

# Archaeoceramic Traditions of India: Markers of Cultural Change and Continuity

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**Abstract:** *This article explores the evolution and significance of pottery and terracotta figurines in India, from the Neolithic period to the rise of early historic civilizations. It traces the craft's development from the rudimentary, handmade wares of sites like Mehrgarh (c. 7000 BCE) to the sophisticated, wheel-thrown pottery of the Indus Valley Civilization. The paper then examines three key ceramic cultures: Ochre Coloured Pottery (OCP), Painted Grey Ware (PGW), and Northern Black Polished Ware (NBPW), highlighting their role as chronological markers for the transition from the Bronze to the Iron Age and the Second Urbanization. Additionally, the article discusses the use of thermoluminescence (TL) dating to establish absolute chronologies for these archaeological cultures. It concludes by analyzing the social, religious, and artistic insights provided by terracotta figurines across different eras, including the "Mother Goddess" figures of the Indus Valley and the living tradition of terracotta art on temples in West Bengal.*

**Keywords:** Indian pottery, Indus Valley, Ochre Coloured Pottery, Painted Grey Ware, Northern Black Polished Ware, Terracotta, Thermoluminescence dating, Mehrgarh, Harappa, Bishnupur

## 1. Introduction

In India, pottery's evolution is a testament to the subcontinent's rich and enduring cultural history. Beginning with the rudimentary, hand-built vessels of the Neolithic era, the craft underwent a transformative journey, mirroring the complex societal changes from pre-agricultural communities to urbanized civilizations. This article delves into the origins of Indian pottery and its pivotal role during the Indus Valley Civilization, examining how this art form provides an invaluable window into the past.

### The Dawn of Pottery: The Neolithic Foundations

The story of Indian pottery begins in the Neolithic period, a time marked by a profound shift from a nomadic hunter-gatherer lifestyle to settled agriculture. The earliest concrete evidence of pottery production in the Indian subcontinent has been unearthed at Mehrgarh in Balochistan, Pakistan, with an archaeological sequence that extends back to approximately 7000 BCE. The ceramic tradition here, as in other early sites, was initially characterized by handmade, coarse, and undecorated vessels. These vessels were primarily functional, serving essential domestic purposes such as the storage of grains, the preparation of food, and the transportation of liquids. The clay, often mixed with organic materials or grit to prevent cracking, was shaped by hand-molding or coiling. This rudimentary technology reflects a society in its formative stages, where efficiency and utility were paramount.

Following Mehrgarh, sites in the Ganga plains, such as Lahuradewa, have also yielded pottery from the Mesolithic-Neolithic transition, pushing back the timeline of ceramic use in the region. This early pottery, while simple, marks a crucial technological and cultural milestone. It signifies a more sedentary lifestyle, the need for permanent storage solutions for agricultural surplus, and the beginnings of a material culture that would become increasingly complex over millennia. The lack of a potter's wheel and the simple firing techniques—likely in open bonfires or rudimentary pits—resulted in a porous and fragile ware.

### The Indus Valley Civilization: A Technological and Artistic Revolution

The advent of the Indus Valley Civilization (c. 3300–1300 BCE) marked a revolutionary period in the history of Indian pottery. The Harappan civilization was not only one of the world's earliest urban cultures but also one that demonstrated a high degree of technological sophistication in its ceramic production. The most significant innovation of this era was the widespread adoption of the fast potter's wheel. This technology allowed for the mass production of uniform, well-shaped vessels with a level of precision previously unattainable. The standardization of pottery forms and decorative motifs across a vast geographic area—spanning from present-day Pakistan to Gujarat and Haryana—is a hallmark of the Harappan ceramic industry. Harappan pottery is typically made from well-levigated clay, which was carefully prepared to remove impurities. The vessels were then fired at high temperatures in specialized kilns, which provided better control over the firing atmosphere. This process resulted in a durable and well-finished ware, primarily characterized by its red or reddish-brown color. The most distinctive feature, however, is the meticulous black painted decoration applied before firing. The repertoire of motifs is rich and varied, including intricate geometric patterns, floral designs, and animal figures. The geometric motifs often include interlocking circles, checkerboard patterns, and intersecting lines, while the animal motifs feature stylized representations of peacocks, bulls, rhinoceroses, and fish.

The high degree of standardization in Harappan ceramics, from the types of vessels (e.g., storage jars, perforated pots, dishes-on-stand) to the painted designs, suggests a centralized, organized system of production. This could point to professional artisans working within a specialized craft structure rather than individual potters creating unique items. The pottery from major urban centers like Mohenjo-daro and Harappa is remarkably similar to that found in smaller settlements, indicating a cohesive and integrated cultural system. Furthermore, the presence of painted pottery alongside plain wares suggests a functional hierarchy, with

painted vessels possibly used for ceremonial purposes or by a more affluent segment of society. The evolution of pottery from the Neolithic to the Indus Valley periods reflects a continuous trajectory of human innovation and cultural complexity. From the humble, hand-molded pots of Mehrgarh to the wheel-thrown, artistically decorated wares of the Harappan cities, each stage of development in Indian pottery provides invaluable data for archaeologists. These artifacts serve not merely as functional objects but as a crucial lens for understanding the technological prowess, economic organization, and artistic sensibilities of the ancient civilizations that shaped the Indian subcontinent.

### Pottery in Ancient Indian Literature

Pottery and the craft of pottery-making are mentioned in various ancient Indian literary texts, providing insights into their societal significance, technological processes, and symbolic meaning. These texts, spanning from the Vedas to later Puranas and Epics, confirm a continuous and deep-rooted tradition of clay artistry in India.

### Vedic and Upanishadic Texts

The Vedas, the oldest sacred texts in India, contain some of the earliest references to pottery. The Rigveda mentions the potter (*kulala*) and their wheel (*chakra*), indicating that the craft was well-established. The potter's wheel is also used metaphorically to describe the cyclical nature of creation and destruction. The Yajurveda and Atharvaveda mention various types of vessels used in rituals, particularly for sacrifices. For example, specific clay pots were used to hold offerings for different deities. The Upanishads also use the potter's wheel as a metaphor for the universe, with the potter representing the creator (Brahman), and the pots representing individual creations.

### Epics and Puranas

The great epics, the Ramayana and the Mahabharata, along with the Puranas, contain numerous references to pottery and potters. These texts describe potters as an important artisan class, playing a vital role in village life. They made not only utilitarian objects but also ceremonial vessels for royal sacrifices and religious rites. The Vishnu Purana, for instance, mentions the potter's wheel and the clay from which the pot is made, serving as an analogy for the relationship between the divine and the material world. The potter is often depicted as a symbol of creativity and patience.

### Buddhist and Jain Literature

Buddhist and Jain texts also refer to the craft of pottery. The Jataka Tales, a collection of stories about the past lives of the Buddha, frequently mention potters and their work. These stories often use the fragility of a clay pot as a metaphor for the impermanence of life, a central tenet of Buddhist philosophy. The potter's patient shaping of the clay is also used to illustrate the importance of discipline and mindfulness. Similarly, Jain scriptures describe potters as a distinct social group and their craft as an essential part of the economy.

### Technical and Symbolic Significance

Literary texts provide both technical and symbolic insights into pottery. They mention the use of clay (*mrt*), water, and the potter's wheel. They also refer to the process of firing

(*daha*) and the different types of vessels, such as the *ghata* (pot) and *kalasha* (water pot). Beyond the technical aspects, these texts imbue pottery with deep philosophical meaning. The creation of a pot from formless clay symbolizes the emergence of a new life or a new world from primordial matter. The potter, in these contexts, is more than an artisan; they are an artist, a creator, and a moral teacher.

### Significant Pottery Types

After the decline of the Indus Valley Civilization, a new era of ceramic cultures emerged in India, each providing a chronological and cultural marker for the post-Harappan period. These distinct pottery traditions—Ochre Coloured Pottery (OCP), Painted Grey Ware (PGW), and Northern Black Polished Ware (NBPW)—offer archaeologists a crucial framework for understanding the transition from the Bronze Age to the Iron Age and the subsequent rise of early historic kingdoms.

### Ochre Coloured Pottery (OCP) Culture

Dating from approximately 2000–1500 BCE, the Ochre Coloured Pottery (OCP) culture represents a transitional phase following the mature Harappan period. The name is derived from the distinctive reddish-ochre color of the pottery, a result of the use of fine clay rich in iron oxide. A key characteristic of this ware is its friable nature; the surface color rubs off easily when handled, a feature that distinguishes it from other pottery traditions. Archaeological findings of OCP are concentrated in the Ganga-Yamuna Doab region of North India, an area of increasing settlement during this period. The pottery is generally coarse in texture and appears to have been fired at low to moderate temperatures, contributing to its poor state of preservation. The repertoire of shapes is relatively simple, consisting mainly of storage jars, basins, and bowls.

A significant aspect of the OCP culture is its frequent association with Copper Hoard finds. These hoards, which include a variety of copper tools and weapons such as anthropomorphic figures, celts, and harpoons, are often discovered in the same stratigraphic layers as OCP. This correlation suggests that the OCP people were likely the creators of these copper artifacts, marking a significant stage in metallurgical development in the subcontinent. The OCP culture, therefore, provides a tangible link between the late Harappan traditions and the nascent cultures of the Gangetic plain, setting the stage for subsequent developments.

### Painted Grey Ware (PGW) Culture

The Painted Grey Ware (PGW) culture, flourishing from roughly 1200–600 BCE, is a key archaeological marker of the Early Iron Age in the Indian subcontinent. Found primarily in the western Gangetic plains, PGW is a fine, thin-walled pottery, typically grey in color and decorated with simple geometric patterns painted in black. The PGW pottery is technologically superior to the OCP. It was produced from well-levigated clay and fired at high temperatures under reducing conditions in a kiln, which gave it its characteristic grey color and well-finished surface. Common forms include dishes with straight or incurved sides and bowls, which are often found in domestic and ritualistic contexts.

This ceramic culture is widely considered to be a material correlate of the Vedic period. The distribution of PGW sites, such as Hastinapur and Ahichchhatra, corresponds with the geographical descriptions of the later Vedic texts, particularly the Brahmanas and the Upanishads. The presence of iron artifacts at these sites, along with PGW, provides strong evidence for the introduction and expansion of iron technology during this era. The PGW culture reflects a transformation from small, scattered settlements to larger, more organized village communities, a development consistent with the social and political changes described in Vedic literature. The pottery, therefore, serves as a crucial bridge between textual evidence and archaeological findings.

### Northern Black Polished Ware (NBPW) Culture

The Northern Black Polished Ware (NBPW) culture (c. 700–200 BCE) represents the zenith of ceramic craftsmanship in ancient India and is considered a hallmark of the second urbanization that took place in the subcontinent. The pottery's most distinctive feature is its exquisite, glossy, jet-black or steel-blue surface, which often has a mirror-like finish. The production of NBPW was a highly sophisticated process. It

involved the use of a very fine, high-quality clay and a technique of double-firing. The vessels were first fired at a high temperature to achieve durability. A fine clay slip, possibly containing a high content of iron oxide and/or organic materials, was then applied, and the vessels were fired again in a specialized kiln under reducing conditions (low oxygen). This created the distinctive black, lustrous surface.

NBPW is widely distributed, found at sites not only across North India but also in parts of the Deccan and even as far as Sri Lanka. This widespread presence suggests robust trade networks and a well-integrated economy during the period of the Mahajanapadas and the Mauryan Empire. Unlike the more utilitarian OCP and PGW, NBPW is often considered a luxury ware, likely used by the elite for feasting and other formal occasions. Its presence at archaeological sites, particularly in urban centers like Pataliputra and Taxila, indicates a stratified society with a clear distinction between common and elite wares. The NBPW culture, therefore, serves as a powerful archaeological marker for the rise of complex states, urban centers, and long-distance trade in ancient India.

| Feature                   | Ochre Coloured Pottery (OCP)                                                             | Painted Grey Ware (PGW)                                                             | Northern Black Polished Ware (NBPW)                                                  |
|---------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Period                    | c. 2000–1500 BCE                                                                         | c. 1200–600 BCE                                                                     | c. 700–200 BCE                                                                       |
| Geographic Range          | Ganga-Yamuna Doab region                                                                 | Western Gangetic plains                                                             | All of North India; parts of Deccan and Sri Lanka                                    |
| Appearance & Color        | Reddish-ochre color; surface rubs off easily                                             | Fine, grey pottery; thin-walled                                                     | Glossy, jet-black or steel-blue surface                                              |
| Manufacturing Technique   | Handmade; coarse clay; low-fired                                                         | Wheel-made; well-levigated clay; high-fired in reducing conditions                  | Wheel-made; very fine clay; double-fired with a lustrous slip in reducing conditions |
| Decoration                | Generally undecorated                                                                    | Black painted geometric patterns                                                    | Plain, with a high polish                                                            |
| Associated Culture/Period | Copper Hoard culture; post-Harappan transition                                           | Vedic period; Early Iron Age                                                        | Second Urbanization; Mahajanapadas and Mauryan Empire                                |
| Significance              | Links late Harappan and early Iron Age cultures; associated with early copper metallurgy | Material evidence for the Vedic period; marks the beginning of Iron Age settlements | Indicates the rise of urban centers, long-distance trade, and social stratification  |
| Common Forms              | Storage jars, basins, bowls                                                              | Bowls and dishes                                                                    | Bowls, dishes, and small vases                                                       |

### Dating the Past with Light: The Role of Thermoluminescence in Indian Archaeology

Thermoluminescence (TL) dating is a powerful scientific technique used to determine the age of archaeological and geological materials. This method is particularly vital in India for establishing chronological frameworks for its extensive and diverse archaeological record. By measuring the stored energy within a material, TL dating provides a direct, absolute date for the last time the object was heated, making it an invaluable tool for archaeologists.

### The Scientific Principle of Thermoluminescence

At its core, thermoluminescence dating is a form of radiation dosimetry. The principle is based on the fact that many crystalline materials, such as quartz and feldspar, which are common components of clay, act as tiny traps for energy. These crystals are constantly exposed to a low-level background of natural radiation from the surrounding soil and cosmic rays. As this radiation passes through the material, it knocks electrons out of their normal orbits. Some of these electrons become trapped in defects within the crystal lattice. The longer the material is exposed to radiation, the more electrons get trapped, and the more energy is stored.

The "clock" for TL dating is set to zero when the material is heated to a high temperature, typically above 500°C. This heating event, such as the firing of pottery in a kiln or a fire in a hearth, releases all the trapped electrons and resets the clock. When an archaeologist finds a piece of ancient pottery, they can measure the energy that has accumulated since that last heating event. In the laboratory, the sample is heated again under controlled conditions. As it heats, the trapped electrons are released, emitting a flash of light—the thermoluminescence. The intensity of this light is directly proportional to the total amount of radiation absorbed, which in turn is proportional to the time elapsed since the firing event. By also measuring the annual radiation dose of the burial environment, scientists can calculate a precise age for the artifact.

### Key Applications and Examples in Indian Archaeology

TL dating has been pivotal in validating and refining the chronological sequences of many significant archaeological cultures and sites in India. Its application has provided absolute dates where other methods, like carbon-14 dating, are less suitable or where cross-referencing is needed for accuracy.

- **Indus Valley Civilization:** At sites like Harappa and Mohenjo-daro, TL dating has been applied to pottery fragments to confirm the established timeline of the civilization. This method has helped in providing absolute dates for the transitions between the early, mature, and late phases of the Harappan culture, thereby solidifying the understanding of its evolution and eventual decline.
- **Atranjikhhera and the PGW Culture:** The dating of the Painted Grey Ware (PGW) culture was one of the most critical applications of TL dating in India. For a long time, the PGW culture, found in the Ganga-Yamuna Doab, was culturally and textually linked to the Vedic period. However, a lack of absolute dates was a challenge. TL dating of pottery samples from sites like Atranjikhhera provided a robust chronological framework, placing the culture in the Early Iron Age (c. 1200–600 BCE). This provided strong scientific evidence to support the association of the material culture with the early Aryan settlements described in the later Vedic texts.
- **Mehrgarh and the Neolithic Revolution:** At the Neolithic site of Mehrgarh in Balochistan, TL dating of fired clay and pottery has been used to establish a long, continuous cultural sequence dating back to as early as 7000 BCE. This pushed back the timeline of agricultural settlement in the subcontinent by thousands of years, establishing Mehrgarh as one of the oldest and most significant Neolithic sites in South Asia.
- **Kot Diji:** TL dating of pottery from the pre-Harappan site of Kot Diji has helped in understanding its relationship with the later, more urbanized Harappan culture. The dates obtained helped define the chronological position of the Kot Diji culture, showing it as a precursor to the main Harappan phase.
- **Ganga Valley and the Second Urbanization:** TL dating has been extensively used to date pottery from various sites associated with the Northern Black Polished Ware (NBPW) culture. This has confirmed the timeline of the NBPW and its association with the second urbanization of India, which saw the rise of the Mahajanapadas and the Mauryan Empire. The consistency of TL dates across different sites has helped in tracing the spread of this luxury ware and understanding the extensive trade networks of the period.

### Archaeological Sites and Terracotta Figurines

Terracotta figurines and pottery are crucial archaeological sources for understanding ancient Indian civilizations, providing insights into their daily lives, beliefs, and artistic traditions. Unlike more durable materials, these fired clay objects were commonplace and disposable, leaving a continuous and rich record. The evolution of terracotta art from the Indus Valley Civilization to its continued use in modern times reflects major cultural shifts across the subcontinent.

### Terracotta in the Indus Valley Civilization

The Indus Valley Civilization (c. 3300–1300 BCE) produced an abundance of terracotta figurines, which were central to their material culture. These objects, often found at major sites like Mohenjo-daro, Harappa, and Kalibangan, were hand-modeled and varied in form. The most well-known are the stylized female figures, often with exaggerated hips and breasts. Scholars generally interpret these as "Mother

Goddesses," suggesting the worship of a fertility deity vital to their agrarian society. Their discovery in domestic settings, rather than large public temples, points to a likely use in personal or household rituals. Male figurines, though less common, also exist, sometimes featuring distinctive horned headdresses. Some scholars link these to a proto-Shiva deity, hinting at the roots of later Hindu religious figures. Animal figurines, especially of bulls, rhinos, and elephants, are also numerous. These likely served multiple purposes—as cult objects, votive offerings, or simply toys. The discovery of intricate toy carts and animals with movable parts provides a rare glimpse into the recreational activities of children in this highly urbanized civilization. The standardization of these figurines across a vast geographic area suggests a shared culture and ideology among the Indus people.

### Terracotta in the Ganga Valley

After the decline of the Indus Valley Civilization, terracotta traditions continued in the Ganga Valley, reflecting the social and cultural changes of the Iron Age. Sites associated with the Painted Grey Ware (PGW) and Northern Black Polished Ware (NBPW) cultures, such as Hastinapur and Ahichchhatra, have yielded significant terracotta artifacts. In the Early Iron Age, the art was relatively simple, consisting of hand-modeled human and animal forms that were less refined than their Harappan predecessors. However, during the Second Urbanization and the rise of the NBPW culture (c. 700–200 BCE), terracotta art became more sophisticated. Figurines from this period show higher craftsmanship and more defined features, often depicting well-dressed individuals with elaborate hairstyles. This artistic evolution reflects a more complex and stratified society, providing valuable clues about the attire, ornaments, and social roles of people in the early historic period, as well as an increasingly diverse pantheon of deities.

### A Living Tradition: West Bengal's Terracotta Art

While terracotta art is largely a subject of archaeology in most regions, West Bengal offers a unique example of its continuity and transformation into a high art form. Beginning in the 16th century, the state saw a remarkable flourishing of terracotta art, particularly in the ornamentation of temples. Towns like Bishnupur are famous for their terracotta temples, which are covered in elaborate plaques and panels. These temples serve as a visual encyclopedia of the time, depicting scenes from the great Indian epics like the Ramayana and the Mahabharata, stories of Krishna and Radha, and glimpses of daily life. This medium, once used for simple figurines, was elevated to architectural embellishment and narrative art. The detailed craftsmanship captures everything from mythological battles to ordinary scenes of farming and music. The enduring tradition of terracotta in West Bengal demonstrates a seamless transition from a functional folk craft to a sophisticated medium for religious expression and cultural narration, underscoring the deep-rooted importance of clay art in Indian culture.

## 2. Conclusion

The journey of archaeoceramics in India is a microcosm of the subcontinent's civilizational history. From the rudimentary, handmade vessels of the Neolithic era at Mehrgarh to the mass-produced, wheel-thrown wares of the

Indus Valley Civilization, pottery's evolution directly reflects technological and societal advancements. The distinct ceramic cultures that followed—Ochre Coloured Pottery (OCP), Painted Grey Ware (PGW), and Northern Black Polished Ware (NBPW)—serve as crucial archaeological markers, charting the transition from early village cultures to the rise of complex, urbanized states. Beyond their utilitarian function, these artifacts and the associated terracotta figurines offer profound insights into the beliefs and daily lives of ancient peoples. They reveal shared cultural ideologies, from the "Mother Goddess" worship of the Indus period to the evolving pantheons reflected in the figurines of the Ganga Valley. The enduring terracotta temple art of West Bengal further demonstrates a remarkable continuity, where a prehistoric craft was elevated to a sophisticated medium for religious and cultural narration. Ultimately, the study of India's archaeoceramic traditions provides a tangible, layered, and deeply human record of continuity and change, illustrating how the simple art of shaping clay with fire became a powerful tool for understanding our past.

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