity. It was found that both the number and specific forms of the dimensions of the social persona commonly recognized in mortuary ritual vary significantly with the organizational complexity of the society as measured by different forms of subsistence practice. The forms that differ in mortuary ritual vary significantly with the dimensions of the social persona. He further commented that "much of contemporary archaeological conjecture and interpretation regarding processes of cultural change, cultural differentiation, and the presence of specific burial customs is inadequate as well as the ideational propositions and assumptions underlying these notions. Inferences about the presumed "relationships" compared directly from trait lists obtaining among archaeological manifestations are useless without knowledge of the organizational properties of the pertinent cultural systems."

Allen and Richardson (1971) attempted to outline the major controversies in residence theory and provide relevant examples from the ethnographic literature to indicate that even the interpretation of extant residence patterns is extremely difficult. The interpretation of residence patterns for extinct societies from archaeological remains is even more difficult, because of the complex nature of residence. As a result, unless the variation in residence choices can be determined, labeling a prehistoric society matrilocal or patrilocal, etc should not be done. They further state, since the archaeologists are unable to discern the residence choices of individuals, thus the kinship reconstruction efforts which upon careful examination appear groundless. It appeared that observable aggregates are recoverable from the material remains of extinct cultures. Through the analysis of these aggregates, significant statements can be made concerning the economic, political, ritual, and hierarchical orientations of extinct populations. McIntosh (1974) This paper presents the results of a study of mud wall decay in the Forest/Savanna Mosaic zone of West Africa. Mud walls in an archaeological context at Begho are related to patterns of mud wall decay in the nearby modern village of Hani. The climate and pedology of this ecological zone largely inhibit the preservation of discernible wall features in an archaeological site. Therefore, it is desirable to find ethnographic analogies to throw light upon processes of decay and the subsequent deployment of altered material during all phases of deterioration, and to provide any indirect clues to the recognition of former walls. Two approaches which may be obtained through complementary ethnographic and techonomic observation. Detailed observation of patterns in the deterioration of these walls and of the dynamic evolution and devolution of living communities must facilitate the investigation and interpretation of archaeological com- munities with analogous building practices

DOI Link: https://zenodo.org/record/7100803#.YysCXHZBzIU

Casteel (1971) argued that the role of scavengers, especially dogs, with reference to archaeological faunal remains is not always clear. He further said that the distortion admittedly results from the activities of these animals, but total destruction of all such evidence cannot be established. To establish the fact, he put emphasis on the fish remains and to support the argument evidence drawn from both ethnographic and archaeological data are used. He tried to explain that a more thorough knowledge of the nature of the food items themselves will greatly aid in assessing both their potential archaeological data and the information they yield. In the year 1965 to 1975 certain ethnoarchaeological works were carried out on pottery. These works are not mere comparative but are deductive works of human behavior. Some important articles are worth mentioning here. McPherron (1967) compared the early phase (A.D. 800) and the late phase (A.D. 1300) ceramics of the Late Woodland Juntunen site in the Straits of Mackinac, Michigan, to understand the change from a high degree of stylistic variation (random) to a low degree of variation (nonrandom). This change is explained as a shift from a patrilocal to a matrilocal residence pattern due to the increasing reliance on horticulture and contact and trade with the neighboring matrilocal and matrilineal Huron. Longacre (1968) has attempted to differentiate the residence and descent systems of the Carter Ranch Pueblo (A.D. 1050-1200) in East Central Arizona with the help of pottery design attributes, architecture, lithic artifacts, grave goods, and grave orientation. He assumed that many aspects of the kinship organization of the prehistoric Carter Ranch Pueblo were analogous with that of the Western Pueblo (Hopi and Zuni), and thus the community was characterized by matrilocal residence patterns and localized matrilineal descent groups.

Whallon (1968) has attempted to understand the stylistic variation by analyzing the pottery and settlement pattern data to infer the development of the Iroquois kinship system out of a residence pattern of simple extended families during the Owasco period to matrilocal residence and matrilineages of the early and later Iroquois. David (1971)took up a sample of North Cameroon Fulani pottery for which median ages of types are known and used to show that the frequencies of types in the archaeological record are in part a function of their respective life spans. This is of some significance in inter- assemblage comparisons. Donnan (1971) worked on Pre-fire incised marks that can be observed on many of the plain cooking and storage ceramic vessels of the Moche style, which flourished on the north coast of Peru from approximately 100 B.C. to A.D. 800. Donnan's Possible explanation of these marks is suggested on the basis of an ethnographic analogy with the present-day practices of the potters in the central sierra of Peru. He suggested that the marks were made to facilitate the identification of the pots of each potter during production and

prior to the actual marketing of the pots. Varner (1974) studied the distribution of bird-form pottery that are widespread and of at least 3000 years duration. Known also as duck, shoe, or boot-shaped pottery and its archaeological occurrences have been noted especially in the southern half of North America, throughout Mesoamerica and Central America, and in parts of South America. The findings shows the two functions of contemporary bird-form pottery from Oaxaca, Mexico are functions: 1) The toe end is placed in the coals of a fire, allowing the contents of the vessel to be kept warm, and permitting them to be stirred or ladled out without the cook getting singed knuckles. 2) Three vessels used in a group provide support over the coals for a comal, the flat ceramic griddle for cooking tortillas. This function accounts for the knobs or ridges on the toe end of many Oaxaca shoe-forms, which were specifically designed to serve as comal rests. He further suggested that comparable functions may have existed elsewhere for similar vessels, whose effigy forms are simply elaborations of utilitarian shapes. Deboer (1974) compared the frequencies of modern Conibo vessels to the frequencies of antecedent forms that are present in the archaeological sites on the Upper Ucayali. He observed that the longevity of a particular ceramic vessel form affects the frequencies of these forms in an archaeological finding. Some of the variables like small sample size, cultural change through time and space and replacement with metal, other than differential longevity, that are needed to account for the differing frequencies are discussed. The utility of longevity data for estimating the population needed to produce an archaeological site is also explored. Weigand (1970) assumed that the ethnographers should consider the more general problems of reuse and/or relocation of materials for economic, ceremonial, or other reasons. Systematic studies of this sort should eventually allow archaeologists to apply such knowledge to purely archaeological situations. According to his findings a fluted point fragment was located in the Huichol area of Jalisco, Mexico, in 1966. The point was left with a Huichol informant and later found to be reused in a ceremonial context. Thus he argued on the nature of the original find and the point's relocation is discussed. Along with the specific problem the general observations on artifact relocation by aboriginal groups are made.

Myers (1972) utilizes the particular characteristics of the natural stratigraphy, that suggest the site of lower Aguatia River in eastern Peru designated as AGU 2 was located on the river during the dry season. The absence of certain materials associated with the manufacture of pottery, a dry season activity, suggests that the full range of seasonal cultural behavior was not conducted at the site although the quantity of pottery suggests that women were present and also that the site was occupied for a fairly long period of time. The interpretation from this type of circumstantial

evidence was that the site was occupied during the turtle spawning season while its occupants captured turtles and gathered their eggs to be turned into oil. The practice is well known among the banks of the river Aguatia from various ethnographic studies. Ember (1973) In short, the results of this study suggest a relatively simple way for the archaeologist to infer matrilocal versus patrilocal residence from conventional archaeological materials. As- summing he can infer that the occupation at issue probably antedates European (or perhaps other very foreign) contact or lacks signs of such contact (thus allowing him to infer the un- likelihood of depopulation and hence bilocal residence), and assuming he can infer the absence of commercial exchange (thus allowing him to infer the unlikelihood of neolocal residence), if the living floor area of the average house is greater than 550-600 ft2, residence is likely to have been matrilocal; and if the average living floor area is less than 550-600 ft2, residence is likely to have been patrilocal.

Binford (1978) tried to comprehend the detailed behavioral observations that are carried out on the Mask site of a Nunamiut Eskimo hunting stand. He established the "dimensional analysis" of the formation processes of an archaeological site. According to Bindford, the Activity structure, technological organization, disposal mode, and spatial organization were all seen as behavioral dimensions that could give essential data on the patterns of assemblage content and spatial disposition of an archaeological site. He then compares these ethnoarchaeological experiences with those recently reported by John Yellen (1977) on Bush Man with that of the Eskimo experience. He contradicts the Yellen findings that if one demonstrates clear and distinct assemblage types the arguments for functional variation within systems are inappropriate. But Binford's Mask site experience points to the "reality" of functionally specific sites. He further critically examined the Yellen deduction that there is a relationship between metrical attributes of sites and the numbers of occupants and the duration of occupancy with his ethnographic data from Nunamit and doesn't find it appropriate for generalization. Thus, as a gist of his work can be concluded as "It was pointed out that basic differences in philosophy and approach to research largely conditioned the contrasting character of the conclusions drawn from the different experiences'. Hodder (1979) carried out ethnographic fieldwork in Kenya and Zambia and with the help of anthropological studies of societies in Sudan and Nigeria demonstrate that culture may be used by groups to communicate within group "corporateness" with reference to outsiders(not belonging to the society). He put forward that greater competition between groups for resources, increases the possibility that material culture will play a part to maintain the similarity within the society. The Distinctiveness and the similarities between the artifacts develop between spatially or hierarchically defined groups

are the signature of the stress among them. It further suggested that this type of approach will allow a better understanding of the underlying causes of social and cultural change.

Binford (1980) has explored the interaction and the determinants for differential degrees of residential versus logistical mobility. He suggested that there are two basic principles of organization employed by hunters and gatherers in carrying out their subsistence strategies. They may "map on" that is "by moving consumers to resources", or they may move "resources to consumers" that is "logistically." He further suggested that the relative roles played by these two organizational principles in any given subsistence system will impart the nature and character of archaeological inter-site variability. Foragers who practice primarily on "mapping on" strategy will generate basically two types of sites: the residential base and the location. Variability among forager systems will derive primarily from differences in the magnitude of residential mobility and environmental differences conditioning different subsistence activities through a seasonal cycle. Collectors who tend toward a greater reliance on the logistical strategies can be expected to generate additional types of archaeological sites. That is, in addition to the residential base and the location one can expect field camps, stations, and caches to be generated. It was also argued that the character of residential bases, as well as that of locations, may well be expected to change in accordance with the relative degree of logistically organized activity. He also put forward that any other conditions that restrict "normal" residential mobility among either foragers or collectors also tend to favor increase in logistically organized procurement strategies. We would therefore tend to expect some increase associated with shifts toward agricultural production. According to him it is possible to anticipate both differences in settlement-subsistence strategies and patterning in the archaeological record through a more detailed knowledge of the distribution of environmental variables. Hayden & Nelson (1981) use chipped stone implements for the manufacture of manos and metates. As a result site formation processes, effects of resource distribution, and stone tool characteristics can still be studied. Chipped tools of industrial glass are also made and used in the area, and provide useful models for some of the prehistoric uses of flaked stone tools, as well as information relating to their storage, curation, discard, and learning contexts.

Adams (1983) tried to explain a model to demonstrate two interpretations, the first is the "utility of architectural data" and second to outline an "architectural model" to interpret social organization and room use. The model can be tested in both modern pueblos and prehistoric contexts. Hopi village is used to develop architectural analogues to room use and social organization in the Pueblo

Southwest. These models are then tested against prehistoric sites. For interpretation of room use, factors such as room size, room location, and number and location of doors are shown to be significant. Room size criteria are found to segregate room use in prehistoric sites dating at least as early as A.D. 860. The boundaries of households and lineages are determined by room use and presence or absence of doors between rooms. Savelle (1984) analyze the remains of a historic Inuit winter site, in conjunction with information supplied by one of the original inhabitants. She demonstrates that despite post-occupational disturbance in the form of snow melt and associated downslope movement, the original internal site structure was maintained. Specific activity loci were identified for two snow houses, one that was occupied during early winter and the other during late winter. Changes in artifact and faunal element characteristics that are associated with the two dwellings are shown to reflect the adjustments in various hunting and domestic activities which vary from early to late winter. Connel (1987) described those behavioral aspects of Alyawara that shape the Alyawara site structure at their residential base camps. He then compares features like specific activity area, main production center, refuse deposition, etc. of the Alyawara case with those of the! Kung and the Nunamiut. He then put forward that most of the variability in site structure in these cases is a function of differences in the degree of reliance on food storage, seasonal variation in weather, household population size, and the length of time activity areas are in use. Predator pressure and the relative importance of inter- household food sharing may also be involved. He then generalized his findings as "Ethnoarchaeological research has shown that the assumptions formerly guiding the investigation of hunter- gatherer site structure are invalid, at least as general rules. Further research is now required to identify the determinants of site structure and assess their effect."

Rocek (1988) collected different data from Northern Black Mesa, Arizona, to identify seasonality among nineteenth- and twentieth-century Navajo sites. The data include informant accounts, site layout and composition. He mostly emphasized on the doorway orientations, and terminal tree-ring condition from dendrochronological samples. Different groups of data provide information regarding different aspects of site seasonality. His data analysis reveals that more than one kind of information is represented by the various data sources. He specifically emphasized on the hogan doorway orientation and tree-ring seasonality to provide data on season of site construction. He further put forward that the results suggest refinements in the assessment of Navajo site seasonality, as well as providing more general information regarding the identification of site season in archaeological contexts. In addition, the recognition of the alternative seasonal information

provided by the different kinds of data, suggests new approaches to analysis of mobility and activity patterns. Headland et.al (1989) has argued that small indigenous societies are as fully modern as any 20th-century human group, many hunter-gatherer groups have been involved in minor food production for thousands of years, and that many of these latter were also participating in inter-ethnic and possibly international trade long before the 16th-century European expansion. "The foraging societies remain in their "primitive" state not because they are "backward" but because they are kept there by their more powerful neighbors and because it is economically their most viable option in their very restricted circumstances. He further explained that Westerners have chronically failed to understand such societies because they continue to see them as fossilized isolated hunters rather than as "commercial foragers". They carry on a life-style which serves a particular economic role in the global world in which they live. Until this anthropological bias is corrected, our image of hunter- gatherer culture and ecology will remain incomplete and distorted.

Killion (1990) suggested that Ethnoarchaeological studies provide information on the behavioral component of site formation. He further suggests that the distribution of prehistoric residential debris might be used to diagnose factors of ancient agriculture and settlement in contexts commonly encountered during archaeological excavation and survey. For this he examined the contemporary residential refuse treatment and the use of infield agricultural land from a sample of farming households in the Sierra de los Tuxtlas of southern Veracruz, Mexico. A model of site structure (the House-Lot model) that relates the maintenance of refuse-free (clear area) and refuse-laden (intermediate area) spaces within the house lot to give light on household farming activities outside of the residential lot. Variation in the intensity of cultivation on infield plots is shown to correlate with variability in the size of areas within house lots. Pauketat and Emerson (1991) Ramey Incised pots appear to have been manufactured and dispersed from centres of chiefly authority during the 11th-12th centuries A.D. in a portion of the Mississippi Valley. Pauketat and Emerson Based on an analysis of motif design, meaning, and the archeological context of vessels put forward that an elite ideology appears which indicated the chiefly authority was active in the communication of the elite interpretation of the cosmos to non-elite subgroups. Ramey Incised pots may be seen as the material expression of one aspect of such elite-commoner discourse. According to the author the pots carried the symbolism of order, hierarchy, and religiosity and were thus an active medium for the discourse. In the ethno-archaeological context of rites of intensification, like the Green Corn ceremony, the Ramey Incised jar would have been a vehicle not only for the "redistribution" of

comestibles, but also for the diffusion of elite ideas. This archaeological perspective in political ideology begins to address the larger questions of the long-term dynamics of pre-state polities

Arnold et.al (1991) the main emphasis of the paper is to contradict the assumptions of compositional analysis. According to this theory the elemental composition of an artifact reflects the source of the materials used to make it. Thus, pottery from a particular source will be chemically similar to the raw materials from that source. This article examines the relationship between potters' behavior in obtaining and using raw materials, on the one hand, and the chemical composition of their finished pottery, on the other. They compare the elemental composition of ethnographic pottery and raw materials from contemporary pottery-making communities in the Valley of Guatemala. The results of this research show that the relationship between pottery and its constituent raw materials is not as obvious as was first supposed. Thus this article supports a notion that "source" or provenience has important chemical and behavioral (cultural) components and pottery thus encodes both chemical information from the source and behavioral information from the potter. So the best suggestion of the author is "In spite of the problems of relating pottery to its constituent raw materials, pottery made in the same community and drawn from the same set of sources would thus be expected to be similar in chemical composition." Kent (1992) proposed an ethnoarchaeological model of mobility; he attempted to provide relevant indicators of mobility strategies applicable to prehistoric data. The model provides an understanding of site variability at different levels for mobility. He provides examples to infer the anticipated and actual mobility patterns by applying knowledge of a combination of site size, presence and number of formal storage facilities and their absence, artifacts inventories, and diameter of huts. He further proposes that the model can be utilized to distinguish between short seasonal occupations from contemporaneous year- round sedentary occupations among five Mesa Verde Pueblo II sites located in the American Southwest. Wright (1994) examined Ground-stone tools and hunter-gatherer subsistence of late Pleistocene in southwest Asia, in the light of ethnographic and experimental data on the processing methods that are essential for consumption of various plant foods. In general, grinding and pounding appear to be labor-intensive processing methods. In this paper Wright suggests that in particular, the labor required to make wild cereals edible has been widely underestimated, and wild cereals were unlikely to have been "attractive" to foragers except under stress conditions. He further stated that Levantine ground-stone tools were probably used for processing diverse plants. To supplement his findings he put forward that, the earliest occurrence of deep mortars coincides with the glacial maximum, camp reoccupations, the onset of increasingly

territorial foraging, and the earliest presently known significant samples of wild cereals. He suggest that the major episodes of intensification in plant-food processing can be identified in the Levant, coinciding respectively with the earliest evidence for sedentary settlement (Early Natufian 12,800-11,500 B.P.) and the transition to farming (Late Natufian PPNA 1 1,500-9600 B.P.). According to his findings he characterized the later stage (transition to farming) by rising frequencies of grinding tools relative to pounding tools, and suggests attempts to maximize nutritional returns of plants harvested from the limited territories characteristic of sedentary foraging and early farming.

Byrd (1994) expressed that extensive research on the transition from semi-mobile hunters and gatherers to sedentary, food-producing villagers in Southwest Asia, associated changes in community organization remain unexplored. He formulated the new social and economic mechanisms that were necessary to facilitate the success of these larger permanent settlements. The emergence of intra-site organizational patterns can be determined in the archaeological record through analysis of the built environment. The present work is an interpretation of temporal transformations in community organization utilizing the results from the detailed analysis of Beidha which extensively excavated early Neolithic villages in Southwest Asia. In this work he proposed that the emergence of Neolithic farming villages in Southwest Asia was characterized by two parallel and interrelated organizational trends that is a more restricted social network for sharing production and consumption activities, and the development of more formal and institutionalized mechanisms for integrating the community as a whole which is being discussed in this work. G. Ortman (2000) attempted to unify recent theorizing on cultural meaning in material culture using the notion of conceptual metaphor he put forward that Ethnographic studies and psychological experiments indicate that conceptual metaphors are expressed in numerous forms of human expression, including speech, ritual, narrative, and material culture. He generalizes on the nature and structure of metaphor emerging from cognitive linguistic research which can be used to develop methods for reconstructing ancient metaphors from archaeological evidence. As a preliminary application he examined pottery designs from the Mesa Verde region of the American Southwest that were conceptualized as textile fabrics, and suggested the connections between these media derived from a worldview grounded in container imagery. According to him “The ability to decipher conceptual metaphors in prehistoric material culture opens up many new avenues for research, including the role of worldview in cultural evolution, and the discovery of cultural continuities between archaeological cultures and historic ethno-linguistic groups.”

DOI Link: https://zenodo.org/record/7100803#.YysCXHZBzIU

Garazhian (2008) suggested that post-disaster burial practices provide alternative avenues for research, notably the changes in burial styles, grave markers and other material culture associated with burials. This article is the result of ethno-archaeological research conducted on eight cemeteries in Bam, at intervals of 2,6 and 17 months after the earthquake. The cemeteries chosen span a time period of 200 years prior to the disaster to 17months after it, in order to track a wide range of long-term patterns. The post-disaster burial patterns are compared with those patterns prior to the disaster. We hope to demonstrate that the patterns present can be used to interpret burial practices under conditions such as natural disasters in archaeological contexts. Mccall (2012) in the Ethnoarchaeology and the Organization of Lithic Technology describes the modern production and use of stone tools as rare, ethnoarchaeological research on this subject has provided important perspectives on methodological approaches to archaeological lithic analysis. Recent ethnoarchaeological research on lithics frequently takes the form of "cautionary tales," warning against the primacy of functional variables most commonly invoked by lithic analysts. I argue that lithic ethnoarchaeology would benefit from a comparative organizational framework for explaining variation in patterns of stone tool use that takes into account the predictability and redundancy of the location and timing of technological activities. Understanding the underlying causes of modern patterns of stone tool use, in turn, offers a framework for exploring sources of lithic technological variation in the archaeological record. I also argue that technological analytical perspectives, such as the chain operation and sequence of reduction approaches, can benefit from the insights gained through lithic ethnoarchaeological research, helping us define important analytical concepts and identify appropriate units of analysis. Black and Thomas (2014) Remains of earth ovens with rock heating elements of various sizes and configurations are common at hunter- gatherer sites around the world. They span the last 30,000 years in the Old World and some 10,000 years in the New World. Although various foods were baked in these ovens, plants predominate. Earth ovens are ethnographically well documented as family-size and bulk cooking facilities , but related technology and its archaeological signatures remain poorly understood and understudied. These ubiquitous features are often mischaracterized as generic cooking facilities termed hearths. It is proposed that, in fact, most rock hearths are heating elements of earth ovens. Reliable identification and interpretation of earth ovens requires documentation of heating elements, pit structure, rock linings, and various remnants thereof. Fundamental technological concepts for investigating their archaeological signatures include thermodynamics, construction designs, and life cycles in systemic context, as informed by ethnographic, archaeological, and experimental data. Earth oven technology explains well the primary purpose of labor-intensive thermal storage for long-term cooking and

conserving fuel. Information from the extensive archaeological record of earth ovens on the Edwards Plateau of south-central North America illustrates these

Indian context

India is regarded as the land with strong traditions in the aspects of religious, cultural, and social life and almost every aspect of practical life from agriculture and textiles to cookery and arts and crafts. (Allchin 1996). According to Sinopoli (1991) "*The seeming timelessness of the Indian village, the antiquity and apparent stability of social traditions and technologies, and the plethora of human adaptations found throughout the subcontinent provide a wealth of data for generating models to study the past*".

Since the 1960's the prehistorians developed a model of research in settlement patterns and subsistence systems where survival of a particular way of life has become the dominant theme (Basak 2006). Ethnoarchaeological studies on India can be broadly divided into four major focus areas which are general patterns of subsistence and settlement, studies on artifacts, studies on technology, and mortuary practices (Sengupta et.al. 2006). The research on subsistence and settlement in the Ethnoarchaeology work in India by an Indian was pioneered by Malti Nagar. Malti Nagar carried out an ethnographic study of the rural population in several villages of Mewar with a view to finding affinities, if any, between the second millennium B.C. Ahar chalcolithic culture and the present-day rural culture of the area (Nagar 1966, 1969, 1970, 1973, 1975a). The population of the villages in this area comprises Bhils. The most striking affinity was seen in some of the pottery designs of Ahar Culture and present-day Bhil clothing odhnis (an unstitched long piece of printed cloth used for covering the upper part of the body) of Bhil women. The Important ethnoarchaeological work after Malti Nagar was continued in the traditional subsistence and settlement patterns in India. Ethnoarchaeological studies of contemporary hunter-gatherer or tribal populations have focused on subsistence patterns. The tribal have their natural environments, and most tribal groups traditionally exploited a very wide range of plant and animal resources (Cooper, 1985,1986, 1992, 1995; Murty 1981,1995; Nagar 1985; Nagar and Mishra 1995; Mishra 1995;Paddayya, 1982; Raju 1988, Mughal 1995; Hooja, 1995, Rao 1995; Chakrabarti 1995, Cooper, Ansari 2006, Sharma 2006, Panda 2006; Medhi,1983;Mohanty, 2000; Ashraf, 1994, 2010; Roy,1981; Devi, 2012 ; Gindi 1990. The main theme of the works is to utilize the broad knowledge of hunter gathers adaptations for interpreting the prehistoric culture. Ethnoarchaeological studies of subsistence and settlement practices among agriculturalists in India

include the work of Mukta, 2001; Roy, 1981; Pratap, 2000 on shifting cultivators in Eastern India, respectively, and work by Roux and Sinha (1986) on agricultural technology in Northwest Rajasthan. Roy's work in Meghalaya has focused on technological and social aspects of swidden agriculture in the subtropical zone of the Garo Hills. Roy has also recorded indigenous folk tales and their beliefs concerning how cereal crops were introduced into their traditional system cultivation. Another ethnoarchaeological study that examined local beliefs about origins of particular subsistence and settlement systems was conducted by Murty and Sontheimer, 1980); and Murty 2006 in South India. They documented the ancient Birappa legends of the Kuruva pastoralists of Andhra Pradesh and Karnataka, and considered their relevance for understanding the origins of pastoralism.

In India many goods continue to be produced in small-scale workshops using ancient techniques. The continued existence of traditional potters, terracotta, beads, shell, ivory, stoneworkers, metal casters, weavers, and other craftspeople provides archaeologists an opportunity to document both the technology and the organization of specialized craft production. It is also able to consider social relations between producers and consumers, as well as distribution and exchange systems which is a considerable importance to archaeological interpretation. The account of traditional technologies in India comes from many sources. From the nineteenth and early twentieth centuries, various accounts in colonial gazetteers and early ethnographies are present. These accounts, though not necessarily explicitly concerned with the archaeological implications of various manufacturing techniques, nonetheless incorporate much information of interest to archaeologists on materials and techniques employed by traditional caste- and kin-based producers. (Sinopoli, 1991).

Anthropological Survey of India and the Census of India in 1960's and earlier part of carried out large scale documentation projects on traditional craft production (Behura 1965, 1967a, 1967b, 1978; Biswas 1966; Bose 1982; Das Gupta 1967a, 1967b; Das Gupta and Syamchauduri 1966; Ghosh 1981; Mitra 1964; Mukherjee 1978; Saraswati 1967, 1978; Saraswati and Behura 1966; Sinha, Dasgupta, and Banerjee 1961; Syamchauduri 1966; Syamchauduri and Biswas 1967). Their work has provided important information on regional traditions of craft production, as well as on the social and cultural patterns within craft-producing communities, and on the broader position of craftspeople in the contexts of caste and Indian society. (Sinopoli, 1991).

The production of earthenware pottery was studied by ethnographers and archaeologists alike. Studies have focused on: ceramic manufacturing techniques and the organization of ceramic

production (Aiyappan 1947; F. R. Allchin 1959, 1978; Ansari 1964; Banhophandhyay 1961; Biswas 1966, 1967; Bose 1982; Cort 1984; Das 1961; Das and Ray 1966; Das Gupta 1961a, 1967b; Das Gupta and Syamchaudhuri 1966; Dumont 1952; Foster 1956; Freed and Freed 1963; Gupta 1966; Hashim 1989; Kramer 1990; Nagar 1970; Reddy 1981; Roux 1985-1986, 1989a; Sinopoli 1988; Sinopoli and Blurton 1986; Manibabu, 2005, Mishra, 2006, Nguille, 2006, Prakash, 2006; Singh and Devi, 2017. The study focus on ceramic forms (Manibabu, 2005; Miller 1982, 1985); distribution systems (Kramer 1990, 1991; Allchin 1995), and kin and social relations among potters' communities (Kramer 1990, 1991).

Research on terracotta figurine production (Blurton 1987; Jayakar 1953, 1980; Jayaswal 1984, 1986; Jayaswal and Krishna 1986; Gangapadhyay 2002; Dutta 2013) focus studies on production techniques, the ritual and non-ritual contexts of figurine use, and distribution patterns. The study focuses on contemporary patterns of figurine production, distribution, and use to interpret the archaeological remains. Studies of traditional bead making works are done by Mackay, 1933; Trivedi 1964; Roux and Pelegrin, 1989; and Kanungo, 2006. The study on traditional bead making in India by Kenoyer, Bhan, and Vidale in Khambhat, Gujarat (Kenoyer 1989; Kenoyer et al. 1995) and Kanungo in Uttar Pradesh. Bead-making techniques exhibit considerable continuity from that time to the present. Kenoyer and colleagues have examined material acquisition and production techniques, as well as marketing strategies and productive organization. Kenoyer et.al. (1995) noted that such a pattern could be identifiable archaeologically by differential distributions of bye-products, raw materials, and finished products across the site. The studies on traditional metal workers in Indian context were done by Bhattasali, 1929; Maryon and Plenerleith 1954; Reeves 1962; Mukherjee 1978, 1984; Ray et. al 1997; Chrabarti, 1988; Mohanti, 1983; Horne 1995; Chakrabarti and Lahiri 1996; Khan, 2002; Chattopadhyay, 2006; Tripathi 2006, Modal; 2012-2013. The study focuses on the different aspects of metallurgy such as its origin, development organization and production and its distribution and such patterns that could be identifiable archaeology.

Conch shell and Ivory artifacts in the reconstruction of past trade contracts, socio religious belief, ancient rituals, social organization technology have long been recognized the works of Hornell, 1942, Sen and Sinha 1961;Sankalia et. all 1971, Kenoyer 1983, 1995, Bhan and Kenoyer 1984, Deshpandey, 1995; and Mukherjee 2006 are notable works. Each of the studies of craft production discussed here, and the many that are beyond the scope of this work, have important implications

for archaeological interpretation in India and beyond. The information that ethnoarchaeological studies can provide about raw materials, the techniques necessary to form craft goods, and the material residues of these techniques has clear relevance for archaeological studies. Ethnoarchaeological studies can also play an important role in the development and evaluation of models of productive organization and change.

The study of prehistoric social structures and belief systems through their material remains is among the most difficult and important goals of archaeological analysis. While ethnoarchaeological studies can help us to identify general behavior patterns and social processes or structures, the attempt to assign more precise meanings to archaeological remains difficult. We can recognize special artifacts or locales archaeologically, and can establish relations among such features. We can seldom if ever understand the precise meanings or beliefs that the people who used and produced these materials attributed to them. (Sinopoli, 1991). Miller on pottery use and distribution in Madhya Pradesh examined the role of goods in symbolizing social status in a caste-based hierarchical society. Huyler, 1995; Jain, 1995, Gangopadhyay 2006, Dutta 2013 tried to draw parallelism between the ancient cult and ethnographic present. The studies of mortuary practices and Som and Prakash 2006; and Jamir 2006 are noteworthy contributions in this aspect.

The diversity of settlement types, building materials, and human adaptations in India provides an excellent opportunity for archaeologists to examine the complex processes that affect the formation of archaeological sites. Discard practices, cultural and natural processes that affect the distribution and preservation of artifacts and organic materials, and the effects of site abandonment studies are limited and relatively few ethnoarchaeological studies have focused on this topic. These include the Khambhat bead project by Kenoyer and its team, earlier, which is examining the deposition of beadmaking debris. Wandsnider, 1991; Dhavalikar, 1995; Mishra 1995, Rao 1995, Possehl 1995; Cooper 1995 work focuses on short-term encampments used by semi-nomadic groups, herders, and agriculture workers.

CONCLUSION

From the above reviews of the work it can be understood that the material culture plays a vital role in development and expansion of ethnoarchaeology. The materials which are in use by our ancestors are key to their survival in their environment. They have their meaning and understanding

of the artifacts they produce. Since we cannot interact with them directly, we can deduct the data by analyzing the artifacts in every possible way. For this reconstruction the material culture study plays a very vital role. Though the understanding of material is based on probability, this probability can be ascertained to its most significant value through comparing it with the present live forms of the 'look alike' or 'functionally alike' artifacts. So to understand the thought process of our ancestors it's extremely essential to have a common ground on material culture. The current offshoots of material culture with individual per sac is going to provide a much greater impact in the understanding and development of ethnoarchaeological studies in the coming future. Thus, more and more artifacts that are unearthed in the near future will have to be understood from various perspectives. The unanswered questions especially in the realm of prehistory must be tackled by perspective of material culture in ethic sphere. And this leads to the discipline such as ethno-archeology will play a vital role in both anthropological archaeology and archaeology as discipline. This review paper essentially became very helpful to the researchers as well as students in augmenting the knowledge in the realm of ethnoarchaeology.

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