

Musa Khel and the Indus Tradition of the Northern Punjab



By

Arslan Butt

A thesis submitted to the Taxila Institute of Asian Civilizations, Quaid-i-Azam University in partial fulfillment of requirement for the Doctorate of Philosophy in Asian Studies

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2022

Author's Declaration

I hereby declare that this thesis is the result of my individual research, and that it has not been submitted concurrently to any other university for any other degree.

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Abstract

The present study particularly focuses on the endangered archaeological site of Musa Khel, which is located in the cis-Indus District of Mianwali, Northern Punjab, and aimed to highlight the chronological development of the Indus Tradition, cultural cum commercial relation with other areas and craft traditions, especially pottery. Explorations have documented the signs of illegal digging down to probable virgin levels at the main mound of the site, which has yielded several features such as architecture, stratigraphy, and crafts. These exposed features have been described in different chapters. In the absence of proper stratigraphy, a thorough comparison of exposed features has been made with adjacent and contemporary sites. As a result, the presence of a long and complex cultural development (c.3300-1900 BCE) besides long-distance cultural and commercial links have been identified at Musa Khel. Several other features of the Regionalization and Integration Era of the Indus Tradition also noticed such as the early form of script (pre-fired and post fired symbols), specialized crafts (technologically advanced and mainly utilitarian ceramics-pottery, human figurines, toy carts, bangles, beads, seals); metallurgy, baked brick architecture, etc. Moreover, the strategic location of Musa Khel and its environment enriched with mineralogical produce suggests that the site has enjoyed good and well-developed economic relations with contemporary regions. Thus, the unattended and endangered Musa Khel site has substantiated the presence of a small borderland but a well-developed urban settlement in the north-western regions of the Indus Tradition.

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Abbreviations

BCE	Before Common Era
CE	Common Era
Chron.	Chronological
D. I. Khan	Dera Ismail Khan
Deco.	Decoration
Dia.	Diameter
Diag.	Diagram
EBD	External Body Diameter
EH	External Hieght
ERD	External Rim Diameter
Ext.	Exterior
Fig.	Figure
Func.	Function
GS.	Grinding Stone
GUK	Gandi Umar Khan
H	Hieght
IH	Internal Hieght
Intr.	Intermediate
Int.	Interior
L	Length

Manu.	Manufacturing
MK	Musa Khel
Mm	Milli meter
No.	Number
P.	Pottery
Pl.	Plate
Reg.	Registration
RHD	Rehman Dheri
SK	Sarai Khola
Sort.	Sortment
Sq.km	Square Kilometer
Sr.	Serial
SSC	Section Size Category
TC	Terracotta
VSC	Vessel Size Category
W	Width

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DRSML QAU

Dedications

Dedicated

To My Wife Pakeeza, Sons (Muhammad Abdul Momin & Muhammad Abdul Muhaimin), Parents (Late) and Brothers (Faizan & Adnan-Late).

CHAPTER I

INTRODUCTION

Indus Civilization developed during c.2600-1900 BCE in greater Indus Valley encompassing Pakistan and North-western India and spread over 725000 sq. km area (Meadow & Kenoyer 2000:40), which was dominated by dual weather system i.e., winter cyclonic system and summer monsoon system. Most of its cities were developed on strategic locations, mainly along with the main water bodies and trade routes, and were constructed on platforms i.e., Harappa, Mohenjo Dero, Dholavira, Lothal, and Rakhigarhi, etc (Map III, Pl. I). At its zenith, Indus Civilization was characterized by:

- i. Developed town planning which consists of private and public architecture mainly characterized by wide streets, underground drainage, open gateways, wells, and latrines.
- ii. Specialized crafts include stone tools, shell and stone beads, ornaments of different materials, copper objects, steatite seals and faience, stoneware bangles, painted pottery, textiles, etc.
- iii. Advanced agriculture, animal husbandry, fishing, and hunting for subsistence.
- iv. The highly organized economic system is operated by inter-regional interaction networks.
- v. A homogenous pictographic script (undeciphered yet).
- vi. Religion representing the cult of human deities, ceremonial rituals, possible animal and human sacrifice, etc.
- vii. An intricate chiefdom or organized state with stratified and hierarchical social groups (Kenoyer 2008: 715-733).
- viii. Multi-ethnic and multi-linguistic societies (Kenoyer 1991; Mughal 1990).

The subsequent archaeological endeavors since the discovery of the Indus Civilization in the 1920s have produced massive and complex archaeological data which concludes that the origin of the Indus Civilization is lying in the local cultures of the Indus Valley (Mughal 1970). These cultures had lived here for several centuries of survival back to most primitive agricultural and pastoral societies (Kenoyer 1998:17), e.g., Mehrgarh that dates before 6000 BCE (Jarrieger et al 1995:186-187), instead of diffusion from the west (Marshall 1924). This data also shows that the cultural development preceding the Indus Civilization was versatile at the inter-regional and intra-regional level and involved distinctively in the transformation of urban centers such as Harappa,

Mohenjo Dero, Rakhi Garhi, etc. This versatile data demands a flexible chronological framework, aimed at describing the indigenous development and the prevention of mixing of distinct cultures and accommodation of complex and multi-linear data into it. Shaffer has developed a type of framework that comprehensively accommodates such types of data. His framework is mainly founded upon four heuristic archaeological concepts such as tradition, era, phase, and interaction system (Shaffer 1992:441). Based on these concepts, he has pointed out three major traditions in north-western south Asia such as Indus, Baluchistan, and Helmand Tradition (Ibid). Later on, few more cultural traditions were pointed out by Kenoyer such as Bactro-Margiana Tradition, which falls at the north-western edge of South Asia; the Ganga-Vindhya Tradition, the Malwa Tradition and the Deccan Tradition in Peninsular India, and Indo-Gangetic Tradition in the northern sub-continent (Kenoyer 2006:26-27).

Multi-linear cultural development before and during Indus Civilization is mainly evident in the north-western and northern borderland regions of the Indus Civilization (Map IV) such as Pothohar Plateau (Khan 1968, Halim & Mughal 1972, Mughal 1972), Gomal Valley (Dani 1971; Durrani 1986; Ali & Jan 2009); Bannu (Khan et al 1986; Khan et al 1991; Khan et al 2000); and Mianwali (Dani 1971; Salim 1992; Law 2008). Amongst these, Mianwali, the cis-Indus region of Northern Punjab, lacked serious archaeological investigations regarding the development of Indus Civilization in contrast to other regions. There is nothing much available about the formation and the development of the Indus Civilization in the Mianwali area except discoveries of few important sites such as Musa Khel, Piplan (Dani 1971), and Nammal Lake Cave (Jan 1982; Salim 1992) (Map II), Musa Khel is the most important site due to its huge mound, diversified material culture, and environmental setup, amongst these sites. Besides, it is suffering from heavy human vandalism for the past few years. More, importantly, it occupies a strategic location on the crossroads that connects Punjab plains, the core of Indus Civilization where type-site Harappa is located (Dale & Kenoyer 1991; Kenoyer & Meadow 2000) to Trans-Indus plains of Gomal Valley and Bannu Basin in the north-western side while Pothohar Plateau across the Salt Range towards the northern and north-eastern side (Map IV). Researches being conducted in the last few decades in these borderland regions of greater Indus Valley provide multi-linear cultural trajectories before and during the Indus Civilization in the third millennium BCE (Khan 1968; Halim & Mughal 1972; Thomas & Allchin 1986; Butt 2017; Butt 2020; Khan et 1991; Khan et al 2000; Dani 1971; Kondo et al 2006; Jan 2012). Musa Khel is lying right in the middle of this cultural sphere/crescent, which

had made it crucial to be investigated regarding cultural development. Moreover, it was vulnerable to human as well as natural vandalism. Its protection and preservation were very much necessary for future researches. Furthermore, a resourceful geographical setup around Musa Khel further enhances its importance such as the Salt Range with traversable routes, which was an important mineral source for several regions during the Early Harappan and Harappan phases (Law & Baqiri 2001; Law 2005; Law 2008). The presence of mighty River Indus, hill torrents and nullahs, alluvial deposits, and land for agriculture further imparts into the socio-economic significance of Musa Khel (Map II).

Previous research at Musa Khel was either confined to introductory reporting (Dani 1971; Salim 1992) or based on limited objectives such as provenience of minerals (Law & Baqiri 2001; Law 2005; Law 2008). Previous research in the adjacent areas generally and particularly at Musa Khel had suggested the possibility of a prolonged, comparable, rather complex chronology at Musa Khel and cultural relation with adjacent regions, which needed to be addressed. Therefore, it was necessary to explore the Musa Khel potential to investigate the cultural development of Indus Civilization in the area and to preserve an endangered archaeological asset of Indus Civilization for future studies. Therefore, to explore the potential of Musa Khel in terms of Indus Tradition, Taxila Institute of Asian Civilizations (TIAC after here), Quaid-i-Azam University, has conducted a devised salvage archaeological survey at the Musa Khel site in July 2017 and later on current scholar paid visits to document the illegally exposed features in 2018-19 and a study entitled "Musa Khel and the Indus Tradition of the Northern Punjab" was proposed.

The Musa Khel was systematically surveyed with each physical area was carefully observed and diagnostic sherds along with associated minor antiquities were collected from the surface and piles left by the illegal diggers. The exposed sections were documented. The minor antiquities include terracotta figurines and bangles, semi-precious stone beads, chert stone tools, terracotta cakes, steatite beads, and seal. Pottery was the main finding, mainly comprised of wheel-made pottery in polychrome, bi-chrome, and monochrome and plain in a variety of wares. Respective collections were safely transported to an archaeological research laboratory at TIAC, Islamabad for the detailed study.

1.1. Indus Tradition

The concept of Indus Tradition is broader as compared to Indus Civilization and encompasses cultural developments since Foraging Era. Indus Civilization mainly represents the urban phase i.e., 2600 -1900 BCE (Kenoyer 2006: 27). Thus, Indus Tradition refers to the total phenomenon of human adaptations that resulted in the integration of diverse communities throughout the greater Indus Valley and adjacent regions. This tradition has also been called the Indus Valley Tradition (Kenoyer 2008:2).

The general chronology of Indus Tradition (Modified from Shaffer 1992:442-452, Law 2008:74 and Kenoyer 2015:5)	
Era	Phases
Foraging Era (10,000 to 2000 BCE)	Mesolithic and Microlithic
Early Food Producing Era (7000 to 5500 BCE)	Mehrgarh Phase
Regionalization Era (5500 to 2600 BCE)	Early Harappan Phases: Sheri Khan Tarakai, Tochi Gomal, Hakra, Ravi, Balakot, Amri, Kot Diji, etc.
Integration Era (2600 to 1900 BCE)	Harappan Phase; Late Kot Diji Phase
Localization Era (1900 to 1300 BCE)	Late Harappan Phases Punjab, Jhukar, Rangpur, Bara, etc.

According to this concept, Eras do not have fixed limits in time or space, and more than one era may survive concurrently in a tradition. Eras are not developmental phases, and not all are found in each tradition. The Early Food Producing Era has an economy based on food production but yet deficient with regards to ceramics. In the Regionalization Era, particular artifact styles (e.g., ceramics) cluster in time and space (without fixed boundaries) and are connected by regional interaction networks. The Integration Era shows pronounced widespread homogeneity in material culture, reflecting intense interaction between social groups. The Localization Era has general

similarity in artifact styles (comparable to the Regionalization Era), indicating a continued, but altered, presence of interaction networks. Within each era, there are phases, represented primarily by ceramics. A phase is the smallest analytical unit, limited to a locality or a region and to a short interval of time. Interaction systems are avenues of communication that may crosscut traditions and phases. These are reflected by broad distributions of cultural traits within a brief period. Traditions are not distinct phenomena; traditions and phases are connected through economic, social, and ritual interaction systems (Kenoyer 1991:34).

1.2. Aims & Objectives

1. To survey the endangered site of Indus Civilization in the cis-Indus region of Mianwali.
2. To preserve the vanishing archaeological heritage of the Indus Civilization in the Mianwali.
3. To document the extent of the site and exposed features as a result of illegal digging.
4. To develop the context of finds, scattered on the different areas of the site.
5. To understand the chronological development at Musa Khel.
6. To understand the commercial and cultural significance of Musa Khel.
7. To understand the craft traditions and their technology at Musa Khel.

1.3. Research Questions

The following research questions have been addressed in the present study:

1. What are the different types of craft traditions at Musa Khel?
2. What is the contribution of Musa Khel in Indus Tradition in terms of Trade?
3. What was the level of technological advancement at Musa Khel with a special focus on pottery craft?
4. What was the extent of Musa Khel's cultural interaction?

1.4. Primary Sources of the Research

1. Pottery and antiquities recovered from Musa Khel site.
2. Documentation of exposed features of Musa Khel site.
3. Documentation of chert stone quarry at Namal Gorge.

4. Documentation of Early Harappan sites such as Gumla and Rehman Dheri in Gomal Valley and Mohra in Pothohar and Nari in the Salt Range (for visual comparison of the site and scattered material).
5. Ethno-archaeological documentation of local pottery workshops and neighboring regions.
6. Notes of Experimental workshops on manufacturing of pottery and other craft at TIAC-2013.
7. Petrographic images of pottery pastes.

1.5. Establishing Chronology

The illegal digging at the main mound of Musa Khel by the villagers for the last few years affected the cultural sequence of the site down to very deep, probably the virgin levels. For the construction of the homes, the illegal diggers have damaged and almost systematically left behind large quantities of pottery along with microliths and terracotta bangles which, in their eyes, offered no value. During 2018-19, the main mound was exposed from its northern, northwestern, western, and southern sides. Architectural structures were also visible along exposed sections of the main mound.

Musa Khel still offers the archaeologists to intervene and excavate the remaining site properly. Unfortunately, due to issues created by the villagers, it was not possible to excavate the site and to collect charcoal samples for absolute dating. In the absence of excavated stratigraphic levels at Musa Khel, the chronological analysis has therefore focused on the collections from the surface and piles left by the illegal diggers at the site and documentation of exposed sections.

The chronology is based on the supposition that the occupation phases at the Musa Khel site are generally represented by its material culture and exposed features. Keeping in mind the relative reliability inherent in the chronological identification of the material culture and exposed features, the survey has collected diagnostic artifacts and documented the exposed features suitable for estimating the qualitative and quantitative archaeological potential of the site.

1.6. Approach for Pottery Studies

The pottery studies completely lacking in the larger region where Musa Khel is located and those conducted in the adjacent areas are confined to traditional methods of description¹, except few separate technical studies². However, a few pioneer mineralogical and chemical analysis³ and ethnological documentation of contemporary pottery production⁴ have been carried out in Upper Sindh area. A multi-faceted approach in the pottery studies was seriously lacking. Therefore, besides the traditional description and classification of the pottery, the present study has been supplemented by archaeo-metric and ethnoarchaeological analysis to get better and reliable results⁵.

The pottery collection from Musa Khel provides reasonable forms, decorations, and manufacturing techniques. A suitable sample of rescued pottery has been selected for the current study. However, the number of sherds collected was uneven depending on the nature of the different areas of the site such as the illegally excavated area and agricultural field areas were given more attention than others. Some sherds which were too small to be integrated into a thorough study of chronological phases at Musa Khel were also included in the analysis. The study of pottery collection is comprised of 397 sherds. Several remarkable specimens have been used for comparison.

The main reason for studying Musa Khel pottery is to better understand the chronological development besides a commercial and cultural relationship with other contemporaneous sites. Besides pottery, other artifacts have also been studied to understand the development of crafts, the establishment of cultural relations, and the interaction networks of Musa Khel with other regions. Although pottery has remained the main focus of the current study.

¹ (Mughal 1972; Dani 1971, Kondo et al 2008; Durrani 1988; Jan 2012; Khan 1983; Khan et al 2000; Khan et al 1991; Ali & Jan 2009, Jan et al 2011, Mujeeb et al 2013; Mujeeb & Jan 2014; Jan et al 2015a; Mujeeb et al 2015).

² (Joyner 2002; Joyner 2003; Petrie et al 2008).

³ (Sapataro 1998-999; Biagi et al 2002; Sapataro 2003).

⁴ (Sapataro 2004).

⁵ (Kenoyer 1994:346; see also Ceccarelli & Petrie 2018; Sapataro 2004).

1.7. Techniques and Methods for the Pottery Studies

Classification Scheme

The quantity and quality of the pottery collected from the Musa Khel site allow us to classify the pottery corpus using their versatile body forms. The classification system into general functionally oriented forms i.e., Jars, Pots, Bowls and Dishes are based on the metric system (i.e. ratio between internal height (IH) and maximum body diameter (MBD) developed by Dale and Kenoyer for Mohenjo Dero pottery (Dales & Kenoyer 1986) is adopted for the present study with few modifications. The modifications have been described in detail in the relevant chapter.

Description

A detailed description/cataloging pro-forma has been designed keeping in view the objectives of the current study as well as previous major pottery studies such as Gumla (Dani 1971), Mohenjo Daro (Dales & Kenoyer 1986), Rehman Dheri (Durrani 1988), Sarai Khola (Mughal 1972), etc. To define at best the pottery collection of different phases of Musa Khel, the intrinsic (paste, forms, decorations) and extrinsic (place of origin, production, technology) characteristics of the pottery were taken into consideration. The main contents of the pottery cataloging Pro-forma are given as follows:

1. Sherd Type: Body, Base, Rim, spout, etc.
2. External and Internal Painted Decoration.
3. External and Internal Slip.
4. Forms: Lip, Rim, Base, Body.
5. External and Internal Functional Surface Treatments.
6. External and Internal Manufacturing Marks.
7. Manufacturing Techniques.
8. Processing, Use, and Post-Deposition Alterations.
9. Composition Profile: Percentage and Type of Inclusions and Type of Paste.
10. Core: Color and Pattern formed due to Firing.
11. Functional Category of Vessel: Jar, Pot, Plate, Dish, Bowl, Dish on a stand, etc.
12. Size and Measurements: ERD, EBD, EH, etc.
13. Vessel Size Category: Very Large, Large, Medium, Small, Very Small, Miniature, etc.

14. Section size category: Heavy, thick, medium, thin, etc.
15. Percentage of Preserved Rim and Base.
16. Phase/Context.

Scale for the Classification of Vessel Size

To classify the general pottery vessel forms into miniature, small, medium, large, and very large, a fixed ratio system has been used following studies of Shiekhan Dheri Pottery classification by Javed Hussain (Hussain 1992).

Scale for the Classification of Vessel Section

To provide section size for pottery, a fixed criterion or scale has been established by the present researcher rather than using random and loose terms of thin, thick, or medium sections. The scale is as follows: -

Sr. No.	Category	Size Range
1	Thin	0-4 mm
2	Medium-thick	5-10 mm
3	Thick	11-15 mm
4	Heavy	16 mm and onwards

Scale for the Classification of Vessel Paste

Generally, the term "texture" indicates the size and shape of non-plastic inclusion or temper. In the present study, the researcher has used the term "texture" to describe the overall paste of the vessel besides the shape and size of inclusion in its paste. Due to varying percentages of inclusions of versatile textures in the pottery types, the pastes have been categorized into the following categories and a predetermined scale has been designed by the present scholar to avoid the use of random and loose terms such as fine or coarse category.

Sr.No.	Category	Percentage of the Inclusions
1	Very Fine	Less than 1 -4%
2	Fine	±5-10%

3	Medium Fine	±11-20%
4	Coarse	±21-30%
5	Very Coarse	±31-40%
6	Heavily Coarse	±41-50%

Tools for Archaeometric Analysis

An archaeo-metric analysis of the physical characteristics of pottery pastes and technological processes proposed for the current study was based on macroscopic observations with the naked eye, a hand lens) and Dino-Lite digital microscope. The Granulometry such as fineness and inclusions in the pottery paste have been studied. The texture includes information relating to size, shape, color, and percentage of inclusions in the pottery paste. A suitable number of pottery specimens of each established pottery type were observed by using Dino-Lite, Digital Microscope 2.0 version. The colors of inclusions were described as per normal criteria. The percentage of inclusions was studied by using visual comparison charts of grain abundance given by work Druc 2015. These charts were redrawn and simplified by Druc from the work of Folk in 1951 and the percentage of inclusions was evaluated with JMicon Vision software by Roduit 2002-2008(Druc 2015: Fig.2.3, p.17). Sizes of inclusion were measured lengthwise by software Dino Capture 2.0. The shapes of inclusions were recognized by using the angularity scale for grains adapted from Mullier 1964 in Strienstra 1986 and Druc 2015 (Druc 2015: Fig.2.2, p.17). The sorting of inclusion in pottery paste has been described with the reference of visual comparison charts (Anstey & Chase 1974; Chees 2005: Fig.2.12; Druc 2015: Fig.2.4, p.18). The firing patterns of sections found different from the chart were labeled as unique. All this was done to study the compositional and technical features of the pottery.

The Munsell Color System

The Munsell Color System has been used to describe the color of pottery wares, paints, and slips, plain surfaces, and sections to avoid the problem raised due to the use of random and loose terms. Munsell Soil-Color Charts with genuine Munsell color chips, year 2009 revised/2012 Production was used to describe colors of pottery.

Ethnographic Documentation and Experimental Archaeology

To understand and follow in a better way the aimed study, few local pottery workshops and markets in Musa Khel village and neighboring regions such as Kotla Jam and Trangranwala in the proximity of Mianwali-Musa Khel were visited regularly to document the ethnoarchaeological observations. Moreover, the observations documented and recorded during experimental workshops regarding hand and wheel-made pottery, steatite beads, copper smelting, color production for pottery, slip preparation, etc conducted in TIAC in 2013, have been incorporated in the technical aspects of the current study.

1.8. Lay-Out of the Study

This dissertation consists of six chapters. Chapter one deals with the thesis statement, aims, research questions, tool and technique applied, and output of the present research. Chapter two deals with the geographical and archaeological setup of the research area, previous studies in the area, and details of the survey conducted at the Musa Khel site. The description and cultural context of exposed features have been discussed in detail in the current chapter. Chapter three provides Musa Khel pottery typology based on different phases. Chapter four deals with spatial occurrence and comparative study of pottery types in the greater Indus Valley and beyond. Chapter five deals with methods and processes involved in pottery production from clay collection to pottery distribution supplemented with archaeo-metric and ethnoarchaeological analysis. Chapter six aimed to explore craft traditions at Musa Khel. The classification and description of minor crafts, their comparative studies, and commercial interaction network have also been incorporated in this chapter. A detailed catalog of pottery and a brief catalog of other minor finds is also provided at the end.

1.9. Out-put of the Study

The proposed research has examined the archaeological remains from the site of Musa Khel, which has filled up the major gap in current knowledge regarding the development of Indus Tradition in this region. The chronological developments have been highlighted along with the socio-economic relations with other areas. The presence of the Regionalization and Integration Era has been found at the Musa Khel as a result of the current study. The presence of three phases has been highlighted

from c.3300-1900 BCE i.e., a pre-Kot Dijian phase contemporary with Tochi Gomal and Ravi Phase with scanty evidence so far; Kot Dijji phase and Harappan phase.

The present study has also shed light on the interaction networks and technological advancements during the Indus Tradition in the area. The Musa Khel connects north-western and northern borderland regions of Indus Tradition to Harappa in the Central Indus Valley and other regions throughout the Greater Indus Valley. Versatile specialized craft traditions across the different phases at the site have been found. These crafts have been produced while employing simple and complex technologies and the use of local and exotic items have been witnessed. The presence of exotic items at Musa Khel marks its economic connection to far-off source regions e.g., Hazara, Balochistan, Makran, Kutch, and Northern Afghanistan, etc. The pottery craft was very popular, advanced, rich, and mainly utilitarian which marks the height of ceramic technology.

Furthermore, the proposed study has highlighted the geographical and economic significance of the Musa Khel concerning the Indus Tradition. Musa Khel was a missing link between the core region of Indus Tradition and north-western to northern borderland regions of Indus Tradition. The Musa Khel area is enriched with mineralogical produce. Due to the variety of mineral sources around Musa Khel, the important sites were in commercial interaction with it i.e., Harappa, Rehman Dheri, Gumla, Gandi Umar Khan, Nari, Sarai Khola, etc.

The Musa Khel is not a protected site and suffering from consecutive and large-scale illegal digging since 2017. There are apparent chances that shortly, the important remains of Indus Tradition would no longer be there for the study, if not protect immediately. The current study has rescued the important archaeological information inherent in the material culture of the site.

CHAPTER II

The Environmental Setting and Exploration at Musa Khel

2.1. Introduction

The current chapter is aimed to provide the geographical and archaeological setting of District Mianwali, the north-western region of greater Indus Valley, where Musa Khel site is located.⁶ Moreover, this chapter also provides studies regarding Indus Civilization in Mianwali and adjacent regions, the results of present explorations at Musa Khel such as description of physical features, the exposed stratigraphy, apparent chronological patterns, their cultural association and development of site. The details of collected material culture such as pottery and minor antiquities are given further in separate chapters.

2.2. Geographical Setting

The Musa Khel site is located in Mianwali, the cis-Indus district of Northern Punjab (Map II). The district was formerly known as *Kacchi* due to its location on the bank of River Indus (District Census Report Mianwali 1961:3). The district is located in the north-western borderland areas of the greater Indus Valley and bounded with the regions enriched with natural resources and archaeological remains, particularly belonging to different eras of Indus Tradition. These regions include trans-Indus regions of Gomal and Bannu Basins towards west and south-west; trans-Salt Range zone of Sakesar Valley and Pothohar Plateau towards north and north-east, Sindh-Sagar Doab towards south while the Punjab plains towards south-east. Moreover, the resourceful mountain ranges also surround this district such as Salt Range towards north and north-east in immediate vicinity, Himalayas and Karakorams towards far north-east and Sulieman Range towards south-west (Pl. I).

⁶ The term *Kacchi* is more geographical and suitable for the District Mianwali to be used in the archaeological literature.

2.3. Administrative Divisions and Boundaries

Administratively, the Mianwali District is lying (between 30° 35' 7" N and 71° 32' 37" E and 210 m above the sea level) on its extreme western limit of Punjab Province (Nadiem 2006:52) and occupies a strategic location along the main trade and communication route, which is connected down towards south with Provinces of Baluchistan and Sindh (Lower Indus Valley) and Khyber Pakhtun Khwa (former North West Frontier Province) on west and north-west. The district shares its boundary on the north with District Kohat of Khyber Pakhtun Khwa Province and District Attock of the Punjab Province whereas on the west to north-west with District Dera Ismail Khan (Gomal Valley), District Bannu (Bannu Basin), District Lakki Marwat, and District Karak of KP. The eastern boundary runs along the District Chakwal and District Khushab (Sakesar Valley) while on the south it is bounded by District Bhakkar (Thal, Sindh Sagar Doab) of Punjab Province (Map II) (District Census Report of Mianwali 1998:1).

Presently Mianwala district covers an area of 1, 426, 00 acres and administratively divided into three tehsils; (1) Isakhel towards west, (2) Mianwali in the center and north to east, (3) Piplan in the south, and south-east⁷. The 457,959 acres of Isa Khel lying on trans-Indus while 6, 55.419 acres of Mianwali, and 312,623 acres of Piplan tehsil lying on cis-Indus (Ibid: 1).

2.4. Physiography

The district has versatile physical features which consist of plains, rough lands, desert, the Indus Valley and mountain ranges. The plains mainly cover a central and southern area of the district, lying between the River Indus and Thal Desert comprised of the cultivation tract. The Thal Desert starts from the Sakesar hills in the south and continued along the southern margins of the District

⁷ Mianwali and Isakhel tehsil were the towns of Bannu District, the then part of Dera Ismail Khan Division of Punjab province during the British Time. In November 1901, the North-West Frontier Province (Present KPK) was made out of Punjab while Mianwali, Isa Khel, Kalabagh, and Kundian were extracted from Bannu and a new district was made with the headquarters in Mianwali city with four tehsils namely Mianwali, Isakhel, Bhakkar, and Layyah. The Bannu added to KPK, the then NWFP. The newly formed Mianwali district was included in Rawalpindi Division. In 1909, tehsil Layyah was merged with Muzaffargarh District (Gazetteer of District Mianwali 1915:1). Mianwali district merged with Sargodha Division in 1961. Later on, Bhakkar tehsil was also excluded from the Mianwali district and made separate district (Mehdi et al 2009:7).

Mianwali (District Census Report of Mianwali 1998:2). Rough land is also known as “*Khudri*” or “*Pakhar*” which detached from the main area by the spur of the Salt Range running from Kalabagh to Sakesar (District Census Report Mianwali 1961:3). The surrounding hills are useful mainly as catchment areas, supplying water through hill-torrents to the plains which form district a kind of basin (District Census Report Mianwali 1961:3-5).

Salt Range is oriented east-west from Kala Bagh to Sakesar while passes the Indus River and jump to District Jhelum towards east. Few routes are passing from south to north in the area of Salt Range as well (Dani 1971:9). The top of the Salt Range is at Sakesar hills at the height of 524m towards the south-east of the Mianwali (Arshad 2011:17). Bangi Khel hills in the form of a bow go around the north and west of the Isa Khel Tehsil until it touches Khisore and Paniala hills of the Dera Ismail Khan District (Gomal Valley) at Dara Tang Pass. The Khisore hills stretch along the southern boundary of the Isa Khel Tehsil and run parallel to the Indus River, forming its right bank down to the southern limit of the Mianwali Tehsil (Map II) (District Census Report Mianwali 1961:5).

2.5. Mineral Resources

The district is also self-sufficient in mineralogical produce. This produce includes rock salt, alum, silica sand, fire clay, and coal (District Census Report of Mianwali 1998:2-3)⁸. Chert stone is found in Salt Range in variety. Black to chocolate brown chert is found in the Sakesar limestone deposits at the head of Nammal Gorge,⁹ in the western Salt Range (Law & Bakri 2001:34; Law 2005:182). In the central portion of the Salt Range, nodules and fragments of a light gray-colored chert are also found in the bed of Buri Khel Nala (Law 2008:275). The beds of Nammal Lake also have abundant supply of black and tan gray chert stone variety (Ibid: 555). Purple hued chert chalcedony can be found from the Khewra trap in eastern Salt range (Ibid: 257). The pinkish-red to maroon colored sandstone of the Khewra formation are exposed along the southern base of the Salt range (Ibid: 196). Few other minerals and stones include gypsum (alabaster, selenite) from the extensive

⁸ The Dhak range of the Salt range is considered as the geological museum of Pakistan (District Census Report of Mianwali 1998:2).

⁹ Nammal Gorge is a short defile that transects the Salt Range near its narrowest point (Law 2008).

pre-Cambrian deposits, quartz crystals from Mari Indus and Kalabag while gray or pinkish granite from Tobra boulders of Salt range (Law 2005:182-187).

All the rocks found in the district belong to the sedimentary type of rocks (Law 2008:66). These rocks have revealed Paleozoic, Mesozoic, and Cenozoic sequences and found as much old as infra-Cambrian (Khan et al 2013:1073-75).

2.6. Climate

The district has an extreme climate, with a long, hot summer season and cold, dry winters. Summer lasts from May to September and winter lasts from November till February. June is the hottest month with average temperatures of 42 °C (highest recorded temperature 52 °C); in winter, December and January monthly average temperatures can be as low as 3 to 4 °C. The average rainfall in the district is about 385 mm (District Census Report of Mianwali 1998:5-6).¹⁰

2.7. Water Resources

There are several water resources found in the district among the mountains and plain areas i.e. Indus River, Nammal Gorge, lakes, several nullahs, and streams. The major water source in the district is Indus River¹¹.

Indus River flows placidly in the Mianwali District immediately above Kalabagh while piercing the Salt Range. The Indus River attains a maximum width of nearly 13 miles, a few miles above Isa Khel (District Census Report Mianwali 1961:8). The Indus River reaches Chashma Barrage after covering about the distance of 100 miles on the northern limits of the D. I. Khan District (Durrani 1988: 12) (and western boundary of Mianwali district). It is suggested by Durrani that the Indus River was flowing (east of D. I. Khan and west of Mianwali) towards further west

¹⁰ Although the District has experienced a trend of increasing rainfall between 1945(Sathar 2018:7). In July and August 2010, the district received 482 millimeters (19 inches) of rain, the highest rainfall in 50 years (Ibid:9).

¹¹ Indus River is mentioned as “*Sindu*” in *Vedic* literature (Durrani 1988:12). It rises close to Mansarovar Lake in Kailas Glaciers in Tibet in the north at an elevation of 5180 meters. Indus River along with its tributaries is one of the largest river systems in the world. It has a total length from its rise to fall is 2880 km and it drains 1, 178, 440 sq.kms. After crossing its mountainous journey in the northern areas, it reaches Attock at an elevation of 610 meters and joined by Kabul River, coming from Afghanistan, and enters into plains of Punjab while crossing Salt Range (Gosal:31-32).

from its current position as evident from the old bank (Ibid:18). The old river course is at a higher level as compared to the current river course (District Census Report of Mianwali 1998:2).

The Nammal Gorge is located in the Salt Range, towards north-east of Mianwali close to Nammal village. Nammal Gorge cuts the Salt range adjacent to its tapered point, slender and twisting in morphology and flowing towards the southerly direction. It is also dissected by a stream, locally known as *Wahi*, formed by the joining of two hill streams, the *Lawa* and the *Golar* in the proximity of the Nammal village, originated from the top and northern hills of the Sakesar range (Singh et al N.Y:53). A dam was constructed at Nammal Gorge during the British time. As a result of its construction, the small freshwater shallow lake came into being in Nammal Village. The Lake covered an area of 5.5 km square (Javed et al 2018: 676; Khan et al 2011).

A barrage, known as “Chashma Barrage” was constructed in 1979 on the Indus River, located southwest of Mianwali at a distance of about 30 km (Shelly et al 2011:341; Scot 1989). An artificial lake was also formed due to it and known as called “Chashma Barrage Lake” (Census Report of District Mianwali 1998:9). Another Barrage, the Jinnah barrage was also constructed about three miles away from Kala Bagh, on the Indus River, which is helpful in the irrigation of the agricultural lands of the area (Niazi 2015:346).

There are several hill-torrents in the district, mostly found in Isa Khel Tehsil. These hill torrents overflow their banks and serve a large area with their flow (District Census Report Mianwali 1961:8). Swan is a prominent torrent that joins Indus River near the boundary of the district at the northern margin close to Swan Bridge. There are also a few other, small, short-lived nullahs and torrents in the district. The prominent among them are Chichal, Aadwala, Baroch, and Tarapi (District Census Report of Mianwali 1998:9).

2.8. Flora and Fauna

The natural vegetation found in Mianwali is comprised of *Kikar* (*Acacia Arabica*), *Jand* (*Prosopis spicigera*), *Beri* (*Zizyphus Jujuba*). The grass and shrub species include *Lana*, *Khipi*, *Akk*, *Chember*, *Dodak*, *Ludri*. The district also has significant agricultural produce including both Rabi and Kharif crops. Major Kharif crops are cotton, sugarcane, maize, and moong while major Rabi crops are wheat and chickpea (District Census Report of Mianwali 1998:4-5). The district is also famous for medicinal flora. Few examples include *Akeri* (*Apocynaceae*), *Chaunga*

(*Asclepiadaceae*), Tumba (*Citrullus colocynth*), Peepal (*Ficus Religiosa*), Tut (*Morus Alba*), Kao (*Olea Ferrugnea Royle*), Ispaghool (*Plantago Major*), Sanatha (*Dodonaea viscosa*), Dhamea (*Fagona Arabica*), Harmal (*Paganum harmala*) (Qureshi et al 2007:2287-2288)

The fauna of the district comprises both, domestic and wild animals. Jackals, foxes, hedgehogs, wild boars, and rabbits are mostly found in Kanh-Koonder forest. Among the birds, Sussi, white/brown partridges are found on hill feet while black partridge is to be found in *Kachcha* area shrubs. Moreover, the ducks in Chashma and Nammal Lake may be able to be seen. The quails visit this district twice a year (District Census Report of Mianwali 1998:4-5). The Urial (mountain sheep) found in the Kalabagh range and far-off spurs. The ravine deer is found in Isa Khel. The blue rock pigeon is found in Kalabagh hills. The domestic camels are found abundant in the district (Shah 2013:12). These camels were frequently used for carrying goods and merchandise in the 1960s in the district (District Census Report Mianwali 1961).

2.9. Historical Significance

The name “Mianwali” stems from the name of a saint “Mian Ali” who belongs to *Qadri Sufi Silsila*. He migrated to this area from Baghdad in 16th Century CE (Sumbal 2016:160). The region was also popular with the name “*Hindu Shahia*” at the time of Alexander’s invasion of ancient India in 325 BCE (District Census Report of Mianwali 1998:7). According to Maher Abdul Haq, “*Pichi Lawani*” is the ancient name of Piplan tehsil and in his book “*The Soomras*”, he has mentioned that the Piplan was the birthplace of Chander Gupt Maurya, the founder of Mauryan Dynasty of ancient India (Niazi 2015:351).

During the 7th century CE, the whole Punjab (including Mianwali) was under the control of Turkic Muslims, who acted as governors of Bokhara State (Dani 2008:176). A greater portion of the current Punjab Province was under the rule of Mehmood Ghaznavi and Muhammad Ghauri during their reigns from 10th to 12th century CE. Niazi Pashtuns traveled here during the reign of Lodhis of Afghanistan in 15th century CE. The region of Isa Khel is mentioned in “*Baber Nama*” as a part of a campaign to defeat Punjab during the 1520s. Nadir shah invaded the area in 1738. In 1748 Durrani army under one of Ahmad Shah Abdali's generals crossed the Indus at Kalabagh. The cis-Indus area with the remaining area of Punjab included in the Durrani realm in

1756. The region invaded by Sikhs during the nineteenth century, who ruled the region until the invasion of Punjab in 1849 by the British (District Census Report of Mianwali 1998:7).

2.10. Ethnic Background of Musa Khel Village

During the late historic times, the Musa Khel village was originally the residence of the sub-tribe of the Pashtun Niazi tribe (of Sarbani origins) i.e., Musa Khel¹², who have migrated to this area during 15th century CE. The name of the village is kept on the name of this tribe. The progenitor of this tribe was the Musa Khan, whose lineage traced back to one of the three sons of Niazaey/Niazi, son of Ibrahim Lodhi and grandson of Shah Hussain Ghauri. The neighboring village populations of Aba Khel, Chidroo Khel, and Madi Khel are the branches or subsections of Musa Khel Tribe (Niazi 2003:744).

After Mehmood of Ghazna and Shahab u Din Ghauri 10th to 12th century CE, this village remained under the power of Khokhar Awans. Before the advent of the Musa Khel tribe in the area, Khokhar Awans were confined to the Valley of Dhak range, Nammal Valley, Rikhi, Kachranwala, Wan Bachran, and Shadian. After the arrival of the Musa Khel tribe, Khokhar Awans were pushed to Wan Bachran and Shadia, and consequently, Khokhar Awans migrated to Shah Pur, present Sargodha (Ibid).

Musa Khel village now has become the home for many different social groups and craftsmen. The main tribes residing in the village are Khattak, Awan, Baloch, Sayed, Qureshi, Jat, Rajput, Khwajah, and Shiekh. The working class i.e., *Tarkhan* (Carpenter), *Kumhar* (Potter), *Mochi* (Cobbler), *Nai* (Barber), *Lohar* (Blacksmith), and *Pawli* (Weaver) also resides here. The total population is comprised of Muslims¹³. According to census 2017, the village has a population of 40,406 individuals.

2.11. Legend of Saint *Sultan Noori Naag*

The district has been remained abode of sanits. There are dozens of tombs associated with several Sufi Saints. There are two oral traditions famous about one of the Muslim *Saint Sultan Noori Naag Ziarat*, which is located at the main of Musa Khel site. According to one legend, the grave of

¹² “*Khel*” is a Pashtun word that means a tribe; hence Musa Khel means tribe of the Musa.

¹³ Interview with Sanaullah Khan Yari Khel s/o Habibullah Khan r/o Musa Khel Village.

Saint *Noori Naag* was discovered as a result of digging on main mound of Musa Khel. The other legend says that one of the elders of “*Bahi Family*” dreamt the signs related to location of Saint *Noori Naag’s* grave. Bahi was one of the three sons of Niazaey/Niazi, the progenitor of the Niazi Pashtun tribe. As a result, the elder man reached the dreamt point and found significant marks indicating head and foot positions. The elder man made the area between these marks as the grave of the saint “*Noori Naag*”. According to local historians, this tomb is older than at least four hundred years (Kazmi 2008:397-98).

2.12. Previous Archaeological Researches in Mianwali District

The Mianwali region lacks serious explorations since the beginning of Archaeology in the Indo-Pak Sub-Continent. Although abundant water resources, mountains, traversable routes, hill torrents, alluvial plains, and mineral resources have attracted the man to settle in the area since remote time. Based on the limited archaeological explorations, evidence of Middle Stone Age Tradition in the form lime stone tools were found from Kalri caves, which are lying at a distance of fifteen km from the Nammal lake and reported by Salim as a part of his survey aimed at finding the Paleolithic site in Khyber Pakhtunkhwa and Northern Punjab in 1988 (Salim 1992:45).

The process of cultural change seems to be evolving in the area and the signs of probably Early Food Producing Era (Neolithic) were witnessed at the Nammal Lake Cave site, which is located on the hills lying in the proximity of the Nammal Lake. The site was reported earlier by Inamullah Jan in 1982. The site has produced chert stone tools that were associated by him to Neolithic or a slightly early period (Jan 1982:67-69). Later on, Muhammad Salim visited the Nammal Lake site as a continuation of his survey of 1988 as mentioned earlier. He found three cave shelters in the Nammal Lake Cave site. He collected chert stone tools (cores, retouched flaked scraper, blades, etc) and limestone blades without re-touch. Muhammad Salim has associated the stone artifacts with Middle Stone Age on a typological basis. He has also collected the evidence of the Regionalization Era from the Nammal Lake Cave Site in the form of Kot Diji phase pottery (Salim 1992:45-46).

Few other Regionalization Era sites were also reported earlier by Ahmed Hassan Dani in the 1970s i.e., Piplan close to the railway station of Kundiyana and Musa Khel (the site under study) in the Musa Khel village (Dani 1971:32). Piplan belongs to Kot Diji phase (Possehl 1999:627).

The evidence of the further development of the human race, the Integration Era is also reported from Musa Khel Harappan phase (present study). After this, there seems a large gap in the archaeological sequence in the area until the Early Historic period. The early historic period evidence i.e., Rokhri Buddhist shrines dated from 1st century CE to 6th century CE were reported at Mari (Alam 1990:43).

Besides Buddhists, this peaceful and resourceful area had also attracted the Hindus, whose remains in the form of massive walls, temple shaped buildings are located at Mari reported earlier by Alexander Cunningham in 1878-79. The other part of this complex is located on the top of the Khaisore range in District Dera Ismail Khan, KP. Together, these monuments are known as Kafir Kot Forts (Pl. III b) (Masih 2000:78).

The area again witnesses a gap of human survival in the area till late historic period. The late historic stepped well/*baoli* along with its two minarets with a height of at least thirty feet on its head is located southeast of old town Mianwali city at a distance 24 km on the road going towards Sargodha. The *Wan* means water well and *Bachran* refers to tribe name. The *Wan Bachran* means “The Well of Bachars”. (Gazetteer of District Mianwali 1915:24).

2.13. Previous Studies on Indus Civilization in Adjacent Regions

There is a plethora of the research has been done regarding the Indus Civilization, more broadly the Indus Tradition. The focus of the present study is on Cis-Indus region of Mianwali, Northern Punjab. The material for the previous researches in the adjacent regions is mainly available from the Gomal Valley, Bannu Basin and Pothohar Plateau. Few other important sites are also considered for the present study.

Pothohar Plateau

Pothohar Plateau is lying on trans-Salt Range zone, north and north-east of Musa Khel-Mianwali. The research related to the Indus Civilization in Pothohar Plateau, specifically in the area north of the Salt Range begins with discovery of Sarai Khola in Taxila Valley in 1960's by the Federal Department of Archaeology and Museums. F.A. Khan conducted excavations at Sarai Khola and reported for the first time as *Excavations at Sarai Khola* (Khan 1968:28-40). Later on, the site was

also excavated by M.A. Halim from 1968-71 and results published in *Excavation at Sarai-Khola* (Part I) (Halim 1971:23-89) and *Excavation at Sarai Khola* (Part II) (Halim 1972:1-112)¹⁴.

The area of Pothohar region has four important other sites of the Indus Tradition. Three of them were discovered by Rafique Mughal in District Attock, Taxila Valley as a consequence of discovery of Sarai Khola. These sites are Jhang Bahatar, Pind Nausheri and Khanda, mainly with elements of early Harappan-Kot Diji phase, which were reported in “*Exploration in Northern Punjab: Cambellpur and Rawalpindi Districts*” (Mughal 1972:131-132).

Rafique Mughal has conducted small level excavations at the site of Jhang Bahater but the report is not yet published. Although the British Archaeological Mission visited the site in 1983 and re-excavated one of the previous trenches to collect charcoal remains for carbon dating as a part of survey of Early Indus Sites in the area and reported the results in *Radio Carbon Dating of Some Early Sites in N.W. Pakistan* and concluded the presence of Late development of Kot Diji phase in the area (Thomas & Allchin 1986:41). The Department of Archaeology and Museum has recently conducted excavations at the Jhang Bahater and results are awaiting.

Following the exploration in Taxila Valley, one more Indus Tradition site i.e., *Hathial* was reported in the Taxila Valley, near Sirkap by Gulzar Khan in 1983. He conducted excavations at the site and published the results as *Hathial Excavation (A Preliminary Account)* (Khan 1983: 35-44). This was very preliminary report. There are three phases, phase I represents late Neolithic while Phase II represents Kot Dijians occupation and phase III represents Gandhara Grave Culture (Ibid).

¹⁴ At Sarai Khola phase I revealed late Neolithic occupation with stone celts, flint blades, highly burnished pottery, wheel made, well levigated clay, thick and medium texture, thin textured pans and medium fabric bowls (Khan 1968: 35). Phase I at Sarai Khola can now be defined after Mughal 1996 as Hakra phase (Shaffer 1991:445). Phase II revealed Kot Dijian Phase, consist of 7 feet thick deposit comprising six floor levels made of mud with variable thickness, Mud floor Structures, stone objects included celts, chisels, sling balls, grounders, cores, micro blades, long flint blades and scrappers, beads of carnelian, agate and lapis-lazuli. Phase III had exposed cemeteries belongs to Gandhara Grave Culture while Phase IV represents the late historic occupation (Khan 1968: 35).

One more important site of Early Harappan-Kot Diji phase, i.e., Mohra in the vicinity of Chakbeli road, Rawalpindi was discovered in the second phase of a large-scale survey by the Taxila Institute of Asian Civilization in 2009-2010 (Khan et al 2012: 166). The Mohra site was re-surveyed by the current scholar in 2011 for the surface collection, required for the preparation of the Master's thesis under the title "*Discovery of a New Kot Dijian Site at Mohra, District Rawalpindi and its Comparison with other Prominent Kot Dijian Sites in Pakistan*" (Butt 2012).¹⁵

In the above-mentioned sites, most of them belong to Early Harappan phase of the Regionalization Era of the Indus Tradition. The vertical excavations have been conducted only at three sites i.e., Sarai Khola, Jhang Bahater and Hathial. The only significant and detailed excavation results are available from the Sarai Khola.

Sakesar Valley

Following these explorations, Saif-ur-Rehman Dar discovered two important Indus Tradition sites i.e., Nari (Dar 2003) and Kalu Wala Dher (Dar 2001) in close proximity of Musa Khel site, in Sakesar Valley, District Khushab. *Nari* has the elements of the Hakra phase, Kot Diji and Harappan phase. The exploration of the site was reported in 2003 as *Nari: The First Early Indus Valley Site Discovered between the Salt Range and the River Jhelum* (Dar 2003:1-65) while Kot Diji phase Kalu Wala Dher among the several others were reported in *Antiquity of the Salt Range: Pre and Early Harappan Evidence* (Dar 2001:30).

Gomal Valley

Gomal valley, Dera Ismail Khan, lying on trans-Indus region, west of Musa Khel-Mianwali, has the concentration of the Indus Tradition sites. The important sites are Gumla, Hathala, Karam Shah (Dani 1971), Rehman Dheri (Durrani 1988, Durrani et al 1991), Jhandi Baber I & II, Maru I, Maru II, Gandi Umer Khan (Khan et al 2000c, Ali and Jan 2005) and Kot Musa (Jan and Ali 2008). The

¹⁵ The site was again visited by the current scholar for further studies in 2015. Scholar made a small trial trench at the site and re-consider specifically the pottery recovered from trench and surface for the M. Phil thesis under the title "Typological Studies of Pottery Recovered from Mohra, District Rawalpindi, Pakistan" from Taxila Institute of Asian Civilizations. The site declared as temporary or camp site because of absence of regular mounds and stratigraphy. The pottery and minor antiquities indicate the presence of Early and Late Kot Diji phase at the site like Sarai Khola (Butt 2015; Butt 2017; Butt 2020).

important excavation accounts are available from Gumla (Dani 1971), Rehman Dheri (Durrani 1988) and Gandi Umer Khan (Jan & Ali 2008). Few articles are also reported from different sites.

The Gumla site was discovered and excavated by Prof. Ahmad Hassan Dani in 1970-71. An account about the excavation i.e., “Excavation at Gumla” (Dani 1971:35-53) is available in “The Excavations in Gomal Valley” (Dani 1971) by Ahmed Hassan Dani. The Gumla site is located in Gumla Village on Tank-D. I. Khan Road (Ali and Jan 2005: 14). The excavations revealed six phases, first is Neolithic Phase, second is Early Harappan-Tochi Gomal Phase, third is Early Harappan-Kot-Diji Phase, fourth is Late Kot-Diji Phase, fifth revealed destructed graves and sixth is Gandhara Grave Culture Phase (Dani 1971; Possehl 2000: 643-645).

Gomal Valley has several other sites related to Indus Tradition, but the prolonged cultural sequence from pre-Kot Diji phase i.e., Tochi Gomal phase to Late Kot Diji phase, had made the site as most important site in the area. Rehman Dheri is located at Bannu- D. I. Khan Road at a distance of 23 km north of it. The site has undergone excavations for consecutive five season from 1976-1980 by Farzand Ali Durrani from University of Peshawer and report “Excavations in the Gomal Valley, Rehman Dheri Excavation (Durrani 1988:232), is available. The first two occupations were assigned to the Kot Diji Phase but later on discovery of pre-Kot Diji phase of Tochi-Gomal (Khan et al 2000), the first occupation at Rehman Dheri is designated as Tochi Gomal phase. The Phase II shows signs of continuity from Phase I. Phase III is related to Late Kot Diji Phase (Durrani 1988; Possehl 2000:643-645).

One more important Indus Tradition site with long chronological sequence in Gomal Valley is Gandi Umer Khan. The site is located about 3 km west of Gandi Umer Khan Village and 3 km north of Gira Isa Khan Village (Farid Khan et al 2000:9). Zakirullah Jan from Department of Archaeology, University of Peshawer and Ihsan Ali the then Director of Department of Archaeology and Museums, KPK conducted excavations at the Gandi Umer Khan site from 2003-2005 and reported as “Archaeological Excavation at Gandi Umer Khan” (Jan and Ali 2009: 17-57). Site comprised of four phases as follows:

1. Phase I: Tochi Gomal Phase
2. Phase II: Transitional (Tochi Gomal-Kot Diji Phase) Phase
3. Phase III: Kot Diji Phase

4. Phase IV: Harappan Phase IV (Ibid. 19).

In the above studies, the important and unique aspect revealed from the Gandi Umer Khan. The only site has the explicit evidence of transition from Tochi Gomal phase to Kot Diji phase whereas such transition is lacking in other areas (Jan 2012).

Bannu Basin

Bannu Archaeological Project has explored and excavated significant Indus Tradition sites in Bannu Basin i.e., Lewan, Islam Chowki, Tarakai Qila (Khan et al 2000d), Seer Dherai, Lak Largai, Shari Khan Tarakai and Tarakai Ghundai (Khan 1991). Accounts on small level excavations are available from several sites such Lewan, Islam Chowki etc. Sheri Khan Tarakai has been excavated on large scale (Khan et al 2008). The excavation account at Lewan is reported as “*The Preliminary account of archaeological survey and excavations at Lewan (Bannu Division), 2000*” (2000:57-104). The site of Lewan has three phases, first one is Sheri Khan Tarakai phase, the Late Neolithic phase, second is Tochi-Gomal phase and third one is Kot Diji phase.

The Islam Chowki site is situated about 9km north-west of Lewan site and about 2km north-east of Tarakai Qila (Khan et al. 2000: 85). The Islam Chowki site was explored by joint Peshawer and Cambridge University in 1976-77(Khan et al 1987: 102). This site consists of a small mound. In 1985 a small excavation was conducted at the site by Bannu Archaeological Project (Ibid. 86).

Central Indus Valley

The Indus Tradition type-site Harappa is situated on the left bank of River Ravi in District Sahiwal in central Indus Valley. There are different walled areas on the site. The site is in the form of mounds. The estimated area covered by Harappa site is 150 hectares (Kenoyer 1998: 49-55). Harappa was excavated for the first time in 1872 by Alexander Cunningham (Cunningham 1875), followed by several other scholar (Vats 1940; Wheeler 1947; Mughal 1968; Dales and Kenoyer 1986b, 1988, 1987, etc.). It is lying in the core region of Indus Tradition in the Punjab plains. The updated chronology at Harappa is as follows:

1. Phase 1: Early Harappan-Ravi Phase > 3300 BCE - c.2800 BCE
2. Phase 2: Early Harappan Kot Diji Phase c.2800 BCE - c.2600 BCE

3. Phase 3A: Harappa Phase A c.2600 BCE - c.2450 BCE
4. Phase 3B: Harappa Phase B c.2450 BCE - c.2200 BCE
5. Phase 3C: Harappa Phase C c.2200 BCE - c.1900 BCE
6. Phase 4: Harappa/Late Harappa Transitional c.1900 BCE - c.1800 BCE?
7. Phase 5: Cemetery H (Late Harappa) Phase c.1800 BCE? (Meadow & Kenoyer 2001).

Muhammad Rafique Mughal from Department of Archaeology and Museums conducted excavations at another important site in central Indus Valley, the Jalilpur in 1971 revealing two phases i.e., Hakra and Kot Diji (Mughal 1972:118-120).¹⁶

Lower Indus Valley

There are several important sites of Indus Civilization in lower Indus Valley. A brief detail of the few important site is given as follows: -

Mohenjo Dero

The site is located about 30 km south of Larkana city in Sindh. The site was excavated under the supervision of Sir John Marshal on large scale from 1922-1927, the than Director General of Archaeological Survey of India. After that the site was excavated by E.J.H Mackay from 1927-1931. Following partition of British India in 1947, the site again was excavated by R.E.M Wheeler in 1950. G.F. Dales was the last one, who continued the excavations at the site from 1964-65 (Dale & Kenoyer 1986:4-6). Mohenjo represent urban phase of the Indus Civilization, built entire of backed bricks in the third millennium BCE. It consists of the upper fortified part and the lower city. A historic period stupa mound on top of the remains going back to the Kushan Period. Important buildings of the Indus Valley Civilization include the Great Bath, Granary, Collegiate Building and Pillared Hall, apart from the lower town inhabiting major population of the city.

¹⁶ Two trenches were dug in the centre of mound. Virgin soil was at depth of six feet. Six layers revealed as a result of excavation. These six layers makes two phases, phase I starts from 3500 BCE have three deposits from layer no 6 to layer no 4 and phase II which starts from 3000 BCE have the remaining layers with two structural phases i.e., IIA early and IIB late phase. There is no break in between phase I and II. Pottery of phase I has intermingled with phase II. Phase II revealed two mud structures and mud lumps in layer 2 and 1 forms phase IIA and IIB on bases of structures, not on the basis of cultural materials (Mughal 1972:118- 120).

Amri

Amri site is located on the western bank of River Indus about 160 km on the south of Mohenjo Daro. The site was discovered and excavated by N.G. Majumdar in 1929. J.M. Casal also excavated the site from 1959-1962. As a result, four successive periods were recorded at the site i.e., Period I is Early Harappan period popularly known as “Amri Phase”, period II consists of intermediate Amrian and Harappan elements. Period III consists of four sub-phases i.e., Harappan phase, transitional phase, late Harappan phase and Jukar phase. Period IV belongs to “Jhanagar Complex” (Casal 1964).¹⁷

Nausharo

It is situated on a major axis of communication between the Indus basin and central Asia and belongs to the Bronze Age. The site of Nausharo was excavated under the direction of J.-F. Jarrige between 1985 and 1996 by the Mission française de l’Indus (Meri et al 2007:1098). As a result of excavations on the northern mound, four periods have been revealed. Period I (B, C, D) represent Early Harappan levels, period II and III represents Harappan levels while period IV represents post Harappan levels at the site (Quiron 1994:629).

Chanhu Daro

This archaeological mound is located in Jamal Kirio village, Nawab Shah. It was discovered by N.G. Majumdar in 1929. It consists of four small and one large mound. It measures 290x210x7m. The site was initially excavated by E.J.H. Mackay in 1935-36 and has found burnt brick houses and drainage system. Other antiquities include potsherds, chert blades, t/c bangles, chisels, beads, etc. Following that, French Archaeological Mission has resumed excavations at the site in 2015 and it is still going on. During the season 2015, excavations were carried out between the mound II and III. As a result, four different architectural levels were revealed from Trench I i.e. A, B, C D (1,2) beside pottery, terracotta bangles, terracotta cakes and terracotta figurines (Dider et al 2016:73-76).

¹⁷ According to Dales & Kenoyer, there is one more and last period, belongs to Islamic Era (Dales & Kenoyer 1986:7).

Kot Diji

F.A. Khan, the then Director of the Federal Department of Archaeology and Museums, Pakistan conducted excavations at type-site Kot-Diji site from 1955 to 1957 and revealed Early Harappan and Harappan phase at the site (Khan1965: 14-35).¹⁸

Swat Valley, Ghaligay Rock Shelter

Rock shelter near Ghaligai in Swat Valley was excavated by Italian Archaeological Mission in 1967, revealed phases from Neolithic to Islamic Period. The phase II comprising layer 18 and 19, has yielded pottery comparable with Kot-Diji phase i.e., typical jar with painted high collar (Stacul 1969: 54).

2.14. Previous Studies on Musa Khel

The study on the south of Salt Range in Mianwali regarding Indus Civilization had remained confined to reporting and discovery of sites only. There are three sites related to Indus Tradition, discovered and reported so far in Mianwali i.e., Musa Khel (Dani 1971; Salim 1992), Piplan (Dani 1971) and Nammal Lake Cave (Salim 1992). All of the three sites have mainly Kot Diji phase and unfortunately the potential of these sites have not been explored yet. Although the Musa Khel site, currently under study, have been given a little consideration regarding provenience studies of minerals and stones with special reference to Harappa, in Sahiwal (Law 2005; Law 2008).

Ahmed Hassan Dani had reported for the first time Musa Khel site in 1971 in “The New Explorations in the Gomal Valley”. The visit to Musa Khel was the part of his archaeological campaign, conducted in Gomal Valley. He had collected some pottery (polychrome i.e., chocolate on white and red painted jar; perforated sherd; plate with incised design; knobbed lid), terracotta seated female figurine, terracotta gamesman, rounded to semi-rounded missiles and trapezoidal

¹⁸ Site consists of two parts i.e. A and B. Area A revealed 16 layers. Layer 1-3 exposed Harappan phase. Below the layer 3A a break in cultural sequence appears in layer 4, a thick deposit of burnt and charred material at the top of layer 4 spreading over the whole site completely seals the lower levels from the upper layers. From layers 4-16 comprised of Kot Diji phase levels, 17 feet in height without any cultural sequel break (Ibid. 17-29). Area B is at outside the castle, revealed six layers. Layer 1 revealed debris, Islamic, Harappan and Kot-Dijian pottery. Layer 2-6 revealed regular buildings, red slipped and Kot Dijian pottery (Ibid. 34-35).

baked brick from the surface of the site (Dani 1971:32; Pl. 75). He had concluded that Musa Khel site provides connecting link between the Indus Civilization sites of Taxila and Gomal Valley. He has also highlighted a route that goes from Musa Khel to Bannu via Kala Bagh (Dani 1971:32). Later on, Musa Khel site was also visited by Muhammad Salim as a part of his explorations in Pothohar Plateau in 1988. He reported the site in “Archaeological Explorations in Punjab and N.W.F.P, Northern Pakistan”. He collected few pottery specimens (black on red-painted; buff ware with wide chocolate bands) and chert stone tools (small blade cores, blades, flakes, and waste chips) from the site and declared the site as belonging to Kot Diji phase. He had also observed few pieces of pottery with spouts, which according to him could be of later period (Salim 1992:47; Fig. 6.1-3). Following Muhammad Salim, Rendal Law from the Wisconsin Madison University, has surveyed the site and reported the site as “Regional Interaction in the Prehistoric Indus Valley: Initial Results of Rock and Mineral Sourcing Studies at Harappa”. This scholar had given a little more serious concern to Musa Khel, but the objectives of the Randall Law was limited to mineral and rocks provenience studies. He categorized the site to Early Harappan-Kot Diji and Harappan phase site. He reported the presence of black to chocolate brown chert in the Sakesar limestone deposits in the vicinity of Musa Khel. Law had observed flaking debris of the same chert on the surface of Musa Khel as well. He had conducted a comparative study of Musa Khel chert with similarly colored cherts from Baluchistan and with cherts at Harappa and in collections at the Museum of Archaeology and Ethnology, University of Peshawar. On the bases of such comparisons, Randall Law reached to a conclusion that Sakesar chert may be the same material found in Ravi and Kot Diji levels at Harappa and other sites of that period on the Gomal Plain such as Rehman Dehri (Law 2005:182). Randall Law has proposed that the Nammal Gorge might have functioned as a clear pathway, which links Punjab Plain with the Potwar Plateau. He suggested that ancient settlers of the Kot Diji Phase might have used Nammal Gorge to move across it to and from the Indus Civilization sites of northern Potwar Plateau i.e., Sarai Khola (Halim 1972) and Hathial (Khan 1983). Author has strengthened his view by the discovery of contemporaneous sites in both sides i.e., Musa Khel (Dani 1971), Nammal Lake Cave (Salim 1992) and Kalu Wala Dher (Dar 2002).

Randall Law has also produced a doctoral thesis under the title “Inter-Regional Interaction and Urbanism in the Ancient Indus Valley: A Geologic Provenience Study of Harappa’s Rock and Mineral Assemblage” in 2008. Randall Law on the bases of recovery of mineral and rock resources

i.e., chert, alabaster etc, in the vicinity of the Musa Khel and their discovery on its surface as well as at Harappa, is of the view that the Musa Khel site had remained a vital collection point for rock and minerals, acquired from corner to corner of this region. Moreover, the strategic location of the Musa Khel on the foot of major passes of the Salt Range fortifies this prospect (Law 2008:555-556). Few other scholars' associat Musa Khel to Late Kot Diji phase specifically (Possehl 1999:712; McIntosh 2008:163).

2.15. Present Exploration

Following previous studies (Dani 1971; Salim 1988; Law & Baqiri 2001; Law 2005; Law 2008), TIAC conducted a devised and salvage archaeological survey at the Musa Khel site in July 2017 to explore its potential. Later on, the site was again visited by the present author in 2018-2019. For the survey, apparent mounds and distinguishing areas of the site were marked and designated reference numbers. Maximum physical areas with archaeological potential were identified in the survey (Pl. IV b). The site was systematically surveyed on feet with each physical area was carefully observed and diagnostic sherds along with associated minor antiquities were collected from the surface, sections and piles of soil left by the illegal diggers and were safely transported to an archaeological research laboratory at TIAC, Islamabad.

2.16. Location and Access

The Musa Khel site (32°64'26''95 N and 71°75'05''90 E; seal level 271m) is precisely located at the northern extremity of Musa Khel village from where it has derived its name. The village of Musa Khel is one of the unions and main village of District Mainwali and comes under premises of Mianwali tehsil. The village is located along the Talagang-Rawalpindi Road about 20 km to the east of the Mianwali city, the district headquarters (Map II).

The Musa Khel site is approximately 550 meters away from the main Rawalpindi-Talagang Road. This road in the form of crescent is passing through east to the south side of the site. The raised Musa Khel mound and Muslim shrine of saint "*Noori Naag Sultan*" on the top of the site distinguish its presence from the main road among Muslim grave yard, trees, and agricultural field. Although the boundary wall of the graveyard makes it slightly harder to see through the archaeological mound from the main road. A muddy pathway formed by the pedestrians' leads

from the main road to the site, through the few modern houses, graveyard boundary wall, and graves (Plan II).

2.17. Mounds, Ziaraats and Grave Yard

According to Ahmed Hassan Dani, there were two mounds, known as “*Sultan Dheri*” and “*Faqir Dheri*”, the raised portions of the same mound with modern period Muslim graves between them (Dani 1971:32). The current study has found that the case is different and the two mounds are separate. Only a south-eastern corner area of the main mound (main mound by the present author) is occupied by a Muslim saint *ziarat* (shrine) known as “*Sultan-ul-Aarifeen Hazrat Noori Naag Sultan*” (Pl. XII b, Plan II) while the other mound (mound II) is leveled due to grave yard and its north-eastern corner is occupied by a Muslim saint *ziarat* (shrine) known as “*Faqir Hazrat Baba Muhammad Ghazi*” (Pl. XIII a, Fig. Plan II). The top area of main mound is found exposed during the survey-2017 due to plowing and antiquities, mainly pottery and terracotta cakes were found scattered and in the form of small heaps made by the villagers (Pl. VII a, Pl. XI b). Main mound I was mainly found without abundant material culture, although very few pottery sherds in very fragile conditions were also observed there scattered among the modern Muslim period grave yard. Modern period Muslim graveyard spread in the southwest to southeast direction, close to the main mound and leveled area of the site. The graves have specific cobra head style name slates which might be related to continuity of practices of un-identified culture in the area. The main mound has no particular shape, except one square heap with the plain level at its top due to plowing. It is slightly oriented oblique from south-west to northeast or from north-east to south-west direction (Plan I-II, Pl. XIII b).

2.18. Human Vandalism

The originality of the site is found disturbed due to the development of modern-day houses, agricultural fields, shrines, graveyard, and illegal digging. There are agricultural fields in the east and south-east direction of main mound (Plan-II). It has faced a consistent illegal digging by the locals before and after the survey of May-2017. During the initial survey, main mound was found exposed from the north down to 1.5 meter (Pl.VI a). While during a visit on 2018, two furrows were also made by the use of heavy machines at the north-west side of the main mound. These

furrows were about one meter deep while 1 to 1.5 meters wide and 5-6 meters long (Pl. IX a). An important and probably richer area is still occupied by the Muslim shrine at the main mound.

Later on, during a visit to Musa Khel in 2019, it was observed that northern and western, especially north-western area of the main mound was cut out down to the lowest chronological levels at main mound which measures about 9 meters deep and more than 50 meter long due to mud quarrying by villagers through heavy machines for the construction of houses near the site and city. The depth of the exposed section varies from 9 meters at west to about 1 meter towards north-east (Pl. IX b, Pl. X a-b). Every part of the site appears to be highly rich; almost every part of the site yielded rich material culture, mainly the main mound. All these factors have removed away a considerable cultural deposit from the site and process of digging is still going on, as a result of which the remains having an important archaeological significance will be lost if not protected. A heavy vandalism had not been able to cut the complete area of the occupation at main mound till the mid of 2019 but had removed away the significant amount of cultural material, whose recovery seems impossible. The illegal diggers have left behind large quantities of pottery along with microliths, terracotta bangles, and stone, probably which do not have any value for them. Their most concern is to level the mound and acquire mud for their construction purposes (Plan III).

2.19. Size and Measurements

The total height of the surviving habitation deposits at the main mound is in the range of 2.5 to 9 m, from east to west from the ground level. The main mound has approximately measured 27-28 meters each side at its leveled top. Whereas the north and north-western disturbed section of the measures 9 meters high and approximately 50 meters wide down to possible virgin levels. Illegal excavations have leveled the northern limits of main mound due to which and ground levels on the south of the main mound are virtually on height. As seen from the scattered cultural material, each side of the ancient occupation is not less than 300 meters. The field survey for the present study revealed that over 2.9-hectare area of the site was occupied. Size of Musa Khel site categorizes it as the small Indus Tradition site in the area.

2.20. Identified Physical Areas

The exploration at Musa Khel has identified the following physical areas with archaeological potential, which are as follows (Pl. IV b):

Area-I: It consists of a top surface of the preserved main mound which shows clear signs of plow and piles of material culture including pottery, also melted one, terracotta cakes, chert stone tools, variety of stone fragments, and few trapezoidal bricks, etc.

Area-II: It consists of illegally dig and plain area in the northern slope of the main mound. It gave out the about 9-meter-high exposed stratigraphic section with baked brick architecture, river stone foundations/platforms, post hole/trash pit, kiln, and inscribed pottery along with several other forms, evidence of firing activities in the form of burnt layers comprising soil, ashes, and charcoal.

Area-III: It consists of north-western illegally dig and an extended area of the main mound. It also has the evidence of firing activities like area-II and remains of river stone foundation/platform. This section is continuing from the northern side section of main mound and also found with piles of material culture such as pottery, terracotta bangles, and microliths in bulk and trapezoidal bricks.

Area-IV: It shows the western and south-western slope, the illegally dig and extended plain area of the main mound. It also shows the continuity of an exposed section with remains of baked brick architecture and river stone foundation/platform.

Area-V: It shows the north-eastern slope and extended plain area of the main mound. This area is comparatively intact and has dense vegetation, as well as piles of material culture such as stone fragments, potsherds and terracotta cakes, etc.

Area-VI: It consists of the eastern slope to southern illegally excavated area of the main mound and immediate plain with agricultural area. The eastern slope is intact and shows dense vegetation in the form of grass, bushes, and few trees. It has abounded pieces of pottery in eroded form. While southern slope is illegally excavated and shows remains of baked brick architecture with the remains of river stone foundation/platform and firing activities in the upper levels in contrast to Area-I, where they were witnessed in lower levels.

Area-VII: It comprises area in the south-eastern direction of main mound. It consists of plain and agricultural field area.

Area-VIII: It shows leveled mound II of Musa Khel and surrounded by Muslim period graves and shrine. It has very rare eroded potsherds. Thus, area has revealed a pit lined by trapezoidal baked bricks, a heavy and very large pot deposited in the soil and a fired steatite with a circular plan in the vicinity of the leveled south-western plain of mound-II within the graveyard.

2.21. Material Culture /Antiquities

The top of the main mound, the agricultural field, and other areas were found scattered with a variety of potsherds in mono-chrome, bi-chrome, and polychrome as well as several other antiquities. There were also piles of pottery and terracotta cakes, made by the illegal custodians of the site. Some of the artifacts were found sporadic while several were still found deposited in the layers exposed in section. Variety of antiquities was collected from different areas of the Musa Khel site belonging to different chronological phases such as round shape steatite button seal, barrel-shaped serpentine and limestone beads, disc shape steatite beads, limestone ball, parallel-sided and retouched chert microliths, cores, sandstone saddle querns and ponder, terracotta human and animal figurines, red and grey ware multi-strand bangles, cartwheel, cakes/missiles, ball, wedged bricks of well, terracotta nodules, copper slag, simple and ledged shell bangles. Pottery is discussed in detail in chapter III-V while minor antiquities have been discussed in chapter VI separately.

2.22. Exposed Stratigraphic Sections

The exposed area of the main mound is culturally found very rich as it has revealed stratigraphic sections on its different sides such as north-western, western and southern side. There is irregularity in the north-western exposed area of main mound. The northern side of north-western exposed area is defined as “**North Side of North-Western Section**” continues from east to west in a slight regular style and after about a distance of 50 meters it bifurcates and continue to exist in two different directions, one towards north and termed here as “**West Side of North-Western Section**” and other one continues towards south, covering the western half of the main mound and defined here as “**Western Section**”. The section on the southern half of main mound is described as “**Southern Section**”.

Two specific areas in the north side of the northwestern section i.e., **Sub Section-I** and **Sub Section-II** were slightly scrapped to document and understand the stratigraphy as highlighted in

the diagram (Plan III). Exposed features were assigned reference numbers in ascending order from top to bottom and defined as “**Patterns**” for the presentation of stratigraphic features from exposed sections. These patterns defined here do not depict proper archaeological layers; rather defines most possible and understandable chronological and cultural features, which have been documented during a visit at the site by the author in 2019. These patterns are described below, from top to bottom in ascending order, distinctive to each sub-section as follows:

2.23. North Side of North-Western Section (Area II)

2.23.1. Sub Section-I

This section is located slightly in the middle of north side of north-western exposed section on the main mound, which is about 9 meters in height. The patterns observed in this section are as follows:

Pattern I

The first pattern is about 1-1.5 meter thick and topped by a layer composed grayish soil mixed with river stones, and highly fragmented plain potsherd with vegetation at its top and loose earth below. It is followed by a thick layer, whose width varies across the section. It is mainly composed of a mixture of compact and loose soil with scattered river stones and plain to thick ware globular vessels and perforated jars in fragmental forms. The central surface at the top of the main mound is leveled for cropping and a huge number of plain and thick sectioned globular vessels, cooking pots (ledged), perforated jars, and the plain to painted dish on stands are scattered along with numerous chert microliths, triangular and oblong shape terracotta cakes and as well as melted pottery, wedged bricks and debitage of undiscovered crafts.

Pattern II

The second pattern is about 1-1.5 meters thick and has clear evidence of architectural remains in the form baked brick walls and drain outlets.

Pattern III

The third pattern has remains of a foundation or platform, made of river stone, stone fragments, and probably crushed stones. One baked brick also found beneath this foundation. This structure

appears to continue further east as well as west towards the west side of north-western section and also towards western section.

Pattern IV

The fourth pattern is about one meter thick and found mixed with slight loose and more compact soil. No material culture was found as a result of surface scrapping.

Pattern V

The fifth pattern again comprised of the river stone foundation/platform. The width of this pattern, size of the stones, and density of constituent are different as compared to pattern III, mentioned above.

Pattern VI

The sixth pattern is wide and composed of a mixture of loose and compact soil. Few thin textured open mouthed small bowls were observed.

Pattern VII

Below this, there is a pattern, depicting a series of sharp layers showing firing activities throughout the exposed section i.e., white color ashes, followed by layer having mixed ashes with charcoal; loose soil with charcoal. Below this, there is a sharp layer of compact soil, followed by burnt reddish soil layer, ashy layer, and layer with loose soil and charcoal.

Pattern VIII

Probably the last pattern, is quite thick, having loose soil as well as burnt soil with fragments of black chert nodules and abundant potsherds of different pottery types, especially small, thin sectioned open-mouthed bowls in black on red, potsherds with chocolate on cream background; concave and dark reddish-brown painted bowls/basins with flat bases, carinated pots, black to dark grey on pale yellow to light red slipped thin sectioned globular jars and dark grey on chocolate painted globular jars. This pattern is followed by a possible virgin layer, devoid of any material culture, which was scraped slightly further in the immediate plain area towards north of the main mound.

2.23.2. Sub Section II

Another area in this exposed section, designated as sub-section-II was slightly scraped and documented to understand some other chronological and cultural features of the Musa Khel. Its height is about 7 m. It is lying in the middle of the eastern half of the exposed section. The patterns observed in this section are as follows: -

Pattern I

The pattern I of sub-section II is composed of a semi-circular, slight deep pit with terracotta marginal lines. Likewise sub-section I, it is topped by a layer composed of grayish color loose soil, river stones, stone fragments and vegetation. The structure is probably belonging to the remains of an oven or kiln. It was found filled with compact soil (rendered reddish due to kiln/oven firing); fragments of baked bricks and plain to thick ware potsherds of unknown form. River stone foundation i.e., Pattern III or possibly Pattern V of sub-section-I is found continued in this area from west. Its width is reduced and there is also a break in the foundation due to this kiln/oven (?) and a parallel lying trash pit.

Pattern II

The pattern I is followed by a 3-meter-thick pattern, which is composed of a mixture of compact and loose soil with few deposited porous grinding stones in pale yellow color with their upside-down, thin sectioned red slipped pottery, short-necked globular jar and miniature pot with dark grey on pale slipped background, black chert stone flakes and nodule fragments along with animal bones.

Pattern III

The next pattern is 1 to 1.5 meter thick, depicting a series of sharp layers showing firing activities like sub-section-I. Top one layer is comprised of loose soil, followed by reddish color burnt soil layer; loose soil layer mixed with charcoal; ashy soil layer mixed with charcoal and loose soil layer with pebbles. A flat base with pre-fired graffiti was also collected from the same levels at the eastern end of this section.

Pattern IV

The last pattern is composed of thick and loose soil. It has thin sectioned pottery and black to dark grey on pale yellow or white painted globular jars, dark grey to black on the red-painted globular jar, open-mouthed small bowls, and other potsherds with dark grey or chocolate intersecting circle and hatched design as well as pipal leaf on a creamy background. It also has black ware terracotta bangle, black chert nodule fragments, maroon, light grey, white with a purple-hued or dotted river stones and fragments different rocks and minerals in pale yellow, dark grey and dark reddish-brown color in the extreme eastern portion of the section. This pattern is followed by a possible sterile layer like sub-section I which was scraped slight further north of the main mound.

2.24. West Side of North-West Section (Area III)

The current section is without any remains of baked brick architecture. Although possible remains of a foundation/platform (an irregular series of river stones), parallel to Pattern V of sub-section-I, is visible on the northern extreme of this section where mound slope meeting ground levels. This section also shows clear signs of firing activities in form ashes, charcoal and burnt soil like Pattern VII of sub-section I and Pattern III of sub-section II.

2.25. Western Section (Area-IV)

The height of the western section is about 3.5 meters. Few baked bricks of architecture associated with Pattern II of sub-section I found exposed without drains. Also, river stone foundation/platform associated with Pattern III of sub-section-I is also exposed in this section. The foundation shows mainly a disturbed series of stone crush and small river stones.

2.26. Southern Section (Area-VII)

A significant portion of the southern slope of the main mound is also affected and exposed. The section is about 2 meters in height, shows fallen baked bricks with pale brown river boulders beneath, intermixed with ashy soil and charcoal, and found associated with oblong shape terracotta cakes, black chert nodules, dark reddish brown-stone fragments and plain globular jar. A river stone foundation likewise western section is also exposed here towards the extreme east of this section. This area is slightly intact as compared to northern and western areas.

2.27. Exposed Features: Description

2.27.1. Baked Brick Walls

The presence of baked brick walls was observed in exposed sections i.e., north side of the north-western section in Area-II, western section in Area-IV and the southern section in Area-VI. These structures have been assigned to Pattern II of Sub-Section I in Area-II. As a result of rough measurement, an average size of baked bricks came out i.e., L=12'', W=6'', H= 3''. Varied lengths of walls in breaks were observed in Area-II, whereas in Area-IV and Area-VI only a few bricks were found exposed. The bricks in the Area-II are closely packed and consist of three to seven tiers. The brick masonry is simple and alternate. The wall seems slightly oriented from north-west to south-east or vice-versa. Few of the bricks have been found projected towards north which indicates the continuation of another wall which is probably destroyed as a result of illegal digging by heavy machines (Pl. X a-b).

2.27.2. Baked Brick Drain Out Lets

There are structures, made of baked bricks through the horizontal and vertical arrangement i.e., one brick lying horizontal with bricks lying above it vertically on both sides, appear to be outlets of a possible drain, built through the above-mentioned baked brick walled structures. Their presence only has been observed in the north side of the north-western section in Area-II and related to Pattern II of Sub-Section I. They are two in number and arranged slightly one above the other with a slight gap and close to the remains of the baked brick wall in the same area. The average size of outlets came out i.e., L=10'', H/W= 7.5-8''. The brick size is slightly different from the brick of the wall i.e., L=10'', W=5'', H=2.5-3'' (Pl. X a).

2.27.3. River Stone Platform/Foundation-I

The presence of the river stone platform/foundation was observed in the north side of the north-western section in Area-II, close to Sub-Section-I and associated with Pattern III. It is lying just below the baked brick wall structure. Likewise, the baked brick walls, varied lengths of the river stone platform/foundation with breaks were observed in Area-IV and Area-VI with a slight change in structure. The maximum width of this river stone platform/foundation is about 15 inches in the Area-II. It is mainly composed of complete river stones of varied sizes from tiny to small and

medium-size. A good number of fragments and crushed stones are also observable within the matrix of a floor (Pl. X a).

2.27.4. River Stone Platform/ Foundation-II

Another river stone platform/foundation was found mainly in the area i.e., the north side of the north-western sections in Area-II, close to Sub-Section I and associated with pattern V. It is located below the river stone platform/foundation-I with a gap of about 1.75 feet. The gap mainly comprises of compact soil. The maximum width of this river stone platform/foundation is about 18 inches in the Area-II. The composition is the same as of the other but the density of constituents is quite lesser as compared to river stone platform/foundation-I. The presence of such type of structure is also found continued in west side of north-western section in Area-III (Pl. X a).

2.27.5. Pottery Kiln/Oven

A convex shape pit was observed in Area-II, sub-section-II towards the eastern extreme of the north side of the north-western section and is associated with Pattern I of the sub-section II. It is lying on top of the main mound. It measures about 5 feet wide and 2.5 feet deep. The terracotta thick linings are visible on both sides of the margins of the pit and filled with reddish burnt clay. The pit is also filled with fragments of baked bricks, different types of stones, complete river stones of different sizes, and the plain ware sherds, one is indicating rim portion of a plain jar. The reddish color of clay, terracotta lining, and the constituents suggest the association of this structure to a pottery kiln, strengthened by the recovery of several terracotta cakes and melted pottery scattered on top of main mound. Otherwise, it could have been an oven. The filling of numerous types of constituents also suggests that it might have used as a trash pit later on (Pl. XI a).

2.27.6. Trash Pit/Post Hole

Just beside the sub-section-II of Area-II, parallel to remains of a possible pottery kiln, there an elongated semi-circular and deep pit is located. It is about 4 meters deep and 3 meters wide, filled with greenish color sand, stone fragments, crush, and river stone of varied size. Most probably the pit is associated with trash pit of later period which was filled with river sand due to over flooding or due to prolonged erosion after being the site was abandoned.

2.27.7. Firing Remains/Activities

The firing remains in the form layers filled with ashes, charcoal, and burnt soil were observed in the lowest levels throughout the north-western exposed sections of the main mound. In Area-II, about 2 feet thick portion associated with pattern-VII of sub-section-I was observed while in sub-section-II, about 3 feet thick area is associated with pattern III of sub-section I. In Area-III, about 4 feet thick area was observed with signs of firing activities associated to Pattern III of sub-section II and Pattern VII of the subsection-I. The charcoal and ashy remains were also observed within the damaged or fallen baked brick structure in the southern section of Area-VIII, the upper levels and associated with Pattern II of sub-section-I (Pl. XI a).

2.27.8. Convex Pit lined with Trapezoidal Shaped Baked Bricks

In the Area-VIII associated with leveled mound-II, partially deposited convex pit was documented. Its preserved and exposed width is 4.1'' feet and depth is about 9 inches. The pit is made up of baked bricks of wedged shape and different sizes. The northern half of the structure is found preserved as visible from the surface. Bricks have dentition marks at their margins. Total five bricks are visible and bonded with different amounts of lime mortar. The western half of the exposed pit is closely packed with lime mortar while the eastern half has 2-6 inches thick lime mortar between the bricks. Moreover, the size of bricks varied from the eastern to the western side. The first three bricks are 11-12 inches wide at their exposed sides while the last two bricks are in the range of 8-10 inches of width. Moreover, in the center, between the brick 2 and 3, there are fragments of bricks bonded with heavy lime plaster, probably showing signs of repairing. The cavity is filled with sandy soil and without any artifact. Although one fired steatite bead of the circular plan to trapezoidal section and a heavy pot was found partially deposited in the area close to the pit (Pl. VIII b).

2.27.9. Trapezoidal Baked Bricks

There were few wedged shape bricks (complete as well as fragments) lying on the top of main mound in Area-I and in the illegally dig earth pile along with several artifacts in Area-III, close to the north-western section of the main mound. The brick collected from the top of main mound measures i.e., $L=10.2''$, $W (W1-W2) = 5.90''-4.52''$ (Pl.VII b, Pl. VIII a, Pl. XXXV b).

2.28.Context of Exposed Structural Remains

Based on material culture, baked brick architecture and river stone foundation/platforms, the pattern I to pattern III of sub-section-I are associated with Harappan phase of Indus Tradition. The pattern IV and pattern V are quite complex due to lack of associated material culture inherent with chronological identification. The remaining patterns VI-VIII of sub-section-I are clearly associated with Early Harappan-Kot Diji phase.

Likewise, based on a kiln/oven filled with baked brick fragments and few plain and thick sectioned vessels, the pattern I of sub section-II is also associated with Harappan phase and correlated to pattern I to pattern III of sub section I. The pattern II to pattern IV of sub-section-II is associated with Kot Diji phase based on material culture such as pottery, microliths, grinding stones and firing remains. The details of material culture, especially pottery is provided in the next chapters. The pattern II of sub section-II is found in a correlation with pattern VI of sub section-I, based on thin sectioned open-mouthed bowls. Likewise, the pattern III and pattern IV of sub section II are correlated to pattern VII-VIII of sub-section I (Table-IV).

CHAPTER III

Typology of Musa Khel Pottery

3.1. Introduction

The present exploration at Musa Khel has recovered a suitable number of pottery and minor antiquities. The pottery collection provides a variety of morphological as well as decorative forms that allows us to classify them according to their chronological association. As a result of comparative studies (see pottery catalogue for details), two main cultural phases are represented by the present pottery corpus i.e. Early Harappan-Kot Diji phase and Harappan Phase. The current chapter is dedicated to various chronological pottery types identified at Musa Khel, their decorative and morphological variation, surface treatments, composition, and manufacturing techniques. A detailed catalogue also has been provided at the end (see Appendix-1, p.233).

3.2. Classification Scheme

Archaeologically deposited and waste pottery offers a comprehensive variety of data about ancient societies and used to establish chronologies, recognize groups of people, study about ancient trade networks, and ascertain the type of happenings that took place in specific localities (Rice 1987:113).

Anthropologists and archaeologists now and again address classification in two directions, such as, devised and ethno-taxonomic/folk classification. According to former, selecting various kinds of pottery attributes leads to different pottery types, for example, morphological, historical, functional, and cultural (Ibid:275) whereas folk classification group and term the vessels according to native, as contrasting to scientific categories. Vessels are named principally for their general functions such as cooking, storage, or serving (Ibid: 279). By and large, pottery classification is considering into account the recognition of similitude and connections, in the shape and decoration of vessels (Thuesen 1989:273).

Further, the terms such as groups, classes, and types remain from time to time distinguished at different phases of classification. A group contains concrete objects, for instance, potsherds, and occurs in the phenomenological or else practical realm. Classes and types, though, characterize

verbal models or descriptions of vessels and are ideational. A class is a general term indicating to some partition of materials into groupings constructed on similitude and differences, based on a single attribute, unlike type is a conventional, conceptual or abstract unit based on a consistent patterning of attributes of the materials (Hills and Evans 1972: 233) and is hypothetically oriented that is applied to address a solution of a particular archaeological issue (Rice 1987:276) such as identification of chronological phases and subsequent cultural relations and interaction networks in the present case of Musa Khel.

The pottery of specific chronological phase shows specific combination of decorative, morphological and technological elements (Petrie et al 2008:1). Generally, the greater part of the pottery recovered from excavations is broken and deficient instead of entire vessels. Rim sherds give the most data to estimate the size and form of a vessel (Rice 1987: 222), which are suggestive of their possible function¹⁹ (Halim 1972:24). In case of Musa Khel, most of pottery is fragmented and recovered from disturbed context and it is one of our primary objectives to contextualize the pottery and to establish interaction networks via cultural links during different phases at the site. The Indus Tradition pottery consists of particular morphological types distinctive to chronological phases. The quantity and quality of the pottery collected from the Musa Khel site allows us to classify the pottery corpus using their versatile body forms. Therefore, Musa Khel vessels are classified based on the morphology as a primary attribute while decoration (painted and structural) as a secondary attribute.

The classification system into general functionally oriented forms i.e., Jars, Pots, Bowls and Dishes are based on the metric system (i.e., ratio between internal height (IH) and maximum body diameter (MBD)) developed by Dale and Kenoyer for Mohenjo Dero pottery (Dales & Kenoyer 1986) is adopted for the present study. There are a few modifications to our system. In the case of Musa Khel, there are few numbers of sherds provides a ratio between IH and MBD. Therefore, to apply this system effectively, a comparison of the selected pottery sample of Musa Khel with comparable complete forms from contemporaneous sites of adjacent areas has been conducted. Based on these comparisons, we have reconstructed the complete forms and overall height of vessel is preferred (H) instead of internal height (I.H). Further, a modified morphology

¹⁹ Besides general vessel form, rim form, base form, thickness of the section, size of the vessel, access into vessel and surface treatments also very significant in estimating the function of the vessel.

of rims along with their lip forms (everted rim with round lip) and bases (extended ring) is adopted likewise Tepe Said Qala site of Baluchistan (Shaffer 1978).

Presently, the whole collection is broadly grouped into red and gray ware, followed by phase wise morphology-based types. In each functional category such as Jar, the further classification is based on decoration i.e., presence and absence of slip, decorative bands, motifs, and functional surface treatments distinctively. The attribute such as size, the appendages (ledges) and types of rims (flanged) are also employed for classification, occasionally.

For the present study, all possible intrinsic and extrinsic attributes of pottery are documented. Pre-determined scales for measurements and categorization of various feature of pottery are used such as section size, vessel size, morphology, percentage, arrangement and shape of inclusions in the pottery paste, the color of slip, paint, core, and surface as well as different patterns of core (Details are given in chapter 1).

Moreover, besides general body forms, few geometric terms have been used for vessels such as convex, concave, conical, cylindrical, straight constricted, parallel-sided, open-mouthed, globular, etc. Body sherds associated to relevant types have been described at the end of each type. Rare types classified as miscellaneous following precise types. Lids and mold have been described separately, followed by the miscellaneous type of body sherds, whose parent vessel form is not known. Decorative motifs (painted) and graffiti have been discussed in each type with bold and italic letters whereas the body sherds of unknown vessel form bearing decorative motifs are described separately. Bases also have been classified separately and discussed at the end of each chronological group.

By and large, rarely a site provides a good number of complete pottery vessels; an archaeologist always needs to rely on a large number of pottery vessels in fragmentary forms. Likewise, we have relied on fragments of pottery vessels and reconstructed pottery drawings using comparative studies of contemporaneous sites and a careful attempt to make real classification of the Musa Khel pottery corpus is made here.

3.3. Typology of Musa Khel Pottery

The typology of Musa Khel site pottery has been developed on the bases of basic functional categories i.e., Jars, Pots, Bowls, and Dishes. The ethno-archaeological documentation in the area indicates mainly the utilitarian functions of the pottery. Few other uses of pottery also have been observed such as ritualistic, ceremonial, entertainment, and decorative. At Musa Khel site, varieties of vessel types have been identified throughout the sequence. Most of the identified types are already reported and found in contemporaneous sites, whose detail has been discussed in chapter V. We have observed similarities in the modern typology of Musa Khel, Kotla Jam, and Taranganwala village pottery workshops. All these modern workshops are producing few common types of vessels in their respective workshops besides a few special types. For the better understanding of the functions and typology of Musa Khel pottery collection, the modern typology of area understudy has been observed, given as follows: -

3.3.1. Musa Khel Village

The typology of the modern vessels manufacture at Musa Khel village is strictly utilitarian which is given as follows:

Local Name	Function	Vessel Category	Size
<i>Matti</i>	Butter Maker	Pot	Large to very large size
<i>Katwa</i>	Cooking	Pot	Large to very large size
<i>Ghara</i>	Water Container/ Cooler	Pot	Large to very large size
<i>Sanchay</i>	Accessory-base mold	Dish/Plate type in the shape	Large to very large

3.3.2. Taranganwala Village

The typology of the vessels Taranganwala workshop is also utilitarian that is given as follows:

Local Name	Function	Category	Size
<i>Ghara</i>	Water container	Pot	Medium to large
<i>Dohri</i>	Grinding Vessel	Bowl	Small to medium

<i>Dohra</i>	Drinking, serving, stoppers or lids	Bowl	Small to medium
<i>Sanrak (Painted and Plain)</i>	Food Processor (flour, meat, and also for feeding hens and cocks).	Dish/plate	Medium to large
<i>Matti</i>	Butter Makers	Pot	Large to very large
<i>Bathli</i>	Drinking water may also be used as a stopper or lid.	Bowl	Small to medium
<i>Galla</i>	Coin saving pot.	Pot	Small
<i>Ghari (Small Pitcher)</i>	Entertainment, Toy	Pot	Miniature

3.3.3. Kotla Jam Village

The typology of the vessels Kotla Jam workshop is also utilitarian that is given as follows: -

Local Name	Function	Vessel Category	Size
<i>Galla</i>	Coin saving pot	Pot	Small
<i>Katwa</i>	Cooking	Pot	Large to very large size
<i>Dolli</i>	Ceremonial	Pot	Medium to large
<i>Ghara</i>	Water Container	Pot	Large to very large size
<i>Dhol</i>	Water Container	Jar	Very Large and heavy sectioned
<i>Bathli</i>	Drinking water may also be used as a stopper or lid.	Bowl	Small to medium
<i>Hookah (Water Conduit)</i>	Accessory/ smoking	Jar	Small to medium

<i>Ghari</i> (Small Pitcher)	Entertainment, toy	Pot	Miniature
<i>Dohra</i>	Drinking, serving, stoppers or lids	Bowl	Small to medium
<i>Sanchay</i> (Molds or Chucks)	Accessory, vessel base shaping, manufacturing tool	Dish/Plate type in the shape	Medium to very large

These tables show that different areas which are connected through modern road networks and share cultural traits are producing morphologically similar pottery types. They also show that vessels with same morphology are used for different functions. The same pattern may be assumed for the Indus Tradition pottery at Musa Khel.

3.4. General Features (Detail are given in the chapter V).

The Musa Khel pottery depicts a heterogeneous corpus with varied cultural interaction networks throughout the developmental phases. Each phase is characterized by distinctive morphological, decorative and compositional types. More than thirty-seven morphological types besides numerous decorative varieties throughout the Early Harappan and Harappan phase suggest the presence of well-established pottery tradition at Musa Khel. Paste analysis, exploitation of local clay sources, ethno-archaeological observations, recovery of pottery wasters, terracotta nodules, and remains of a possible Harappan kiln besides remains of firing activities related to Early Harappan phase at Musa Khel suggests the local production of pottery at site. The quantitative analysis shows that the production was on large scale which also raises the possibility of distribution to nearby undiscovered contemporary sites in the area. Manufacturing techniques varies from single stage to multi stage manufacturing mechanism. Hand and mat impressed specimens are very rare. Predominantly wheel modeling is evident in the current Musa Khel pottery corpus. The clay was most probably obtained locally from fields, nearby Musa Khel hills and along the bank of River Indus. The clay shows a variety of treatments, ranges from naturally tempered to manual levigation. Clay is generally found tempered with fine to medium, rarely very fine or coarse sandy textured calcareous and micaceous inclusions whose sources are abundant in the area. Majority of the specimens shows that the firing technology was controlled and they

attained proper oxidation besides few reduced and charred vessels. The finishing of vessels has been attained mainly through smoothing with rotation besides rare scrapping, polishing and burnishing. The pottery corpus predominantly comprised of red ware with great variation due to different types of clay, temper, fuel and firing treatment. Besides red ware, a few specimens of gray ware also recovered from the Musa Khel. Majority of the specimens indicates a variety of red slip on the surface besides rare white/cream and chocolate slip. The quantity of plain vessels is lesser as compared to decorated vessels. Decoration has been obtained through structural as well as painted modification. The structural decoration mainly shows free style sand slipping, incising, stamping while painted decoration varies from monochrome to polychrome. The painted designs depict in different forms i.e., anthropomorphic, floral, zoomorphic and geometrical.

Early Harappan-Pre Kot Dijian forms discovered so far are scanty, mainly depicting carinated small pots with stepped, wavy and horizontal cum vertical designs in dark gray on creamy backgrounds. The texture of pastes is also fine and manufacturing includes wheel and mold, upper body is wheel finished while lower or base is mold mad. The Kot Dijian pottery types mainly include short-necked painted jars/pots with and without variety of sandy slips on the main belly, grooved pots, flanged pots, carinated pots and bowls with versatile morphology, convex and concave bowls with rope impressions, convex bowls, dish and bowl on stands and pots/jars with elongated neck, flat to conical knobbed lids and variety of sherds treated with different structural modifications such as strings impressions, zig-zag grooves, wavy and straight wavy bands and wet texturing. Painted decoration has been attained with application pre-dominantly red slip as a background, along with cream, dark gray and brown slips. Main painted designs include flower design, cage pattern, intersecting or overlapping circles with red infills, horned diety, hatched squares, intersecting circles, wavy bands with hatched eye, fish scales, pipal leaf, group of dots, spirals and wavy cum staright bands. Kot Dijian vessels also bear pre-fired and post fired graffiti, mainly depicting Maltese cross. The Harappan pottery types are rare as compared to Kot Dijian pottery types. They mainly include perforated cylindrical jars, heavy and shouldered jars with pointed base, plain globular pots/jars, and straight sided and heavy pots with fancy rings, ledged pots (also know as cooking pots), convex shape plain basins, painted to plain dish and bowl on stands, possibly black slipped jars (only sherds with probable affiliation with balck slipped pottery type). The decoration has been attained through painted and structural modification. Slipping has been done with creamy, reddish, light brownish suspensions. The structural modifications include

perforations, zig-zag groovings, incised circles and carvings. The painted designs are rare, confined to elongated hatched leaves.

3.5. Early Harappan Pottery Typology (Red Ware Group)

3.5.1. Type I: Painted, Globular and Flanged Pots (Pl. XIV a, Fig. I-III)

Distinguishing and Morphological Features

The distinguishing feature of the current type is its globular to slight oblong body form and perforated flange of different height, width and shape on the shoulder. Orifice and the ring together termed as the flanged rim and its morphology is described by the shape of the cavity formed between the ring and rim as well as the height of the ring as compared to rim. Simple perpendicular is the dominant rim form; very few rims have inverted and everted morphology. The rim lips are mainly round to flat and rarely conical. The rings are mainly everted and tips/lips of rings are round to round flattened. The cavities formed between the ring and rims are mostly concave and S-shaped. The S shape cavity formed as a result of a slight ledge at the juncture of rim and neck. All the rings are below the height of rim, very few are close to its height. The heights of the rings are in the range from 3.6 -29.10 mm while the width is in the range from 6.3 -15.53 mm. There are no remains of bases are found preserved in the current sample. As a result of comparative studies, contiguous and non-contiguous flat bases have been observed (Allchin & Allchin 1982: Fig.8.5, bottom left; Fig.8.6, bottom right, p.198).

Morphological Variation (Fig. XL)

A series of morphological variation of flanged forms is evident in the current sample and given as follows: -

1. Semi-circular or concave cavity between ledge/ring and orifice; round to the pinched lips and simple inverted round rim.
2. Semi-circular or concave to the conical cavity between ledge and orifice, flattened ledge, and simple inverted to the vertical flattened rim.
3. Semi-circular or concave cavity between ledge and orifice rounded ledge and inverted to the vertically flattened rim with heavy section.
4. S shape cavity between ledge and orifice, rounded ledge, and simple vertical round rim.

5. S shape to the flattened square cavity between ledge and orifice, flattened shape ledge and simple vertical flattened rim; also, sharp ledge at the base of the rim.
6. The flattened square cavity between ledge and orifice, flattened shape ledge, and simple vertical flattened rim.

Decorative Variation (Pl. XIV a)

1. Painted bands on the exterior of rim and flange in dark reddish-gray to reddish-black on red to pale red slip style (generally termed as black on red). Few specimens also have added multiple sharp lines in reddish black color on main body and reddish-black band with red slip-on interior throat region.
2. Painted bands on the interior and exterior of rim in reddish-black to the dark reddish-gray with red slip between flange and rim and interior of the vessel. The main body is very pale to pale brown slipped (generally termed as black and white/creamy).
3. Dark reddish-gray or black slip/paint on the whole vessel with the same color band and red slip-on interior of rim.
4. Dark gray to black bands on the exterior of the rim and flange with pale brown slip (white/cream) in background. One of the specimens with clear flanged vessel form has intersecting circles with concave sided hatched lozenges (Fig. I-3p3) in between in dark gray on pale yellow of creamy slip.

Painted Designs

There are few body sherds, depicted with specific painted designs and probably associated with the current type. These designs comprised of (1) *alternating hatched squares* (Fig. XXV-3p150) in black with creamy slip in the background and (2) *four-petalled flower made by intersecting circles and petal depicting eye type motif and addition symbol* (Fig. XXV-6p120) in dark gray on very pale brown background.

Texture

The current type has a medium to heavy section size with mainly less than 5% to 10%, rarely up to 30%; well to moderate sorted sand inclusions. They are dominantly depicting very fine to medium while rare coarse sandy texture. Most of pastes are composed of mixed clay (such as

calcareous and micaceous), besides few specifically calcareous and micaceous pastes. Paste Color: Mainly light red (2.5 YR 6/6) to red (10 R 5/8) and rarely yellowish red (5 YR 5/6).

Surface Treatments

Most of the specimens are treated with sharp smoothing like scrapping on the interior and exterior surface. Each vessel has a preserved flange, few have round perforations done from down to upward direction across the flange in multiple numbers. It might be possible that every flanged vessel does not have a perforated ring. Few specimens have post-firing scratched marks, might be some identifications marks. These flanges are there to hold the stoppers or lids and perforation is used to pass the threads across the lids to air tighten the pots, storing some important content and aimed at preventing leakage of liquid content while transporting it from one area to other. It is suggested that they have been functioned as storage vessels for liquid contents.

Manufacturing Features

All specimens are generally wheel manufactured. The main vessel is finished on the fast wheel as it is clear from horizontal grooves on the interior and exterior of the vessel. Large vessels need base molds and hand modeling supplemented by coils or adding clay rings as well besides wheel modeling. The larger the size of the vessel, the need for manufacturing it in multiple stages becomes complimentary. It is also suggested here that the large specimens of this type were manufactured by a multi-stage mechanism as suggested earlier by Wright that large storage vessels, with a height of 60-70 cm, produced in parts. The base and lower portion are produced in mold and clay rings are added in parts on the wheel. The joints formed by the added clay are smoothed on the wheel, later on, results in the symmetrical shape of the vessel (Wright 1991:82).

Flange in most of the specimens appears to be manufactured separately and attached to the vessel later on, as observed in current sample. Following that the vessel flange was perforated with pointed tool/straw with round diameter by slight pressing in circular clockwise motions from down to upwards. After that slip applied with rotation. This is followed by painted bands. After it is being dried up, the vessel was put to fire.

Few specimens have shown the signs of bloating as evident from tiny calcium carbonate spalls on the surface. All of the specimens are normally fired to red to light red and yellowish red

color. Few other specimens indicate signs of slight oxidation. A sandwich pattern is produced and rendered core color is in the range from light red to yellowish-red and the color of the margins is in the range from light brown to very pale brown respectively.

3.5.2. Type II: Painted, Globular and Short Necked Pots (Pl. XIV b, Fig. IV-VIII)

Morphological and Distinguishing Features

The current type is characterized by its short neck, mainly globular to rare oblong body form, simple everted to perpendicular and inverted rim with mainly round and occasionally flattened round and pinched lips. Comparative studies shows that such type of vessels have contiguous flat (Mughal 1972: Fig.17, no.99, p.65), non-contiguous flat (Mughal 1972: Fig.17, no.98, 100, p.65) and discoid bases (Mughal 1972: Fig.17, no.97, p.65). This type has recovered from miniature to very large size. Small size is the dominant while very large size is rare.

Morphological Variation (Fig. XLI)

Besides general globular to oblong body and short neck, the current type has certain specific morphological variations which are given as follows: -

1. Slightly pronounced neck and simple everted to perpendicular and inverted rim with a round to flat lips and with or without sharp ledge between short neck and body.
2. Neck less, perpendicular to inverted rim with a round to flat and sharply pointed lips.
3. Neck less, everted to perpendicular and inverted rim and round to flat and sharp-pointed lips with thick to heavy section.
4. Neck less, perpendicular and inverted rim and flat lips with heavy section.

Decorative Variation (Pl. XIV b)

Followings are distinguishing decorative patterns observed in this type of pottery from Musa Khel:

1. General red (weak red) slipped (complete), ledged.
2. Black on plain style, bearing a very sharp and irregular band on the exterior, close to the margin of the rim exterior, ledged.

3. Wide bands in dark reddish gray on the exterior of the rim and continue to shoulder, and interior of rim. It has pale yellow slipped background on exterior while red slip-on interior side (General Black on white/cream) style with and without ledge. One specimen has multiple dark reddish gray bands on rim and shoulder with slight pinkish slip on the exterior.
4. Black to dark reddish-gray bands on different shades of red slipped background (General Black on red style). The bands are ranging from single to multiple; sharp to wide on exterior in few and on both sides in several specimens. The bands are mainly straight and horizontal besides combination of straight and wavy bands. One black on a red specimen has the remains so called “horned deity” remains of left horn (6P.12).
5. Black bands on rim with variety of slip i.e., dark reddish gray, reddish-brown, dark reddish-brown and pale brown. It is also possible that the vessels are overheated or exposed to direct fire and results in darkened shades. Therefore, they may be affiliated with black on red decoration but here we assume them showing decorative variation. The decorative pattern is the same; few specimens have bands at exterior with slip-on both sides, while remaining has bands and slips on both sides.



Painted Designs

Few of the associated body sherds has the remains of anthropomorphic designs on the main body. First one is popularly known as “*horned deity*” (Fig. V-3p154) in South Asia, only the elongated horns are preserved.

Texture

The current type has predominantly medium section size and inclusion's proportion is in range from 1 to 20%; which are moderate to well-sorted and dominantly depicting fine to medium; rarely very fine, coarse, very coarse sandy texture. Large numbers of paste specimens are composed of calcareous concretions, followed by mixed and micaceous paste. Paste Color: Dominantly Light Red (2.5 YR 6/6); also, light brown (7.5 YR 6/4); Yellowish red. (5 YR 5/6).

Surface Treatments

A variety of surface treatment has been observed in this group. The different patterns are as follows: -

1. Scrapping with rotation on interior and exterior, along with polished exterior surface, giving the glossy appearance
2. Smoothing with rotation on the upper body and scrapping with rotation on the lower body on exterior whereas smoothing with rotation along with slight vertical scraping without rotation on interior
3. Smoothing with rotation on both sides in all vessels with a variety of other treatments i.e., horizontal scrapping and polishing on the exterior surface and horizontal scrapping on the exterior and interior surface etc.

Manufacturing Features

The main vessel is manufactured on the fast wheel in the first phase which is evident from horizontal grooves on interior and exterior sides. Morphology suggests single-stage production. Bases are not preserved. The comparative study indicates the presence of generally flat, occasionally discoid, and rarely carination close to the base (Mughal 1972: 48). Most of the specimens are normally fired to red, light red, yellowish red, light brown, and reddish-brown pastes. Few specimens have undergone oxidation and produced different sandwich patterns; rendered core color that is in the range from light red to gray and greenish-gray with margins yellowish red to reddish-brown respectively. Most of the vessels show signs of bloating bearing tiny calcium carbonate spalls on the exterior and interior surface.

Miscellaneous Painted Rims

There are few specimens, preserved with only portions of rims in simple perpendicular and everted forms along with plain round and flat lips. The exterior of the rims is banded with dusky red, black and reddish black color while the interiors have the same continuation of bands along with different slips i.e., pale yellow and reddish-brown. Their parent vessel form is most probably the Pot and linked with type i.e., painted globular pots either sandy slipped or decorated. The paste has fine to

very coarse textured sandy inclusion. The specimens are fired to light red, yellowish, and light gray.

Miscellaneous Body Sherds

Beside complete forms, there are several body sherds of pot or jar form that have been also recovered from the Musa Khel site. They are in different decorative painted pattern and given as follows: -

1. Black on red slipped.
2. Red on black slipped.
3. Black and white on red slipped.
4. Plain.

The painted ones have horizontal bands and slipped backgrounds. The section is mainly medium, occasionally thick, and very rarely heavy. The percentage of inclusions is in the range of less than 1%-40%. The main types of inclusions are fine to medium sand, occasionally fine sand along with coarse sand while few specimens have very coarse inclusion. The exterior is has applied with smoothed as well as scrapped with rotation and finished on a wheel and fired to red, light red, yellowish red, light brown, light reddish-brown. Several specimens have different reddish core colors as compared to margins. The oxidized specimens are light gray to the dark gray colored core with yellowish red and reddish black margins.

3.5.3. Sub-type IIA: Painted, Globular and Short Necked Pots with Sandy Slip/Coating (Pl. XV a, Fig. IX-XII)

Morphological and Distinguishing Features

The distinguishing feature of the current sub-type is sandy slip applied on their bellies below the shoulders along with painted bands and slips. The specimens with preserved rim and sandy slip are classified as a separate sub-type under the parent type i.e., type II and found similar in most of the aspects with parent type. The sandy slip or paste has versatile colors and density. Comparative studies have shown that such type of vessels has non-contiguous flat bases (Mughal 1972: Fig.18, no.107, p.66) and discoid bases (Mughal 1972: Fig.17, no.99, p.66). The vessels have mainly small and medium-size; few have been categorized as large and are very large in size as well. The main

body form is globular, although few of the specimens have oblong body form and could be categorized as “Jar” (4P.12, 3P.6, 4P.11, 6P.22, 6P.27, 6P.9, 1P.30). They are oblong and their height is greater than their width.

Morphological Variation (Fig. XLII)

Like the parent type, the current type has the following morphological variations: -

1. Slightly pronounced neck with sharp ledge, simple everted rim with round lips and sharp ledge between neck and body.
2. Short necked with sharp ledge, perpendicular to the inverted rim with a round to flat lips.
3. Short necked with sharp ledge, perpendicular rim with round lips, thick to heavy section.
4. Short necked with sharp ledge, perpendicular rim with a round to flattened lips and heavy section.
5. Short necked, perpendicular to the inverted rim with a pointed to round lips and thin to thick section.

Decorative Variation (Pl. XIV a)

1. Dark reddish-gray bands on the exterior and interior of the rim and exterior of the shoulder with red slip on the complete exterior and rim interior; also red sandy slip/coating on belly (general black on red style).
2. Reddish black bands on the exterior and interior of rim with red slip on both sides along with pinkish-white sandy slip-on belly. The shoulder also has two sharp bands or lines in some specimens.
3. Black to dark reddish bands on exterior and interior of the rim, on the shoulder with red slip in the background on both sides with white sandy slip/slurry below the shoulder (General Black on red-painted and white sandy slip).
4. Black to dark reddish-gray bands on pale brown painted slip and pale brown sandy slip (General Black on white painted slip and white sandy slip).
5. Black bands on both sides of rim and also on exterior of shoulder in multiple number with dark gray slip and pale brown sandy slip (General Black on dark gray painted and a white sandy slip). The grayish slip appears to be not gray rather dark red like other specimens.

Due to over firing and prolonged exposure to fire, it rendered gray. It is suggested from the dark red or brownish-red slip, observed on the interior of a specimen (4P.11).

6. Black bands on both sides of rime with dark reddish-gray painted slip on exterior and brown sandy slip-on belly.

Texture

Section size of the current sub-type is predominantly medium while rarely thick to heavy. The inclusion's proportion mainly ranges from 2 to 20% and are well sorted. They have mainly fine to medium while rarely very fine and coarse sandy texture. The majority of the paste types are calcareous, followed by a mixed type and micaceous paste. Paste Color: Light Red (2.5 YR 6/6) to Red (10 R 5/8); Yellowish red (5 YR 5/6) to light reddish brown (5 YR 6/4).

Surface Treatment

All the vessels appeared to undergo smoothing with rotation on both sides on the upper body. All the vessels have been applied with fine sand mud coating or sandy slurry in different colors and density on the bellies or main bodies below the shoulder. Due to mud coating, in most of the specimens, the initial surface treatment is not visible. In specimens, where mud coating is damaged, it indicates scrapping with rotation for making the surface ready to attach firmly the mud coating.

Manufacturing Technique

Manufacturing features are the same as that of the parent type. Sequence wise excess clay on the base was trimmed while placing the vessel with upside down on the wheel. After it is sun-dried, the main body was scrapped horizontal with rotation with stone scrapper. After that slip applied with rotation on a restricted area. This is followed by drawing horizontal bands on rim and shoulder with the help of an animal hairbrush with slow rotation. At the last, the main body is applied with sandy slurry with hands by putting vessels on a very slow wheel. After it is being dried up, the vessel was put to fire. All of the specimens are normally fired. The important and notable aspect is the evidence of wet texture, produced over the mud coating. After the mud coat is applied, the wet texture is produced by keeping a wet cloth on the mud coating. Few specimens are oxidized

and produced sandwich patterns; rendered core color in the range from light red, yellowish red and gray, leaving margins light brown, reddish-brown, and light brown.

Body Sherds

There are several different types of decorated sandy slipped body sherds found from the surface of the site. The decoration is black on the red and red sandy slip, red and red sandy slip, dark gray on white sandy, dark reddish-gray on pink sandy and light red on a yellowish sandy slip. The section is mainly medium and rarely thick. The percentage of inclusions is in a range of 3-30%. The main types of inclusions are fine to medium sand and very rarely fine sand with granular and crumb shapes, rare platy structures. The exterior has applied with different colored sandy slip and smoothed with rotation and finished on a wheel and fired to light red, yellowish red, light reddish-brown. The oxidized sherds have a light gray core with light red margins.

3.5.4. Type III: Painted, Globular and Grooved Pots (Pl. XV b, Fig. XIII)

Morphological and Distinguishing Features

This type is similar in form with type II. The distinguishing feature of this type is the creation of a scored or horizontal groove pattern with a combing tool below the shoulder on the belly or the main body. One of the specimens indicates the application of sandy mud coating on the belly in the first instance and then production of straight and wavy parallel grooving with rotation. The main body form is globular and slightly oblong. Most of the specimens have short simple everted to the perpendicular rim with a plain round to flat lips. A few of them also have sharp ledges between the short neck and shoulder. Dominantly found in small size, except one specimen which is medium-large. Comparative studies have shown that such type of vessels has non-contiguous flat bases (Mughal 1972: Fig. 12, no. 46, 47, p.60) as well as contiguous flat bases (Mughal 1972: Fig. 37, no.3, p.120).

There are several other body sherds found from the Musa Khel, which have grooving of different styles and patterns, but their rims are not preserved. They are also treated separately under the current type.

Morphological Variation (Fig. XLIII)

1. Short-necked, simple perpendicular rim with a round to flattened lips.
2. Short-necked, simple perpendicular to the out-curved rim with round lips and sharp ledge between rim and body.

Decorative Variation (Pl. XV b)

1. Very dark to dark reddish-gray bands on light red to dusky red slipped style (General Black on red).
2. Dark reddish-gray band on very pale brown slipped background (Black on White).

Surface Treatment

All the vessels have undergone smoothing with rotation on both sides on the upper body. All the vessels have been grooved horizontal with a combing tool at their main body. One specimen has applied with fine sand mud coating or sandy slurry on the belly below the shoulder before grooving.

Manufacturing Technique

The important and notable aspects are that the vessel after being manufactured on the wheel is grooved horizontal with a variety of sharp combing tools. Surface treatment shows two main techniques of grooving. First one deals with direct application on the surface and second deals with initial sandy coat application on the main body and then the vessel is passed through the grooving stage with rotation. Also, the patterns of the grooves, the gap between them, and their shape of tips/ridges also suggest the use of different combing tools. The patterns of grooves are as follows: -

1. Closed gaps, pointed ridges.
2. Wide gaps, flattened ridges.

Few specimens are found with calcium carbonate spalls on the interior and exterior surface that shows bloating. Most of the specimens are fired to light red, red, yellowish red colors, except one specimen with an oxidized section, whose core color is reddish yellow while margins are red.

Body Sherds

There are two main styles of grooving, which have observed in this collection of grooved body sherds.

1. Horizontal wavy grooving.
2. Horizontal straight sharp grooving.

Distinctive to each main style, there are following different styles of grooving based on the tools and technique applied for grooving has been observed i.e.

1. Sharp and pointed tips of ridges with close gap grooving.
2. Round tips of ridges with close gap grooving.
3. Flat tips of ridges with slight wide gap grooving.
4. Sharp and pointed tips of ridges with wide gap grooving.
5. Round tips of ridges with wide gap grooving.

The wavy grooved sherds are mainly red to weak red slipped while the horizontal straight grooved sherds are of following types: -

1. Plain.
2. Red to light and weak red slipped.
3. Black on red slipped.
4. Weak red on pale yellow (general red on white).
5. Reddish black on red and very pale brown slipped (general black on red and white slipped).
6. Black on dark reddish-gray slipped.
7. Dark reddish-gray slipped (general black).

Horizontal straight grooved sherds also found in a variety with thick section, smoothed grooves with wide gaps in between: -

1. Dark reddish-gray on weak red.
2. Very light pink plain surface.
3. Reddish-brown slipped.

Texture

Section size of the current type is dominantly medium and inclusion's proportion is mainly ranging from 1 to 5% while rarely up to 20%. They are well-sorted and depict mainly fine to medium sandy while rare very fine, coarse and very coarse sandy textured inclusions. The paste composition shows exceptional levigation and mainly consists of calcareous clay with varied inclusions beside micaceous rich clay. Paste Color: red (2.5 YR 5/6) to reddish yellow (5 YR 6/6); mainly light red (2.5 YR 6/6).

3.5.5. Type IV: Painted and Carinated Pots (Pl. XVI a, Fig. XIV-XV)

Morphological and Distinguishing Features

The distinguishing feature of this type is the presence of carination near the base, versatile rimless vessel form with plain rounded and pinched lips.

Versatile Morphological Forms (Fig. XLIV)

1. Square body form and perpendicular sides.
2. Slight globular to squat body form/perpendicular sides.
3. Slight globular body form/straight constricting sides.
4. Triangular body form/straight constricted sides.
5. Flaring/S walled body form/ perpendicular to constricting sides.

Comparative studies have shown that all these types have mainly ring (Durrani 1988: Fig LV, no. 15; Hamil & Mughal 1972: Fig 24. no.163, p.72) and disc bases (Durrani 1988: Fig XLVIII, no. 5; Halim & Mughal 1972: Fig.24, no.158, p.72). The size of the vessel is in a range from small to medium. The sizes of others are mentioned accordingly. Few of them are without preserved rims.

(1) Slight globular body form/straight constricting sides.

Decorative Variation (XVI a)

Most of the specimens are slipped in red color on both sides with multiple bands in black, dark reddish-gray color on the exterior side.

Painted Designs

1. One specimen has a stepped band (Fig.XIV-6p118) in inclined style besides a series of more than five very thin and sharp vertical bands with sharp to wide horizontal painted bands at top and body base junction in dusky red color, with dark reddish-brown slip on the whole vessel.
2. Another specimen has a series of V like symbol (Fig.XIV-5p47), lying horizontal with the pointed side towards the right with one painted horizontal band above on the rim and two painted bands below in dark reddish-gray color and red slip at rim and lower portion.

Texture

The section is thin to medium thick; inclusion's proportion makes 1 to 5%; well-sorted; very fine to fine and rarely medium sandy texture; calcareous concretions are rare. Pastes are exceptionally levigated. Paste color: Light Red (2.5 YR 6/6) to Yellowish red (5 YR 5/6).

Surface treatment

The interior and exterior side of upper body is smoothened with and without rotation while lower and molded area indicates the signs scrapping with rotation

Manufacturing Technique

The technique is the same as of previous morphological type. Most of the vessels are oxidized and few are normally fired to yellowish red. The specimens have undergone oxidation, core color rendered from brownish gray to gray and greenish-gray with light red margins.

(2) Square body form and parallel vertical sides

Decorative Variation

These specimens have the following varieties of decoration: -

1. Dark reddish gray to reddish black bands on red to weak red black on the red slip.
2. Dark reddish-brown bands on the very pale brown slip.

Horizontal bands are on the exterior and interior of the rim with slip on both sides. Few specimens also have bands on body-based junctures. There are few specimens, having the same form but different decoration.

Painted Designs

1. *T like symbol* (Pl. XVIa-6p125), like a hammer lying horizontal with piercing side pointed upwards in black color with dark reddish-brown slip.
2. *Wavy horizontal thick bands* (Fig. XIV-6p42) in dark reddish-brown/deep chocolate color with very pale brown/white slip.

Texture

Section size of the current type is mainly medium while thin section is rare. Inclusion's proportion makes 1 to 5% which are well to moderat sorted. They are dominantly very fine to medium while rarely coarse sandy textured. Pastes are mainly levigated and calcareous with few micaceous and mixed types (calcareous+micaceous). Paste Color: Light red (2.5 YR 6/6) to Yellowish red (5 YR 5/6).

Surface Treatment

This sub-type has versatile surface treatment ranging from smoothing with rotation on the complete vessel to smoothing without rotation upper body together with scrapping with rotation on lower body and finishing with a spatula; smoothing and scrapping together with rotation; scrapping alone with rotation with pointed tool or nails, accompanied by thinning or flattening with a spatula and wet impression. These treatments are mainly done on the exterior of the vessel, the interior of the vessels have undergone smoothing with rotation mainly.

Manufacturing Technique

Most of the vessels have uneven vessel walls, as well as spatula thinning marks and smoothing without rotation on the body, shows signs of hand modeling. Besides this, body and rims are finished on wheel rotation as evident from the wheel marks on exterior and interior. All the vessels are normally fired to light red to yellowish-red and light brown.

(3) Slight globular to squat body form/perpendicular sides.

Decorative Variation

The decoration of these vessels may be further distinguished from one another. Most the specimens are banded. The bands are in black, very dark gray and reddish gray on the exterior and interior of the rim with red and weak red slip on both sides. One of the specimens has black band on the shoulder as well. These specimens have the following decorative variation: -

1. Black on red slip.
2. Very dark gray on weak red slip.
3. Reddish gray on red slip.

Painted Designs

4. One specimen, in fragmental form, associated with current type has hatched eye and wavy horizontal (Fig.XXV-3p150) band design in chocolate on white background.

Graffiti

1. One of the specimens has post-firing graffiti, depicting a tri-dent symbol (Pl. XVI a-3p135), scratched with in crude style and oriented from the rim to the base direction on the main body. The symbol is comparable to some extent to pre-firing trident at pottery Type-VII at Sarai Kholā-II (Halim 1972: Table 11, no.17, p.96).

Texture

Section size of the current type is in a range from thin to medium; inclusion's proportion makes 1 to 5%; well-sorted and depicts very fine to a medium sandy texture. The inclusions are mainly calcareous with rare micaceous grains and pastes are exceptionally levigated. Paste color: Light Red (2.5 YR 6/6) to Yellowish red (5 YR 5/6).

Surface treatment

Surface treatment ranges from smoothing with rotation on the upper body and without rotation on the lower body to polishing exterior. One specimen has done with scrapping on the wheel as well.

Manufacturing Technique

These types of vessels are wheel-made, as is shown from wheel marks. Moreover, the carination on the body is produced on mold, and ring bases are attached separately on the bottom. Although this type is comprised of small to medium-size vessels, it is produced in multiple stages. First, a carinated body is produced in mold, after that upper body is modeled on slow rim by adding clay, then a separate ring is attached to the bottom, and further slipping and painted decoration are done. All the vessels are normally fired.

(4) Trapezoidal body form/straight constricted sides.

Decorative Variation

The decoration is mostly in the form of bands in black color to red, brown slipped surface as well as plain surface. These specimens have following decorative variation: -

1. Black on red.
2. Black on brown.
3. Black on plain.

Painted Designs

1. One specimen has a wide painted band on the rim in black color with red slip and a tree with a stem and branches bifurcating (Fig. XV-6p37) in black on red style.

Texture

Section size is medium; inclusion's proportion makes 3 to 5%; well-sorted; very fine to a coarse sandy texture. The inclusions are mainly calcareous with rare micaceous. Paste color: Light red (2.5 YR 6/6).

Surface treatment

This type has done with smoothing with rotation on both sides.

Manufacturing Technique

The manufacturing technique is the same as of morphological type I. All of the vessels are normally fired from light red to yellowish-red.

(5) Flaring /S walled body/vertical to constricting sides.

Decorative Variation

They have mostly horizontal bands in black to dark reddish gray on the exterior and interior of the rim and body-base juncture with red, brownish red, very pale brown slips. These specimens have the following decorative variation: -

1. Black on brownish-red and red.
2. Dark reddish-gray on red.
3. Dark reddish-gray on very pale brown.
4. Dark reddish-gray on red and very pale brown.

Painted Designs

1. One specimen has sharp, thin vertical and horizontal bands forming a cage-like pattern (Fig.XV-6p41) in dark reddish-gray color with white/very pale brown slip.
2. Another specimen has the sharp thin painted band on a rim in reddish-brown color, two painted thin bands on the neck, below these bands, connected eyes motive with red in-fill (Pl.XVI a-6p39) with white slip in background.
3. One specimen, probably associated with the current type has a branched tree and dot (Fig. XXV-3p153) designs in black on a dark reddish-brown slip in background.

Graffiti

One of the specimens has a thin painted band on the rim in the black color remaining vessel is slipped (mixed) in red color with post-firing incised graffiti depicting “*Maltese cross*” (Fig.XV-6p45) on the main body.

Texture

Section size of the current type is mainly medium while thin section is rare. Dominant inclusion's proportion makes 1 to 5% while 10 to 20% are rare and poor to well-sorted mainly. The overall texture of inclusions is mainly very fine to fine; rare medium sandy. Pastes are mainly categorized as calcareous. Paste Color: Light red (2.5 YR 6/6) to Yellowish red (5 YR 5/6); also, Light Reddish-brown (5 YR 6/4) light Brown; (7.5 YR 6/4).

Surface Treatment

This type has versatile surface treatment ranging from smoothing with rotation on the complete vessel to wet finger impressions on a slip, thinning or flattening of the surface with a spatula, scrapping with rotation, smoothing with and without rotation together, smoothing with rotation. These treatments are mainly done on the exterior of the vessel, the interior of the vessels have undergone smoothing with rotation mainly.

Manufacturing Technique

Manufacturing is the same as of morphological type I of the current pottery type. Most of the vessels are normally fired from light red to red, yellowish red, light brown, reddish-brown. Few specimens show the signs of oxidation, rendered core colors to gray and dark gray with yellowish red margins. Exceptionally no specimen has calcium carbonate spalls on the surface.

3.5.6. Type V: Painted and Carinated Bowls with Flaring Rims (Pl. XVI b, Fig. XVI)

Morphological and Distinguishing Features

The distinguishing feature of the current type is similar to one of the previous morphological types IV i.e., carination near the base and straight-sided flaring rim. They are symmetrically categorized as bowls. The rims are flaring, and everted with plain lips. The preserved proportions of the specimens show the remaining round bases. Comparative studies have shown that such type of vessels also has a ring and discoid bases like the previous morphological type. Vessel size is in a range from small to large.

Morphological Variation (Fig. XLV)

1. Flaring/S walled body form/ perpendicular sides.

Decoration

The current type has dark reddish-gray to black on red type decoration. The decoration is comprised of bands on the interior and exterior of the rim with red slip in the background and also bands on the body-based junction.

Painted Design

1. One of the vessels of the current type has crudely designed petalled flower (Pl. XVIIb-1p26) in black on red style.

Texture

The section size is medium; inclusion's proportion is less than 5%; moderate to well sorted and mainly very fine to fine and rare medium sandy textured. The pates are categorized as predominantly micaceous. Paste color: light red (2.5 yr 6/6) to reddish yellow (5 yr 6/6).

Surface treatment

This type has done scrapping with rotation to polishing and horizontal scrapping.

Manufacturing Technique

The current type is wheel and mold made. The base is produced on mold while the body and rim are finished on the wheel. A ring base is attached separately on the bottom. One of the bowls is normally fired to light red. The other vessel is oxidized and core color rendered to light greenish-gray with reddish-yellow margins. Exceptionally, these specimens do not have calcium carbonate spalls on their surface.

3.5.7. Type VI: Painted, Cord Impressed and Convex Bowls (Fig. XVII, Pl. XII a)

Morphological and Distinguishing Features

The distinguishing feature of the current type is the presence of a horizontal cord impression on exterior side of the main convex body with simple everted thick and flattened rims. One of the specimens is with preserved base i.e., non-contiguous discoid base. All vessels are categorized as very large vessels, except one vessel as large.

Decoration Variation (Pl.XII a)

These specimens have wide, horizontal painted bands on the exterior of the rim in dark gray color, with mainly reddish-brown while rare pink and very pale brown slip on the preserved vessel. These vessels are also accompanied with horizontal rows of cord impression in one or two below the rim, normally apart from one another on the exterior and thin horizontal painted bands normally

continue from exterior to interior in the same color with same slip on the whole vessel at its interior. Few specimens are plain and have remains of horizontal rope impression on their shoulders while one specimen is without rim and base, have pale yellow light slip on the exterior with preserved horizontal rope impression.

Texture

Section size is dominantly thick while rarely heavy. The inclusion's proportion is in a range from 3% to 20% which are moderate to well-sorted and depicting dominantly fine to medium while rare coarse to very coarse sandy texture. Pastes are predominantly categorized as slight to heavily calcareous with very rare micaceous paste. Paste color: Yellowish red (5 YR 5/6) to reddish yellow (5 YR 7/6); also, light reddish brown (5 YR 6/4).

Surface treatment

The Interior of the vessels mainly has smoothing with rotation. The exterior of this type has mainly undergone following surface treatment.

1. Smoothing with rotation on the upper body along with scrapping with rotation lower body.
2. Smoothing with rotation on the upper body along with smoothing without rotation on the lower body.

Manufacturing Technique

This type of vessel is a wheel made. It is a single-stage manufactured. The cord impressions is made by binding double strand twisting smart cord around the circumference on the shoulder of the vessel in the leather hard or slightly before this stage. Different shapes and styles of the cord impressions on the vessels indicate the use of different cords. The cord impressions indicate aesthetic function. The vessels are normally fired to light red, light reddish brown and yellowish red. Few of the vessels are oxidized and sections have produced sandwiched patterns, rendered core color to light red, and margins are reddish-yellow. Exceptionally, the specimens do not have calcium carbonate spalls on the surface.

3.5.8. Sub-Type VIA: Painted, Cord Impressed and Concave Bowl (Fig.XII-6p17)

Morphological and Distinguishing Features

The distinguishing feature is the presence of horizontal cord impressions on the exterior and concave body, categorized as a very large vessel.

Decoration

This specimen has three cord impressed bands apart from one another on the main body while the upper body is reddish-brown slipped and lower is plain. The interior is slipped in the same color.

Texture

This type has a heavy section size; inclusion's proportion is 10%; well-sorted and fine to medium sandy textured. Paste is heavily calcareous. Paste color: Yellowish red (5 YR 5/6).

Surface treatment

The exterior of this type has mainly undergone scrapping with rotation while smoothing with rotation interior.

Manufacturing Technique

The manufacturing technique is the same as of parent type.

3.5.9. Type VII: Very Large Painted and Concave Bowls (Fig.XIII, Pl. XVII b)

Morphological and Distinguishing Features

The distinguishing feature of the current type is the open mouthed and concave walled morphology. The rims are simple everted with flattened lips (Fig. XLVI). Comparative studies have shown that the current type has contiguous flat bases (Durrani 1988: Fig. XLI, nos.4-5). All of them categorized as a very large vessel, except for one large vessel.

Decorative Variation

This type has black, dark reddish-gray and dark reddish-brown bands on red, pale yellow and light red slip backgrounds respectively. Three following decorative patterns are visible: -

1. Single band on rim exterior and multiple bands on rim interior with same slip on both sides.
2. Single band on both sides of the rim and red slip.
3. Single band and slip on one side only.

Texture

Section size of the current type is thick; inclusion's proportion is in a range from less than 5% to 10%; which are well-sorted and fine to a coarse sandy textured. Pastes are mainly characterized by a level of levigation and calcareous composition with rare mixed and micaceous composition. Paste color: Light red (2.5 YR 6/6) to red (10 R 5/8) and reddish yellow (7.5 YR 7/6).

Surface treatment

The exterior of this type has mainly undergone smoothing with rotation, smoothing with rotation on the upper body along with scraping with rotation on the lower body, scrapping with rotation along with smoothing with rotation. The Interior of the vessels mostly has to smoothen with rotation, occasionally scrapping as well. One specimen has rough trimming on the rim portion as well.

Manufacturing Technique

This type of vessel is a wheel made. There are wheel marks or horizontal grooves around the interior and exterior of the body. It is a single-stage manufacturing pottery type. Two vessels are normally fired to light red. Others are oxidized to reddish yellow, gray, and red color core with margins light red and light reddish-brown. The porosity is mainly low, one specimen has high porosity.

3.5.10.Sub-type VIIA: Painted and Straight Everted Bowls (Fig.XIII (2), Pl. XVII b)

Morphological and Distinguishing Features

The distinguishing feature is the straight everted body with varied rim morphology and painted decoration. The rims are simple everted and have bilateral equal sphere projection. Few of the vessels are without rims (Fig. XLVII). Comparative studies show the presence of contiguous flat bases (Dani 1971: Fig. 20, no.164, p.145). Main vessels are categorized as a large vessel and few as very large in size.

Decorative Variation

This type has following decorative variation:

1. A wide horizontal painted band on the rim in dusky red color with red slip and plain interior.
2. A black painted band on the rim with reddish-brown slip on the exterior and same band continue from the exterior with same slipped.
3. Multiple thin horizontal painted bands on the main body in dark reddish-gray color with very pale brown slip on the upper body and reddish yellow slip-on lower body while its interior is reddish yellow slipped.
4. Pale yellow slipped exterior while a very dusky red-painted a broad-band on the rim, with red slip on the interior.

Painted Design

One of the specimens on its interior has an *eye motif* (Fig.XVII-6p124) in outline with line intersecting in the center of the inside, lying horizontally in black color with a weak red slip.

Texture

Section size is medium to heavy; inclusion's proportion is in a range from less than 3 % to 5%; which are well-sorted; mainly depicting fine to medium while rare coarse sandy texture. The paste is slight to heavily calcareous. Paste color: Light Red (2.5 YR 6/6) to light Brown (7.5 YR 6/4).

Surface treatment

The exterior of this type has mainly undergone smoothing with rotation, scraping with rotation on the lower body, and occasionally polished. Interiors are normally smoothed with rotation.

Manufacturing Technique

The manufacturing technique is the same as of parent type. The vessels are normally fired to light red, red, and light brown. Few of the vessels are oxidized to light olive gray and greenish-gray color core with margins reddish-yellow. The porosity is mainly low, one specimen has high porosity.

3.5.11. Type VIII: Painted and Convex Bowls with Sharp rims (Fig. XIX, Pl. XVIII a)

Morphological and Distinguishing Features

The distinguishing feature of this type is the convex sided body along with sharp rim forms. The morphology of the rim is simple everted with round, flat, and pinched lips. Few of the bowls are with preserved contiguous and non-contiguous flat bases. They are found from small to very large size category, the medium size is dominant in the current form.

Decoration Variation (Pl. XVIII a)

There are three distinguishing decoration patterns have been observed in this type: -

1. First one is same color single horizontal bands on the rim and same slip on both sides
2. The second pattern is the same color single horizontal band on the exterior side and multiple horizontal bands on the interior side of the rim with slip only on the interior side
3. The third pattern is the same color horizontal single band on the exterior side and multiple horizontal bands on the interior side of the rim with different slips on the exterior and interior.

The color of the bands varies from pure black to dark reddish-gray, dark reddish-black, very dark gray whereas the color of the slip is mostly red and occasionally light red, yellowish red, brown, pale brown to very pale brown and very rarely pinkish white. Red type slips are applied on both sides, pale brown slips on the exterior while pinkish-white slip applied on the interior of the vessel.

Morphological Variation (Fig. XLVIII)

There are four distinguishing morphological patterns have been observed in this type: -

1. Simple everted sharp rim with mainly round and rarely pinched lips, thin to thickened walls, and shallow body.
2. Simple vertical sharp rim with pinched to round lips, thin to slight thick sectioned and deep body
3. Simple everted rim with a square to flattened square lips, thickened walls, and shallow body.

Texture

Section size is thin to medium to thick; inclusion's proportion is in a range from less than 1 % to 10%; mainly moderate to well-sorted; dominantly fine to a medium, rare very fine, and coarse sandy textured. The pastes are mainly mixed type, followed by slight to heavily calcareous paste and very little micaceous type. The pastes also show a certain level of levigation. Paste color: Light Red (2.5 YR 6/6) to Yellowish red (5 YR 5/6); also 5 YR 5/4 Reddish Brown; Reddish Yellow (5 YR 6/6); Red (10 R 5/8).

Surface treatment

The exterior of this type has undergone surface treatments ranging from smoothing with rotation on the upper body along with smoothing without rotation on lower body (spatula marks); scrapping with and without rotation; smoothing with rotation on the upper body along with scrapping with rotation on lower body; polishing interior occasionally; smoothing and scrapping with rotation. The interior is mainly smoothed with a rotation of the wheel.

Manufacturing Technique

This type of vessel is mainly wheel made. There are wheel marks or horizontal grooves around the interior and exterior of the body. It is a single-stage manufacturing vessel. Few of the vessels have irregular walls and signs of the spatula on the exterior surface indicate hand modeling and finishing on the wheel. The vessels are normally fired to red, light red, reddish-brown, and yellowish red. Few of the samples are oxidized, produced different sandwich patterns, rendered core colors to light olive gray, light greenish-gray, dark greenish-gray and margins light red, red, reddish-brown, and reddish-yellow. The porosity of the paste is low to high.

3.5.12. Type IX: Painted Dish with Convex Base (Fig. XXI, Pl. XVIII b)

Morphological and Distinguishing Features

The distinguishing feature of this type is black on white type painted decoration, convex base, low walls, and everted direct rims with plain and semi-rounded lips. These dishes are categorized as very large and large in size.

Decoration

The exterior of these vessels has wide painted bands in dark reddish-gray to dusky red color on the whole rim, the base is plain to washed in pink color while the interiors have painted designs.

Painted Designs

One painted band on rim continue from the exterior with a *row of filled triangles* (6p72) pointed downwards in the same color, below there are thin painted bands or lines on the bottom around the center with gaps in between in both while one also had traces of a design made of circles in the same color, with pale yellow slip.

Texture

Section size is medium; inclusion's proportion is in a range from less than 1 % to 20%; mainly very well to poor sorted and very fine to coarse sandy textured, depicting two types of pastes. The one with higher concentration of inclusions is a mixed type paste with calcareous concretion and devoid of levigation and other one with negligible calcareous inclusions and highly levigated. Paste color: Light Red (2.5 YR 6/6) to Grayish Brown (10 YR 5/2).

Surface treatment

The exterior of very large specimens has a burnished base and smoothing with rotation on the rim or upper body has been done along with scrapping with rotation on the bottom. The interior has smoothing with rotation, along with a deep and narrow groove on the bottom. The large dish has smoothing with rotation on both sides.

Manufacturing Technique

The vessel base is mold made and finishing along with short walls has been done on a fast wheel. The very large vessel is oxidized, as a result, which a sandwich pattern is formed, rendered core color grayish-brown with reddish-yellow margins while the large dish is fired to light red. The porosity is high.

3.5.13. Type X: Painted Dish on High and Hollow Stand (Fig. XX, PL.XIX a)

Morphological and Distinguishing Features

The current type is one of the classes of Offering-stands which includes various forms of dishes and bowls on the stand. The distinguishing feature of the type is the presence of painted dishes of various forms along with high and hollow pedestals. The complexity of this type is that it is found in separate portions i.e., dish portions, dish and pedestal remain, and pedestals. Most of the dish portions are without any remains of stands along with them. On the bases of their morphology and comparative studies, it is estimated that the dishes found alone are the dish portions of a dish on stands. Therefore, dishes are described hereafter being interlinked with pedestals. The vessel size is based on the size of preserved dishes. They are mainly medium and large in size. The columns are mostly elongated.

Decorative Variation (Pl.XIX a)

1. The dishes have dark reddish-gray and black bands on the exterior and interior accompanied by red, yellowish red, light, weak red, dusky red, and pale brown slip.
2. The pedestals are reddish, gray, red, and glossy red slipped while columns are mostly red and dark reddish-brown slipped.

Morphological Variation (Fig. L)

The dishes have versatile morphology and given as follows: -

1. Sharp out curved rim (hook rim), slight pinched lip, carinated, and flat cum concave based dish.
2. Sharp out curved rim (hook rim), round lip, carinated, and flat based dish.
3. Sharp out curved rim (hook rim), round lip, a concave based dish with extended carination.
4. Sharp everted rim, flattened square lip, carinated, and concave based dish.
5. Simple everted rim, round lip, and convex based dish.

Texture

Section size is of dishes and stands are mainly medium; inclusions are predominantly 3 to 5% while rarely 10 to 20%. The inclusions depict mainly very fine to medium, rarely coarse texture.

The majority of the pastes are heavily calcareous with negligible micaceous grains. Paste Color: red (10 r 5/8) to light red (2.5 yr 6/6); yellowish red (5 yr 5/6) to light reddish brown (5 yr 6/4).

Surface treatment

The exterior of the columns is smoothened with rotation while the interior has raised clay sharp bodies due to twisting and rotation on the wheel during manufacturing. Overall smoothing with rotation on both sides, scrapping on the exterior while the smoothing interior, smoothing on upper while scrapping on the lower vessel and occasionally polished vessels are observed. Few specimens have a slight sandy exterior surface as well.

Manufacturing Technique

This type of vessel is wheel and mold made. The finishing has been done on the wheel. Both portions are made separately and attached later on. A few of the dish's form suggest the use of mold as well. There are wheel marks or horizontal grooves around the interior and exterior of the body. The vessels are oxidized and have produced sandwich patterns, rendered core color reddish yellow, light greenish-gray, dark gray, olive-gray, gray with yellowish red, pale brown margins.

3.5.14. Sub-type XA: Painted Bowl on Low and Hollow Stand (Fig. XX-4p22, Pl. XIX a)

Distinguishing and Morphological Features

The distinguishing feature of this type is the presence of painted bowls along with squat and hollow stand and its large size. The bowl is convex and the rim is missing (Fig. LI). The comparative studies have shown the presence of everted rim with flattened lip (Mughal 1972: Fig. 27, no. 179, p.75); as well as out-curved sharp rim (Durrani 1988: Fig. XLII, p.190).

Decoration

It has a horizontal band in dark reddish-gray color on the base lip with red slip on the complete vessel on the exterior while two narrow painted bands around the main body in the same color and same slipped while the interior of bottom is plain.

Texture

Section size is heavy; inclusions are about 5% in the paste which are well-sorted and depict very fine to a medium sandy texture. The main type of paste is mixed, predominantly composed of calcareous clay. Paste Color: yellowish red (5 yr 5/6).

Surface Treatment

The scrapping without rotation on the exterior while smoothing with rotation on the interior of the current type is observed.

Manufacturing Features

Manufacturing is the same as of parent type and it is found oxidized.

3.5.15. Miscellaneous Types

Type XI: Vessels with Collard Necks (Fig. XXII, Pl.XIX b)

Morphological Features

The current type is related to pots/jars with collard/elongated necks, probably along with globular to oblong forms. Very few specimens of this type are found from Musa Khel site. Mainly neck regions are preserved, showing two types of morphological variation i.e., first one perpendicular, restricted orifice (3p15), and the second is everted and open orifice (3p89). All of them range in size from small to very large.

Decoration (Pl. XIXb)

The current type has following variations: -

1. Black (dark reddish-brown) bands on the rim and light reddish-brown slip.
2. Red glossy slip on the whole vessel.

Texture

Section size is medium with about 3-20% inclusions in the paste which are mainly very fine to medium; rare-coarse to a very coarse sandy textured. The main types of paste are mixed,

predominantly composed of calcareous clay with and without levigation. Paste Color: Light red (2.5 YR 6/6) to Reddish Brown (5 YR 5/4).

Surface Treatments

All of the specimens have undergone smoothing with rotation on interior and exterior, two specimens of this type have undergone polished on the exterior as well.

Manufacturing Features

The main vessel appeared to be finished on the fast wheel as is clear from horizontal grooves on interior and exterior of preserved necks. All of the specimens are normally fired.

3.5.16.Lids

Type I: Painted, Knobbed and Flat Lids (Fig. XXIII, Pl. XX a)

Morphological and Distinguishing Features

The distinguishing feature of the current type is parallel to slightly everted and inverted downward sides with painted decoration and plain surface along with flat roofs accompanied by a bell and concave type knobs. This type has very short or no vessel walls and with plain round, semi-rounded and flat base lips. The roofs of the lids are contiguous flat (Fig. LIII). The current type also depicted as plates and dishes beside stopper or vessel covers in contemporaneous site Gumla in Gomal Valley (Dani 1971). One specimen has preserved bell shaped knob as well. There are also two bell shape knobs recovered from the Musa Khel, one is painted and the other one is plain. The majority of lids are large in size; few have small and medium-size as well.

Decorative Variation

It has the following decorative variation: -

1. Most of the specimens have mainly broad horizontal painted band on rim, knob, middle of the body, body base junction, around the center in black and very dark gray, dark reddish gray with red slip the exterior while the interior is red slipped as well as very pale brown, pink and light red washed.
2. Another variation observed is the application of very light red water washed.

3. The individual preserved knobs have black on red bands and plain surface respectively.

Texture

Section size is medium; inclusion's proportion is in a range from 3 to 10%; mainly moderate to well-sorted, rarely poor; dominantly fine to medium; rarely very fine, and coarse sandy textured. The pastes types are mainly of mixed nature, predominantly composed of slight to heavy calcareous besides few specifically micaceous pastes. Paste color: Light Red (2.5 YR 6/6) to Yellowish Red (5 YR 5/6); also 7.5 YR 6/4 light Brown, (GLEY 1 10 Y 6/1) Greenish Gray and Red (10 R 5/8).

Surface treatment

The exterior of the vessels has scrapping and smoothing with rotation, scrapping with rotation, spatula marks on the body, scrapping without rotation, and smoothing with rotation. The interior of the vessel has smoothing with rotation on the wheel. The exterior and interior of knobs have smoothing with rotation.

Manufacturing Technique

Musa Khel pottery lids are wheel made. The finishing of half of the vessels has been done on wheel. There are wheel marks or horizontal grooves around the interior and exterior of the body on half of the vessels. Remaining vessels have hand modeling marks i.e., spatula thinning and irregular walls. Knob and dish portion type is made on wheel separately and attached later on. The vessels are normally fired. Few specimens are oxidized, produced sandwich pattern, rendered core color gray, and greenish-gray with yellowish red margins respectively. The porosity is mainly low.

Type II: Painted and Conical Lid (Fig. XXIII-5p2, Pl. XX a)

Morphological and Distinguishing Features

The distinguishing feature of the current type of lid is the conical body with simple perpendicular rim with plain round lips, which are categorized as small sized. The morphology of the specimen suggests that it is a knobbed lid/stopper. The knob portion is not preserved.

Decoration

The lid has one horizontal painted band on rim, two bands on the main body in dark reddish-gray color with red slip on the exterior while the very pale brown slip on the interior of the whole vessel.

Texture

Section size is medium; inclusion's proportion is 5% which are well-sorted and depict fine to a medium sandy texture. The paste is predominantly calcareous type. Paste color: Yellowish red (5 YR 5/6).

Surface treatment

The exterior and interior of this vessel are smoothened with rotation.

Manufacturing Technique

This type of vessel is mainly wheel made. There are wheel marks or horizontal grooves around the interior and exterior of the body. In case, if it is a lid, it needed to be attached separately. The vessel is normally fired to yellowish red. The porosity of the paste is low.

3.5.17. Miscellaneous Body Sherds

Black slipped & red slipped body sherds with thin horizontal string impression (Fig. XIV-(1))

These sherds are accompanied with horizontal and sharp string mark with different texture and style. Section size is medium; the percentage of inclusions is close to 5% which are well to moderately sorted and comprised of very fine to a medium sandy texture. Paste Color: Reddish Yellow (5 YR 6/6) to Yellowish Red (5 YR 5/6). No clear parallel has been found. The texture and type of painted slips suggest their association with the Kot Diji phase.

Body sherds with Sandy Clay Bands

There are two types of clay bands:

1. Straight, horizontal, and parallel (Fig. XIV-(2a))

The straight type bands are uniform in appearance. The straight bands are pink and light red in color while the interior is plain as well as washed. The exterior is has applied with sandy clay bands. All of them are appear to be wheel made and one specimen is fired to red while the other one is oxidized to greenish-gray with light red margins. Section size medium; inclusion's percentage varies from 1 to 10 %; the texture is mainly dominantly fine to medium; rare fine and very coarse sandy; well to poor sorted. Paste color: red (10 R 5/8) to light red (2.5 YR 6/5).

2. Wavy, horizontal, and parallel (Fig. XIV-(2b))

Wavy type bands have further subtypes based on the shape and composition of bands. One type of wavy bands is composed of red ware with parallel wavy, pointed crusts and troughs and the other type of band is stone-hard with sandy surface and bands are heavy, thick and their crusts and troughs are rounded and the perfection of the bands shows that they are produced on the vessel wall with the help of some special molding technique.

The wavy bands are in light red and grayish-brown color while the interior is plain as well as washed. Section size medium to thick; inclusion's percentage 5 %; the texture is mainly very fine to very coarse sandy; well to poor sorted. Paste color: Light Gray (5 Y 7/2) and Yellowish red (5 YR 5/6).

Cord Impressed Body Sherd (Fig. XIV-(3))

The exterior of the current sherd has a horizontal cord impression with dark reddish-gray slip while the interior is plain and diagonal incised grooves making hatched pattern. The section is medium; the texture is dominantly very fine to medium sandy; the percentage of inclusions is close to 5%. The main types of inclusions are very fine to fine greenish-gray and gray; subrounded and medium grayish white. Paste Color: light Brown (7.5 YR 6/4). The exterior is smoothened with rotation and finished on a wheel and fired to light brown. **Clay Coated Body sherds**

1. Wet Textured (Fig. XIV-(4))

There are few sherds found with wet texture, applied with thick pink to light reddish-yellow slurry. Wet texture is produced by lifting a wet cloth from the surface, kept after the application of slurry.

The section is mainly medium to thick. The percentage of inclusions is in a range from 2-5%; well-sorted; fine to a medium sandy textured. Paste Color: Light red (2.5 YR 6/6); light reddish brown (5 YR 6/4); yellowish red (5 YR 5/6). The exterior is applied with different colored sandy thick slurry and smoothed as well as scrapped with rotation before the application of slurry. The vessels are finished on the wheel and fired to light red to yellowish red. The porosity is medium to high.

2. Applique Body Sherds (Fig. XIV-(4a))

There are few sherds with the following miscellaneous types of applique designs: -

1. Sand mixed with mud, light-textured Applique.
2. Sand mixed with mud, thick textured Applique.
3. Sand mixed with mud and grits/pottery bits, Appliquéd.
4. Sand mixed with mud also found applied on the main body of the few vessels.

At Musa Khel beside different types of sandy mud bands (mostly horizontal and wavy) are produced are also known as "Periano Reserve Slip" as discussed above. Besides bands, free hand treated thick sand and mud mixture on the vessels are at Musa Khel, also representing the technique of "Periano Reserve Slip".

Body Sherds with Painted Designs

There are few sherds in the Musa Khel pottery collection, bearing painted designs with unknown vessel morphology. These designs are as follows:

1. Fish Scales (Fig. XXV-3p149, 6p117)

Fish scale design found at Musa Khel, is of two types: -

- a. Semi rounded fish scales in black color with light reddish-brown slip (6p117).
- b. Longitudinal fish scales, pure black on red/plain (3p149).

2. Pipal Leaf (Fig. XXV-3p152)

It consists of an outlined broad pipal leaf with a stem and midrib with oblique lines bifurcating from it in chocolate color, drawn on a very pale brown or white slipped background on the exterior

of a vessel of unknown form. Like fish scale pattern, pipal leaf design is common in the Early Harappan and Harappan phase.

3. Group of Dots (Fig. XXV-3p151)

It is composed of three deep chocolate color dots arranged in a triangular form with buff slip. It also has a sharp horizontal thread impression below and chocolate band with red slip on the upper side of the preserved sherd.

4. Spirals (Fig. XXV-3p106, 5p40)

Spirals have the following variations: -

1. Round spiral band in reddish-brown (chocolate) with very pale brown slip (buff) in background (5p40).
2. Round spiral band in black with white slip in background (3p106).

5. Nonparallel wavy bands (Fig. XXV-3p62)

It consists of horizontal, nonparallel, wavy bands in reddish black color with pale yellow slip in background. This style is common in the Early Harappan phases and Harappan phase. The painted decoration of this style is unique. The comparative study within the Musa Khel site suggests its association with the Early Harappan style on the bases of fine texture, light ware, and painted decoration.

6. Wavy cum straight parallel bands (Fig. XXV-6p146)

It consists of a series of oblique bands (upper two bands have wavy interior margins) in black color with white slip in background. The texture of current sherd is stone hard.

7. Horizontal and vertical line combination (Fig. XXV-3p116)

There are two sherds, one is depicted with a combination of horizontal and vertical line combinations in black on white with pinkish redware and another one is composed of vertical lines in chocolate yellowish slip. Such type of decoration very common in all the early Harappan phases and the Harappan phase throughout the extent of Indus Civilization.

3.5.18. Bases (Fig. XXVI)

Based on the morphology, there are following types of bases associated different pottery types found from the Musa Khel are: -

Type I: Contiguous Flat Base with Hubbed Interior Bottom.

It is a single specimen with contiguous flat contours with a slight hub at the interior of the bottom. It has a plain surface on both sides smoothed with rotation. The section size is medium and pastes have 2 % fine to medium sandy textured inclusions, showing well levigated paste with calcareous inclusions. The paste is normal and completely oxidized to red color (10r 5/8). The base is a wheel made. Based on comparative studies, the current base belongs to flanged pots, globular short-necked pots, everted bowls and concave sided bowls, etc.

Type II: Mat Impressed Flat Base

It has basket impression on the exterior of bottom with drops of red slip-on exterior walls while its interior bottom has a reddish black color band, around the center with a red slip. The section size is heavy, treated with smoothing with rotation on both sides. The paste has about 5 % well-sorted fine to medium sandy textured and mixed type inclusions such as calcareous and micaceous. The paste is completely oxidized to light red color (2.5yr 6/6). The base is wheel cum mat impressed made.

Type III: Contiguous Round and Carinated Bases

There are two specimens with a round base and a carinated vessel body. One of the specimens on its exterior has a wide painted band on body-based junction, out of which a vertical band arises towards upon upper body in dark reddish-gray color with a reddish-brown slip down to slightly below the junction, remaining plain. The interior is plain. The other one on its interior also has a wide painted band, slightly oblique in black color, above the body-base junction with pale yellow slip background. The interior is plain. The section size is medium and the percentage of inclusions is in the range from 1-2 %. The main types of inclusions are fine to medium sand and mainly show calcareous pastes. The porosity is from low to medium. They are mold made and finished on the wheel. They are in yellowish-red and light reddish-brown color in appearance.

Type IV: Non-Contiguous Flat Bases

Most of them are plain, washed, and occasionally they are slipped with yellowish red and red color on their exterior sides. The interior is the same as except one specimen is painted with black on red bands at its interior. The section size ranges from thin to heavy size and the percentage on inclusions is in a range from 1 to 10 %, mainly depicting fine to medium texture and mainly mixed to calcareous type of paste with a level of levigation. One of the base sherds has *pre-fired graffiti depicting inscribed and flipped horizontal Roman alphabet "A"* close to body base juncture.

The exterior is smoothened with rotation, scrapped with and without rotation, and occasionally interior is trimmed irregularly. They are of different sizes in diameter, mainly are small; few are medium and large as well. All of them are wheel-made and fired to light red and yellowish red. Few of them had differential firing at core and margins. Few specimens are fired to light brown and reddish yellow cores with light red and red margins. One of the specimens is oxidized and its core color is rendered to light greenish-gray with light red margins. The porosity is mainly low and high. Most of the specimen has calcium carbonate spalls on their surface, belongs to globular pots, open-mouthed bowls, etc.

Type V: Non-Contiguous Concave Base

There are only two such specimens found from the site. One of them is plain with the slight sandy surface while another one has slipped in pale brown color with pre-fired *elongated triangular potter/stroke marks* lying horizontally on either side, just above the body base junction on the exterior of the base. The section size is thick and the percentage on inclusions is in a range from 5 to 20%. The main types of inclusions are predominantly calcareous and depicts fine to medium texture. The exterior is smoothened with rotation and without rotation. They are mainly small. All of them are wheel made with a convex platform. The porosity is mainly low. It probably belongs to globular pots and open-mouthed bowls.

Type VI: Non-Contiguous Discoid Base

It is dark reddish-brown slipped on both sides with traces of very pale brown slip on the exterior lower body only. The section size is thick and the percentage of inclusions is 10%. The main types of inclusions are fine to medium; shows a range paste from micaceous to calcareous. The exterior

is scrapped with rotation. It is only one in number and small in size. It is a wheel made as evident from string cut marks and fired to reddish yellow with red margins. The porosity is mainly low. They are associated with short-necked painted pots, sandy slipped pots, and flanged pots.

Type VII: Non-Contiguous Discoid Extended Bases

They are normally plain, pale brown, pale yellow, and pink slipped on the exterior while the interior is mainly plain. The section size is medium to thick and the percentage of inclusions is 1 to 20%. The main types of inclusions are fine to medium sand in granular and crumb shapes, mainly depicting mixed and micaceous pastes. The exterior is smoothed with rotation mainly, rarely polished as well while internal is smoothed. They have versatile extended base shapes; few are more extended. They are in miniature to large size. All of them are wheel made with extra care and fired to yellowish red, light brown and light red. One sample is reduced to light gray section size. The porosity is mainly low. They are probably associated with small pots and miniatures.

Type VIII: Non-Contiguous Ring Bases

They are normally plain, and pink slipped on the exterior while the interior is mainly plain. The section size is thin to thick and the percentage of inclusions is 2 to 10%. The main types of inclusions are fine to medium sand. The paste types are calcareous as well as micaceous. The exterior is scrapping horizontal and base trimmed slowly, smoothing with rotation. They have medium-thick rings. They are mainly small in size. All of them are wheel made while rings are attached to their bottoms separately in leather hard stage and they are fired to red, light red, light reddish-brown. One sample is oxidized to light greenish-gray with red margins. The porosity is mainly low. One sample has calcium carbonate Spalls on the exterior surface. They are associated with carinated pots and bowls.

Type IX: Low, Miniature Pedestal

This one is low type pedestal other than dish and bowl on stands, miniature in size. It is plain section size is medium and the percentage of inclusions is 5 %. The main types of inclusions are well-sorted; fine to medium sandy, depicting micaceous paste. The exterior and interior are

smoothened without rotation. It is a wheel made, to be attached to parent vessel and incompletely oxidized with brown margins and greenish-gray core.

Base Mold (Fig. XXVII)

One specimen of base mold is also recovered from Musa Khel. It is large in size with light brown washed, everted walls with round lips/margins at both ends. Based on morphology, it is designed for the flat based very large vessels. Moreover, it is accompanied with a pre-fired graffiti depicting “*Maltese cross*” on its interior close to the bottom, probably for the pottery workshop identification. The letter of graffiti is produced by two pairs of vertical and horizontal incised lines with resultant triangles at each corner of the square. The texture of this base mold is thick; inclusion’s proportion is about 20% which are moderately sorted, depicting medium to a coarse sandy texture. The paste is heavily calcareous. Paste color: light brown (7.5 YR 6/4).

The porosity is low and fired to brown. The base mold has found finished with smoothing with rotation on the upper body while scrapping with rotation on the lower body on both sides. It is purely wheel made.

3.6. Harappan Pottery Typology at Musa Khel (Red Ware Group)

3.6.1. Type I: Perforated, and Parallel Sided Jar (Fig. XVIII, Pl. XXI b)

Distinguishing, and Morphological Features

The distinguishing feature of this type is its tall, parallel-sided, and cylindrical form with perforations on the main body below shoulder. It has an external projected short-beaked rim. Among the several body sherds, few appear to be a portion of globular forms rather straight-sided. Very few have clear vessel size and mainly categorized as a very large Jar. Comparative studies have shown the presence of a contiguous flat base (Dales & Kenoyer 1986: Fig.16, no.8, p.200).

Decorative Variation

There are following visible variation observed in the current type:

1. Very pale brown to pale brown slip on both sides.
2. Plain surface on both sides.

3. Pale brown slip on the exterior side while plain interior.
4. Pale brown washed on the exterior side only.

Based on the observations at other sites, the plain sherds might belong to lower body portions of the perforated vessels with the slipped upper body.

Texture

The size of the section varied from medium to heavy. It has a range of inclusion's proportion i.e. mainly less than 5% to 10%, and rarely 20 to 40%. All the inclusions are moderate to well sorted, and mainly depicts very fine to medium while rare coarse and very coarse sandy texture. Three types of main pastes with varied percentage of inclusions are distinguishable such as micaceous, calcareous and mixed. Majority of the pastes are mixed, bearing elements of both, micaceous and calcareous clay sources. The varied compositions of the pastes suggest the exploitation of different clay sources. Varied percentage of inclusions might be related to different functions of perforated vessels i.e., specimens with higher percentage of paste related to functions needed resistance against thermal as well as physical pressure and vice versa. Paste Color: Mainly Light Red (2.5 YR 6/6) to Yellowish Red (5 YR 5/6).

Surface Treatments

All specimens show smoothing with rotation on the exterior, and the interior before perforation.

Manufacturing Features

All of the specimens have a series of round perforations of varied exterior internal diameters, and the interior internal diameters. Their shape is also varied from round to sub round, and their sizes of perforations are wider at the exterior as compared to the interior. The gap between the perforations from sherd to sherd also varies, some depicts a series of planned perforations, and some shows a random perforation. This shows that several types of perforated tools were employed, and more than one potter was involved in manufacturing as evident from the manufacturing skills. It might be possible that vessels were manufactured at different places, and brought here on the Musa Khel. The perforation was mainly conducted during the leather hard stage with a pointed end tool to easily pierce through the leather hard vessel wall. While

perforating, a force applied on clockwise direction helps to pierce through walls easily, without breakage of specimens. Once perforation is done, anticlockwise slow movement was applied to leave behind the bulging of excess clay on the interior around the perforations. The tool employed must have a suitable handle for the grip, and the vessel must have placed on a flat platform. It is dangerous to hold the vessel in a leather hard stage with some force. The potters must have used some dabbers or similar item to support the perforations. The perforations are accompanied by bulging on the interior, fine to very rough in appearance, indicating the levels of skilled employment of different potters.

On the bases of wheel marks or horizontal grooves around the interior and the exterior of the body; regularity of wall thickness; and breakage at an angle suggests that current type is wheel made. All of the specimens are normally fired, and shows a range of color from light red, yellowish red, light brown to light yellowish-brown. There are no signs of oxidation and reductions, except few specimens were found completely vitrified.

3.6.2. Type II: Very Large, Globular, White Slipped and Shouldered Jar (Fig. XXIX, Pl. XXII A (2)).

Distinguishing and Morphological Features

The distinguishing feature of this type is its ledged shoulder, globular body, and white (very pale brown) slip. This type is found with preserved rim. The base is not preserved. Comparative studies indicate that such type of vessels has discoid bases (Mughal 1997: Fig. 15, no.67, p.75). The rim is complex, external projected, narrow, and short-beaked. The vessel is categorized as a very large vessel.

Decoration

The current type has white (very pale brown) slipped on both sides.

Texture

The section size is thick, and paste has about 5% poorly sorted inclusion, depicting medium to a very coarse sandy texture. The paste is naturally tempered, highly calcareous and appears to be devoid of levigation. Paste Color: Light red (2.5 YR 6/6).

Functional Surface Treatments

The specimen has undergone smoothing with rotation on the interior, and the exterior.

Manufacturing Features

The main vessel was manufactured on the fast wheel first as is clear from horizontal grooves on the interior, and the exterior, and produced in multiple stages i.e. base in mold, main body by coiling, rim, and finishing on the wheel. The specimen is normally fired to light red.

3.6.3. Type III: Plain and Globular Jars (Fig. XXX)

Distinguishing and Morphological Features

The distinguishing feature of this type is its versatile size, plain surface, and globular forms. All of the specimens have preserved rims, globular body forms with plain surface but distinguished vessel size, and slightly distinguished rim forms as well. Two main types of rims are there in the current type, one is simple external projected, and the other one is an external projected beaked rim. Comparative studies indicated that the large, and very large vessels have concave, and contiguous flat bases (Mackay 1934: Pl. LVII no.42), while medium vessels have contiguous flat bases (Dales & Kenoyer 1986: Fig.7, nos.1-2, p.251). The vessels are categorized mainly as very large vessels, and rarely large in size.

Decoration

All the specimens are plain, having very light wash applied in colors matched to pottery paste which could be a self slip i.e., light red, yellowish red, and pinkish white.

Texture

The vessels have medium thick size section, and paste is composed of 2-3% well-sorted very fine to medium and rare coarse sandy inclusions. The paste type is predominantly calcareous, besides mixed and micaceous type. Paste Color: Yellowish red (5 YR 5/6).

Surface Treatments

All of the specimens have undergone smoothing with rotation on the interior, and the exterior along with smoothing without rotation in few, and slight sharp smoothing like scrapping with rotation in the remaining samples.

Manufacturing Features

The main vessel was manufactured on the fast wheel first as is clear from horizontal grooves on the interior, and the exterior. Very large size vessel suggests multi-stage production. Concave base requires molds. All of the specimens are normally fired.

3.6.4. Type IV: Very Large Parallel Sided Pot (Fig. XXXI)

Distinguishing and Morphological Features

The distinguishing feature of this type is its large size and parallel sided body. All the specimens have preserved rims. Specimens are different in size but similar in body, and rim morphology. Comparative studies have shown that the main body is parallel-sided; the lower body is conical, having extended ring base (Dales & Kenoyer 1986: Fig.39, no.4, p.315). The rims are preserved, complex external projected narrow, and short-beaked; categorized as very large vessels.

Decorative Variation

Two decorative variations are visible in the current sample: -

1. One band on beak of rim, and two bands on the throat in black color with red glossy slip on the exterior while the same color band on a rim with the same slip till throat on the interior of the vessel.
2. Dull red slip with few horizontal grooves on the neck, and very pale brown slight thick slip on the interior of the vessel.

Texture

The section size of the current type is thick, and paste has 2-3% moderate to well-sorted, very fine to very coarse sandy textured inclusions. The painted specimen has calcareous paste while plain

specimen has micaceous paste. The pastes are naturally tempered without proper levigation. Paste Color: red (10 R 5/8) to Yellowish red (5 YR 5/6).

Functional Surface Treatments

All of the specimens have undergone smoothing with rotation on preserved the exterior, and the interior side of the vessel.

Manufacturing Features

The main vessel was finished on the fast wheel first as is clear from horizontal grooves on the interior, and the exterior. The type of base observed in the comparative study needs a separate manufacturing process and attached separately later on to the exterior of the bottom by placing the vessel upside down.

All specimens are the wheel, and molds manufactured, and produce in two stages, shows wheel marks or horizontal grooves around the interior, and the exterior of the body. All of the specimens are completely oxidized and normally fired.

3.6.5. Type V: Ledged Pots with Round Bases (Fig. XXXII, Pl. XXII b)

Distinguishing and Morphological Features

The distinguishing feature of this type is the globular body, round base, and presence of ledge of different heights between the neck, and main body of the vessel. Main rim type is complex, external projecting, and long-beaked. Comparative studies have shown that this type also has simple everted rims with round, flat, and pinched lips. All of specimens have preserved ledges which are pointed and triangular in shape with varied height, and thickness. All of the ledges are present between the neck and main body of the vessel. The height of the ledge in variety 1 is in the range of 8.8 to 15.85 mm, and of variety 2 is in the range of 7.92-16.29 mm. Vessels have round bases and show a medium to large size.

Decorative Variation

The current type has the following decorative variations:

1. Glossy red slip of different versions on, and above the ledge, and the body below the ledge is scrapped with rotation.
2. Black bands on the ledge, and rim with reddish-brown slip in background.

Texture

The current type has mainly medium to thick section size, and paste has a range of 5 to 30% well-sorted, mainly fine to medium while rare coarse sandy textured inclusions. Pastes are mainly characterized as predominantly micaceous and rarely calcareous. Micaceous pastes appear to be naturally tempered while the calcareous pastes with inclusion's range between 10-30% appear to be manually tempered. Paste Color: Mainly Light red (2.5 YR 6/6); Red (2.5 YR 5/8) to Yellowish red (5 YR 5/6) as well.

Surface Treatments

Besides, scrapping with rotation on the exterior, below the ledge, application of sandy slurry is evident. Comparative studies also have shown the presence of sandy slips below the ledge. All of the specimens have shown smoothing with rotation on the interior of the vessels.

Manufacturing Features

The main vessel was finished on the fast wheel as it is clear from horizontal grooves on the interior and the exterior. The manufacturing of round base needs a mold. The ledge as shown manufactured directly out of the main clay body by stretching from the neck, and main body. After it is attaining slight dryness, the main body is scrapped horizontal with rotation with stone scrapper below the ledge. After that slip applied with rotation. This is followed by polishing of the slip with cloth or leather piece, and drawing of horizontal bands with the help of animal hairbrush with slow rotation. At the last, the main body is applied with sandy slurry with free hand style by putting the vessel in hand. After it is sun dried, the vessel is put to fire.

All specimens are mold, and wheel manufactured are normally fired light red to yellowish-red besides slight oxidation due to which a sandwich pattern is produced, rendered core color, and ranges from red to light greenish-gray, and the color of the margins is ranging from pale brown to

yellowish red respectively. This type of pattern doesn't match to core pattern chart, hence designated as unique.

3.6.6. Type VI: Very Large, Plain, and Convex Bowls (Fig. XXXIII, Pl. XXIII a)

Morphological and Distinguishing Features

The distinguishing feature is the size, plain surface, and convex vessel morphology with contiguous flat base. The rims are complex external projected, narrow beaked, and rounded. One of the specimens has bilateral equal projected rim as well. All of them are categorized as very large vessels.

Decoration

These specimens are plain and occasionally washed as well as very light slipped in light red and brown colors. Few of them have few horizontal grooves on the exterior surface as well.

Texture

Section size of the current type is thick; inclusion's proportion makes 1 to 30%; well-sorted mainly with very fine to a coarse sandy texture. The current type shows a range of pastes, predominantly composed of calcareous clay, followed by mixed and micaceous pastes. Paste color: Yellowish Red (5 YR 5/6) to light Brown (7.5 YR 6/4).

Surface treatment

This type has done with a range of surface treatments:

1. Smoothing with rotation on both sides.
2. Smoothing with rotation on upper body and without rotation on the lower body.
3. Scrapping and smoothing with rotation.

Manufacturing Technique

These types of vessels are the wheel, and the mold made. The base is produced in mold while the body and rim are finished on the wheel. The vessels are normally fired from yellowish red to light

brown. Few of the vessels are oxidized, and rendered core color from bluish-gray to greenish-gray with reddish-brown to reddish-yellow margins.

3.6.7. Type VII: Very Large, Painted Bowl on Squat, Ledged and Hollow Pedestal (Fig. XXXIV-(1))

Distinguishing and Morphological Features

The distinguishing and morphological feature of the current type is its flaring vessel profile, and externally projected concave ledged squat and hollow base. The size is very large.

Decoration

It is decorated with black on dull red-painted style, and very pale brown slip on the exterior of the bowl as well as interior bottom of the ledged base. There are five sharp bands or lines above, and three below in black on dull red style.

Surface Treatment

The vessel is treated with smoothing with rotation on the exterior of pedestal while scrapping, and trimming on the interior of the accessible portion of the pedestal whereas the bowl portion is smoothed at its the interior, and roughly scrapped at its exterior. The vessel is completely oxidized.

Texture

The current type has a thick section, and the percentage of the inclusion is about 3%, which is moderately sorted. The inclusions depict very fine to a medium sandy texture and paste is characterized as Micaceous. Paste color is Light red (2.5 YR 6/6).

Manufacturing Technology

The vessel depicts multi stage manufacturing mechanism. Both parts of the vessel manufactured separately and attached later on. The bowl is designed with the help of mold while pedestal is manufactured upside down on the wheel. The finishing is done on the wheel revealed as a result of horizontal grooves on interior of bowl and exterior of pedestal.

3.6.8. Sub-type VII A: Painted Bowl on High, and Hollow Stand (Fig. XXXIV (2))

Morphological and Distinguishing Features

The distinguishing feature of this type is the painted convex bowl and internal projecting sharp-beaked rim. The complete form of the type is not preserved. Comparative studies have shown that the current pottery type is accompanied by high pedestals (Dale & Kenoyer 1986: Fig. 70, no.4, p.377).

Decoration

The specimens with internal projection are plain at its exterior while there is one painted band on top margin of the rim in reddish-black with a red slip up to half of the vessel with a horizontal painted band below in the same color, with reddish-yellow slip on the lower portion of the vessel.

Texture

The section size of the current type is thick, and paste has about 10% very well sorted inclusions, which depicts very fine to a medium sandy texture. Current type is characterized by micaceous paste. Paste Color: Paste is incompletely oxidized; the margin is red (2.5 YR 5/6) whereas the core is light greenish-gray (Gley 1 10 Y/8).

Surface treatment

The exterior has scrapping with rotation on lower while smoothing with rotation upper body. The interior has smoothing with rotation.

Manufacturing Technique

This type of vessel is a wheel made and manufactured in multiple steps. The finishing has been done on the wheel. There are wheel marks or horizontal grooves around the interior, and the exterior of the body. The vessel is oxidized and produced sandwich pattern, rendered core color light greenish-gray with red margins. The porosity is mainly low.

3.6.9. Sub-type VII-B: Plain Bowls/Dishes on Stands (Fig. XXXV)

Morphological and Distinguishing Features

The distinguishing feature of this type is the presence of plain bowls, and dishes of various forms along with low to a high, and hollow type of stands. The vessel size is based on the number of preserved bowls. They are mainly medium and large in size. The bowls are concave and are accompanied by simple external projecting round, beaked rim. The dishes have S walled carnations.

Decoration Variation

The pedestals have light water washed surfaces. One plain dish has undergone light yellow slipped or water-washed surface treatment. Although bowl portion have undergone structural decoration, given as follows:

1. Incised circles intersected by oblique grooves, making hatched pattern.
2. Tiny petals produced by removing of clay in consecutive round series.
3. Tiny rectangular patches radiating from the center, produces by stamping or removing clay.

Texture

This type has medium to heavy section size; inclusion's percentage is in range 5 to 20%; predominantly well sorted, and fine to a medium sandy texture. A suitable number of specimens have micaceous pastes followed by calcareous and mixed type pastes. Paste Color: Light Red (2.5 YR 6/6) to Yellowish red (5 YR 5/6) predominantly.

Surface treatment

1. Predominantly both sides are smoothed with rotation.
2. Very few specimens have been treated with scrapping.
3. Few vessels have slight burnished base.
4. Smoothing with rotation on the rim or upper body, and scrapping with rotation on the bottom/below the rim/lower body.

Manufacturing Technique

The manufacturing technique is the same as of parent type.

3.6.10. Miscellaneous Types

Type VIII: Plain Bowl with Parallel Sided and Equal Bilateral Projected Rim (Fig. XXXVI- (1))

Morphological and Distinguishing Features

The distinguishing feature of the current type is the parallel-sided body along with the bilateral projected round rim. The bowl is without preserved base; categorized as a very large vessel.

Decoration

This type has dark reddish-brown slipped, along with traces of pink slip on the exterior on both sides.

Texture

Section size is thick; inclusion's proportion is 5%; well-sorted; very fine to medium sandy textured. Paste is of mixed type, predominantly characterized by calcareous and rare micaceous elements. Paste color: Reddish Yellow (5 YR 6/8).

Surface Treatment

The exterior of this type has mainly undergone scraping with rotation on both sides. The vessels also have hand smoothing or pinching marks on rim, straw pockets on the interior, and discoloration like rusting on both sides.

Manufacturing Technique

This type of vessel is a wheel made. There are wheel marks or horizontal grooves around the interior, and the exterior of the body. The vessel is oxidized to the dark greenish-gray color core with margins reddish-yellow. The porosity of the paste is medium.

Type IX: Plain, Straight Everted, Equal Bilateral Projected Rim Bowl (Fig. XXXVI-(2))

Morphological and Distinguishing Features

The distinguishing feature of the current type is the everted sided body along with bilateral equal projected round rim. The bowl is categorized as a very large and thick sectioned vessel.

Decoration

This type suffered weathering and encrusted with rusty layer and decoration is damaged if any were there.

Texture

Section size is thick; inclusion's proportion is 2% which well-sorted and depicts fine to medium sandy texture while paste is micaceous. The vessel is incompletely oxidized and rendered core color to greenish-gray with yellowish red margins.

Surface treatment

The exterior of this type has mainly undergone smoothing without rotation on both sides.

Manufacturing Technique

This type of vessel is a wheel made. There are wheel marks or horizontal grooves around the interior, and the exterior of the body. The vessel is incompletely oxidized.

Type X: Painted and Rimless Dish (Fig. XXXVI-(3))

Morphological and Distinguishing Features

The distinguishing feature of this type is rimless form and pinched lips along with flat base. This type has no vessel walls, and pinched lips are pointed upward in vertical position. The base is a contiguous flat and dish type is categorized as a large.

Decoration

The exterior of the vessel has one sharp horizontal painted band on the lip in black color with plain bottom. On the interior, the painted band continues from the exterior with red slipped surface.

Texture

Section size is medium; inclusion's proportion is 5%; well-sorted; very fine to fine to medium sandy textured; highly calcareous paste. Paste color: light reddish brown (5 YR 6/4).

Surface Treatment

The exterior and the interior of the vessel have marks of smoothing with rotation.

Manufacturing Technique

There are wheel marks or horizontal grooves around the interior, and the exterior of the body on half of the vessel. The vessel is fired to reddish-brown. The porosity is high.

Type XI: Collard, straight-sided, heavy sectioned vessel (Fig. XXXVI-(4))

Morphological and Distinguishing Features

The distinguishing feature of this type is collard and straight-sided neck with simple external projected rim, and pinched lips.

Decoration

It has a narrow dark reddish-brown band on tip of the rim with light reddish-brown slip on the complete rim, remaining is plain on both sides.

Texture

Section size is heavy; inclusion's proportion is 5%; well-sorted; fine to medium sandy textured. The paste is mainly characterized as calcareous. Paste color: light red (2.5 yr 6/6).

Surface Treatment

It has smoothing with rotation on the exterior side and scrapping with rotation on the inner side of the vessel.

Manufacturing Technique

There are wheel marks or horizontal grooves around the interior, and the exterior of the vessel. The vessel is fired to light red, and completely oxidized.

3.6.11. Miscellaneous Body Sherds

Black slipped sherds (Fig. XXXVII-(1))

The black slipped sherds recovered from Musa Khel has different shades of black slip with unknown vessel types with possibly globular to straight-sided morphology. The section size is medium to heavy, and heavily calcareous paste consists of very fine to medium inclusions. Paste color: light reddish brown (5 YR 6/4), and Light Gray (5 Y 7/2). The exterior is smoothed, and the interior has been slightly scrapped. All of them are wheel-made, and they are fired to light red, and light reddish-brown. Few specimens are oxidized to gray cores with reddish-black margins. The porosity is mainly low, and few have medium to high.

Wide space grooved / ridged body sherd (Fig. XXXVII-(2))

A rare pottery sherd recovered from Musa Khel surface, designed with wide and horizontal pointed ridges probably on the main body with pale brown slip in the background. The interior is plain and possibly straight-sided vessel. The section is medium; the percentage of inclusions is close to 3%. The texture of inclusions is fine to medium. All the inclusions are moderately sorted while paste is mixed type.

The exterior has been smoothed with rotation. Ridges are made on the wheel by placing horizontally on the wall while rotating, and finished on a wheel, and fired to red with light reddish-brown margins. The porosity is medium.

Body sherd with impressed design (Fig. XXXVII-(3))

Probably a base sherd, stamped with an impression of a tree branch with a row of leaves on both sides, and pale yellow slipped on the interior, thick section, and completely oxidized to yellowish-red color. It has approximately 5% fine to sandy texture inclusions. The texture and designs suggest its association with the plain offering stand of the Harappan phase at Musa Khel.

Body sherd with floral design

The current body sherd is probably associated with Globular and painted pots, consists of *leaves filled with a series of oblique strokes* (Fig. XXXVII-(5)). Besides the leaves, there is lying a vertical twisting/spiral band, outlining the stalked leaves in black color with red slip in background.

Body sherd with zoomorphic design

The vessel form of current sherd is not possible to ascertain due to its very fragmental condition. The designs consist of bird, representing *a drongo or peacock with a hatched body, small tail and limbs* (Pl. XXIV a-(5) in black color with red slip in background.

3.6.12. Bases (Fig. XXXVIII)

Based on the morphology, there are following types of bases of different vessel types are found from the Musa Khel.

Type I: Non-contiguous discoid base with crude bottom

The current base has a medium body and section size. It is white slipped on the exterior while the interior is plain. The percentage of inclusions is about 2%; which are well sorted, and depict fine to a medium sandy texture, and paste is of mixed type. It is incompletely oxidized to gray color, and smoothing with rotation on both sides. It is a wheel made and associated with globular medium to large size pots.

Type II: Non-contiguous discoid, and narrow base

The current base is pale yellow slipped on the exterior while the interior is mainly plain. The section size is medium, and the percentage of inclusions is close to 1 %. The main types of inclusions are well sorted, depict fine to a medium sandy texture. It is miniature, wheel-made, and fired to yellowish red. It is unique and rarely reported in contemporary sites.

Type III: Non-contiguous discoid, short extended narrow, and heavy bases

They are normally pale yellow, and red slipped on the exterior while the interior is mainly plain, and washed. The section size is medium to thick, and the percentage of inclusions is 3 to 10%. The main types of inclusions are well sorted with fine to a medium sandy texture. The exterior is

smoothened with rotation, roughened while internal is smoothened, burnished, and roughened. They are miniature to small in size. All of them are wheel-made, and they are fired to light brown.

Type IV: Non-contiguous concave base

It is a small-sized base with a thick section and plain sandy surface with approximately 20% inclusions in the paste. The inclusions have fine to a medium sandy texture. The paste is a completely oxidized light red color. The base is complex and manufactured on the wheel. It is double-walled and has prominent ring cut marks as well. First, the concave portion has been designed on a wheel and removed from the wheel head with thread. After that, the concave side was placed upside down, and the vessel was prepared due to which double-walled vessel is produced. It is rare, and no comparable has been found.

Type V: Non-Contiguous Extended Ring Bases

It is a medium-sized base with thick section, and plain with approximately 2% inclusions in the paste. The inclusion's texture is fine to medium sandy. The paste is of mixed type and incompletely oxidized to light greenish-gray color. The base is mold made and has been treated with smoothing with rotation on the upper body while scrapping on the interior.

Type VI: Non-Contiguous Extended and Fancy Ring Base

One of the specimens has on its exterior has one narrow band on top of base-lip in a black, and red slip on the upper body while pink slip below the band while its interior is plain. The section size is medium, and the percentage of inclusions is about 20%. The main types of inclusions are fine to medium sand in texture. The exterior is smoothing with rotation on the upper body along with scrapping with rotation on lower body while smoothing with rotation on the exterior. It is a complex base, and wheel made while rings are formed as a result of molding technique, and fired to yellowish red. The porosity is mainly low. They are mainly associated with parallel-sided Harappan pots.

3.7. Gray Ware Pottery from Musa Khel (Fig. XXXIX, Pl. XXV a)

3.7.1. Type I: Black Slipped Convex Bowl with Channeled Rim (Fig. XXXIX-(1))

The distinguishing feature is channeled rim, and convex body, and possibly a flat base. The specimen is completely slipped or painted with pure black color on both sides. It has a medium section size. The percentage of inclusions in the pottery paste is less than 1 %. The main types of inclusions are very fine yellowish-white sand, and silt. Paste color is greenish-gray (Gley 1 10 Y 6/1). The porosity of the paste is low or negligible. The type is categorized as a medium vessel, mainly done scrapping with rotation, and polishing. This type of vessel is a wheel made and single-stage manufactured. The bowl is specifically fired to light greenish-gray in a specially controlled firing atmosphere.

3.7.2. Type II: Trapezoidal, Gray Ware Bowl (Fig. XXXIX-(2))

The distinguishing feature of the current type is the trapezoidal body form, very low pedestal/non-contiguous extended ring/concave base. The preserved vessel is plain and has a medium section size. The type is categorized as large. The exterior and the interior of this vessel are smoothed with rotation. This type is mainly mold made. The finishing has been done on the wheel. There are wheel marks or horizontal grooves around the interior, and the exterior of the body. The core of the vessel is very dark gray colored.

3.7.3. Type III: Black Slipped Offering Stand (Fig. XXXIX-(3))

The distinguishing feature of the current type is the presence of a carination, elongated lips with black slip, and a hollow, wide, and low pedestal. The dish portion is without any remains of a pedestal. The dish has parallel sides with a hooked rim and a contiguous flat base. This type has medium to thick section size. The percentage of inclusions in the pottery paste is about 1-2% of inclusion. The texture of inclusions is very fine to coarse sandy. The color and shape of inclusions are yellowish-white and granular to round. Paste color is Gray (2.5 Y 6/1 to Gley 1 4/N). The type is categorized as large. The exterior and the interior are smoothed with rotation. The overall surface treatment is smoothing with rotation on both sides. This type of vessel is a wheel made, and multiple stages manufactured. The finishing has been done on the wheel. In the case of DOS, both portions are made separately and attached later on. There are wheel marks or horizontal

grooves around the interior, and the exterior of the body. The vessels are fired to gray in a reduced firing environment.

DRSML QAU

CHPATER IV

Musa Khel Pottery Assemblage: Spatial Occurrence and Comparative Analysis

4.1. Introduction

The comparative study of Musa Khel pottery assemblage shows two main cultural phases i.e. Early Harappan-Kot Diji phase and Harappan Phase. Although scanty evidence of Early Harappan-Tochi Gomal phase also has been found. Based on the comparative analysis of current pottery corpus, besides a proper Harappan phase, an intense cultural interaction of Musa Khel with surrounded Late Kot Dijians of Pothohar Plateau, Gomal Valley and Bannu Basin has also been witnessed. Few sherds associated to recent historical period were also found from the main mound.

The Musa Khel common pottery types, reported throughout the Greater Indus Valley, Baluchistan, and beyond East during the Early Harappan phase include flanged pots, short-necked globular pots, and grooved pots, etc., while the Harappan phase includes Offering Stands, perforated ware and ledged cooking pots, etc. There are several other types reported specifically from few other sites besides Musa Khel during the Indus Tradition such as very large and convex and plain very bowls are reported from Gomal and Bannu Basin (Table-I).

The current chapter is therefore dedicated to the spatial occurrence and comparative analyses of various pottery types identified at Musa Khel. Phase and type-wise spatial occurrence of different pottery types have been discussed below.

4.2. Early Harappans Pottery Types

4.2.1. Type I: Painted, Globular and Flanged Pots

The current type is reported extensively from several Early Harappan phase sites of Indus as well as Baluchistan Tradition. In Pothohar region, the upper Indus valley, they are reported from Sarai Khola, Jhang, Pindi Nausheri, Khanda (Mughal 1972) and Mohra (Ashraf et al 2012; Butt 2017; Butt 2020). At Sarai Khola, the comparables are associated to Pottery Type VIII & Sub-type VIIA, which were produced during the SK-IA (transitional phase: Late Neolithic-Early Kot Diji phase)

and found throughout the SK-II (Early and Late Kot Diji phase). SK-IA yielded very few comparable black on red style specimens while SK-II phase has mainly produced black on red to buff styles specimens with decorative motives i.e., hatched lozenges (Mughal 1972: Fig. 15, nos. 82-89; Fig. 16, pp 63-64; Pl XXA, nos. 1, 2, and 7, pp 47-48). At Jhang, the Flanged Pots are similar to Sarai Khola (Ibid: Pl XXX, nos.6-8, pp131-132) as well at Khanda (Ibid: Pl XXX, nos.1, pp 131-132) and Pind-Nauseri (Ibid: Pl XXX, nos.4, pp 131-132). Mohra also has yielded comparable specimens in different styles such as black on red, black and white on red and brown to chocolate on cream or white style i.e., Type III, Sub-type III a, and Sub-type III b (Butt 2020: Fig.3, p.6).

Going towards the west of Musa Khel Flanged vessels are predominantly reported from several sites in trans-Indus Gomal valley such as Gumla, Hathala, Rehman Dheri, Gandhi Umar Khan, etc. At Rehman Dheri, the comparables are associated to Type AI b and AII b, depicting jars in cream/white slipped style, black on red slipped banded style, black and cream on red slipped style with decorative designs i.e., hatched squares, intersecting circles, floral and are confined to RHD III, the Evolved or Late Kot Diji phase (Durrani 1988: Fig. XX, Fig. XXI, nos.1-9, Fig. XXII, nos.1-11, Fig. XXIII, nos.1-14, Fig. XXXI, nos. 1-6, pp 62-72). At Gumla, the current Musa Khel pottery type introduced during Gumla-II, the Tochi-Gomal phase (pre-Kot Diji phase) and associated to pottery Type XIV. It has only one specimen with chocolate on white decoration, thin section, and pointed ledge and without preserved rim (Dani 1971: Fig. 16, no.13, p.138). This pottery type was continued to Gumla III-Early Kot Diji phase in abundance with a new and comparable black on red style (Ibid:45-46), along with black on white style, chocolate bands, hatched and intersecting circles (Ibid: Fig. 19, nos. 149-155, pp 148-149). Flanged vessels also continue to exist through Gumla IV, the Late Kot Diji phase, mainly depicting black to chocolate and red on white to creamy styles along with hatched designs and coarse texture (Ibid: Pls 85-86, pp 155-157).

At Gandhi Umar Khan, the current type first appears during the GUK-II, the transitional phase blending GUK-I, the Tochi Gomal phase and GUK-III, the Kot Diji phase. They are plain and applied with a pink slip and made up of well-levigated clay (Jan 2012:101; Fig 3, nos. 45-46, p.97, Pl.8, p.101). It also continued to GUK-III and appear in later levels (Ali & Jan 2009:23), in bi-chrome and polychrome style (Ali & Jan 2009: Pl 20, p. 50). Few other examples from Early

Harappan occupation sites in Gommal Valley include Jhandi Baber B (Khan et al 2000: Fig. 5, no.5, p.19), Maru I (Ibid: Fig. 6, no.5, p. 20); Khad Amani (Ali & Jan 2003: Fig. 3, nos. 1, 3, p. 48); Karam Shah (Dani 1971: Pl. 64 A, nos.1-2,4-6) and Hathala, etc (Ibid: Pl. 68, nos. 2-3,5,7-11).

The comparables are also reported from Early Harappan (Early-Late Kot Diji phase) sites in Bannu Basin lying towards west of Musa Khel, such as black banded jars at Lewan (Khan et al 2000: Fig. 7, no. 6, p. 91; Fig. 10, no. 8, p. 94); brown and red design on the creamy background to black on red style with gritty texture at Islam Chowki (Khan et al 1991: 15, Fig. 8, nos. 6, 13, p. 77), black and red on the creamy background to black on red at Tarakai Ghundai (Ibid: Fig. 25, nos. 6-9, p. 94).

The early levels at the type site, Harappa have also yielded Flanged vessels i.e., Wheeler's Type XIII (Wheeler 1947:95, Fig 16). They are also reported from the transitional levels at Harappa, HP-II, the Kot Diji phase (Dales & Kenoyer 1993:74, Fig 40.3A, no. 2).²⁰ Comparable in black on red painted decoration are also reported at Jalilpur-II, the Kot Diji phase occupation in the north-east of Musa Khel (Mughal 1974:110). There are numerous examples reported from Sindh Sagar Doab, Thal Desert-District Laiya. One such example is plain ware along with perforated flange i.e., Sarki 2 (Ghauri 2018:Pl.22, central one in first row, p.210).

Cholistan Desert specimens are comparatively simple with lesser decorations (Mughal 1997:71). Black on red is the main style at Bokhrianwala (Ibid: 97, Pl. 46. nos. 4, 13, p. 70). The other comparable styles are complete black slipped at Chapliwala (west) (Ibid: 97. Pl.46, no 3); red slipped at Mahewala Ther (Ibid: Pl. 46 nos. 5, 19-20, p.70), Chipwala (Ibid: Pl. 46 no. 7, p.70); Gamanwala (Ibid: 74, Fig.11, no 31) and Bokhariwala (Ibid: 74, Fig.11, no.32).²¹

Type-site Kot Diji in lower Indus Valley has yielded in abundance such kind of specimens during Kot Dijian phase (Khan 1965: Fig. 13, nos. 6, Fig. 14, nos. 6, Fig. 15, nos. 6-8, Fig 19 nos. 6-7, Fig. 21, no.18, Fig. 24, no.1, pp 51-76). The flanged vessels have mostly less pronounced

²⁰ In addition, few complete specimens associated to the Harappan phase also reported from Harappa (Allchin & Allchin 1982:198, Fig 8.5 (bottom left corner); Fig 8.6 (bottom right corner); Vats 1940: P; LXVII, no.18). Not as much similar but the tradition of flanged rim seems to be comparable with burial pottery i.e., ellipsoidal vessels (Ibid: Pl LX nos. 1-4, 6-8).

²¹ The black on red style also continued to Late Harappan phase and found associated with Burial pots found from Cholistan desert (Mughal 1997: 82, Pl. 69, Pl. 70). One example is black on red style is also reported from the Harappan phase site Hanaswala Cholistan (Ibid: 100, Pl. 52, no.2:72).

flanges and their position is more closed to the rim. The overall form of the vessel is the same. The decoration mainly consists of black on red wavy and straight bands, few intersecting circles, and triangle design also reported.²² The comparables also reported from Early Harappan phase sites in India i.e., Kalibangan I (Lal 1979:74, Fig. 4, no.2), Moti Pipli (Majumdar 1934: Fig 8.5, no.1; Possehl 1999:613) Lothal; Rojdi and Rangpur (Durrani 1988:63).

The Flanged vessel morphology is also found in other contemporary Early Harappan phases i.e., Amri (Casal 1964:Pl. XLII, no.7) and Baluchistan Tradition sites as well i.e., Mian Ghundai (Fairservis 1959: Fig. 77I, p.376); Periano Ghundai (Mughal 1972: Pl XXXIII, no.8, p.140); Damb e Sadaat II-III²³ phase (Mughl 1972:147, PL. XXXVII, no.2).

4.2.2. Type II: Painted, Globular and Short Necked Pots

The Early Harappan pottery type II at Musa Khel has a versatile morphology and decorative styles. Likewise type-I, they are reported from several regions of Greater Indus Valley, especially Pothohar Plateau, Gomal Valley, Bannu Basin, Central and Lower Indus Valley, Thal and Cholistan deserts. In Pothohar, the Musa Khel type black on red type is found at Sarai Khola, which emerged during SK-IA and II i.e., type IX (Mughal 1972) and Mohra i.e., type I (Butt 2020: Fig.1, p.4). Very few specimens of this variety are recovered from Sarai Khola IA, the transitional phase (Mughal 1972: Fig. 17, nos.91-100, p.48). Musa Khel type plain wares are comparable to Sarai Khola subtype IX-C. They also bear potter's marks and persist throughout the SK-II (Ibid: Fig. 19, nos.111, 115-120, p. 49). Vase type small pots with sharp rims and black on the red style decoration are also comparable to Sarai Khola type IX-D, which is found in transitional phase i.e., SK-IA and continue up to middle levels of SK-II in lesser numbers (Ibid: Fig. 21, nos.127-132, p.49). The vessels with decorative motifs are culturally related to Sub-type IX-A started to appear in SK-II in fewer numbers and continue to middle levels (Ibid: Fig. 22, nos.134 -140, p.50). The Musa Khel specimens with black on dark brown slip and black on dark gray slip on the complete vessel down to the base and thick sectioned are reported from SK-IA i.e., sub-type IX-C and

²² A black on red flanged vessel painted with triangles is also found in Harappan occupation in a layer just the next to the transitional layer of Kot Diji phase and Harappan phase occupation (Khan 1965: Fig. 13, no.5, p. 52). They are also found from the Harappan phase at Lakhanjo Dero i.e., black on the red design of peacock and pipal leaf (Shaikh et al 2005:36, Fig 15.5 (peacock); Fig 16.1 (Pipal)). One example in red slip is also reported from Mohenjo Dero (Alcock 1986: 512; Fig 5:21 p.513).

²³ Although the vessel is not a jar, its shape is similar to cooking pot but the tradition of the flange for receiving lid is quite clear.

continue throughout SK-II (Ibid: Fig. 20, nos.121-126, p.49). Also, chocolate on buff type found from early levels of SK-II (Ibid: Fig. 22, no. 133, p.88) and black on buff found from early to middle levels at SK-II (Ibid: Fig. 22, no. 135, p.88).

Towards west, across the River Indus in the Gomal Valley, the current type is reported from several important sites i.e., Gumla, Rehman Dheri, and Gandi Umer Khan, etc. At Gumla, the comparable started to appear during Gumla-II, the Tochi-Gomal phase, and continues to Gumla III and IV, the Early and Late Kot Diji phase. The Gumla-II pottery type XII specimens have slightly pronounced and collared rims; they are fine-textured and having chocolate bands along with a red wash and red slip of different shades (Dani 1971: Fig. 15, nos.62, 64-75, pp 137-138). At Musa Khel chocolate color with red decoration is not found yet. The comparable specimens from Gumla-III (Ibid: Fig.22 nos.171-174, 176-179 and Fig. 22, nos.180-188, pp.147-148) and Gumla-IV (Ibid: Fig. 34, nos.326-327,329-333, p.155) are simple, bearing black on red decoration mainly, with thickened rims and sections while Gumla-IV specimens are comparatively larger in size. Miniature short-necked pot from upper levels of Musa Khel's main mound is also comparable to Gumla-IV (Ibid: Pl. 87, nos.5). "Horned Deity" motif was also observed during GML-II on carinated pot rather than short-necked pots (Ibid: Fig.16, no.78, p.139) whereas it is visible with the complete form on a short-necked pot from Hathala (Ibid: Pl.65, no.17). Standing human or branched tree designs is also found on Gumla-IV short-necked pot (Ibid: Pl.84, no.8).

Comparables to the morphology of Musa Khel's current type are also reported from Rehman Dheri-I, the Tochi Gomal phase like Gumla-II i.e., type A1a2. It presents only one specimen in black band on rim with plain exterior and bright red band on the interior of rim and slight pronounced neck (Durrani 1988: Fig. XII, no.3, p.39). At Musa Khel, the comparable to such decorative form is not found yet. Black on dark brown to red, deep red and cream color decorative styles of Musa Khel are found comparable to RHD-II, the Early Kot Diji phase (Ibid: Fig. XII, nos.2,6-8, pp 39-40) whereas the black on red-painted styles with heavy sections are comparable with RHD-III, the Late Kot Diji phase (Ibid: Fig. 1, nos.1-9, 38). The horned deity motif is found throughout all the phases at Rehman Dheri, mainly on carinated pots in different styles (Ibid: Fig.LVI, nos.1-2, 4, 6-8, 11-12, 13, 15, pp.86-87). It is also found on plate or dish during RHD-III in association with pipal leaf (Ibid: Fig. XXXVII, no.2, p.101). Standing human /branched tree type design may also be observed during RHD-III (Ibid: Fig. 11, no.2, p.43).

At Gandi Umar Khan, the Musa Khel neckless, small pots with pinched lips are comparable to a specimen found at transitional phase, the GUK-II (Jan 2012:101, Fig.3, no.44, p.97) while Musa Khel black on red type with slight pronounced and everted neck are also found similar to a specimen of GUK-II (Ibid:101, Fig.3, no.34, p.97).

The Musa Khel black on red, completely red slipped, completely black slipped or painted and plain specimens and especially the black on red painted miniature pot found comparable to Early Harappan phase sites in Bannu Basin i.e., Islam Chowki (Khan et al 1991: Fig. 9, nos.4-5, 7, 9,10,13-15:78) and besides, the morphologically comparable specimens with black on dark purple banded types are found similar to Tarakai Ghundai pottery types (Ibid: Fig. 24, nos.8-11, p.93).

Towards the east, Musa Khel black on red banded style pottery of the current type is also found comparable with the pottery type reported from Early Harappan and Transitional phase at type site Harappa (Dales & Kenoyer 1990: Fig. 66, nos.2-3, p. 163). Musa Khel small, globular and rimless black on red type vessels found to pottery form at Jalilpur-II (Mughal 1972:121, Fig.7, no.4, p.120).

The current type also found identical to Early Harappan pottery recovered from the type site Kot Diji, Khairpur Sindh with a black band, slight ledged, and everted rim (Khan 1965: Fig.14. no 4, p.54). The Kot Diji site has comparable morphology with Musa Khel while the decoration is slightly different in styles i.e. dark brown bands on pale red slip, a red band with black outlines and wavy lines, and a red band on shoulders (Ibid: Fig. 13, nos.1-3,11, 7, 17, pp 52; Fig. 14, nos.1-4, 14, p. 54; Fig. 15, nos.3,5,10,18, p. 56;Fig. 17, nos.3,5,7-8,10-11,17, p. 60; Fig. 18, nos.8-10,18 p.62; Fig. 12, no. 15, p.50; Fig. 13, no. 7, p.52). Such types of vessels started to appear at the earliest levels at Kot Diji and persist throughout the Early Harappan phase. Their forms are globularly accompanied by more and less constricted, short-necked body forms (Ibid: 33).

The black on red banded style is also found at several sites in Thal Desert, District Laiyya e.g., Doray Wala-2 (Ghauri 2018:Pl.16, p.207); Sarki-2, etc. (Ibid:Pl.23, p.210) as well as at Vainiwal, District Khanewal (Gahuri 2019: Pl. Upper, p.23).

Comparables in full black slipped or painted and black on red style are found at early several Harappan-Kot Diji phase sites in the Cholistan. A few of the examples are Jatoiwala-A (Mughal 1997: Fig. X, no.21, p. 69) and Gujranwala (Ibid: Fig X, nos.21, 24 p. 69).

At Mohenjo Dero, a comparable specimen also found in early levels i.e., short necked with everted rim and round lip with the presence of sharp ledge and white slipped surface (Alcock 1986:518, Fig. S8:35b, p. 519; Xu 1994:63). The comparables are also found in other contemporary Early Harappan Amri phase (Casal 1964: Pl. XLII, nos. 4, 13). Moreover, black on red style and short-necked style pottery is found at several sites in northern Baluchistan and Kalibangan-I (Mughal 1972:121).

4.2.2.1. Sub-type IIA: Painted, Globular and Short Necked Pots with Sandy Slip/Coating

The current sub-type is found in several adjacent and other regions like the parent type such as Pothohar region, Gomal Valley, Bannu Basin, Central Indus Valley, and along the dry bed of Ghagger Hakra River in the Cholistan. The black on red, brown, white/creamy or very pale brown sandy slip style vessels of current type are found comparable to Sarai Khola-II in Pothohar region i.e., subtype IXA, where they also have accompanied with potter's mark on their main body. The sandy slip/applique is composed of fine mud. These types of vessels started to appear in early levels at SK-II and found throughout the layers of SK-II (Mughal 1972: Fig. 18, nos.101, 103-108, pp 48-49).

These sand-slipped vessels in black on red, brown to dark brown style also reported from the Rehman Dheri-IIIB, the Late Kot Diji levels in Gomal Valley. The Rehman Dheri III specimens have red and black bands on shoulders and black bands on the rim and mostly are red-buff ware, accompanied with versatile symbols as well. The application of sandy slip on the main body is followed by light creamy slip as well (Durrani 1988: Fig. II; Fig. III, nos.1, 3, 8-11, pp 42-43; Durrani 1991: Fig. 14, nos.2, 3, 4, p.65). The current type in black on red style with fish symbol is reported from Gumla-IV, the Late Kot Diji phase in Gomal Valley (Dani 1971:159, PL.84, no.1). Such technique of applying sandy mud on the main body is also reported from Gandi Umar Khan (Jan et al 2015: Fig. g, pp154-155) and Jhandi Baber-I, ranges from, pinkish, buff, and red color (Rehman 1997; Jan et al 2015:155).

The black on red style is also reported from Lewan in Bannu Basin (Khan et al 2000: Fig. 7, no.7, p.91; Fig. 9, no.5, p.93; Fig. 10, nos.2-3, p.94; Fig. 18, nos.2, 7, p.102). At Islam Chowki, mostly black on red, black and red on cream decorations with sandy slip in fine and coarse applique were observed (Ibid: Fig. 9, nos.1-2,6,8,11-12, p.78); while at Tarakai Ghundai, black on dark purple decoration with sandy slip are reported (Ibid: Fig. 24, nos.1,2,5,6,11, p.93). The black on red Musa Khel types are also comparable with Jalilpur-II types, the Kot Diji phase in central Punjab (Mughal 1972: PL. XXVI B, no.8).

Comparable black and red design examples can be seen at different Early Harappan phase occupations of different sites from the Cholistan i.e., Chipwala (Mughal 1997: Fig 10, nos.23, 25, p.69), Wariyal-A (Mughal 1997: Fig. 10, no.26, p.69), Gujranwala (Mughal 1997: Pl 45 no.1, p.69), Chak 337 HR (Ibid: Pl 45 no.5, p.69), Jathewali (Ibid: Pl 45, nos.13, p.69). Regional variation at Musa Khel-Mianwali is that sand slip applied randomly while in Cholistan sites, sand applied horizontally, as a result of which striations are produced.

One specimen with short necked and out-curved rim and roughened belly is reported from Kot Diji phase of type site Kot Diji (Khan 1965: Fig. 25, no.13, p.78). The application of sandy slip on the main bodies of these vessels is found comparable with vessels reported from Amri-1A (Casal 1964: Fig. 45, no.55; Mughal 1972: 36-foot note) and Anjira ware but differently (Mughal 1972: 36). The parallel of wet texture on the main body is also found comparable with Periano Ghundai B-C ware (Ibid: Pl. XXXIV, no 8, p.155).

4.2.3. Type III: Painted, Globular and Grooved Pots

Like type I and II, the spatial horizon of grooved pottery is very extensive and they are reported from several regions along the Indus River Valley, Thal Desert, and Dry bed of Ghaggar-Hakra and along the Ravi River. The straight grooved comparables in black on red and black on white/buff decorative style are reported from Sarai Khola i.e., type VII, which emerged during SK-1A, the transitional phase and persists throughout SK-II, the Early-Late Kot Diji phase (Mughal 1972: Fig. 12, nos. 46-47, 50, 52, Fig. 13, nos. 53-54, 56, 58-59, pp 45-46). Besides, Sarai Khola types have floral motifs and graffiti in contrast to Musa Khel, due to limitation of the sample. The comparable wavy grooved sherds have same stratigraphic occurrence at Sarai Khola i.e., sub-type VII A (Ibid: 46-47, Fig. 14, nos. 74-77, p.62).

Grooved pottery is surprisingly found throughout Gumla-II to IV. Gumla-II, the Tochi Gomal phase pottery type VIII has sharp, parallel and wavy grooving with tiny crusts and troughs with chocolate bands, red slip and thin textures (Dani 1971: Fig. 14, nos. 52, 54, 55, 57, pp 135-136) while Gumla-III incised pottery type XI is little sophisticated and non-parallel lined with wavy and wide amplitude grooving (Ibid: Fig. 14, no. 59, pp136). Both these types are not found in Musa Khel's current pottery collection whereas the Gumla III, the Early Kot Diji phase scored/grooved pottery type with coarse texture, black on white to black on red slipped with straight grooving (Ibid: Fig. 24, nos. 211-217, pp 146), Gumla-IV, the Late Kot Diji phase straight grooved specimen along with black on red decoration (Ibid: Fig. 28, nos. 246-247, 249, p.153) and the specimens with a wide band at the lower position of the belly (Ibid: Fig. 32, nos. 303, p. 153) are comparable with current Musa Khel type.

Like Gumla, Grooved pottery is also recovered throughout all the phases at Rehman Dheri i.e., RHD-1, RHD-II, and RHD-III. Rehman Dheri-I, the Tochi Gomal phase wavy grooved red slipped vessels are not comparable to any specimen found from Musa Khel, which is sophisticated with wide amplitude (Durrani 1988: Fig. VII, nos.7-10, pp 50-52). The plain and straight grooved sherds found comparable with Rehman Dheri-II, the Early Kot Diji phase type AIIa6ii (Ibid: Fig. VIII, no.3, p.46) and the straight grooved black on red decorative type is comparable with RHD-III, the Late Kot Diji phase type AIIa8i (Ibid: Fig. VI, nos.1-2, p.50). Wavy grooved types reported from early levels of RHD-I and continues to RHD-II in low frequency and during RHD-III, it is almost finished. The straight grooved vessels appear in the later levels during RHD-I and replace wavy grooved types during RHD-II and RHD-III overwhelmingly (Ibid: 49). Similar situations can be seen at Sarai Khola (Mughal 1972: 46-52) and Gumla (Dani 1971).

At Gandi Umar Khan, the grooved pottery first appears in the GUK-II, the transitional phase, and continued to GUK-III, the Kot Diji phase. The Musa Khel comparables are frequent in early levels of GUK-III whereas they diminished in later levels (Jan 2009: Pl. XVIII, p. 49- right top to bottom three sherds). The current type is widely reported from several other Kot Diji phase sites in Gomal Valley e.g., Jhandi Baber II (Ali & Jan 2003: Fig. 1, no.5, p. 48); Takwara (Jan et al 2008:Pl. XIV, p.29) as well as Bannu Basin such as black on red straight grooved type at Lewan (Khan et al 2000: Fig. 6, no.1, p. 90; Fig. 7, no.10, Fig. 9, no.1, p. 90-93).

Towards east, along the River Ravi, Kot Diji phase site Khadianwala also yielded comparable straight grooved black on red specimens (Dar 1983:29; top right and left, bottom left). They are also reported from pre-defense levels at Harappa (Mughal 1975: Fig.3, no.2, p.42) and Jalilpur II, the Kot Diji phase (Mughal 1972: Fig. 37, no.3, pp 120).

The straight and wavy, both type of grooved vessels are also reported from several Kot Diji phase site in Thal Desert, District Laiyya e.g., Mahiwala-7 (Ghauri 2018: Fig.2.9, far right, p.62); Hasti Wala (Ibid: Fig.2.4, central one in first row, p.89); Pir Wali Chakki-1 (Ibid: Fig.2.73, p.116); Doray Wala-2, etc (Ibid:Pl.16, p.207) and also at Vainiwal, District Khanewal (Ghauri 2019: Pl. Lower, p.22).

Although comparables abundantly found at Bhoot (Possehl 1999: Pl 4.40, pp 629) and Bokharianwala, the Early Harappan-Kot Diji phase sites in the Cholistan (Mughal 1997:Pl. 45, no. 21, p. 69).²⁴

The grooving technique found continues to the Harappan phase and also found in pottery corpus at Mohenjo Dero (Durrani 1988:47). The form is very much different. It may be assumed that such a technique found continued during the Harappan phase at Mohenjo Dero. Some other examples with globular vessel type forms are also reported from Mohenjo Dero (Mackay 1938: Pl LXVI, no.19; Dales & Kenoyer 1986: Fig. VII, no.3); also, at Harappan phase sites in Cholistan i.e., Khan pur and Wariyal-F (Mughal 1997:101 & 73, Pl 54, nos.8, 9). Surprisingly, the grooved pottery is very rare or negligible at the type site Kot Diji. No clear example is reported. Although, one slight comparable specimen was observed (Khan 1965: Fig. 23, no. 16, p. 74).

In Baluchistan, the comparables were observed from Periano Ghundai (Mughal 1972: Pl. XXXIV, no. 2, p.71; Mughal 1974: Fig b, p.110). This technique is referred as Periano reserve slip while wavy grooved found comparable with Anjira III and Periano Moghul Ghundai (Durrani 1988:50). They grooved vessels are also reported from Kalibangan.

²⁴ Grooving technique is also found during the Hakra phase pottery in Cholistan. The grooving is random and irregular in style and can be observed at several specimens from different Hakra phase sites in the Cholistan (Mughal 1997: Pl. nos. 32-33, p. 64) in contrast to Musa Khel sophisticated specimens.

4.2.4. Type IV: Painted and Carinated Pots

The current Musa Khel type is mainly reported from Pothohar region, Gomal Valley and Bannu Basin. Morphological comparables may also be seen at few sites in Baluchistan. The comparable of trapezoidal type of carinated pots of the current Musa Khel type are found at Sarai Khola in Pothohar region i.e., subtype IX-A, occur throughout SK-II, the Early and Late Kot Diji phase (Mughal 1972: Fig. 24, no.165, p.51). The Sarai Khola specimen is mainly comparable in morphology whereas it is thick textured with wavy design in black on a buff slip in contrast to Musa Khel. The S walled carinated pots are also found comparable to Sarai Khola-II type XI and XIA, mainly decorated in black on red and black on brown style (Ibid: Fig. 24, nos.154, 161,163, 164, p.51). The comparable to flaring and parallel sided chocolate on white or cream style also reported from Mohra i.e., Type IV (Butt 2020: Fig.4, p.8).

Carinated vessels are found throughout the Gumla II to Gumla-IV in Gomal Valley. S profile type vessels started to appear at Gumla-II, the Tochi Gomal phase. Their morphology is similar to upcoming phase pottery types but painted decoration is confined to chocolate, yellow, white, and red colors. Moreover, type XV of Gumla-II is elaborately painted with floral, faunal, and geometrical designs. Their few forms are slightly imprecise, giving an impression as if they are handmade (Dani 1971: Fig.16, nos.76-90; Fig 17, nos.90-91,100-109, 111-114, p.138-140). Parallel sided carinated pot with wavy bands in deep chocolate on the white slip of Musa Khel is found comparable exactly with Gumla-II type XV (Ibid: Fig. no.18, nos.144, 145, p.144). S profile constricting type specimens with black on red are found comparable with Gumla-III type XIV (Ibid: Fig. 23, nos.199, 203, p. 149) and type XIV (Ibid: Fig. 23, no. 200, p.149). The parallel-sided form found comparable to Gumla III type XV (Ibid: Fig. 23, no.202, 204, p. 149). Moreover, the comparable black on red S profile type is also found at Gumla-IV pottery type XV (Ibid: Fig. 36, nos.344, 350, p.157).

Like Gumla, Rehman Dheri yielded a variety of carinated pots from Tochi Gomal to Late Kot Diji phase, comparable to the Musa Khel specimens. Tochi Gomal specimens are straight, parallel-sided polychrome, mostly decorated with red, black, white, buff, and chocolate colors (Durrani 1988:188). The white and black decoration is essentially found together in Tochi Gomal phase pottery at Rehman Dheri while buff, chocolate, and red colors are fluctuating i.e. type B IIIb (Ibid: Fig. XL, no.13, p.98; Fig. XLVI, no.6, p.194; Fig. XLVII, nos.1-2, p.195; Fig. LI, nos.1,

p.199; Fig. LIII, no.1, p.201). Rehman Dheri II, the Early Kot Diji specimens are mostly decorated in white, black, red, chocolate designs besides pipal leaves (Ibid: Fig. XXIV nos.1, 5, p.172). The Rehman Dheri III, the Late Kot Diji phase carinated pots mainly have black on red decorations (Ibid: Fig. XVI, nos.7, 12, 17, p.164, Fig. XL, nos.10, 12, p.188; Fig XLVI, no.1, p.194), besides occasional white slips (Ibid: Fig. XLVI no.2, p.194; Fig. L, no.11, p.198).

Carinated pots with slight irregular walls are also reported from early Harappan phases (Tochi-Gomal and Kot Diji) at several other sites in Gomal Valley i.e., Jhandi Baber A-Tochi Gomal Phase (Khan et al 2000: Fig. 4, nos.1-8, p.18), Jhandi Baber A-Kot Diji phase (Ibid: Fig. 5, nos.1-4,14-16, p.19); Maru I-Kot Diji phase site (Ibid: Fig. 6, nos.3,4,8-11, p.20); Gandi Umar Khan-III, Kot Diji phase (Ibid: Fig. 7, nos.4,7, pp21).²⁵

Carinated pots are also found in abundance from Early Harappan sites in Bannu Basin. Red infill, accompanied by black decoration reported from the Tochi Gomal phase of Lak Largai, is found comparable one straight constricting and parallel sided pot of Musa Khel (Khan et al 1991: Fig. 17, no.2; Fig. 18, no.286, p. 86). The comparable red infill accompanying black and cream decoration is also reported from the same site (Ibid: Fig. 17, no.3, p.86; Fig. 18, no.5, p.87). Other comparables are reported from Early to Late Kot Diji phase site Lewan (Khan et al 2000: Fig. 17, p.101). These specimens are polychrome, painted with black, red, brown, and white paints/slips, with floral motifs, loops, wavy lines, etc (Ibid:61). Few black on red examples are also recovered from Lewan (Ibid: Fig. 18, nos.3, 5, 10, p.102).

Towards the east, the comparable parallel-sided black on red types is reported from the Kot Diji phase site Khadianwala (Dar 1983: Fig. 2, no.2, p.25; Fig. 3, no.7, p.26).²⁶

²⁵ The vessel morphology is also comparable to Late Neolithic-Sheri Khan Tarakai phase at Jhandi Baber A (Ibid: Fig. 6, nos.4-5, 7, p.40; Fig. 8, nos.1-4, p.42).

²⁶ Morphologically similar carinated pots also reported from other contemporary Early Harappan phases of Baluchistan Tradition i.e., straight sided S profile polychrome carinated pots from Kechi Beg phase (Faireservis 1956:261) and parallel sided carinated pots from Nal phase. Carinated pots in varied forms and decorations are also reported from Kech Makran (Possehl 1999).

Hatched eye design is found on Musa Khel carinated pot is reported from several Early Harappan and Harappan phase sites of Greater Indus Valley. Main comparables are Sarai Khola-II pottery type XIA (Mughal 1972: Fig.24, no 165, p.90); Hathala (Dani 1971:Pl. 66, no.2); Rehman Dheri (Durrani 1988: Fig.XLVII, no.3) and Jalilpur-II in central Indus Valley (Mughal 1972: Pl. XXVI-B, no.10). Maru I, the Tochi Gomal–Kot Diji phase site specimens with brown hatched design on the buff slip is quite similar to Musa Khel specimen (Ali & Jan 2003: Fig. 6, no.14, 49).

The stepped band is not found but variants with buffish red slip and black decoration are found from RHD-I, the Tochi Gomal phase in Gomal Valley (Durrani 1988: Fig. LIII, p.82). The variant of horizontal V like symbol may also be seen at Rehman Dheri-I? (Durrani 1988: Fig. XLIX, no.3, p.197) as well as the wavy band on carinated pots with chocolate on the white background, are observable at GML-II (Dani 1971: Fig.18, nos.144, 146, p.144) and RHD-I (Durrani 1988: Fig.L. V, no.1, p.85), the Tochi Gomal phase.

The Maltese cross is found painted on a Kot Diji phase painted globular vessel at Lewan in Bannu Basin in contrast to Musa Khel (Khan et al 2000: Fig. 9, no.6, p.93). Likewise, from early levels at Rehman Dheri, "Maltese cross" is found on parallel sided deep carinated bowl bearing black on red slipped decorated with a black outline and white infilled (Durrani 1991: Fig. 17, no.7, p.88).

Towards east, it is also reported from Harappa (Vats 1940: Plate CI, no.713) as well as far east, Harappan site of Farmana in District Haryana, non-Harappan black slipped globular vessel has pre-firing "Maltese cross" (Shinde et al 2011: Fig. 6.83. nos.516, p.296).

4.2.5. Type V: Painted and Carinated Bowls with Flaring Rims

The current Musa Khel type is limited in its spatial occurrence, unlike the previous types. It has its origin in preceding Early Harappan phases such as Sheri Khan Tarakai and Tochi Gomal phase. They are mainly reported from the Early to Late Kot Diji phase from the adjacent areas which suggest some kind of cultural interaction of Musa Khel with surrounded Late Kot Dijians. Moreover, the black on red decoration suggest its association with central and Lower Indus Valley.

4.2.6. Type VI: Painted, Cord Impressed and Convex Bowls

The current Musa Khel type is also reported from Sarai Khola and found comparable with pottery type XII, emerged during the middle levels of SK-II, the Early to Late Kot Diji phase. The decoration is confined to black on the red pattern (Mughal 1972: Fig.25, no.167, p.73). Convex forms without cord impressions are also found in Gumla-III i.e., type II in Gomal Valley (Dani 1971: Fig. 23, nos.196, p.145). One example is also found from Thal Desert, District Laiyya i.e., Musa Wala-3, Kot Diji phase site (Ghauri 2018:Pl.42, p.218 (far left)).²⁷

4.2.6.1. Sub-Type VIA: Painted, Cord Impressed and Concave Bowl

Comparable specimens with cord impressions on concave sided bowls are reported from Sarai Khola pottery type XII, emerged during SK-II, the Early to Late Kot Diji phase in the Pothohar zone (Mughal 1972: Fig. 25, no.170, p.73). The Sarai Khola type has multiple horizontal cord impressed bands in contrast to Musa Khel's single band and deep vessel body.

Towards the west, Gumla-IV, the Late Kot Dijian pottery type III in Gomal Valley also has yielded a bowl with double horizontal cord impressions on the exterior with concave walls (Dani 1971: Fig. 27, nos.232, p.151). The comparable specimen may also be seen at Rehman Dheri-III B pottery types. The morphology of the vessel is concave and cord marks are slightly different i.e., irregular, horizontal, and wide-spaced (Durrani 1988: Fig. XXXIII, nos.3, 4, p.181). Lewan, the Late Kot Diji phase also has yielded comparable specimens of the current Musa Khel type in Bannu Basin. This specimen has cord impressed horizontal bands but the vessel form is concave and the base is missing, indicating the presence of a round base (Khan et al 2000: Fig. 11, no.5, 95).

²⁷ The technique of cord impression can be seen during the Harappan phase as evident from the specimens at Mohenjo Dero (Dales & Kenoyer 1986: Fig. 50, p.337; Fig. 51, p.339). The style of cord bands is different, slight wide, varying in number and position besides form of vessel. Towards down south, multiple cord bands can be seen on Harappan dish on stand from Lakhan Jo Dero (Nilofer et al 2005: Fig. 8, no.1, p.17) and also found on storage jars from period III at Mehrgarh-Nausharo (Jarrieger 1986: Fig. 22, p.127). Beyond east in Haryana, Harappan phase at Farmana site has yielded pottery with parallel cord bands with different vessel forms (Shinde et al 2011: Fig.6.178, no.100, p.362).

4.2.7. Type VII: Very Large Painted and Concave Bowls

Musa Khel black on red examples is reported from Sarai Khola, associated to SK-I and SK-II i.e., type XII (Mughal 1972: Fig. 25, nos.168-169, 73). Red washes/slipped specimens are found at Gumla-III i.e., type II (Dani 1971: Fig. 23, no.197, p.115); while deep concave black on red examples also found at Gumla-IV i.e., type III (Ibid: Fig. 27, no.234, 235, p.152). Few comparables are also reported from RHD-III B i.e., black on red, multiple bands in the interior (Durrani 1988: Fig. XXXIII, no.1, p.181; Fig. XLI, nos.2, 4, p. 189). Black on red example with slightly fewer concave walls and with relatively low height also found at Late Kot Diji phase site of Lewan in Tochi Valley (Khan et al 2000: Fig. 14, nos.2, p.98).

4.2.7.1. Sub-type VIIA: Painted and Straight Everted Bowls

The spatial horizon is limited unlike previous types. Few comparables reported from neighboring regions such as Gumla-III pottery type II in Gomal Valley (Dani 1971: Fig. 20, no.164, p.145). Rehman Dheri also has yielded such type of vessel during RHD-III B, the Late Kot Diji (Durrani 1988: Fig. XXXIII, no.2, p.181; Fig. XXXIV, no.5; Fig. XLI, nos.5-7, p.189).

4.2.8. Type VIII: Painted and Convex Bowls with Sharp Rims

Almost all parallels of the current Musa Khel type are comparable with Sarai Khola-II pottery type X i.e., black on red, black on brown/chocolate, black on cream/white, etc. This type first appears during SK-IA and persists throughout SK-II (Mughal 1972: Fig. 23, nos.141-152, p.72). The Musa Khel type has regional variation in its size and thickness of sections of these vessels. The current type is frequent in early levels during SK-II while it becomes fewer in the latest levels. Current type is also found at Mohra in black on red and black on white/cream pattern i.e., type VI (Butt 2020: Fig.6).

In the Gomal Valley, Gumla has started yielding comparable specimens during GML-II (Tochi-Gomal) which persists up to GML-IV (Late Kot Diji phase). Tochi-Gomal specimens are fine-textured and composed of chocolate, red and white color decorations i.e., type VII (Dani 1971: Fig. 13 nos.26-29, 31-32, p.135) while Gumla-III specimens are composed of black on red decorations and few of the specimens have coarse texture (Ibid: Fig 22, nos.189-194, pp 145-146).

Gumla-IV specimens also have the black on red decorations (Ibid: Fig 30. nos.68-271, 273, 275-279, p.153).

Parallels of the current type also reported from all the phases at Rehman Dheri. The RHD-I and II have a very low number of such specimens whereas RHD-III has yielded a maximum number of such specimens in mainly black on red decoration style (Durrani 1988: Fig. XXXIX, nos.7, 8, 9, 16, 18-22, p.187) besides RHD-I (Ibid: Fig XXXIX, nos.22, p.187) and RHD-II (Ibid: Fig XXXIX, no.23, p.187).

Black on red examples of Musa Khel also found at the Tochi Gomal phase at Islam Chowki in Bannu Basin (Khan et al 1991: Fig. 11, nos.6, 12, p.80). Late Kot Diji phase Lewan occupation revealed shallow and deep black on red specimens of this type as well (Khan et al 2000: Fig. 11 nos.2,3,4, p.95; Fig. 18, no.9, p.102). The morphology of such types of vessels may also be traced back to Sheri Khan Tarakai phase at the type site in Bannu Basin and other contemporaneous sites as well (Khan et al 1991: Fig. 36, nos.1,3,4,5, p.105; Fig. 38, p.107).

Black on red specimens also have been recovered from Kot Diji phase site Khadianwala near the bank of river Ravi in the east (Dar 1983: Fig. 5, nos.13, p.28) and several Kot Diji phase sites in Cholistan (Mughal 1997: Pl.48, nos.8-9, p.71).

4.2.9. Type IX: Painted Dish with Convex Base

The spatial horizon of the current type is confined to Pothohar across the Salt Range and Gomal Valley and Bannu Valley on Trans Indus. The dark chocolate on white type comparable specimens also have been recovered from Early Harappan Mohra site, District Rawalpindi, Pothohar i.e. miscellaneous type XIII (Butt 2020: Fig.10.4, p.9). The other comparables include GML-II, Early Harappan Tochi Gomal phase. The form and decoration pattern are the same; the only difference is that Gumla specimens have reddish wash while Musa Khel has cream and white slip (Dani 1971: Fig. 12, nos.14, 14a, p.134). Some specimens found in RHD-I, Tochi Gomal phase at Rehman Dheri having black bands on the cream slip (Durrani 1988: Fig. XXXV, nos.1, 1a, p.105).

4.2.10. Type X: Painted Dish on High and Hollow Stand

The current Musa Khel types are found comparable with already known types of Greater Indus Valley, especially Gomal Valley, Bannu Basin, and Pothohar Plateau. The examples from

Pothohar Plateau include Sarai Khola-II pottery type XIV i.e., a flat bottomed, hooked rim with black on red decorated dish (Mughal 1997: Fig. 27, no.183, p.75); extended rim and carinated dishes with slight convex base (Mughal 1972: Fig. 27, no.184-185, 187, p.75); black on the red-painted high and hollow pedestal (Ibid: Fig. 27, nos.181, p.75).

The comparables are also found from several sites in Gomal Valley. At Rehman Dheri, they are reported from RHD-II and RHD-III phases. The RHD-II examples include a flat-bottomed dish with a hooked rim and black on red decoration (Durrani 1988: Fig. XXV, no.10, p.173); black on a red, carinated and extended rim with a flat dish (Ibid: Fig. XXV, nos.14, p.173); black on a red, carinated and convex based dish (Ibid: Fig. XXV, nos. 8-9, 12-13, p.173). Rehman Dheri-III specimens include a flat-bottomed dish with a hooked rim and black on red decoration (Ibid: Fig. XXV, no.7, p.173); sharp carinated and extended lip-type dishes in black on red decorations along with tall cylinders. The Rehman Dheri specimens have a white slip and red bands also on few vessels (Ibid: Fig. XXIX, p.177).

Gumla site has started yielding offering stands during the Early Harappan Tochi-Gomal phase as well i.e., flat bottomed, out curved rim, fine texture, red slipped with chocolate lining, which are not reported from Musa Khel yet (Dani 1971: Fig. 13, no.24, p.105). Although Gumla II, the Early Kot Diji phase black on a red flat dish and high pedestals with gritty texture (Ibid: Fig. 20, nos.161-163,168, p.112) and Gumla-IV black on red type carinated and convex dishes (Ibid: Fig 30, nos.259-262, p.122) and tall black on red decorated cylindrical pedestals (Ibid: Fig 25, nos. 219, 222, p.117) are comparable with current Musa Khel type.

Comparable types are also reported from several sites of Bannu Basin i.e., Taraki Ghundai, Islam Chowki, and Lewan. Taraki Ghundai examples include extended round lip dish type (Khan et al 1991: Fig.25, no.3, p.94) and black on the red-painted carinated dish (Ibid: Fig. 25, nos.1, 4, p.94). Lewan specimens include a wide and tall cylinder with black on a red pedestal (Khan et al 2000: Fig.14, no.5, p.98); deep, carinated, and convex base type dish with an extended rim. The Lewan specimens are slightly gritty and coarse in texture (Ibid: Fig. 13, nos.13-14, p.97).

Black on red carinated dishes are also reported from several Kot Diji phase sites Cholistan (Mughal 1997: Pl.48, nos.11-12, 17-18, p.71); and tall cylindrical pedestals (Ibid: Pl.48, no.13,

p.71). They are also reported from Jalilpur in central Indus Valley (Mughal 1972) and at Kot Diji in lower Indus Valley during the Kot Diji phase (Khan 1965: Fig. 13, no.13, p.51).

4.2.10.1. Sub-type XA: Painted Bowl on Low and Hollow Stand

The current type is culturally related to SK-II pottery type XIV (Mughal 1972: Fig. 27, no.179, p.75) in Pothohar zone; Rehman Dheri-III pottery type in Gomal Valley (Durrani 1988: Fig. XLII p.190) and Islam Chowki (Khan et al 1991: Fig 12, no.9, p.81); Taraki Ghundai (Ibid: Fig. 24, no.12, p.93) and Lewan (Khan et al 2000: Fig. 15, nos.3, p.99) in Bannu Basin.

4.2.11. Miscellaneous Types

Lids

Type I: Knobbed Lids

The comparables are found at several contemporaneous sites like the previous Musa Khel pottery types. At Sarai Khola, straight and everted sided specimens i.e. sub-type XIII-A is used to cover the associated Flanged pots. The decoration style is black on red likewise Musa Khel and found during Early to Late Kot Diji phase SK-II. The SK type XIII is plain and started to appear during SK-IA (Mughal 1972: Fig. 26, nos.171-178, p.52).

A good number of such specimens with everted and straight sided morphology, both recovered from the Tochi-Gomal phase with chocolate bands and red slip and classified as plates i.e., type-III (Dani 1971: Fig. 12, nos.12-13, 15, 17, p.133). Morphology is similar but decoration is not comparable with Musa Khel types. Although straight-sided, black on red decorated specimens of Musa Khel are also found comparable with Gumla-III type pottery (Ibid: Fig 20, no.166, p.145), here it is depicted as a flat plate. Gumla IV, the Late Kot Diji phase has also yielded black on red decorated specimens with everted sides (Ibid: Fig. 30, nos.262-267, p. 152). The miniature lid resembles Gumla-IV ritual pots (Ibid:81; Pl 38, nos.13).

In the Gomal Valley, comparable specimens are reported during Rehman Dheri-III phase i.e., black on red decoration, very few of them appear to be handmade. They are categorized as lids by Durrani unlike Dani (Durrani 1998: Fig. XXXII nos.1-25, pp 114-117). Concave type knob (Ibid: Fig. XLIII, nos. 1-2, 19, p.191) and miniature lid also resemble Rehman Dheri-III (Durrani

& Edrosy 1995:184, Fig 1). Likewise, they are also reported from the Early Harappan Kot Diji phase at Gandi Umer Khan, Gomal Valley (Khan et al 2000: Fig. 7, nos.10, 21). In the Bannu Basin, Lewan, the Late Kot Diji phase site also has yielded black on red decorated, straight, and everted sided similar specimens (Khan et al 2000: Fig. 14, nos.10-12 p,75).

Type II: Painted and Conical Lid

The current type is more like a lid and most probably accompanied by a knob as evident from the Rehman Dheri III, Late Kot Diji phase specimens (Durrani 1988: Fig. XLIII nos.3, 5, 9- 12, 14, p.191). Such type of lids is also reported from Tochi Gomal levels at Rehman Dheri as well. Gumla-IV, the Late Kot Diji phase has also yielded comparable specimens i.e., type XXIII (Dani 1971: Fig. 32, nos.315, 317, p.162). In the Bannu Basin, comparable specimens also reported from the Early Harappan phase at Tarakai Ghundai (Khan et al 1991: Fig. 24, nos.4,7, p.33). A similar specimen is also found at Kot Diji phase at Sarai Khola i.e., type XV, classified as shallow plate (Mughal 1972: Fig.28, no.189, p.76).

The occurrence of such type is also attested from the Kot Diji phase at the type site i.e., Kot Diji, Khairpur, Sindh (Khan 1965: Fig. 23, no.21, p.74). This type is found to continue to the Harappan phase in black on red decoration with slightly different form, texture, and more everted lips e.g., Mohenjo Dero (Dales & Kenoyer 1986: Fig. 95, nos.2-3, p.427).

4.2.12. Miscellaneous Body Sherds

The potsherds with applied zigzag clay bands²⁸ in pale brown color are exactly similar to Gumla-IV pottery type X, the large and heavy pots (Dani 1971: Fig. 35, nos. 334, 336-337, p.154). The red ware zigzag bands are also found on Rehman Dheri-III pottery type i.e., A1a10, associated to heavy pots (Durrani 1988: Fig.XI, nos.1-4, pp.55-56). On specimen also has been observed at Rehman Dheri-II (Durrani 1988: Fig.X, no.7, p.56). Pale brown zig-zag banded sherd was

²⁸ The current structural decoration is termed as "Periano's Reserve Slip", reported first time from Periano Ghundai in northern Baluchistan (Faireservice 1959: Fig. 52 c-k, Fig. 53, d-e, Pl. b-g, i-j, p.382; Mughal 1972: Pl. XXXIV, no.6; PL. XXXV A, p.141). This style is widely distributed from Periano Ghundai to Kalibangan (Mughal 1997:70).

observed on the surface during a visit at Rehman Dheri in 2015. Such red type zig-zag clay bands may also be seen at Lewan in the Bannu basin (Khan et al 2000: Fig.16, no.1, p.76). They are also having been observed at Mohenjo Dero DK area lower levels (Mackay 1934: Pl. LXVII, nos.3-4). There are also few gray ware examples available from the Kot Diji phase sites in Thal Desert as well e.g., Musa Wala-3 (Ghauri 2018:Pl.40, p.218); Pir Wali Chakki-1 (Ghauri 2018:Pl.47, central one in second row), p.219).

Comparable examples of the red ware wavy sandy band are found at early Harappan-Kot Diji phase sites in Cholistan i.e., Malhalewala ther (Mughal 1997:Pl. 47, no.4, p, 98); Akhera (Mughal 1997: Fig. 10, no.22, p.74) and Gujranwala (Mughal 1997: Fig. 10, no.26, p.69). One such example may also be observed during the Harappan phase at Taloor jib hit in Sindh (Mallah 2001: Fig.10, no.37).

Cord Impressed Body Sherd

The comparable with only incised interior can be seen at several Early-Harappan Kot Diji phase sites in Cholistan i.e., Wakarwala, Akhera Gamanwala (Mughal 1997:Pl. 50, p.72).

Wet Textured

The comparable of "sand mixed with mud and grits or pottery bits" found at different sites of the Early Harappan-Kot Diji phase in the Cholistan i.e., Gamanwala (Mughal 1997: Pl 47, no.11, p.70), Jathewali (Mughal 1997: Pl 12-15, p.98). The regional difference observed at Musa Khel is that the texture is light whereas the comparables in the Cholistan have thick textured slip along with pottery bits. This suggests the continuation of the applique technique of thick textured Hakra ware pottery to Kot Diji phase (Mughal 1997:71).

4.2.13. Painted Desgins

Fish Scales

Fish scale design is reported from several sites throughout Greater Indus Valley. It is common, both in the Early Harappan and Harappan phase. Musa Khel type (1) Fish scales reported from Sarai Khola-IA pottery type XV, flanged pot but with dots in each scale (Mughal & Halim 1972: Fig.15, no.85, p.84); likewise, Fish scales found at RHD-III pottery type Aib in Gomal Valley

(Durrani 1988: Fig.XXIII, nos.11,14,p.69) and same style may be observed during Tochi Gomal phase carinated pot at Jhandi Baber A in Gomal Valley (Khan et al 2000: Fig.4,no.5, p.8). Longitudinal fish scale type can be observed in the Late Kot Diji phase black on the red decorated specimen at Gumla-IV in Gomal Valley (Dani 1971: Pl.82, nos.2), possibly on a carinated pot.

Musa Khel type 1 is also reported from several Early Harappan sites i.e. Bandho Qubo, Sindh (Shiekh & Veesar 2001:Pl. 7, 17); Kot Diji, famous fish scale pot (Khan 1965: Pl. XIVA) and body sherds of the unknown form (Khan 1965: Fig. 25, no.23, p.80). The fish scale also found in the Harappan phase at Kot Diji (Khan 1965: Fig.11, no.23, p.48; Fig.12, nos.11, 13, p.49). Fish scale design with dots like Sarai Khola may also be observed during Harappan phase at type-site Harappa (Vats 1940: Pl. LXVIII, nos.70-71) and Mohenjo Dero (Mackay 1934: Pl. LXIX, no. 15; Pl.LXX, nos.33-34). Fish scales also reported from the Early Harappan Ravi phase at Harappa (Kenoyer 2014:29). It is also found in the Cholistan along the dry bed of River Hakra during the Harappan phase i.e., Wariyal F (Mughal 1997: Pl.61, no.2, p.78).

The Musa Khel type fish design is comparable to Early and Late Kot Diji phase. Type (a) scales are produced in thin textured ware while longitudinal scales in black on red style are produced on slightly thick ware. The later is probably linked to Late Kot Diji phase.

Pipal Leaf

Like fish scale pattern, pipal leaf design is common in the Early Harappan and Harappan phase. Comparable of Musa Khel style pipal leaf may be observed during the Late Kot Diji phase at Rehman Dheri-III pottery type BIe (carinated pot) in Gomal Valley (Durrani 1988: Fig. XXIV, no.2, p.88).

Group of Dots

It is simple and found in the early Harappan phases as well as and Harappan phase. The Musa Khel type dots are exactly similar to reported specimens from the Early Harappan Kot Diji phase at type-site Kot Diji, Khiarpur Sindh (Khan 1965:Pl. XX, nos.9-12). Its variants are also reported

²⁹Kenoyer, J.M. "Regionalization Era circa 5000 to 2600 BCEE at Harappa" Class Lecture, The Archaeology of South Asia, From Taxila Institute of Asian Civilizations, Quaid-i-Azam University, 2013.

from adjacent contemporary sites i.e., Gandi Umar Khan (Mujeeb & Jan 2014: Fig.e, p.81) in Gomal Valley; Sarai Khola II pottery type VII (Mughal & Halim 1972: Fig.14, no.69) in Pothohar Region, etc.

Spirals

Type (1) spiral with chocolate on white type decoration is observable on a carinated pot at GML-II in Gomal Valley as well (Dani 1971: Fig.18, no.148, p.144). Type (2) can be observed at Sarai Khola-II pottery type IXE, short necked vessels (Mughal 1972: Fig.22, no.137, p.88). The variants in black on red styles are reported from the Tochi-Gomal carinated pot at Rehman Dheri in Gomal Valley (Durrnai 1988: Fig. L, no.16, p.79) as well as on Late Kot Diji phase carinated pot at Lewan in Bannu Basin (Khan et al 2000: Fig.11, no.1, p.72).

The comparative studies suggest that the Musa Khel black on white type decorated style appears to be associated with the Kot Diji phase. The chocolate on buff type decoration also suggests earlier chronological existence at the Musa Khel site which needs to be verified through proper excavation.

Nonparallel wavy bands

The comparative study within the Musa Khel site suggests its association with the Early Harappan style on the bases of fine texture, light ware, and painted decoration.

Wavy cum straight parallel bands

The closest parallel is found at Rehman Dheri-III (?) short-necked pot (Durrani 1988: Fig. XIII, no.6, p.161). The variants are available from SK-II pottery type VIIA Flanged Jars (Mughal & Halim 1972: Fig.15, no.86, p.84) and pottery type IXE short-necked jar in black on buff style (Mughal & Halim 1972: Fig.22, no.136, p.88). Other variants in adjacent are found at the carinated pot in Islam Chowki in black on red decoration in Bannu Basin (Khan et al 1991: Fig.11, no.1, p.13) and Gumla-II carinated pot in red on white style decoration in Gomal Valley (Dani 1971: Fig.18, no.136, p.143).

Based on the comparison, the Musa Khel black on white type decorated style appears to be associated with the Kot Diji phase. The decoration also suggests earlier chronological existence at the Musa Khel site which needs a proper stratified sample.

Horizontal and vertical line combination

Such type of decoration very common in all the early Harappan phases and the Harappan phase throughout the extent of Indus Civilization. The closest parallel has been observed at Sarai Khola-II pottery type IX (carinated cup) (Mughal & Halim 1972: Fig.24, no.156, p.89). Like the above designs, based on painted decoration, the black on white type is associated with the Kot Diji phase while the chocolate on buff type may be of an earlier phase.

4.2.14. Bases

Mat Impressed Flat Base

Comparative studies have shown that they belong to Late Kot Diji phase concave and everted sided bowls i.e., Rehman Dheri III pottery type BII (Durrani 1988:34; Durrani 1988: Fig XXVII, no.1, p.175).

Contiguous Round and Carinated Bases

These types of bases are probably belonging to convex bowls (Durrani 1988: Fig. XXXV, no.2, p.183).

Low & Miniature Pedestal

Typologically current type is associated with carinated pots (Durrani 1988: Fig. XLIX, no.197, p.197).

Base Mold

The pottery reports of Sarai Khola, Gomal, Bannu and other associated areas lack the occurrence of any type of base molds. This is unique discovery at Musa Khel. The pre-fired "Maltese cross" is reported from different vessels and in different styles from Gomal and Tochi Valley i.e., Kot Diji phase globular vessel in dark brown on black painted and sandy slipped vessel has "Maltese Cross" in black paint on the shoulder. The Maltese cross in these areas is painted rather incised.

The orientation is oblique (Khan et al 2000: Fig. 9, no.6, p.93). Another example is from Rehman Dheri i.e., black on red-painted carinated deep bowl with "Maltese cross" in black outline with white in filled is reported from early levels (Durrani 1991: Fig. 17, no.7, p.88). Maltese cross also has been reported to be found at specimens at Gandi Umar Khan (Mujeeb & Jan 2014:78). Towards slight south-east, type site Harappa also yielded post-fired "Maltese Cross" symbol (Vats 1940: Plate CI, no. 713) and beyond, a Harappan site of Farmana in District Haryana has produced non-Harappan black slipped globular vessel, with post-firing "Maltese cross" during phase 5 (Shinde et al 2011: Fig. 6.83. nos.516, p.296). The presence of mold at Musa Khel with a symbol, known to occur in several regions, adjacent as well as far off, suggests the presence of cultural link and practices associated to common ideologies, existed over a greater extent during the Indus Civilization.

4.3. Harappan Pottery Types

4.3.1. Type I: Perforated, and Parallel Sided Jar

The current type is the main indicator of the Harappan phase and widely reported throughout the extent of Indus Civilization. Towards the west of Musa Khel, in the Gomal Valley, perforated Jars are reported from several sites i.e., Gandi Umar Khan (Ali & Jan 2009:Pl. 24, p.52; Khan et al 2000: Fig. 7, no.9, p.21); Gumla-IV (Dani 1971: Fig. 31, nos.281-289, p.123); Maru II (Khan et al 2000: Fig 9, no.5, p.23); Takwara (Jan et al 2008:Pl. XIV, p.29), and several other Harappan phase sites in Gomal Valley have produced the Musa Khel type parallel-sided perforated jars. The Bannu Basin and Pothohar Plateau are devoid of the current type.

Towards the east of Musa Khel, a comparable type has been reported from the Nari site in Sakesar Valley, District Khushab (Dar 2003: Fig.15, no.37, p.44). Moreover, the current type also found at Burhanewala Ther, Cholistan (Mughal 1997:Pl. 52 no.7 p.72), Mohenjo Dero (Marshal 1931:Pl. LXXXIV no.3-18; Dales & Kenoyer 1986: Fig. 16, p.269; Marshal 1931: Pl. LXXVIII, no.20). The type site of Kot Diji phase i.e., Kot Diji also has produced current type (Khan 1965: no.17, 21, p.50); also reported from Lakhanjo Dero (Neelofar et al 2005:Pl. 49, no.3, Fig. 26-no. 3, p.58); Kulli (Possehl 1986: 14); Farmana (Shinde et al 2011:258); Ghaggar Plains (Uesugi 2017:14); Nindowari period III (Jarrige et al n.d:257, Fig. 18, no.3, p. 257), and several other sites.

4.3.2. Type II: Very Large, Globular, White Slipped and Shouldered Jar

The current type is the evidence of the new cultural phase at Musa Khel, the Harappans like Harappan type I, and found widely across the extent of Indus Civilization. It is abundantly reported from Harappan sites towards east, and south. Few comparable specimens are reported from type site Harappa alongside the River Ravi (Mackay 1934:Pl. LVIII, nos.13-14), Mohenjo Dero in lower Indus Valley with discoid base (Mackay 1934:Pl. LXIII, no.2), and the white slipped specimen also reported from Harappan site Gamuwala Dahar, the Cholistan along the dry bed of River Ghagger Hakra (Mughal 1997: Fig. 15, no.67, p.75). The current type in black on red suit also reported from Mohenjo Dero (Dales & Kenoyer 1986: Fig. 2, no.1, p.241). The current is also missing in the Trans-Salt Range zone, and Trans Indus Bannu Basin like Harappan Type I. Although few variants are reported from different sites of the Harappan phase in Gomal Valley e.g., Gandi Umar Khan, and Gumla. Late Kot Diji/Harappan phase at Gumla has yielded black painted lines on white slipped, and slightly constricted forms of current Musa Khel type in Gomal Valley (Dani 1971: Fig.33, nos.321-335).

4.3.3. Type III: Plain and Globular Jars

The current Musa Khel type is one of the main pottery types of Harappan pottery assemblages and the spatial extent is as wide as the Indus Civilization. It is mainly reported with a pointed base at Mohenjo Dero (Mackay 1934 Pl. LVII no.42, Pl. LVIII no.4, Pl. LXII, no. 47-48; Dale & Kenoyer 1986: Fig.5, p.247). The comparable rim morphology may be seen during the Harappan phase at Kot Diji site (Khan 1965: Fig.12, no.3, p.48). The medium size Musa Khel specimen of current type with discoid base is also found Mohenjo Dero (Dales & Kenoyer 1986: Fig.7, nos.1-2, p.251), and also found in Gomal Valley during Harappan phase at few sites i.e., Gandi Umar Khan (Ali & Jan 2009: Pl.12, p.46).

4.3.4. Type IV: Very Large Parallel Sided Pot

The current type belongs to Harappan phase with wide spatial occurrence. The main comparables in black on red-painted style with extended ring base (fancy ring base) is reported from Mohenjo Dero (Dales & Kenoyer 1986: Fig.39-41, pp.315-320; Mackay 1934: Pl. LXII no.50), and type site Harappa with flattened, and extended ring without a hub in the exterior bottom (Vats 1940: Pl. LXX no.1;), and as a common types of post-cremation pot at Harappa as well (Ibid: Pl. LXXV,

no.2). Gumla-IV, the Late Kot Dijian/Harappan phase in Gomal valley also has black on red and white type comparable specimens (Dani 1971: Fig.33, nos.318-19, p.152).

4.3.5. Type V: Lugged Pots with Round Bases

The current type is reported frequently throughout the extent of Indus Civilization and known as “Cooking Pots”. Like Musa Khel Harappan pottery type I, the current type is excessively reported from Harappan phase sites in Gomal Valley i.e., Gandhi Umar Khan (Khan et al 2000: Fig. 8, no.3, p.22); Mahra Dheri (Ali & Jan 2003: Fig. 9, no.3, p.50). The other comparable of current pottery type are from type-site Harappa in Central Indus Valley (Vats 1940:Pl LXX no.34); Jhande Wala Ther-Cholistan along the dry bed of river Hakra(Mughal 1997: Fig. 15, no.62 p.80); Mohenjo Dero in lower Indus Valley (Marshall 1931: Pl. LXXVIII, no.4; Pl.LXXX, nos.38-39,41; Mackay 1934: LX, nos.31-32, 36; Dale & Kenoyer 1986: Fig. 21, nos.2-3, and Fig. 28, nos.1-7, p.279); Shikarpur, and (Brad Chase et al 2014:75); Lakhanjo Dero in Sindh (Neelofar et al 2005:Pl. 22A, p.34); Mehrgarh-Nausharo in Baluchistan (Jarrieger1986: Fig. 24, p.129); Balakot (Kenoyer 2014); Farmana (Shinde et al 2011: Fig. 6.7, nos.14-15, p.180), and Rakhi Garhi (Kenoyer 2014) several sites in Ghaggar Plains (Uesugi 2017) in India, and several other sites.

4.3.6. Type VI: Very Large, Plain, and Convex Bowls

The current type is plain, and without any special surface treatment, and is not very common as compared to the previous types. Its spatial horizon has been found limited. There has been observed a general trend of reporting painted and diagnostic pottery in survey and excavation reports. Plain forms of current type were found scattered on the surface of the Gumla site in Gomal Valley during a visit in 2017 by the present scholar but nothing is reported in the excavation account. There is a stronger probability that the current type might have been ignored by the previous scholars due to their simplicity. The presence of such type vessels at the top of the main mound of Musa Khel where mainly Harappan elements are found, and its similarities with the few Late Kot Dijian and Harappan forms suggest its association with Harappan phase.

One closest morphological comparable is available from RHD-III, the Late Kot Diji phase in Gomal Valley, similar in form with complex external projected round rim, and plain surface (Durrani 1988: Fig. XLIV, no.4). Few comparables can be observed at Mohenjo Dero, in plain form, and yellowish red surface (Dales & Kenoyer 1986: Fig. 47, nos.1-6).

4.3.7. Type VII: Very Large, Painted Bowl on Squat, Lugged and Hollow Pedestal

The current Musa Khel pottery type is found throughout the extent of Indus Civilization. The origin of the current type goes back to the Early Harappan phases. The current specimen is Harappan and reported from several sites through the Harappan extent. The closest parallel is found in Gomal Valley during the Harappan phase i.e., Maru-II (Khan et al 2000:23, Fig. 9, no.3), and Kauri Hot (Ali & Jan 2003: Fig. 6, no.10, 49). Maru-II form is the same, but the decoration is different and comprised of floral decoration. Kauri Hot specimen has a chocolate slip. The other comparables include Mohenjo Dero in lower Indus Valley (Mackay 1934: Pl. LVIII, no.1, Pl. LX nos.9-12; Dales & Kenoyer 1986: Fig.72, nos.1-4, p.380); Gamuwala Dahar, the Cholistan along the dry bed of river Hakra (Mughal 1997: Fig. 13, no.51). The specimen from the Cholistan is the same in morphology with trimming at its interior and decorated with creamy slip while categorized as funeral pot. The similar can also be seen in the Ghaggar plains in the east (Uesugi 2017:21).

4.3.7.1. Sub-type VII A: Painted Bowl on High, and Hollow Stand

The current type is very rare and back on red style is comparable from Harappan levels, Phase A at Mohenjo Dero (Dale & Kenoyer 1986: Fig. 70, no.4, p.377).

4.3.7.2. Sub-type VII-B: Plain Bowls/Dishes on Stand

Plain Offering Stands are reported from several Harappan phase sites throughout the extent of Indus Civilization. The nearest parallels are reported from Gumla-IV, the Late Kot Diji/Harappan phase in Gomal Valley i.e., type I which is plain, broad, and low pedestal (Dani 1971:118, Fig. 26, complete); plain dish on low stand with clockwise incised strokes on the interior bottom (Ibid: Fig. 25, nos.225, 227, p.118); plain, and carinated dish with extended lips (Ibid: Fig. 29, no.255, p.121); plain, and low DOS with stamped, and incised designs on the interior bottom (Ibid: Fig. 29, nos.256, 257, p.121). The other comparables include carinated DOS with elongated lips found at Harappa (Vats 1940: Pl. LXX, no.11), which is categorized as burial pottery. BOS with external projected, and the beaked rim is also found at Harappa (Ibid: Pl. LXX, no.10); Low stand DOS with impressed floral designs on the interior of the dish is also reported from Lakhan Jo Daro (Nilofer Shiekh et al 2005:Pl. 2, no.6 p.16, and Fig.8, no.6, p.17) while external projected beaked, and plain bowl on the stand is found comparable with Mohenjo Dero in lower Indus Valley (Dales & Kenoyer 1986: Fig. 81, no.4, p.399). The current type may also be seen along the dry bed of

river Hakra at Ganveriwala (Mughal 1997: Fig.14, no.60, p.75), and Gamuwala Dahar, Cholistan (Ibid: Fig. 13, no. 50. p. 74) and so on.

4.3.8. Type VIII: Plain Bowl with Parallel Sided and Equal Bilateral Projected Rim

The current type is unique, and no comparable is found from adjacent and other associated regions. The specimen is found on the top of the main mound in association with other Harappan types i.e., perforated jar, cooking pot, and plain offering stands. Based on their association and comparable texture, its affiliation with the Harappan phase is suggested.

4.3.9. Type IX: Plain, Straight Everted, Equal Bilateral Projected Rim Bowl

No comparable is found from the adjacent and associated regions. The specimen is found associated with Harappan pottery types of current Musa Khel pottery sample, hence classified as Harappan pottery type.

4.3.10. Type X: Painted and Rimless Dish

The current type is unique, and no comparable is found from associated regions. Glossy red slip and burnished surface indicate its affiliation with the Harappan phase.

4.3.11. Type XI: Collared, straight-sided, heavy sectioned vessel

The current type is unique, and no comparable is found from associated regions. Heavy and compact texture indicates its affiliation with the Harappan phase.

4.3.12. Miscellaneous Body Sherds

Black slipped Sherds

The black slipped sherds at Musa Khel are probably associated with the popular Harappan Black Slipped Jars discovered from main Urban Centres throughout the Greater Indus Valley and beyond (Ajithprasad 2013: Fig, 5, nos.1-15 after Marshal 1931; Mackay 1937; Mackay 1976; Quiron 1997; Meadow & Kenoyer 1997). Some of the sherds found deposited in the upper levels of the main mound with globular morphology also strengthens this assumption.

Wide Space Grooved / Ridged body Sherd

Comparable examples are found at several Harappan sites i.e., Harappa (Vats 1940:Pl. LXX, no.19); Mohenjo Dero (Dales & Kenoyer 1986: Fig. 35:1-7, p.307); Farmana (Shinde et al 2011: Fig. 6.7 nos.16, p.180); Hakim Ali Ther, Cholistan (Mughal 1997:Pl. 54, n.14, p.101) & Ghaggar Plains (Uesugi 2017:21). The current type may also be observed at Chak 342, early Harappan-Kot Diji phase site in Cholistan (Mughal 1997:97; Pl.45, no.17 p.69).

Body Sherd with Impressed Design

The texture and designs suggest its association with the plain offering stand of the Harappan phase at Musa Khel.

Body sherd with flora Design

The current design is very common during Harappan phase at the type-site Harappa (Vats 1940: Pl. LXVII, nos.4-6, 8), and Mohenjo Dero (Marshal 1931: Pl. LXXXVII, no.5; Pl. LXXXVIII, no.2-4, etc), also reported from the east in Ghaggar plains (Uesugi & Dangi 2013: Fig. 6, no. 17, p. 204).

Body sherd with Zoomorphic Design

The current design is very common during Harappan phase throughout the greater Indus Valley and beyond e.g., Mohenjo Dero (Mackay 1934:Pl. LXVIII, no.24; Pl. LXX, no.28). It is also found in Cemetery H burial jars at Harappa (Vats 1940: Pl. LXII, no., 6 etc; Pl.LXV, no.10) and one example may be seen at Harappan site of Vainiwal, District Khanewal (Ghauri 2019: Pl. Lower, P.24).

4.3.13.Bases

Based on the morphology, there are following types of bases of different vessel types are found from the Musa Khel.

Non-Contiguous Extended Ring Bases

The current type is probably associated with globular pots like Gumla-IV (Dani 1971: Fig.32, no.293-294, p.124).

Type VI: Non-Contiguous Extended and Fancy Ring Base

They are mainly associated with parallel-sided Harappan pots.

4.4. Gray Ware Pottery Types

Gray ware vessels are very rare, and very few specimens have been recovered from the Musa Khel. The comparables of these types are not found in adjacent contemporaneous sites. Although Type II gray ware, the trapezoidal bowl is reported from the Rehman Dheri-III, the Late Kot Diji phase (Durrani 1988: Pl. XXIVA, p.37), and a variant of Musa Khel type IV gray ware carinated dish also reported from Rehman Dheri-III (Durrani 1988: Fig.XXV, no.4, p.37). Durrani is of the view that these gray wares might be imported to this region from the Iran region (Ibid). Like Musa Khel, they are also very rare at Rehman Dheri. Grey ware also reported from the Ghaggar Plain in the east in low proportions from the Harappan levels (Uesugi 2017:14). The cultural context of gray ware at Musa Khel is comparable to Late Kot Diji/Harappan phase, which needs to investigate through petrographic and chemical analysis further.

CHAPTER V

Musa Khel Pottery: Processes and Techniques

5.1. Introduction

The pottery craft pass through several stages of processes and techniques which in turn depend on several resources such as clay, temper, pigments and fuel, etc. The excavations and surveys hardly provide archaeologists, the complete forms of pottery vessels to investigate their processes and techniques. They normally rely on the sherds left behind following archaeological site formation processes. To understand the processes and techniques of pottery, assistance can be taken from several means such as complete vessels from contemporary sites, ethno-archaeological observations, and archaeo-metric analysis. To understand the processes and techniques of Musa Khel pottery, assistance has been taken from the above-mentioned means. The following chapter is dedicated to describe the sequence wise processes and techniques involved in the Musa Khel pottery.

5.2. A Vanishing Craft

Pottery making has been remained one of the main professions in past societies. The industrial revolution has affected this profession at large scale. Plastic, glass, stone and metal ware have replaced the traditional clay vessels at large. The use of pottery vessels is now confined to rural setups mainly, at very small and local levels. The present ethno-archaeological review of the area shows that the art of pottery making is now confined to small workshops with limited production.

5.3. Manufacturing Profession

Ethno-archaeological documentation of the area understudy shows that pottery making is generally transferred from the parents to their offspring. The modern pottery workshop which lies among the cluster of modern houses close to Musa Khel site, towards its south-east, is owned by a sixty years old Potter Muhammad Siddique, assisted by his young son Hafiz Abdul Aziz. Both of them are the main potters and residing beside their workshop. Hafiz Abdul Aziz has learned this art from his father and his father has learned it from his uncle. Therefore pottery-making is their

family profession. The same is the case of potters of neighboring regions such as Thal (Bhakkar), Gomal Valley and Bannu Basin.

The abundance, variety, and quality of Indus Tradition pottery recovered from Musa Khel suggest the presence of fully developed potter's craft at site throughout the cultural sequence. It is also suggested that the "Potters" at Musa Khel site were purely professional and were specifically involved in pottery manufacturing.

5.4. Clay Sources

The clay used for the preparation of the pottery is generally acquired or quarried from the nearby alluvium sources. The Musa Khel region is enriched with alluvial soil deposits as shown in the map (Map II). The river bed of the Indus on the west also has huge deposits of suitable clay. Modern potters of Musa Khel village collect clay from nearby sources from their agricultural fields within the circle of two km for the pottery production on regular bases. They also obtain special clay once in a season from the Musa Khel hills at a distance of 8-9 km towards north-east. Moreover, the Musa Khel hills are regularly quarried by the modern ceramists of adjacent metropolitan cities as well. The practices of modern potters of the neighboring region also show the similar mechanism of clay collection.

Tarangranwala and Kotla Jam village potters of the neighboring Thal Desert, District Bhakkar, collect clay mostly from the "*Kaccha*" area, the bed of River Indus within the circle of 10-15 km. They are of the view that the better clay may also be quarried from the distant sources of Musa Khel-Mianwali, the area under study, which is lying about 85 kilometers towards north-east from their workshops. Tarangranwala potter, Mr. Fateh Shair stated that Musa Khel clay is of very good quality, enriched with optimum inclusions, and has suitable plasticity, but it is not economic for them to go beyond the limit of more than 20 to 25 kilometers. Therefore, they prefer local clay sources like the potter of village Shahbaz Ahmed Khel, Bannu Basin, on the Trans-Indus, who used to dig clay from the common land, only 150 m from his workshop (Rye & Evans 1976:44).

Allah Ditta, the modern potter at Harappa-Sahiwal, residing just by the type-site practices replication of Indus Tradition Pottery. He has adopted this profession following his father, Mr. Nawaz (late), who was an experienced potter (Pl. XLIII a). Allah Ditta stated that he acquires

different types of clay from different sources for the pottery production; ranging from nearby common land at a distance of about 3 km to the bank of Ravi River at a distance of 45-50 km. The observations recorded during the experimental workshop for replication of the Indus Tradition Pottery at TIAC in 2013 corresponds to the same pattern.³⁰

There are several important findings to the respective chronological phases at Musa Khel site, corresponds to local pottery production such as Kot Diji and Harappan phase pottery wasters (Pl. XXXVI b), Harappan terracotta cakes (Pl. XXXVI a), Harappan pottery kiln and Early Harappan firing remains (Pl. XI a). These findings strengthen the probability of acquiring clay from the nearby available sources. There is no reason for the ancient potters of Musa Khel site to exploit and trade clay from the distant regions. The paste analysis and ethno-archaeological observation of modern pottery workshops also supplements the probability of local pottery production. The location of clay sources can be identified with help chemical analysis of soil samples from different sections of the area under study and their comparison with pastes of Musa Khel pottery. Such analysis is beyond the scope of the current study and is recommended for future studies.

5.5. Selection of Clay

Now a day's potters do not use any special method for testing the suitability of clay for pottery manufacturing like the modern ceramists. The potters judge the quality of the clay by simple hand touch and naked eye observation. They check out the plasticity and coarseness of the clay by simple hand touch³¹ assisted by the experience, accumulated and passed over the generations.

The clay which has been used for the production of ancient Musa Khel pottery, is of high quality. A high proportion of pottery pastes have very low percentage of very fine to fine textured inclusions. Some of the pastes are without or negligible inclusions in them (Pl. XXXVII b). Very few specimens have a coarse texture (Pl. XXXIX c). The pastes have pre-dominantly normal firing. The ancient potters of Musa Khel were highly skill full in the selection of clay throughout the

³⁰ Notes taken during the workshop aimed at understanding material culture, especially pottery, at TIAC, Fall semester 2013.

³¹ Interview with Allah Ditta, the potter at Harappa, Sahiwal and artisan at "The Harappan Archaeological Project"

chronological sequence. Early Harappan specimens are more refined as compared to Harappan specimens regarding the texture and quality of the clay.

5.6. Variety of Clay

A traditional mechanism of clay collection is noticed in the study area. The modern potters collect clay from a variety of sources due to their varying qualities and vessel needs. Musa Khel's modern potters obtained calcareous and hard clay for the cooking pots from Musa Khel hills whereas the reddish soft clay, locally known as “*Ratti Mitti* or *Mali Aali Mitti*” is quarried from nearby cultivation land for water and milk storage pots. According to them, reddish clay produces a cooling effect in the vessel and has suitable plasticity. They also mix both types of clay because vessels produce with such clay becomes more durable and have high strength. Likewise, the potters of Kotla Jam collect different types of clay from three different regions to make a mixture of better clay, having suitable plasticity, and thermal resistance. Modern potter at Harappa also stated that he also acquires different types of clay from different sources for pottery production. The clay from distant Ada Bahadur Shah Source has 4-5 % sand in it and considered as the ideal clay for pottery manufacturing as it has more thermal and physical resistance. The nearby sources have high plasticity “*chiknahat*” i.e., very much fewer inclusions in it, which is not suitable for utilitarian pottery. He stated that clay with high plasticity has a lesser thermal resistance and the vessel body designed from such type of clay is more vulnerable to thermal and physical stress.

It is suggested from the above discussion that the collection of clay is based on its quality besides distance from the workshop. The distant sources are exploited once in a season while the nearby sources are quarried on a need basis. Moreover, clay from versatile sources provides versatile clay that is used for the production of functionally different vessels. Most of the modern potters of the area work for the single-season of four months i.e., mainly in summer and very few in the neighbor regions works for two seasons with an interval of three to four months.

There are abundant alluvium sources nearby the Musa site (Map II). The quality of the clay varies from source to source. The clay found in different portions of the area has considerable variation regarding quality, number of inclusions, and plasticity such as plains, mountains and river banks. The pastes of Musa Khel site pottery show great diversity regarding texture and quality throughout the chronological sequence. The comparison between the paste's compositions of both

Early Harappan and Harappan phase indicates slight differences, highlighted in the graph.no.1. It is suggested that the riverside micaceous sources, the plain sources with higher percentage of sand inclusions and hillside calcareous clay sources have been exploited for the pottery production at Musa Khel site during the Early Harappan and Harappan phase (Pl. XXXVII b - XL c). The frequency of exploitation of these versatile clay sources is quite same throughout the chronological sequence besides an apparent and slight shift during the Harappan phase. Early Harappans have equally exploited the riverside, plain and hill clay sources whereas the Harappans appear to exploit river side sources excessively as compared to Early Harappans.

A good number of both Early Harappan and Harappan pottery shows a range of different percentage of inclusions such as less than 1 to 40% and compositions such as micaceous, calcareous and of mixed type. During the Early Harappan phase, a slight trend towards preparation of more levigated paste for pottery production is noticed such as less than 1 % or negligible inclusions in contrast to Harappans whereas very few Harappan specimens show the range of inclusions up to 40% in contrast to Early Harappans. Remaining pattern of paste preparation during the both phases with slight change is similar. The high peaks of inclusions proportion in the pottery pastes during the both phases are in range from 3-10%. Moreover, the ethno-archaeological observations show that the clay with lesser inclusions i.e., 3-5% is naturally tempered while clay with less than 1% inclusions is manually levigated and pastes with higher percentage of inclusions in it such as 10-40%, suggest that they are probably manually tempered, besides naturally tempered clay, by the potters to increase the thermal and physical resistance, the required elements for the utilitarian pottery.

5.7. Transportation of Clay

The modern potters of Musa Khel, Kotla Jam and Taranganwala use wooden carts, drag by donkeys and camels for the transportation of clay. In rare cases, they also hire loader vehicles to acquire clay from distant sources. *Shahbaz Ahmed Khel* potter transport clay from the very close source on its feet. One terracotta cartwheel is recovered from the Musa Khel site. The presence of the terracotta wheel at the site suggests that the ancient occupants of Musa Khel were familiar with the carts. The use of bullock carts is also attested from several other Early Harappan (such as Mehrgarh, Harappa, Kunal, Bhirrana) and Harappan (such as Chanhu Daro, Harappa, Lothal, Dhola Vira, Rakhigarhi etc) sites throughout the Greater Indus Valley (Das 2019:186). Therefore,

on the bases of these elements, it is suggested that Musa Khel residents have exploited the nearby clay sources and have used their own cattle carts for clay transportation (Pl. XXXIV a, Fig. LXV (3-7)).

5.8. Tempers

Most of modern potters collect sand from the natural deposits near their houses. Musa Khel modern potters also acquire silt temper from Musa Khel hills; lying at a distance of about 8-9 km from Musa Khel site. Sometimes they also buy sand from construction material suppliers in the area as well.

Harappa potter stated that there are three different types of tempers available near Harappa. The first one is known by him as “*Abrak*” or “*Pathrali*” i.e., micaceous sand. It is rare and difficult to find beside the banks of the Ravi River and considered as the best temper. The second type is known as “*Bhal*”, the sand mixed with soil, used as the most common sand temper by several the potters. All the types and size of vessels are made with clay tempered with “*Bhal*” type sand except very small and miniature vessels. The third type temper is sand with coarse texture and not suitable for use as temper.

According to these potters, the addition of sand as a temper in the clay is very much necessary because the vessel prepared from the clay without having sand in it will be weak and very much fragile. In most of the cases, the vessel fails to resist thermal and physical pressures and broke down.

The Musa Khel pottery types attest the use of a variety of sand inclusions as temper. Few types of pastes are probably naturally tempered. At Musa Khel site, the intentional addition of sand and silt as temper is a notice at large. Also, a few very coarse organic inclusions have been noticed which were left in the clay due to the negligence of potters (Pl. XL d, Pl. XLI a). The ratio of inclusions is in the range from less than 1 to 40 % (Pl. XXXVII b-XXXIX c).

Area of Musa Khel has natural sand and silt deposits and the modern potters are still quarrying these sources for their regular pottery production. In addition, few of the specimens at the Musa Khel site show the signs of bran or straw as temper (Pl. XLII d). A high proportion of pottery collection shows signs of porosity as a result of bran temper. The ethno-archaeological observation

in the area does not attest the use of bran temper. Although Musa Khel village potters made a paste tempered with bran and apply them on the exterior bottoms of cooking pots. They acquire bran from their wheat fields. The archaeological and ethno-archaeological observations in the area suggest the exploitation of different sources for tempers throughout the Indus Tradition in the area.

5.9. Raw Materials for Painted Decoration

Musa Khel pottery collection shows the use of different shades of black, red, and white color for painted decoration. Rarely, chocolate color has also been observed. Red and white have been used as background and black color is for painted designs. The modern potters of Musa Khel village employ specifically red and white decoration on the vessels. They obtain red color stone-hard clay for red color and special clay for white color from the Musa Khel hills. Special clay for white color is also available at Daood Khel-Mianwali. Tarangranwala potters use black stones of Jibi Sharif Mountain of Khushab and whitish clay for the white color from Daood Khel-Mianwali.

Ethno-archaeological observation in the area has also revealed that unlike clay and sand temper, sources of painting pigments are far away from the potter areas. To obtain the coloring materials, in most of the cases, they had to travel beyond the limit of 50 km. Harappa modern potter, Allah Ditta use red and black ochre, which reached there through a distribution network from Sukkur, Sindh. He bought them from the *Kamalia* potters, 40-45 kilometers away from the Harappa and Kamalia potters bought them from Sukkur Sindh. They also brought yellowish color clay from Gujarat for the preparation of a clay suspension for decorating the red backgrounds of vessels, known as "*Vani*".

Previous studies show that in general, Harappans have used ochre minerals for the decoration of pottery (Dales and Kenoyer 1986a: 64; Law 2011: 153). Their deposits are found throughout the Greater Indus Valley i.e., Jammu, northern Punjab, Balochistan, Sindh, western Rajasthan, and Gujarat (Law 2008:153). It is suggested that the Musa Khel ancient potters most probably have used different minerals available in the nearby area such as Musa Khel hills and Dawood Khel. Moreover, the northern Punjab deposits of ochre minerals are probably the best and accessible for Musa Khel's ancient residents. The use of ochre minerals at Musa Khel needs a detailed laboratory analysis that and recommended for further research in the area.

5.10. Paste Preparation

The next and crucial step in the pottery manufacturing is the preparation of pottery paste. Modern potter of Musa Khel village brought two types of clay to the workshop which is transported in the form of lumps and later on broken down into small pieces with the help of sticks and followed by the proper removal of very coarse grains, pebbles, stones, and any other impurities. Both types of clays are treated differently because of their use for functionally oriented different vessels. The clay obtained from the cultivation area is specifically used for the preparation of water pitchers and butter makers while the clay from Musa Khel hills is used for cooking pots. The Musa Khel hill's clay is slightly tempered with just a handful of *Ratti Mitti*. Whereas the *Ratti Mitti* is destined for the preparation of water pitchers and also tempered with salt. About 4 kg salt is used for the preparation of 200 large pitcher's clay. Moreover, both types of pastes are also tempered with a different type of inclusions. The Pitchers and Butter making Pots' clay are tempered with natural sand, whose deposit is available at few meters from the workshop along the road while the Musa Khel hill's clay is tempered with slit size soft-grained stones, locally known as "*Bhousa*" which is grounded and added to clay, destined for the cooking pots. The modern potters usually do not have proper measuring tools for the addition of the tempers into the clay. The sand is sieved before mixing into the clay to prevent any coarser inclusion or other types of inclusion from being mixed into the clay body. They normally add 6 to 7 buckets of sand into the clay of 20 buckets which is close to 30 percent of the total clay. The ratio of Silt temper is lesser as compared to the ratio of sand. The Musa Khel hill's clay is specifically sieved through modern siever. The clay mixture is prepared on the bare earth by pouring water in the cavity of the clay pile for 6 to 7 hours. After that, the clay is wedged with hands like the flour until a uniform and soft matrix is obtained. After that, the clay is covered with plastic and jute and kept under the moist condition in a room.

Harappa potter stated that the Harappan method of clay preparation was different from the current practice of modern potters. The followers of the Indus Tradition used to dig a pit in the workshop area and soaked the clay in the pit. As a result of that, the pebbles and crude material settled down and any plant remains, roots, or insect bodies came to top. The impurities at the top were collected and removed. The clay paste is collected in moist conditions from the top and leaving behind the impurities and coarser inclusions on the bottom. After that the paste is spread out on the earth's surface under the direct sunlight, to allow water to evaporate. As the clay started

to harden little, it is then mixed with hands properly. After that it is kept moist with some coverings, preventing its direct exposure to sunlight or temperature to retain its moisture. This process is time-consuming and it takes more time to allow water to evaporate. He further added that this process for the now days Potters is inconvenient due to economic reasons. The modern potters of Kotla Jam village attest the quite same Harappan method. They usually prepare clay for the whole season in one phase and same pattern is documented with slight variations. They assembled all types of clay unlike the Musa Khel modern potters and use the same for all types of vessels. During the experimental activities at TIAC-2103, the same process was adopted which had consumed about three to four days.

The potters of Taranganwala and Kotla Jam add 25-30% sand as temper soon after the wedging process. Harappa potter add sand as temper at the stage just before preparing the main body of the vessel on the wheel by simple hand sprinkling on the clay lump and later on mixing it homogeneously. The potter of *Shahbas Ahmed Khel* village Bannu also used to add sieved sand into the clay after the clay is partially mixed. He adds 25 % sand into clay body without measurement, therefore the range of inclusion percentage varies from batch to batch (Rye & Evans 1976:45) whereas the potters of *Kumbaran wala Mahalla*, Gomal Valley use clay without adding the inclusions in it (Ibid:50), probably the clay was naturally tempered.

Harappa potter stated that the few types of clay might have natural sand (temper) ranging from 1-6%. The addition of temper by the potter depends on the percentage of the natural temper in clay. The required addition of temper is two to three times of natural temper in the clay. He further added that other than sand, Harappan pottery is also found tempered with crushed "concrete" or pebbles and ashes of cow dung to increase the thermal resistance of the clay. Moreover, the type and size of vessels also require a specific range of temper in it. Normally small or miniature vessels are without tempers whereas vessels use for the cooking purpose has a high range of temper in it.

The typical Harappan "Cooking Pots" at ancient Musa Khel site has 15-20% of sand inclusions dominantly. Few of them with medium size body have also sand inclusions up to 5% which suggests that these were not destined for any purpose that requires physical and thermal resistance. Also, the vessels with the highest percentage of inclusions in them are rare and belong to very large size category vessels i.e., perforated jar, plain globular pot, plain convex bowl, and

mainly historic vessels have this high range of inclusions. The function of perforated jars is not known properly but the high percentages of inclusions in it suggest this class must have been used for some function that requires thermal and physical resistance. Few globular and medium sizes painted and sandy slipped vessels have also inclusion range close to 20-30 % as well. All this suggests that the size and function must have been considered for the addition of temper during the Indus Valley Tradition at Musa Khel. Harappa potter also told that the very large size vessels need a high range of inclusion for holding capacity and tempers larger than sand size inclusions such as gravels cause spalling and also produce cracks.

The composition studies of the pottery pastes of Musa Khel collection shows versatile paste recipes throughout the chronological sequence. The proportions of inclusions are in the range from less than 1 to 40 % (Graph-I) and the Musa Khel pottery has sand size inclusions dominantly. The silt and gravel size tempers appear to be natural. Accidental inclusions include gravel size seashells in few specimens. The gravel size inclusions are probably natural and left in the clay due to the negligence of the potter during the sieving as also documented in the work of modern potters of the Taranganwala and Kotla Jam. Very few specimens of Musa Khel pottery types have gravel and sea shell inclusions. The Kot Dijian and Harappan, both chronological types are similarly treated with highly skilled levigation technology. The Early Harappans are more prone to levigation process as compared to Harappans. Harappa potter stated that the calcium carbonate pieces (*chuna*) are removed from the clay, due to which cracks are produced in the vessel and broken down upon heating. The Musa Khel pottery has 20 % of the vessels, found with signs of bloating i.e., calcium carbonate spalls on the exterior and interior surface, out of which lesser number belongs to Harappan and while majority belong to Early Harappan. The Harappans have added more refined calcium carbonate crystals. This suggests that the pottery paste preparation was more advanced or probably enhanced during the Harappan phase. It is also observed in the Musa Khel pastes recipes that there is no such specific classification of vessel types regarding the percentage of inclusions in it. The inclusions have been added to clay randomly. Any specific range of inclusions cannot be assigned to a specific type. Every type has variation in the percentage of inclusion in their paste. The same situation is retrieved when interviewed with the modern potters. Harappa potter mix sand in the clay once at a time and prepared different types of vessels from the same clay lump such as from small to large size. Only the clay of very small or miniature vessels is not tempered whereas the clay of vessels which are designed for cooking purposes are

manufactured with the clay of a higher percentage of tempers in it. The small and miniature vessels in Musa Khel pottery collection have dominantly less than 1 to 3 % of sand inclusion in them and few small vessels close to medium vessel size category have a slightly increased percentage of inclusions. Moreover, it is also observed that the potters do not measure or weight the sand inclusions before adding into the clay. They did it with their bare hands using their experience due to which significant variations in the range of percentage of inclusions have been observed in prehistoric Musa Khel pottery collection. One of the principles, potters applied in clay preparation is that they felt the texture of the clay with the hand and estimates the plasticity of the clay with help of predetermined patterns in their minds, which have been developed over time with experience and decide how much temper is suitable for the clay.

The pottery collection Musa Khel site suggests that the clay was treated variably during the preparation of paste throughout the chronological sequence. The Early Harappan treatments are as follows: -

Vessels treated with less than 1 to 10% inclusions in their pastes: 2/3 of Early Harappan vessels in this category are comprised of miniature to small and medium size vessels whereas the remaining 1/3 is comprised of large to very large vessels.

Vessels treated with more or less 20% inclusions in their pastes: 2/4 of Early Harappan vessels are also comprised of miniature to small and medium size vessels whereas the remaining 2/4 is comprised of large to very large vessels.

Vessels with more or less 30 % inclusions in their pastes: Majority of Early Harappan vessels are comprised of large to very large vessels in this category.

In case of Harappans, the pattern is totally opposite, majority of large to very large vessels are numerous in sample, depicting mainly comprised of pastes with 1-10% inclusions in contrast to Early Harappans.

5.11. General Clay Preparation Treatments at Musa Khel Site

1. Levigation of clay thoroughly that renders the clay to reach less than 1 % of inclusions for miniatures and very small to medium vessels mainly, and exceptionally for large to very large vessels.

2. Clay with natural inclusions in it such as 3-5 % for small to large vessels generally.
3. Addition of the sand inclusions in different ranges such as from 6- 20 % generally for every type of vessel.
4. Addition of the sand inclusions in different ranges such as from 30-40% generally for very large and heat-resisting vessels.

About 7% of the total pottery collection has visible air pockets or voids in their sections, out of which few are Harappan and the majority belong to the Early Harappan phase. The majority of the clay has medium porosity; very few samples have a compact paste and belong specifically to Harappan phase. The voids or air pockets are produced due to the in-efficiency of the potter (Pl. XLII c). The ethno-archaeological observations suggest that clay is not properly wedged and kneaded sometimes, before putting it over the wheel or mold. The lesser proportion of voids shows that the overall paste manufacturing technology was very advanced at Musa Khel, especially during the Harappan phase.

The other reason for porosity is that clay is normally tempered with different kinds of husks. Few of the Musa Khel specimens have clear impressions left by the husks on the exterior or interior of the vessel surfaces (Pl. XLII d). The Harappa potter, Allah Ditta suggests that the addition of husk increases thermal resistance. As stated earlier, Harappans used to add ashes of cow dung in the pottery paste to increase the thermal resistance. So, the remains of husks or straw in the ancient Musa Khel pottery indicates the similarities in technology, the difference would be that the Musa Khel residents were using husks and Harappans were using cow dung, which needs further investigation and recommended for future studies. There are no cracks observed throughout the collection except a single specimen which suggests that at Musa Khel, the potters during Indus Tradition have reached a level of specialization in paste preparation which was producing vessels without cracks in them. Contrary to this, the modern potters have no special control on preventing the vessels from producing cracks in them. It has been observed that a high percentage of modern pottery in the surrounded regions is produced with prominent cracks.

5.12. Modeling Techniques

The following modeling techniques have been observed throughout the sequence at prehistoric Musa Khel: -

5.12.1. Complete Wheel Modeling

Most of the Musa Khel vessels have been manufactured and finished on the fast wheel as it is clear from the following features: -

1. Horizontal grooves on interior and exterior i.e., wheel marks.
2. Precise Vessel Shape.
3. Regular and precise thinning of the vessel wall thickness.
4. Breakage of sherd at an angle (Mallah 1999:46-47; See also Ceccarelli et al 2021).

Approximately more than 60% of Musa Khel pottery is completely wheel modeled. The main types of pottery are plain and painted convex bowls, painted and plain globular pots, perforated jars, flanged pots, typical cooking pots, and lids, etc.

5.12.2. Partial Wheel Modeling

Partial wheel modeling uses mold, baskets, hands, and spatula along with the wheel. The base is produced with mold as well as a basket; the body is hand to spatula to a wheel made while rim and finishing of the vessel have been done on wheel. This category of vessels has the following features: -

1. Horizontal grooves on interior and exterior of body and rim i.e., wheel marks
2. Spatula marks on the body
3. Irregular breakage of sherd
4. Mold marks exterior
5. Irregularity of wall thickness
6. Vessel shape is little circular
7. The imperfect shape of the rim
8. Basket marks on the exterior of the bottom

Approximately about 20% of the Musa Khel collection is partially wheel modeled. The main types are carinated pots, carinated bowls, plain offering stands, bases, convex base dishes, and convex bowls. This technique is dominant during the Early Harappan phase as compared to the Harappan phase.

5.12.3. Hand Modeling

These types of vessels are completely hand made from base to rim or the base might be produced on mold and remaining has been finished with hand. Such types of vessels are very much rare at Musa Khel and mainly belong to Kot Diji phase at Musa Khel. These types of have shown the following features: -

1. Mold marks on base
2. Irregular walls
3. Spatula marks on the exterior of the body
4. Hand rubbing marks on the exterior of the body

This type of technique is very much rare, only a few body sherds and few carinated pots and convex bowls and plates show the presence of such technique at the Musa Khel.

5.13. Manufacturing Mechanism

The manufacturing technique of the individual type is described in their respective section in previous Chapter III. The surface treatments are not considered as any manufacturing stage for the present head, only base, belly, and rim portions have been considered for the classification of mechanism types. Large specimens appeared to have been manufactured by the multi-stage mechanism. Morphology of the few medium vessels also suggests single-stage production. Bases are not preserved in most of the vessels. Non-contiguous flat bases don't require molds or separate manufacturing. Few of the vessels have uneven vessel walls as well as spatula thinning marks and smoothing without rotation on the body. The manufacturing mechanism is hereby generally can be view as follows: -

5.13.1. Single Stage Mechanism

The pottery types recovered from the Musa Khel depicts the single-stage manufacturing process which means that the potter prepared the main body of the vessel in one step by placing the clay lump on the wheel and the wheel technique employed is a fast wheel as evident from sharp horizontal grooves or striations on exterior and interior, precise vessel form, angular breakage, the regular thickness of the vessel wall, etc. The types manufactured in the single-stage at Musa Khel included the followings: -

1. Globular Painted and Grooved Pots
2. Globular Painted and Slipped Pots
3. Rope impressed Painted Convex Bowls
4. Very Large Painted Concave Bowl
5. Rimless Convex Painted Bowls
6. Parallel Sided Plain Bowl
7. Perforated Jars
8. Channeled Rim, Grey Ware Convex Bowl.

5.13.2. Multi-Stage Mechanism

Likewise, the pottery types recovered from the prehistoric Musa Khel depict the multi-stage manufacturing process which means that the potter prepared the main body of the vessel in multiple steps i.e., base prepared with the mold; the further body is modeled on the wheel or by hand alone or with spatula and finishing on the wheel. The use of spatula is evident on small vessels while hand modeling is evident on large vessels. Moreover, the separate attachment of bases i.e., rings. The finishing of such vessels shows that these vessels are manufactured on the fast wheel but the morphology suggests that they are prepared on the slow wheel rather than finishing has been done on the fast wheel. The types manufactured in multi-stage at ancient Musa Khel included the followings: -

1. Carinated Pots and Bowls
2. Flanged Pots
3. Very Large Convex Bowls
4. Black on the white-painted dish with a convex base
5. Painted, Knobbed and Flat Covers/Lids
6. Conical, Painted Lid
7. Base Mold
8. Globular Elongated Neck Pot

9. Ledged and Round Base Pots
10. Very Large Globular Shouldered White Slipped Pot
11. Very Large Parallel Sided Pot
12. Very Large Globular and Plain Pot
13. Offering Stands (Dish on Stand/Bowl on Stand/Pedestal)
14. Trapezoidal, Grey Ware Bowl

Multi-stage manufacturing mechanism i.e., a mixture of molding technique and paddle-anvil technique in modern potters at Musa Khel village and neighboring areas has been observed. First of all, a lump of clay is placed into the base mold, kept over the head of the wooden wheel, installed in a pit. The clay body is spread uniformly over the whole mold and then extra clay is added over the margins and rough bottle shape is produced with the slow wheel. After that the rough clay body is kept under the room for 1 to 2 hours according to weather, so that vessel may attain a slight leather-hard state which they called “*Vater*”. Almost close to the leather hard stage, the vessel is started thinning with help paddle and anvil by keeping over earth or some times in the lap as well. In the first instance, when the opening of the vessel is restricted and too narrow, a terracotta dabber with a holding stick, which they called “*Kunal*”, is inserted into the vessel and pressed repeatedly to narrow the thickness of the base region of the vessel. As soon the vessel became suitably thick and uniform at its round bottom, the pottery dabber without a stick is kept inside and a hand size wooden anvil is kept on the exterior on the same position following dabber on the interior side and both are pressed and beaten in direction to each other repeatedly and inflow to render the uniform thickness and hence shape of the vessel. The restricted or narrow mouth is finished on the slow rotating wheel and after that vessel is removed from the wheel head and then from the mold for trimming off excess clay.

It has been observed in these modern workshops that few types of vessels are completely manufactured on the wheel in one step whereas few pots are made with the help of mold and wheel together i.e., large and very large size pitches, bowls, and basins. The alone hand modeling is not observed in any of the workshops documented. *Shahbaz Ahmed Khel village* potters only produce wheel thrown pitchers (Rye & Evans 1976:45); whereas the *Kumbaran wala Mahalla Gomal Valley* potter normally manufactures small and large size pitchers, partially wheel made and partially hand-thrown with paddle and anvil technique (Ibid:51). Large water storage jars and

pitchers were made using paddle and anvil method which is completely missing in ancient Musa Khel collection. The bodies of a few same vessels were also made through the coiling method. Multi-Stage mechanisms have been observed in large and very large vessels at both workshops. The mainly single-stage mechanism is found dominant.

During the experimental reconstruction at TIAC, a Harappan painted globular jar was produced. It was completely wheel modeled on the modern wooden wheel supplemented by ball bearings. A medium-sized prepared clay lump with added sand was firmly kept over the wheel head and then pressed from the top towards the base with thumbs pinching right in the middle of lump while the wooden wheel was slowly moving in the anti-clockwise direction with smooth kicks. The hand and wheel movements continue with balanced hand pressing until the desired shape obtained and removed from the head as it is. The whole lump was utilized in the preparation of the vessel. The vessel was precisely rounded, the rim was in proper shape, and the walls were regular. Besides, early Harappan-Ravi phase carinated pots were also prepared. The contiguous round base of pot was produced in the terracotta mold while keeping the same in the lap. An estimated lump of clay was kept in the mold and with moist hands, the clay was started to spread over the whole mold slowly. The hands were continuously kept moist, as the clay will retain the temperature of your hand in it, and as a result of which, the cracks will appear in the vessel walls. The index finger and thumb were continuously pressing the clay in an anti-clockwise and upward direction. As soon as the constricted straight walls out of the mold were prepared, the rim was smoothed with a wet hand. Later on, the wooden spatula was used to regulate the walls and upon slight drying, the mold was removed.

Harappa village potter stated that the Harappan wheel was different. The function of the wheel axle was obtained with the help of animal bone. The traditional workshops in the area use a wooden wheel, normally installed into the pit with the capacity of sitting for potter i.e., Musa Khel, Tarangranwala, and Kotla Jam. At Prehistoric Musa Khel, complete wheel technique is dominant and partially wheel made is lesser while completely handmade is very much rare.

5.14. Surface Treatments

The main vessel body after being produced is treated with different types of surface treatments to enhance the appearance and functions of the vessels. At Musa Khel site, it has been observed that

the pottery is treated with several types of surface treatments. The sequence wise surface treatments at the Musa Khel site are given as follows: -

5.14.1. Trimming

Trimming is employed during the finishing of the vessels. It is mostly done on bottoms to remove the excess clay. It can be applied to any other part of the vessel according to requirements. It is mostly done with a firm tool, mostly of metal with some times flat to pointed facet. The bone may also be used as a substitute medium. In the case of Musa Khel site, we have found a very low number of vessels with preserved bases, that's why it is difficult to ascertain the form of the vessels accompanied by trimming treatment. From Musa Khel site, few bases i.e., contiguous flat, non-contiguous flat, non-contiguous ring types have been found, mostly with improper and rough trimming. Modern potters employ trimming techniques on large vessels and mostly use a flat iron fork. They apply this technique to remove extra clay and to decrease the section thickness in the same manner as potter Nawaz had done while manufacturing Harappan pot. The same procedure is reported from *Shahbaz Ahmed Khel* village, Bannu (Rye & Evans 1976:45).

At Musa Khel village, at the modern pottery workshop, the vessel is trimmed while placing it in the lap in a horizontal position after the basic body is being prepared. A crescent shape pointed tool made of iron with one sharp side with a concave trough in the center is applied in a counter-clockwise direction to remove the excess clay and to shape the vessel and left for drying. During the experimental reconstructions at TIAC, the trimming technique was applied to the replica of medium size globular Jar. During the leather hard stage, the jar was placed firmly upside down on flattened clay lump which was already kept on the head of the potter's wheel. Once the Jar was fixed upside down on clay body, with slow wheel rotation, the heavy base was trimmed by holding the metal tool on the base in horizontal manner, and in few rotations, the desired thickness was achieved. An iron flat body rod with a crook head was applied for the trimming purpose. Modern potters of Musa Khel village have several kinds of trimming tools made of iron with varied sizes and thickness according to the size of vessels.

Ancient Residents of Musa Khel site probably have used stone, wooden, or bone tools for the trimming purpose. The use of the stone tool for trimming is most probably because a good number of scrapers have been observed on the surface of the Musa Khel site.

5.14.2. Scraping

Scraping employed to render the vessel surface even with the help of some firm, pointed, and sharp tools with small nicks. It may be a stone made scrapper, a bone tool, or maybe made of firm wood.

In the case of Musa Khel site, the following patterns of scraping have been observed: -

1. Scraping with rotation i.e., horizontal striations.
2. Scraping without rotation i.e., irregular striations.
3. Scraping with and without rotation i.e., horizontal striations above and irregular striations below the vessel belly.

Scraping employed in association with other techniques as follows: -

1. Scraping and smoothing with rotation
2. Scraping and smoothing with rotation and trimming of base
3. Scraping and trimming without rotation
4. Scraping with rotation and polished
5. Scraping with rotation on base, remaining smoothed without rotation.
6. Scraping with rotation on base, upper body smoothed with rotation.
7. Scraping with rotation on the bottom, scraping without rotation lower body, and freehand trimming.

As it is mentioned earlier that the modern potters of the Musa Khel village do not employ any such scraping tools, rather they do not care so much about the finishing of the pot. They only produce wheel made and molded pottery. According to them, they don't feel any need to employ scraping. To produce even surface vessels, they rely mostly on hand pressure during wheel rotation.

At Musa Khel site, about 15-18% of pottery is scraped with or without polishing, smoothing, burnishing, and trimming. Unlike smoothing on both sides, scraping is confined to the exterior of vessels with the restricted type of orifice. Vessels with unrestricted orifices have usually both sides scrapped in different styles and combinations. During the experimental reconstructions at TIAC, a very small stone chert scrapper with small nicks was used without rotation on early Harappan bowls to produce even surface and to remove extra clay. It was

observed that the scraping without rotation in a horizontal manner has dragged and tear out the inclusion. A few specimens from Musa Khel site also have shown the dragged and tear out grains on the exterior surface as a result of scraping.

5.14.3. Smoothing

Smoothing is a finishing treatment, which is applied generally after the vessel body is made. There are following different patterns of the smoothening pottery vessels have been observed at Musa Khel pottery collection: -

1. Smoothing with rotation overall surface
2. Smoothening like scrapping with rotation
3. Smoothing without rotation overall surface
4. Smoothing with and without rotation, mixed
5. Smoothing with rotation lower body while smoothening surface without rotation on the upper half
6. Smoothing with rotation on the upper body, smoothing without rotation on the lower body

Also, the smoothing process has been observed along with other finishing techniques, given as follows: -

1. Smoothing with rotation on the rim or upper body, scrapping with rotation on the bottom or below the rim or lower body and slightly burnished base
2. Smoothing with rotation on the rim, scrapping with rotation on the base
3. Smoothing with rotation upper body, scrapping without rotation on the main body
4. Smoothing with rotation upper body, slightly polished, scrapping with rotation lower body
5. Smoothing with rotation and burnished base
6. Smoothing with rotation and polished

Not a single specimen was found without the intentional smoothening process. Smoothening with rotation on the wheel is the most dominant vessel finishing technique observed at Musa Khel site. More than 70 % of the vessels have shown intentional smoothening after being

the main vessel body is produced. The versatility in smoothening processes suggests that different potters were employing different smoothening techniques. The main purpose of smoothening is removing flaws, filling cracks, mold marks, juncture and coil marks, and spatula marks, etc. Generally, it is employed soon after the main vessel body is produced. The wet hands are moved along the whole circumference to smoothen and even the surface with slow rotation or it may be done by keeping the vessel in a still position and a hand palm may be used to smoothen or evening the vessel surface. Rotation leaves horizontal grooves while hand smoothening leaves depressions and hubs and uneven surfaces which indicate that the vessel is hand smoothened. Smoothening like scrapping term used here to indicate the employed smoothening technique resembles scrapping. It is done with nails, leaving sharp horizontal grooves on the body. The other finishing techniques such as burnishing, polishing, and scrapping are employed at the leather hard stage.

The modern potters of the Musa Khel village do not use any type of such tools for smoothening. They smooth the vessels during wheel rotation with hand pressure and for selective vessel forms; they use paddle and anvil technique. They are unaware of using any such tools. During the experimental activities at TIAC-2013, smoothening was achieved with the help of a wet hand and piece of the sponge while the vessel was still rotating on the wheel.

5.14.4. Burnishing

Potters employ tools made of different medium such as stone pebble (*gitta*), bone, hardwood for the burnishing treatment. It is achieved by rubbing a burnishing implement on the vessel surface with little moisture still on its surface. It gives a glossy appearance as well as decreases the porosity and increases the compactness (Dale & Kenoyer 1986:42). Hence it helps in better and prolonged storage of liquid contents and more resistant to shocks during traveling. This technique is applied to the main body and bases usually. In the case of Musa Khel site, very few specimens are found with the slight burnished surface. Two of them are based sherd while one is black on the red body sherd. As such there is no burnishing or any technique like burnishing has been observed in the practices of modern potters. Allah Ditta stated that it was Harappan way of using plain surface river pebble (*gitta*) to rub over the surface of the vessel that decreased porosity of the surface and produces shining effect.

5.15. Structural Decoration

Several surface treatments have been observed, which have been made by a versatile structural modification of Musa Khel pottery collection such as perforation, incising, combing and multiple grooving, texturing, and rigging, etc. These surface treatments are given as follows:

5.15.1. Perforation

There are few specimens which have been recovered from Musa Khel site with multiple tiny rounded perforation treatment. This technique is dominantly applied to the straight-sided jars belong to Harappan phase. The perforations are produced on the whole main body randomly or in series with a slight gap between them, below the shoulders from exterior to interior direction and perforations entirely circular from the external surface. Their exterior internal diameter is found in the range between 5.15 to 9.89 mm, although interior internal diameter is dominantly lesser in size as compared to external internal diameter. The diameter size range suggests tools with variable pointed tips and more than one potter was involved in manufacturing as evident from the manufacturing skills. The perforation was mainly conducted during the leather hard stage with a pointed end tool to easily pierce through the leather hard vessel wall. While perforating, a force applied clockwise, helps to pierce through the vessel walls easily. Otherwise, there are great chances of breakage of specimens. It is dangerous to hold the vessel in a leather hard stage with some force. The potters must have used some dabbers or similar item to support the perforations. Once perforation is done, anticlockwise slow movement was applied to leave behind the bulged clay on the interior around the perforations. The tool used must have a suitable handle for the grip and the vessel must have placed on a flat platform. As stated by Harappa potter, they use a straw with pointed edge and piercing done in the leather hard stage. Perforations varied from round to sub round. All of the perforations have bulging on the interior side, few are very rough in appearance and few are fine, again indicating the difference of skill employment of different potters. The perforation technique is in practice of the modern potters.

5.15.2. Incising

Incising is mostly done by cutting or pressing a sharp tool on the vessel body that is still in the leather hard stage. It is normally done before slipping treatment. From Musa Khel site, only two specimens of offering stands were found with incised horizontal consecutive lines around the

center with vertical lines inside in it on the interior bottom and consecutive circular rows of tiny petals on the interior bottom. The incision appeared to be done before wash treatment and the former design is not very fine, rather crude that suggests a low level of skill and use of the pointed tool with rough tip. At first, the series of vertical strokes have been incised while the vessel was in still position and later on circles around the center of the bottom were incised. While the later design has been made very skillfully and a sharp knife type tool has been used. It is produced by rotating vessels in the leather hard stage by creating a cycle of alternate motion. This technique is lacking in the modern potters nowadays. Potter Nawaz had a range of sharp iron tools for incising purposes. In contrast, the residents of prehistoric Musa Khel used pointed stone tools and bone implements.

5.15.3. Impressing

Impressing technique is applied by the help of handmade molds of different mediums such as terracotta, carved bone, some soft stone, nets or rows, etc. In the case of Musa Khel, a very slight thick to a thin twisting thread has been used to produce impressed horizontal bands, mostly in one and occasionally two. Other designs produced by some molds include consecutive circular rows of flattened tiny rectangles; a branch of a tree with elongated leaves; and possibly wavy sandy clay bands. Local and neighboring modern potters do not perform such a technique in their workshops.

5.15.4. Texturing

Textured designs are produced by using nets, lace, jute, and freehand as well, etc. Unlike other designs, the vessel surface needs to be sufficiently dry. In the case of Musa Khel site, the following textures have been produced by adding sandy clay slip.

1. Wet Textured
2. Sandy clay bands
3. Sandy clay coating (Light and thick)

The wet texture has been produced on the main body, below the shoulders on globular pots. The surface of the dried pot was roughened by scrapping and slightly moistened by sprinkling water on it or by wiping off with damp cloth fold. After that, a slight thick film of sandy clay paste is applied on the main body with freehand by grasping vessel in hand and lap generally. After that, a

wet cloth kept on the area covered with a sandy clay coating. The cloth then lifts gently at a time from the entire vessel leaving an impression like raised bubbles, crusts, and troughs.

A good number of globular vessels have been treated with light and thick coatings of sandy clay below the shoulder on the main body with a freehand style like stated above. A unique and prominent textured design composed of horizontal zig-zag sandy clay bands has been made on one of the specimens. It is produced on the dry pot with some moisture and with some pointed bone, stone, or metal tool by keeping in lying position rather than standing.

Few of the vessels are also applied with the suspension of clay and grits on their bottoms in a freehand style to increase their thermal resistance and shock-absorbing capacity. During the experimental reconstruction at TIAC-2013, the bottoms of the handmade replicas of the Hakra/Ravi period bowl were treated with clay coating having grog as grits in it. Nowadays, modern potters of the area rendered the exterior bottom sandy by including tempers in the paste rather than any separate treatment mentioned above.

5.15.5. Slurry

Few specimens at Musa Khel site also have been treated with pure thick clay paste. It seems to be applied with hands as the wiping off pattern is prominent. The function of the slurry is the same as the function of sandy clay and grits.

5.15.6. Grooving /Combing and Rigging

This is mostly done by the combing tool, appeared to be made of bone with versatility in styles (Fig). The designs are produced on the exterior of the globular pots and jars in a leather hard stage before slipping and paint treatment with rotation. At Musa Khel site, grooving and combing has been observed in the following designs: -

1. Straight horizontal and parallel (exterior)
2. Wavy horizontal and parallel (exterior)

Few of the large and medium-size globular pots have been treated with sandy clay paste applied on the main body below the shoulder before the grooving. The large vessels are manufactured with this technique. This serves both functional and decorative purposes. The sandy coat enhanced

thermal capacity and increases surface volume. Thermal capacity is utilized during the firing process while the increased surface volume produces cooling effects in the liquid contents.

Besides, one body sherd and one basin type bowl has been found grooved on their interior in a regular and irregular crisscross manner or hatched design. Their probable function is to provide a roughened surface and might be in use for grinding and crushing food items. Few specimens are also found with a rigged surface, which is produced by applying thumb pressure in a counter-clockwise direction with the rotation

During the experimental reconstructions, the potter Nawaz produced parallel straight grooves on the main body with the help of packed cotton buds. He placed the leather hard oblong jar on the wheel head over the clay lump to fix it. The surface of the vessel was moistened then and a tightened pack of cotton buds was pressed in a horizontal position over the belly with rotation. This type of replication has produced very soft margins of the grooves. In the case of Musa Khel site, the grooves are relatively very sharp and depict a considerable variety of groove patterns, hence varied tools and techniques. During the ethno-archaeological observation, it was observed that a local mason was using the lateral end of the groom to produce grooves on the freshly plastered wall rough of the house. The wavy grooved pattern was much like grooving of Musa Khel vessels. The grooves were sharp which suggests that the tools used for grooving at Musa Khel were sharp ended, made of pointed straws by assembling. The different patterns suggest the different shapes of straws packed together by different potters across the sequence.

5.16. Labeling: Potter Marks (Pre-fired Graffiti)

Pottery collection from Indus Tradition site of Musa Khel has been found inscribed with different potter's marks. These marks have been inscribed before firing during the leather hard stage. These designs belong to the Early Harappan phase and given as follows:

1. ***Maltese Cross***-Pre-fired (on the medium size flat base mold).
2. ***Roman Alphabet A*** lying in horizontal style-pre-fired (on small flat contiguous base).
3. Tiny and elongated ***triangle*** lying horizontal (on small flat and convex base).

It has been observed that nowadays, modern potters also mark the interior side of their base molds with versatile marks during the leather hard stage.

The purpose behind marking is identification and recognition of the workshop and it shows the ownership of molds and vessels. The unique marks help in recognition and prevent its loss such as Kotla Jam potter has inscribed the interior of base mold with *oblique lines* while the exterior bottom was incised by a single oblique line. Modern pots from *Khooiyan*, Gomal Valley have several types of pre-fired marks on their molds such addition mark, leaf mark, or flipped 6 like figure within double concentric circles on their bottoms whereas modern potters of Musa Khel village, have pre-fired addition or cross mark on their molds. Modern potters of Musa Khel village and *Khoiyaan* have the same mold marks. Moreover, potter Nawaz also had a metal mold with his inscribed name on it and he used to mold its sign on the vessels of his workshop at Harappa.

5.17. Drying

The vessels at Musa Khel village modern workshop are prepared in batches like other workshops and after the basic vessel is prepared, the whole batch is kept upside down under the shadow so that the vessels become dry. Vessels take minimum two to three days to dry completely. Dryness also depends on the weather. If the temperature is high, the drying process will faster and vice versa. The vessels are prevented from the direct sunlight, as this produces defects in the vessels such as cracks. The vessels receive moderate and uniform heat under the shadow. The other experimental activities and ethno-archaeological observations have shown that the drying of the vessels depends on the size, thickness, and temperature at which the vessel is kept for drying. The small to medium-size vessels takes three to four days to become bone dry during the hot summer whereas during the winter it takes more time. The large and very large vessels, up to a height of three to four feet take three to four weeks in summer. The pots are normally dried during the summer season. The pottery is not manufactured during winter in local and neighboring modern pottery workshops. The batches of vessels are placed under the open sky. After being dried, they are placed in the chamber of the kiln for the firing purpose.

5.18. Slipping

There are two types of slips based on raw material. One type of slip is prepared from the very fine clay suspension, also known as "Terra Sigilata" (Mallah200:33) while the other one produced by crushing ground minerals. In the case of Musa Khel site, these two types of slips have been observed. Ground mineral slip is dominant while clay slip is occasional or rare.

The functional purpose of applying clay slip to the exterior of the vessel is to decrease porosity, to cover the undesirable area, to fill the cracks and other such flaws, and also providing background for painted decoration. The ground mineral slip is often used for providing background for the painted decoration. Rye and Evans recorded ethno-archaeological observations at Karmathu (Khyber Pakhtun Khwa Province, Pakistan) where the potters said that the buyers of large water storage jars ordered to slip the exteriors with red color as they believe it makes them cooler (1976:40). The modern potters of Musa Khel, Mianwali, Bhakkar, and Gomal are of the view that the buyers don't like to buy plain pots whether they ask to provide them painted and slipped pots. Modern potters prepare slips from specific-colored clays and ground minerals as well. These slips are applied to the vessels in leather hard stage or when they are dried. The pots may be dipped into the clay suspension or it may be applied directly on pot by pouring into it or by using a fold of cloth or brush made of smooth animal hairs. The former method produces the smooth appearance of the slip while the later one shows irregularities, fingerprints, and unevenness, etc. In the case of Musa Khel site, a very controlled and skillful tradition of vessel slipping with a later method has been observed. A very few sherds have been observed with fingerprints, drops of slips, and irregular linings, etc.

Ethno-archaeological observations in the area have shown that the vessel with red slip was rubbed with leather or cloth to produce a shining appearance. Moreover, it is also observed that the clay slips applied by dipping vessel in suspension whereas the ground mineral slip is applied by broad hairbrush or cloth folds.

It is also found that the ground mineral slips applied on the vessels have the following color groups, based on Munsell color system:

1. Black and Dark Grey (black, dark reddish-black, dark grey, dark reddish grey)
2. Brown (brown standard, light and dark)
3. Dark grayish brown
4. Dale Brown (standard, very and light)
5. Reddish-brown (standard, light, and red)
6. Red (standard, dusky, light, weak, yellowish)
7. Pale Yellow (standard, light, very)
8. Pink (standard and light)

9. White (standard and pinkish)

15-20% of the vessels are plain, remaining vessels are slipped and painted. Among these, the Harappan phase has white, red, dull red and black color slips or paint, remaining belong Early Harappan phase at Musa Khel. The very much versatile ground mineral slips do not mean that the prehistoric potters of the Musa Khel site have used so much variety of the pigments. These are the firing techniques and environments that have produced a variety of colors. The same pigment may produce different colors with different firing techniques and environments as shown in the table indicating different ground mineral with different properties have versatile coloring effects (O.S. Rye 1981:47; Mallah 2000:33). They are given as follows:

S.#	Pigment	Oxidizing Environment	Reducing Environment
1	Chromium	Green	Yellow
2	Copper	Green (lead Glaze), Turquoise Blue (alkaline glaze)	Purple, Red
3	Iron	Buff, Pink, Brown, Black	Grey, Blue, Green
4	Manganese	Purple, Black	Unstable
5	Nickle	Grey	Brown
6	Tin	White (opacifier)	Volatilizes

Modern potter of Musa Khel village does not employ a variety of painted decoration on their vessels. Only red and white (very pale brown, Munsell value) decoration has been seen on the vessels. The red hard clay for the red slip and white clay for white slip obtained from the nearby Musa Khel hills and Dawood Khel respectively. The red clay is produced in the area due to erosion and rain. The white clay is also available from *Pai Khel*, towards the west but the modern potters prefer white clay from Musa hills because the other required raw material such as clay temper and red slip clay, are available in the same area and it is convenient for them to explore this resource. The white slip is applied to water pitchers; produces a cooling effect while red color is applied to cooking pots. Both types of slips are prepared separately by soaking into the water. The white slip is comparatively thicker as compared to the red one. A very small quantity of salt is added into the white slip mixture as well.

During the experimental reconstructions at TIAC-2013, reddish color hematite or red ochre color (*Lal Geru*) was used to produce red color slip, while dark brownish ochre or goethite (*Kali Giri*) was used to produce purplish-black color in an oxidizing environment and applied on the vessel with a thin and fine squirrel hairbrush (Pl. XLIII a). Specific clay, found in Gujrat, also used to produce shining red color slips known as “*Vani*”. The dry mud is crushed completely with a stick and soaked into water for a night. The clay has natural concrete in it, which settles down over a night. The suspension can be sieved with some cloth. Experimental Reconstructions suggest that the pots with *Vani* were treated by dipping the vessel into container whereas the slip produced as a result of red ochre was applied with brushes and cloth folds. *Vani* produces natural shine whereas red ochre needs to rub before firing. For white color, a burnt animal bone was crushed and a suspension was then prepared by adding water into it.

For the preparation of red slip, fragments of red color hematite or red ochre were placed in earthenware with suitable water in it and the red ochre was dissolved in the water and impurities or sand particles were sieved. A thick suspension was prepared and applied on the vessel with a fold of clothing while the vessel is affixed on a manual slow rotating wheel. While the small irregular shaped piece of dark brownish goethite or kali girl was rubbed over the sandstone slab, lying in wedge position, with a continuous small supply of water. A cavity at the bottom was made by making a small wall on the lower edge of the slab and then collected the suspension in small earthenware. Small hand brushes were prepared by using donkey hairs for applying this color on the vessels. The pot with black color slips was not rubbed with leather or cloth because it does not shine as a result of this technique. For the hand made early Harappan vessel replicas, manually brushes were used to paint the pots while for the wheel made early Harappan vessels, brushes were used to apply paints during the slow wheel rotation.

For the white color, a completely burnt animal bone was crushed in a mortar and a suspension was prepared by adding water into it. After being sieved, the suspension was applied to the vessels manually as described earlier. The bones should be of strong part and most suitable bones are of camel and sheep, as stated by Allah Ditta.

Tarangranwala modern potters prepare yellow, red, and black colors by crushing the pieces in the terracotta vessel and mixed water into it to make it light suspension. The black color stone is crushed heavily until the powdered form is attained and powdered color is soaked into water for

40-50 minutes. The black color is not common and applied with modern foam stamps on specific vessels i.e., Jagay wali maati (Pitcher); *Lassi Wala Dola* (Bowl). Otherwise, the buyers may also desire to paint the vessel with black color. The white color is poured over the vessel with glass while the red color is applied with fabric fold with the vessel is on the wheel. The application of the colors aims at the beautification of the vessel and appreciated by the buyers.

Two types of decoration styles have been observed on Musa Khel village modern vessels such as painted and structural. The structural decoration is composed of dentition marks on margins of the water pitcher, which are made during the leather hard stage by pressing the trimming tool while the vessel is slowly moving over the wheel. The paint in the form of slip is applied to the vessel in the dried condition before putting them into the kiln for the baking. Red slip is applied manually with fabric fold on the cooking vessels while the white slip is prepared into a big iron tub and water keeping vessels are dipped under the white slip suspension and waving designs are made on the belly with fingers. The slips are dried completely within half an hour and the vessels are prepared for putting them into the kiln.

5.19. Washes/light Slips

Few of the vessels from Musa Khel site, have very light clay slip type appearance, mainly on the exterior of the vessels, termed here as “wash”. They are observed in the following colors.

1. Pale brown (standard and light)
2. Light red
3. Reddish yellow
4. Light brown
5. Pink

Some time vessels became very dry to do work on them before firing. Such vessels are swapped with water again to retain some moisture so that working on the surface may become easy. The present author is of the view that this is the main cause of clay wash or light slip colors.

Some time the firing environment and composition of clay also caused to produce light color slips, known as “Self slip”.³²

Black slipped sherds are mostly very fragmental and their parent form is not constructible at Musa Khel site. There is one bowl and one painted pot with a black color group slip as well. The white color group slips are mostly accompanied by painted motifs. All other remaining color group slips are common in all types of vessel categories. Red slip is dominant among all the slips. Most of the vessel categories have slipped on their exterior surfaces with slight overlapping on rim and throat area except the straight-sided pots and few bowl categories, which have accompanied with slips on the interior surface. Most of the vessels are accompanied by a single slip but few vessels have more than one slip on the vessels. These combinations are given below. In these combinations, main and prominent slips are followed by light slips. The light slips or later slips in combination are applied on the whole vessel initially after that main slip is applied and at the end painted decoration in the form of bands and motifs were applied. Moreover, in combination, the later slips of light color are most probably washing of different colors.

1. Dark reddish-brown; Very pale brown
2. Dark reddish-brown; Pink
3. Dusky red; Pale yellow
4. Dusky red; Very pale brown
5. Light red; Dark reddish-grey
6. Light red; Pale brown
7. Reddish-brown; Pale yellow
8. Red; Pink
9. Red; Reddish-brown
10. Red; Pale yellow
11. Red; Very pale brown
12. Reddish Black; Dusky red
13. Reddish-brown; Very pale brown

³² “Finely textured surfaces that appear to be slipped with the same material that constitutes the clay body, distinct slip is difficult to determine and could have resulted from wiping the surfaces with a wet hand” (<https://www.britishmuseum.org/collection/term/x105328>).

14. Reddish yellow; Very pale brown

Also, few vessels from Musa Khel site are having a mixed slip; one margin gives different color as compared to other margin. There is found some sort of color fluctuation as well. These mixed types of slips are given as follows; -

1. Mixed, Light reddish-brown; Very pale brown
2. Mixed, Red; Pale yellow

5.20. Polishing

Polishing the pottery surface gives it a fine shine. A tool made of wood, metal, stone, or shell or leather pieces may be used to produce even body before firing. The compactness of the exterior surface produce as a result of polishing decreases its porosity hence results in better and prolonged storage of the liquid contents. Polishing is not very common at Musa Khel site. Only a few specimens have been found polished, mainly Pots and Offering Stands, mostly belongs to the Harappan phase. Most of them have a polished exterior surface while the bowl specimens have both sides polished. Moreover, from Musa Khel site, the polished surface has been found along with smoothening and scrapping treatment. The percentage of the inclusions is in the range from 1-20% and no sample has found with dragged or tear out inclusion that means that the surface was already even and smooth. Very few numbers of polished vessels at Musa Khel site also suggests that the practice of polishing might be not very well in practice.

During the experimental reconstruction activities at TIAC-2013, a replica of Harappan Jar was red slipped with the help of cloth fold and a plastic wrapper was then rubbed on its surface horizontally. The vessel had still some moisture and the slip were not properly dried during polishing. It was later painted with black color and then baked. After it was baked, it produces a shiny surface. Now day's modern potters of the area are unaware of such a technique. They generally apply clay slips for the decoration. A long run of the time and rapid decrease in the use of pottery vessels for daily use has confined the pottery tradition and the versatility in local pottery tradition is almost on the verge of finishing.

5.21. Firing Process

The batch of dried pots is put to fire for the baking purpose to obtain the actual pottery product. Ethno-archaeological observation in the local and neighboring regions have shown the use of two types of firing processes. The first one employed the use of updraft kiln of small and large size and the other one is open or bone fire. The modern potters i.e., Musa Khel-*Mianwali*, Taranganwala-Bhakkar, and Ahmed Shahbaz Khel have attested the use of updraft kiln locally known as “*Bhatti*” whereas the Kotla Jam potters normally use open or bone fire process for baking the vessels, locally known as “*Awiee*”

There are several sites of Indus Tradition throughout the Greater Indus Valley which have attested the use of up-draft kilns (Posshel 2002: Fig.4.4, p.93). The updraft kiln constructed at TIAC-2013 was comprised of three portions, out of which two portions comprised of chambers; one lower and the other one upper. The lower chamber is for the firing of fuel whereas the second is for keeping the batch of dried vessels. The third portion is projected from the second chamber, making conical shape with an opening at the top, serving as a chimney. The kiln is made with the help of terracotta bricks and mud plaster tempered with dried plants remains. The fuel and storage chamber has openings for placing the fuel and vessels respectively in different position i.e., opening of fuel chamber was at 90° and opening of the vessel chamber is at 180° or 0° position. The roof between these chambers has wide perforations for the passage of fire and flames. Both chambers were able to airtight with the help of terracotta stoppers. The size of the kiln varies from four to eight feet. Whereas ethno-archaeological documentation has shown that the up-draft kilns of Musa Khel, Taranganwala, and Ahmed Shahbaz Khel villages are bigger and have very wide circumference and the top of the kiln is open without any chimney.

During the experimental reconstruction at TIAC-2103, the main fuel used for the firing was dried wood. First of all, the second chamber is filled with a dried batch of vessels properly and terracotta cakes of triangular and round shape of 4-5 inch long and wide and thick up to 1 inch were placed below and in the empty spaces for providing grip and thermal resistance to vessels and for ensuring that each vessel should get enough and uniform fire to get baked properly, otherwise the vessels remain un-baked and become weak. Once the chamber is filled with vessels, it is sealed with terracotta slabs. Now the dried wood will be fired gradually below in the firing chamber for about one and a half hours in the small kiln of about 4 meter high. The low fire, in the

beginning, ensures the proper firing. Abrupt high temperatures can produce cracks in the vessels and other defects as well. The temperature of the chamber increases slowly and gradually and it takes about seven to eight hours for attaining the temperature above 800 to 850°C. The chimney will continuously show the flames. The red and bluish flames indicate that the chamber has attained the required temperature and adding of fuel is abandoned at this point. The greenish flame will indicate that the temperature has crossed the desired limit. The chance of over-firing of the vessels and vitrification is now increased. After the attainment of the desired temperature in the kiln, the adding of fuel is stopped and the chamber is also closed. After this, the temperature will be maintained and gradually temperature will lower down. It takes four to five days to completely cool down. Prolong duration of the vessel in the kiln ensures proper vessel as a final product.

Nowadays Musa Khel modern potters personally acquire dry woods from the nearby woods and some time they also purchase it from the local wood depots. Moreover, the fuel includes lumps prepared from the dung of cows and buffaloes, pellets of goat and sheep as well. The potters have their own few cattle i.e., cow, buffalo, and donkey. They use their dung for the preparation of dung cakes or lumps. They also obtain pellets or wastes of sheep and goats from the *powindahs* or locally known as “*Ajarh*”. Their waste is more compact as compared to cow and buffaloes’ waste because the *powindahs* normally do not clean the waste and it became compact due to the foot pressure produced by the movement of sheep and goats. The potter stated that the lump prepared from such type of waste has a long life and it takes more time to burn completely and it is economic as well. They have a large; about five-by-five feet up-draft kiln with an open-top and located in the corner of their house. The lower firing chamber is deep down in the earth and the roof between the pot and firing chamber is perforated with thick openings. The dried pots are placed inside the chamber in an oblique position altogether in such a way that every vessel provides holding support to each other. Moreover, the spaces are filled with dried dung cakes. The top of the vessels is covered with pottery sherds, the broken pieces of the baked vessels. Now the lower firing chamber filled with dry wood is fired. The firing process continues for forty to sixty minutes until the dung lumps are fired. The firing in the chamber below the vessel chamber is stopped and the vessels are receiving uniform heat from the fired dung cakes. A small batch of vessels takes 3 hours whereas the chamber full of pots takes about four to five hours. The vessels are removed from the chamber after being cool. Few of the prepared water pitchers have black patches on their surface. The potter stated that sometimes the direct firing produces such patches on the surface of vessels.

The firing process at Kotla Jam is open firing. They create a heap of mud and sand and the broken vessels are placed over the heap. Following this, the dried batch is kept and spread all over the heap and again the broken vessels are placed among the dried vessels and above them as well. After that, the entire heap was covered with dried leaves for the firing purpose in bulk. Taranganwala potters use dried woods as fuel. The Harappa potter uses *Tali* and *Keeker* wood for the firing purpose. He stated that this type of wood produces the best embers, required for uniform heating.

At Musa Khel site, the firing technology was very advanced throughout the chronological sequence. The over-fired and melted pottery is very much rare. Less than 0.1 % of pottery is vitrified. The majority of the vessels are normally oxidized, without producing cracks (Graph-II & Graph-III).

The proportion of inclusion in the pastes also has effects on the firing process. All types of pastes (based on the proportion of inclusions) have been found fired in a completely oxidized environment. Although the pastes ranging from having no inclusion to up to 5% shows a lesser trend of attaining complete oxidation and a higher percentage of inclusions shows more trend of attaining complete oxidation. Un-oxidized or reduced pastes have predominantly less than 1 to 5 % of inclusions in them. It may be suggested on the basis of these observations that the pastes with a low proportion of inclusion become reduced and pastes with a higher proportion of inclusions get oxidized. Ancient Residents of Musa Khel were well aware of this technique. They were intentionally producing reduced pastes evident from the vessel having levigated clay with less than 1 % of inclusions in them.

There is no evidence of a proper kiln yet found at Musa Khel but the exposed section on the main mound shows firing activities in the form ashes and charcoal and one small convex and terracotta lined pit with fragments of bricks and plain pottery and reddish soil (most probably remains of a kiln). A good number of terracotta cakes and melted pottery also suggests the local production of pottery at the site. The remains of kilns are yet to be discovered in future excavations.

There has been observed similarity in the function of Indus terracotta cakes and modern cattle's dung cakes. The cattle's dung cakes at modern Musa Khel pottery workshop helps in

uniform heating of vessels. The initial firing of fuel in the firing chamber burnt the terracotta cakes and later on the burnt terracotta cakes provide uniform heat to vessels in the chamber.

5.22. Labeling (Post-Fired Graffiti)

Pottery collection from Musa Khel site has also provided us a few specimens inscribed with post fired graffiti. These specimens belong to the Early Harappan phase and given as follows:

1. *Maltese Cross*-Post Fired (on the small carinated pot with flaring rim).
2. *Triniti/Trishul* like Symbol-Post Fired (on black on red-painted small carinated pot with parallel sided and squat morphology).

Post fired labeling is not noticed during the ethno-archaeological documentation of the area but pre-firing labeling on chucks or molds is a common practice. Musa Khel site has the same mark of Maltese cross in pre-fired and posts fired state. This symbol is also reported from Early Harappan vessels at Gomal Valley and Bannu Basin. Discovery of the base mold with pre-fired Maltese cross at Musa Khel site suggests that this sign must have remained its signature during the Early Harappan phase at the site. Having same potter marks on the vessels of different and associated valleys show the use of such common signs with common ideology. It has also been observed ethno-archaeologically in the case of Musa Khel village potters and Khooiyan potters. It is suggested that the pottery has been exchanged to or from Trans Indus Gomal and Bannu Basin. It can be confirmed through petrographic and chemical analysis of pottery pastes of both regions. The presence of potter's marks on the vessels shows cultural relations with diverse pottery traditions of other areas. A single workshop can also have more than one recognition symbol as has been observed in the modern workshops of Kotla Jam Village in Bhakkar.

CHAPTER VI

Craft Traditions at Musa Khel: Types and Context

6.1. Introduction

In addition to pottery, a variety of minor antiquities were collected from different areas of the Musa Khel site. These antiquities are associated to different types of Early Harappan and Harappan craft traditions. Early Harappan (mainly Kot Diji phase) crafts mainly represents steatite button seal, steatite disc beads, chert microliths, and shell bangles, terracotta bangles, toy cartwheel whereas the Harappan phase crafts mainly represents baked bricks (rectangular and trapezoidal), terracotta cakes and ball, thick chert blades, grinding stones and serpentine beads and lime beads, etc. Besides, several stone fragments and a copper slag associated to different unrecovered crafts have also been found from the Musa Khel. Stone crafts are dominant due to an enormous number of flakes and fragments of different types of stones such as chert, lime, serpentine, basalt and siltstone, etc. It is followed by terracotta crafts, of which bangles make up the largest portion. The last category comprised of shell objects. All of these crafts recovered from Musa Khel site have been documented and described in this chapter along with their cultural relation and interaction with source regions. Unlike pottery, limited aspects of each type of antiquity have been described distinctively.

6.2. The Stone Crafts

The stone objects collected from the Musa Khel site indicate a variety of well-established stone industry that was producing several crafts. The stone crafts include (a) button seal (b) beads (c) ball/weight (d) microliths (e) grinding slabs. Besides, miscellaneous stone fragments, nodules, rough-out and chunks associated to local craft production also have been found from different areas of site.

6.2.1. Button Seal (Fig. LIX, PLXXXV b)

One specimen of steatite button seal was collected from area-6 of the main mound. The steatite seal is in fragmental condition and round in shape with a carved band depicting alternating triangles around the periphery on the obverse side and remains of an urial/antelope pair carved on the reverse side, standing one above the other, with their faces in opposite direction (as it is

observable from the preserved portion of the seal). The important feature of the seal is the remains of an intact copper wire, passed through the hole drilled sideways on the margin of the seal, most probably for hanging in the neck.

Cultural Relation and Context

The steatite sources are not found in the immediate vicinity of Musa Khel site. They are mainly available in FATA, Hazara, Northern Areas, Lasbela, Kalat, Zhobe and Rajasthan. The provenience studies at the type-site Harappa have shown that most of steatite has reached Harappa from Hazara deposits, possibly via Nammal Gorge (Law 2008:312-325). Based on the location of Musa Khel site in the vicinity of Nammal Gorge, Hazara steatite sources are suggested as the most suitable candidate for the Musa Khel type steatite.

Raw steatite is not yet recovered from Musa Khel site as a result of present limited explorations which do not completely preclude the local production of steatite seals. The urial/antelope carved on the seal are still can be seen in the fauna of the area i.e., Kala Bagh area (Shah 2013:12), which must have influenced the craftsman of ancient Musa Khel. Moreover, the recoveries of copper slag in association with steatite seal having intact copper wire also suggests that it might have produced at the site. Although, based on the absence of raw steatite, the possibility of steatite seal of being intrusive cannot be ruled out as well.

The comparable specimen of the Musa Khel's type button seal is not found in the nearby regions except few other types associated to Kot Diji phase seals such as square steatite button seal with carved roundels from Nari, towards the east in Sakesar Valley (Dar 2003:Pl. XV, p.63) and Gandi Umar Khan towards the west in Gomal Valley (Ali & Jan 2009:50, plate 21); a square steatite button seal with engraved roundels and indented edges at Rehman Dheri (Samad & Jan 2016:96, lower plate) and round shape button seal made of bone at Sarai Khola (Halim 1972: Fig. 5, nos. 15-16, p.22). One pear shaped steatite seal has been found with carved urial/antelope on reverse side found along the dry bed river Bias and belongs to Kot Diji phase (Ghauri 2020)³³.

³³ Ghauri, Zubair, "A pear shaped button seal from a Harappan site along the dry bed of river Beas. Dots, circles, triangle and irregular squares are the geometric elements used beautifully on the reverse, whereas, a deer on the obverse is made by a careful hand. Approximately 2500 BCE- 2800 BCE old" Facebook, April 29, 2020, https://m.facebook.com/story.php?story_fbid=906098903151578&id=100012544300028.

Another interesting and comparable steatite button seal with depicted animal pairs at the rear side of the seal is reported from the Early Harappan phase at Kunal beyond east (Kenoyer 2013).³⁴

6.2.2. Beads (Fig. LX, Pl. XXVI a)

The survey at the Musa Khel site provided a total number of six stone beads among the personal ornaments and possibly belongs to necklace. Their number is fewer but still, they occupy a conspicuous place in the collection. Morphologically, these beads are categorized as follows: -

- 1. Barrel-shaped.**
- 2. Disc-shaped.**

1. Barrel Shaped Beads

They include serpentine and limestone beads. All of them found perforated very precisely which indicate an advance level of bead technology at Musa Khel.

(a) Serpentine Bead

Morphologically the serpentine bead is barrel shaped. One specimen is collected from the southeastern crop area and is found in broken condition, lenticular or circular in plan, black in color with filled red spots. The hole of bead diameter measures 41.2 mm at extreme while 3 mm in the middle. The height of bead is 23.20 mm while diameter of plan at mean is 13.70 mm and at the extreme is 7.83 mm. More than half of the bead is preserved. The remainder is collected from the southwestern slope of the main mound 1. It is dark green in color with white bands, barrel shape, and circular plan. The hole of bead diameter measures 3.33 mm while bead diameter is 11.13mm at meanwhile 7.6 mm at the extreme. The height of the bead is 29.49 mm.

(b) Lime Stone Bead

Morphologically, the limestone bead is also barrel shaped. Only one specimen came from the section area at the northeastern slope of the main mound. Bead is partially broken along the height; the shape is lenticular or circular in plan. The bead is a reddish color with white color veins. The

³⁴ Kenoyer, J.M. "Regionalization Era-Northern Indus." M.Phil. Asian Studies-Class Lecture, The Archaeology of South Asia, From Taxila Institute of Asian Civilizations, Quaid-i-Azam University, 2013.

bead's diameter hole is 3.13 mm at the middle and 2.52 mm at the extreme. The bead diameter is 10.71 at mean while 7.10 at the extreme. The height of the bead is 20.87 mm.

2. Disc Shaped Beads

They include three steatite disc beads and found precisely perforated like barrel beads:

(a) Steatite Beads

Morphologically, these beads are disc-shaped and have a circular plan. Two beads are found stick together due depositional factors and are very fragile; therefore, they have been kept intact. The beads are purely white in color, indicating that they are fired at high temperature. These beads were collected from Mound 2 of the Musa Khel site. The shape of the joined beads is exactly round, measuring 10.25 mm in diameter and the bead hole is also precise and rounded; measuring 2.87 mm. The combined height is 2.32 mm (1.03 mm for each). The single bead, most probably an unfinished one is also round in shape, measuring 10 mm in diameter, and the bead hole is measuring 3 mm. It has a trapezoidal section, height varied from 4.5 mm at one end to 2.5 mm to another end. All the beads have parallel and irregular sharp striations as a result of cutting with toothed copper saw (Kenoyer 2000:65).

Cultural Relation and Context

As we have also discovered an unfinished steatite bead along with few serpentine and limestone flakes, it is quite possible that the raw material for the beads was imported to the site from the source area and finally beads were manufactured at the site. The possibility of steatite sources has been mentioned above in the steatite button seal section. The lime stone is available in the Salt Range which is in immediate access of Musa Khel (Law 2008:555). The serpentine sources are found in Zhobe, North Waziristan, Dargai, Northern Areas, Rajasthan (Ibid:155) and Peshawer Valley (Ibid:1045). Zhobe Valley is connected to Gomal Valley and Gomal Valley is further connected to Musa Khel via Bannu Basin. Likewise North-Waziristan is connected to Gomal and Bannu Basin which are further connected to Musa Khel. Hence both of these sources have equal importance for the serpentine trade. Besides, incase if steatite is assumed to reach Musa Khel from Hazara via Nammal Gorge, it is quite possible to trade serpentine from the sources of Peshawer Valley because it also had to follow the steatite rout partially in the northern sphere and terminated

at Musa Khel via Nammal Gorge. The present review suggests that the Musa Khel was in economic link with one of the areas during Harappan phase. The cultural link with Gomal and Bannu, Pothohar Plateau, Central Indus Valley and Lower Indus Valley is already highlighted through distribution of comparable pottery specimens.

The disc shape steatite and barrel shape serpentine-lime stone beads are reported from several Indus Tradition sites. Several types of barrel-shaped stone beads are reported from Kot Diji phase in Gomal Valley such as Gandi Umar Khan-II (Ali & Jan 2009: Pl. 17, 48) and Rehman Dheri-II (Durrani 1986). The comparables of Musa Khel's disc shape steatite beads are also numerous in associated and far-off regions, especially during Kot Diji phase such as Sarai Khola-II (Halim 1972: Pl. VA, nos. 16-18) ;) and Gandi Umar Khan-III (Ali & Jan 2009:50, Pl. 21, nos. 4-5 from left, bottom row). They are also found from Gumla top levels (Dani 1971: Fig.8, nos. 13-19, p.87). The pre-Kot Diji phase (Tochi Gomal phase) in Gomal Valley also has yielded such type beads such as Gandi Umar Khan-II (Ali & Jan 2009:48, p. 17, no 2 from left, bottom row) whereas the Ravi phase preceding Kot Diji phase at Harappa has smaller beads as compared to Musa Khel. Although Kot Diji phase beads at Harappa are very similar to Musa Khel's steatite disc beads (Kenoyer & Meadow 2000: Fig.5, no.19, p.66). Disc beads are also reported from Harappan phase at several sites such as Gandi Umar Khan-IV with small-sized beads (Ali & Jan 2009:53, pl. 26); Nari (Dar 2000:63; Pl. XV); several site in the Thal Desert (Ghauri 2018: Fig.2.42, p.86); Cholistan Desert (Mughal 1997:Pl. 64, no. 2, p.78); Lakhenjo Dero (Sheikh et al 2005:Pl. 99, p.102); and beyond east.

6.2.3. Chert Microliths (Fig. LXI-LXIV, Pl. XVI b-XVIII b)

A good number of microliths were collected from different areas of the Musa Khel site. It includes, (1) chert stone blades, (2) cores, and (3) chert flakes with varied sporadic distribution at the site. The north-western slope of main mound yielded maximum microliths followed by the south-eastern area due to illegal digging and agricultural activities by the locals.

Chert Blades (Fig.LXI-LXIII, Pl.XVI b)

Majority of the blades are short, parallel-sided, and thin, besides few long, thick and asymmetrical types. Sides of most of the specimens are concave along with few straight sided specimens. These blades were manufactured by “crested-ridge guiding” technique (Halim 1972:15), followed by a

variety of direct and indirect retouch application. A few of the blades are simple without any retouch application. Most of the chert blades are retouched directly (on the dorsal surface), except one specimen, that was retouched indirectly on the ventral surface. Few of the blades are found with alternate retouching on both sides. Majority of blades specimens are retouched on both sides besides few retouched on one side only. The length of the blades ranges from 49.99 mm to 65.99 mm and width from 7.31mm to 23.50 mm, the thickness is in the range from 2.09 to 7.14 mm.

Few chert blades are intact with pebble cortex on the vertical to butt side. Majority of the blades have broken butt besides few with short, plain and faceted types. The distal and butt sides of blades have trapezoidal to triangular transverse section mainly while rectangular to square types are rare.

The choice of the material for the manufacture of blades is limited to chert stone. Dominantly a dark gray chert (black), the fine-grained variety has been used to manufacture these blades. Few specimens of tan-brown chert are also recovered from the surface of Musa Khel. The gray color also has a brownish hue. Light brown, white, pinkish-white colors of chert blades are also included in the blade collection. Dark gray is dominant while white and pinkish-white are rare of the chert colors, collected from the site.

Chert Cores (Fig.LXIV, Pl. XXVII a)

A small number of cores were also collected from Musa Khel, mainly came from the northwestern area of the main mound. This area already has provided a maximum number of blades followed by south-eastern slope, agricultural field, northern and southwestern area of main mound. Three types of cores have been identified in the current sample of core collection such as flake core, parallel sided blade core and trimming blade core. Flake cores are characterized by asymmetrical shape, nodules type, bigger in size, with irregular scars and roughened edges. Blade cores have symmetrical shapes, regular negative scars of thin blades, comprised of small nodule. One of core shows vertical scars, slightly irregular in form and found intact with pebble cortex at both ends, designated as trimming blade core.

Majority of the cores are comprised of small blade cores found with intact pebble cortex on butt and distal ends distinctively. The length of the blade cores with preserved butt end is in the range from 15.76mm-30.11mm and width from 3.93mm-19.19 mm while the length of the blade cores

with the preserved distal end is in the range from 15.18mm-37.01 mm and width from 7.27 mm-16.43 mm. The length of the trimming blade core is 33.76 mm while the width is 1.80 mm. The length of flak core or asymmetrical cores is in the range of 32.88-45.90mm, and width from 29.40-33.55mm. Likewise chert blades, dark gray is the dominant chert variety with brown color hue, and very few specimens having tan-gray chert.

Chert Flakes (Pl. XXVIII a)

The suitable quantity of chert flakes was collected from different areas of Musa Khel, majority of them recovered from the northwestern area of main mound followed by top of the main mound, northern and south-western slope areas. Majority of the flakes are primary in nature i.e., found intact with pebble cortex on butt end to vertical side. A dark gray chert variety is dominant while tan-gray variety is rare. Few specimens are comprised of secondary flakes i.e., without intact pebble cortex. Very few flakes have been found treated with retouch application. Most of flakes are asymmetrical in shape; few are rounded and straight-sided.

Chert Nodules (Pl. XXVII b, XXVIII b)

A few chert nodules were also collected from different areas of the Musa Khel site such as the top, northern slope and north-western section of the main mound. All the nodules have intact pebble cortex and found in fragment and chipped form. Majority of the nodules is comprised of gray chert and rarely tan-brown chert variety.

Cultural Relation and Context

Salt Range, lying at the north and north east of Musa Khel in its immediate vicinity has a variety of chert stone deposits, which were founded by Law and Baqiri during 2000's field work (Law & Baqri 2001). Black to chocolate brown chert is found in the Sakesar limestone deposits at the head of Nammal Gorge in the western Salt Range (Law & Bakri 2003:34; Law 2005:182). In the central portion of the Salt Range, nodules and fragments of a light gray chert are also found in the bed of Buri Khel Nala (Law 2008:275). Purple hued chert chalcedony can be found from the Khewra trap in eastern Salt range (Ibid:257). The beds of Nammal Lake also have abundant supply of black and tan gray chert stone variety (Ibid: 555).

The presence of comparable chert flakes, cores, and nodules at Musa Khel site suggests that the variety of chert stone has been brought to the Musa Khel from nearby quarries and manufactured at the site during different phases. The similar observations were made by the Randal Law on the surface of Musa Khel besides Nammal Gorge. At that time, the site was quite intact as compared to date. He has also founded a napping area close to Nammal Gorge (Law & Baqri 2001:34; 2008:262). The present author has himself visited the Nammal Gorge as well as the bed of Nammal Lake and has collected fragments of black-brown chert nodules and one fragment of light pinkish chert nodule respectively.

Interestingly, Instrumental Neutron Activation Analysis of black-brown chert stone, collected from different sites and sources by the Randal Law have shown that several contemporaneous sites in the adjacent areas have Musa Khel type black-brown chert stone, received from the Sakesar sources during Ravi and Kot Diji phase at the type-site Harappa in Central Indus Valley (Law 2008:712-716) as well as during the Tochi Gomal -Early to Late Kot Diji phase at Rehman Dheri and also Early to Late Kot Diji phase at Hathial in Taxila Valley (Ibid:726-727). Besides scientific studies, Sakesar type black chert in the form of tools were also observed on the surface of Lewan in Bannu Basin (Ibid: 262).

These types of stone tools are widely reported from several sites throughout the Greater Indus Valley and beyond, during the Early Harappan and Harappan phases. The examples from the associated regions include Sarai Khola I and II across the Salt Range (Halim 1972: Fig. 1, p.6).

At Gumla, the chert microliths are reported throughout the cultural sequence. Gumla I has black to pale-colored parallel-sided chert blades and scrapers³⁵ (Dani 1971: Fig.9, nos.2,4,6-8, p.97-98); Gumla II has dominantly black chert parallel-sided blades (Dani 1971: Fig.10, nos.1-19,

³⁵ The presence of Sakesar type chert tools at Gumla I suggests that the Sakesar Formations were probably exploited since Early Food Producing Era (Dani 1971). Dani suggested a long stratigraphic break between Gumla I, the KGM I and Gumla II, the Tochi-Gomal (Dani 1970-71). In that sense, Gumla is the only example of such type of chronology in the area. Report on excavation at Gumla I doesn't provide its full potential (Possehl 1999; Macintosh 2008) and long duration of gap needs more substantial justification. The handmade pottery of Gumla II lying right above the Gumla I and relative lateness of stone tools, found comparable with Mehrgarh that suggests the origin of this material culture in Gumla I as there are also cultural similarities in hand made pottery of this kind from other sites i.e. Sarai Khola in Upper Indus valley, Lewan in Bannu Basin and Mehrgarh in Kacchi plain (Allchin & Allchin 1996).

pp.98-99); Gumla III has few black chert parallel-sided blades and asymmetrical pale chert scrapers and flakes (Dani 1971:Plate 53, nos.3,6-7,9-10, pp.99-100) and Gumla IV parallel-sided blades and scrapers in black to pale chert stone (Dani 1971: Pl.53, no.13; Pl.54, nos.5-6,8-9; Pl.55, nos.2-4,6-7,10, pp.100-101).

The parallel-sided chert blades are also reported from different phases at Rehman Dheri (Samad & Jan 2016:86, upper plate) and also at Jhandi Baber I (Ali & Khan 2001? Pl.VA, p.175, 177). At Gandi Umar Khan, parallel-sided chert blades, scrapers, and flakes are available throughout the sequence like Gumla in Gomal Valley (Ali & Jan 2009:Pl. 31, p.26). Several sites in Bannu Basin have chert blades and cores during Early Harappan phase i.e., Lak Largai (Khan et al 1991: Fig.22, nos.8-9; Fig.23, nos.13-14,16-20, p.30-31); Tarakai Ghundai (Khan et al.Fig.26, nos.13-16, p.34).

Besides, Musa Khel type light gray to white chert stone tools has been observed on Kallu Wala Dher (Law & Baqri 2001:234-236); and parallel-sided chert blades in light gray, light to dark brown, white and core with white and black specks also have been reported from Early Harappan-Harappan phases at Nari in Sakesar Valley (Dar 2003:Fig. 18, no 2-7, pp.25-26) and also present throughout the sequence at the type-site Harappa in the Central Indus Valley (Dales & Kenoyer 1990: Fig.53, nos.1, 11-15; Fig.54, nos.5-10, p.129).

A suitable variety of chert stone tools in white, black, light brown and reddish are also reported from several Early Harappan sites (Hakra and Kot Diji phase) in the Thal Desert such as white chert blade from Jandwala-2, Hakra-Kot Diji phase site (Ghauri 2018: -Fig.2.12, p.66); brown chert blade from Bhundral-3, Hakra-Kot Diji phase (Ghauri 2018: -Fig.2.54, p.101); black chert blade from Site Pir Wali Chakki-1, Hakra-Kot Diji phase (Ghauri 2018: Fig.2.70, p.115).

Besides, several Early Harappan and Harappan phase sites in the Cholistan also have such types of stone tools such as Hakra phase sites (Mughal 1997: Pl.43, nos.1-46, p.68); Kot Diji phase sites (Mughal 1997:Pl. 49, nos. 2-10, p.68) and Harappan phase (Mughal 1997:Pl. 63, nos. 1-9,13, p.68). Hakra phase tools are crude in shape and found chert has variety such as light reddish, white, and light brown color while Kot Diji phase is refined and most of them are smart and sharp with white color whereas the Harappan tools are mostly broad, precise, long, and refined with white and dark color.

The versatility of micro-liths at Musa Khel indicates the presence of an evolved and developed industry. The Musa Khel chert tools have been found associated with Early Harappan and Harappan phase at Musa Khel (c.3300 – 1900 BCE) that shows that these immediate chert sources were regularly exploited by the Early Harappans (during Pre-Kot Diji and Kot Diji phase) and Harappans of Musa Khel and associated regions.

6.2.4. Stone Ball/Weight (Fig. LXV, Pl. XXIX a)

One specimen of the small size stone ball, which might have used as weight, was collected from the north-western slope section area of the main mound 1 of the Musa Khel. This specimen is made of limestone, slightly reddish-brown in appearance with little remains of pebble cortex. The ball has a diameter of 20.12 mm. Flakes and chunks of similar lime stone collected from Musa Khel suggest that the raw material was brought to site and produced at the site. The sources of lime stone are available in the Salt Range, lying in the immediate vicinity of Musa Khel. The stone ball is morphologically comparable to Late Kot Diji phase at Gumla-IV (Dani 1971:95; Pl. 49, no 6); also found during the Kot Diji phase at Cholistan (Mughal 1997:Pl. 49, no. 38, p.73); and at type site Kot Diji-I (Khan 1965:Pl. XXXI, nos. 8-19,21-22) and Lakhenjo Dero (Sheikh et al 2005:Pl. 15, p.29) in the Lower Indus Valley. A recent visit to Nari in Salt Range, also witnessed the presence of such type of stone balls in variety.

6.2.5. Pestle and Grinding Slabs (Pl. XIX b)

One specimen of Pestle in fragmental form is found from Musa Khel site. It is made up of blackish brown color sandstone. It is a rod-like cylindrical, and a slightly concave in shape, with consecutive striking marks on the ventral surface. It might have been used as a hammer and one end is also found struck and damaged. The concave geometry suggests that it might be a saddle quern; whose very small portion of it is preserved. Most probably, it is associated with a pestle. It is collected from Mound II of the Musa Khel site. The long axis of this preserved this household fragment of is 139.46 mm, the short axis is 30.42 mm and the intermediate axis is 62.98 mm.

Besides, three specimens of grinding slabs were also collected from Musa Khel site. All of them came from the top of main mound. They are composed of lime stone (white with dark brown dots to yellowish white porous to light reddish color types). Their ventral surface is smoothened and concave while the dorsal surface is flattened and roughened. They are rectangular in shape

and plan. The long axis is in range from 70.16-314.1mm, the short axis is 35.44-62.12 mm and the intermediate axis is 69.41-151 mm.

All of the specimens have smoothed and concave ventral surfaces due to frequent grinding while dorsal surfaces are pitted and roughened. As their function appears, they must be fixed on the earth to prevent its movement during the grinding process. Scattered nodules and fragments of lime stone and sand stone on the surface of Musa Khel suggest that these stones were brought to the site and locally manufactured. Lime stone and sand stone are abundant in the area and locally available. Most probably Indus River boulders comprising lime and sand stone have been quarried for these grinding stones.

Cultural Relation and Context

Grinding stones are generally found from Early Harappan as well as the Harappan phase throughout the Greater Indus valley and beyond. The Musa Khel specimens are found from the top of the main mound in association with Harappan indicators such as perforated ware and round-based ledged pots. Although, grinding stones have been observed in the exposed levels parallel associated to Kot Diji phase at Musa Khel site. They are reported from several parallel Kot Diji phase sites i.e., Hathala (Dani 1971: Pls. 1-2, 5); Sarai Khola-II (Mughal 1972: Pl.IVA, nos. 2-4 & Pl. IVB, no. 6, p.14), Gumla-IV (Dani 1971:Pl. 47B, no. 1); type-site Kot Diji (Khan 1965:Pl. XXXII a) and several sites in the Cholistan along the dry bed of River Ghagger Hakra (Mughal 1997:73, Pl. 49, no 34,35). The current Musa Khel specimens are Harappan and occur throughout the extent of Indus Civilization. A few Harappan examples can be seen at type Harappa in Central Indus valley (Dale & Kenoyer 1990: Fig.55, p.130); a sandstone pestle from Bazariwala in the Cholistan (Mughal 1997: Pl.63, no.14, p.103); and Gandi Umar Khan in Gomal Valley (Ali & Jan 2009:26).

6.2.6. The Stone Craft Debitage

A variety of stone debitage associated to recovered crafts besides microliths were also collected from different areas of Musa Khel. A few stone fragments of unrecovered crafts were also found from the site in fewer varieties. Among the recovered crafts include serpentine flakes in light green color with whitish layers and black grains (Pl. XXXIII b), associated to barrel shaped serpentine beads and lime stone flakes, chunks and nodule fragments in light reddish color and white veins

(Pl. XXXII a) associated to barrel shaped beads and stone ball/weight. The presence such fragments and flakes on the surface of Musa Khel clearly suggest that the raw stone was brought to the site and they were locally manufactured at the site.

The debitage associated to unrecovered crafts at Musa Khel site include a chunk of lapizlazulli (Pl. XXXII c), nodule of alabaster (Pl. XXXIII a), a white chert stone fragment with black bands, might be a bead rough out (Pl. XXX b); fragments of basalt stone in dark green color (Pl. XXXI b), fragment of silt stone in light green color (Pl. XXXIII a), fragment of gabbro stone in white color with dark green dots (Pl. XXXII b) and nodule fragment of orange color lime stone (Pl. XXXII a) as well. Likewise, their presence on the surface of Musa Khel indicates that the raw stone was brought to the site and some unrecovered crafts were locally manufactured at the Musa Khel site. The debitage of unrecovered and recovered crafts reported from Musa Khel site such as serpentine, limestone, sandstone, basalt, etc, are also reported from other sites such as type site Harappa, for the manufacture of different type beads during different phases (Dale & Kenoyer 1990: Fig.51 & Fig.52, p.129).

The sources of basalt, gabbro and lapis lazulli stones are not in immediate access of Musa Khel. The Basalt stone is available in north-western areas of Greater Indus Valley (Law 2008:803) and they are also found in Rani Kot and Bara Nala sections of Laki Range (Agheen et al 2012:1). Basalt can also be found in Sargodha hill, in the neighborhood of Mianwali and is the most suitable and feasible source for the Musa Khel type Basalt (Ahmed et al 2017:1). Gabbro is found in northern Zhobe and Waziristan Hills (Law 2008:140). They might have reached here at Musa Khel via Gomal Valley or Bannu Basin. The sources of lapis lazuli are mainly found in Sar-i-Sang Area, Badkhashan, Northern Afghanistan (Law 2008:808). Their presence at Musa Khel indicates the presence of an economic link with these different areas during different chronological phases at the Musa Khel site.

6.3. The Shell Crafts (Fig.LXX, Pl. XXXIII c)

The shell crafts are rare in the surface collection of the Musa Khel site, comprising of only fragments of different shapes of conch shell bangles. These shell bangles seem to be not very popular at Musa Khel, as there are only two specimens recovered, one from the main mound and other from the mound-II of the Musa Khel. The one found on the surface of the main mound is a

fragment; more than fifty percent of it is preserved with flat to ovoid section. The bangle is not entirely circular, that's why the exact diameter is uncertain. Exterior and interior surfaces have smoothed or rubbing marks indicate the polishing process. One edge of the bangle is tapering and very pointed. The height of this specimen is 17.69 mm and thickness is in the range from 0 mm- 9.9 mm.

The remaining specimen is very fragmental; with a very small preserved portion. It is collected from the mound-II, likewise not entirely circular and ledged border having a triangular type section. It has a different shape as compared to the previous sample. The height of this specimen is 26.68 mm and thickness is in the range from 0 mm- 2.25mm.

Cultural Relation and Context

There is no source of marine shells in the close proximity of Musa Khel. They are mostly available in the coastal areas of Makran and Kutch regions (Kenoyer & Meadow 2000:68). The presence of marine shell bangle at Musa Khel suggests its trade link with these coastal areas. The limited exploration at the site couldn't reveal the raw marine shell of fragments. It is quite possible that these shell bangles were manufacturing locally because the Musa Khel was already producing several crafts. It requires further probing through large scale exploration.

The Musa Khel shell bangle specimens are associated with the Early Harappa-Kot Diji phase as well as the Harappan phase, based on the comparative study and context of finds. Conch shell bangles occur in Early Harappan and Harappan phases throughout the extent of Indus Civilization like other objects i.e., grinding stones, chert blades, etc. They are reported from all phases at the type site Harappa (Dales & Kenoyer 1990: Fig.50, p.128) and several early Harappan sites in Thal Desert (Ghauri 2018: Fig.2.48, p.94) and Cholistan i.e., Hakra phase sites (Mughal 1997:68, Pl. 43, no 60-62); Kot Diji phase sites (Mughal 1997:73, Pl. 49, no 28,29); Harappan phase sites (Mughal 1997:79, Pl. 64, no 8-9). Also reported from several early Harappan sites in Sindh i.e., Dubi 4, Taloor Ji Bhit, Char Baro, Loal Meri, Nerr (Mallah 2010:68). Shell bangles found almost in all sites of Thar Desert during the Harappan period (Mallah 2010:73).

6.4. The Terracotta Crafts

The terracotta industry at Musa Khel includes the production of several types of crafts other than pottery. It includes crafts related to (a) entertainment i.e., figurines (might be ritual) and bullock carts; (b) personal ornaments i.e., bangles and (3) industrial crafts i.e., bricks, cakes, missiles, and balls, etc. Pottery has been discussed in detail in previous chapters. The other crafts have been discussed below accordingly: -

6.4.1. Figurines (Fig. LXV, Pl. XIV a)

A few numbers of terracotta figurines were collected from different areas of the Musa Khel's main mound. They include (a) Human Figurines; (b) Bird Figurines. They are rare in quantity and not uniformly distributed over the site. One animal and one human figurine were collected from the north-western slop section of the main mound whereas another human figurine was found at the south-western slope of the main mound and the remaining fragment of animal figurine came from the northern slope of the main mound of Musa Khel.

(a) Human Figurines

All the specimens of the human figurine are denoting female features. One of them is a typical seated female figurine, plain, with damaged margins in yellowish-red ware and found properly fired. This figurine seems to be made in a single part, with pinched or concave lap, the head is missing. The height of this preserved figurine measure 30.50 mm, length 43.73 mm, width 17.5 mm, and thickness 9.11 mm.

The other type of female figurine is also in fragmental form and is seated type in red ware, with only forward and extended flat legs along with preserved flattened buttocks. It resembles to typical figurines flattened buttocks, forward projected and extended legs, slim waist, and pointed breast with upwards arms. These types of figurines are manufactured in stages i.e., lower and upper portions and joined together later. The height of this preserved figurine measure 35.50 mm, length 42.28 mm, and thickness of 7.79 mm.

(b) Animal Figurines

Two specimens of animal figurines were also collected from the surface of Musa Khel. One specimen is a seated bird, the tail is preserved and platform is preserved in red ware. It is plain, without any ornamentation. The height of this preserved figurine measure 24.07 mm, length 42.27 mm, and thickness 31.78 mm. The remaining one is the only fragment of an animal limb. It has cracks, plain and gray core, cylindrical and round sectioned as it belongs to an elephant. The height of this preserved figurine measure 16.06 mm and length is 10.90 mm.

Cultural Relation and Context

The comparable of Musa Khel female figurines pointed legs are numerous, few parallels include Gumla-IV (Dani 1971; Pl. 22a, nos. 1-3, 5); and Rehman Dheri in Gomal Valley (Dani 1971: Pl. 72, nos. 19-20) whereas Sarai Khola-II in Trans-Salt Range (Mughal 1972:Pl. XB, p.27); Jalilpur-II in Central Indus Valley (Mughal 1972: Pl. XXVII-A, nos. 8-9) and several sites in the Thal Desert (Ghauri 2018:Pl.48, p.220).

The comparables of broad buttock type female seated figurines are reported from Gumla-III and Gumla-IV (Dani 1971; Pl. 22b, nos. 1-4) in Gomal Valley; Sarai Khola-II in Trans-Salt Range (Mughal 1972:Pl. XIA, nos. 1-2,4, p.28); and Harappa-II (Kenoyer 2013)³⁶. Musa Khel's seated bird figurine is also reported from Gumal-IV (Dani 1971: Pl. 32, no 3) and Jalilpur-II (Mughal 1972:Pl. XXVII-A, no 10). The comparable of elephant limb may also be seen at Gumla top levels (Dani 1971: Plate 37, no 4).

6.4.2. Bangles (Fig. LXVI-LXIX, Pl. XXXIV b- XXXV a)

A good number of red and gray ware terracotta bangles of single to multiple strands were collected from different areas of the Musa Khel. They seem more popular among the terracotta personal objects at Musa Khel as evident from their rich distribution throughout the site. Dominantly in the form of fragments, they were collected from the northwestern section on the slope of main mound, followed by few fragments from southwestern slop to north-eastern slope, crop area, top of main

³⁶ Kenoyer, J.M. "Early Harappan, Kot Dijian Phase in North Rehman Dheri, Harappa, Kot Diji (2800-2600 BCE)." M.Phil. Asian Studies-Class Lecture, The Archaeology of South Asia, From Taxila Institute of Asian Civilizations, Quaid-i-Azam University, October, 2013.

mound and mound 2. Majority of the specimens are fired to gray ware, followed by few red fired specimens. All the bangles are plain except one red fired with traces of red/brown slip.

Morphologically, these terracotta bangles can be categorized into the following types:

1. Single stranded
2. Double-stranded
3. Triple stranded
4. Tetra/Four stranded

(1) Single Strand Bangles

Majority of the specimen are single-stranded and fired to gray ware. Only few bangles are red fired out of which one specimen is red/brown slipped. Few gray ware terracotta bangles have pre-fired series of oblique strokes on the exterior surface while one gray ware specimen shows oblique strokes in alternate style. The gray ware bangles have round to oval and square section. While the red ware bangles have round to oval sections. The red/brown slipped bangle is round sectioned. The height of the gray terracotta bangles is in the range of 6.05 mm-13.23 mm whereas the height of the red terracotta bangles is in the range of 4.02mm-7.52mm. The height of the slipped specimen is 8.60 mm.

Almost all the bangles are plain, except one red ware fragment has the traces of brown slip. The decorative work of pre-fired strokes is mainly confined to only gray ware bangles. Red ware bangles are plain and single stranded. No complete specimen was found from the site, mainly indicates that they were discarded after being broken, and if any of the complete specimens were there, the deposition of layers might have damaged them, as they are fragile. The difference between the red and gray ware is due to different technological implications. Gray ware bangles are obtained in a more reduced environment and they are slightly lighter in weight as compared to red ware bangles. All of the specimens are described and documented.

(2) Double Strand Terracotta Bangles

Double strand terracotta bangles are also rare among the surface collection of Musa Khel. All of them are gray fired and collected from the north-western section of the main mound. Majority of the specimens have pre-fired diagonal strokes on the exterior except one with plain surface. All of

the bangles have a round section, except one with a square section. The height of these bangles is in the range from 7.56mm-8.81mm.

(3) Triple Strand Bangle

A few numbers of specimens were found with triple strands. All of them are fired to gray ware and collected from northwestern section and south-western slope of the main mound. All of them have been treated with structural decoration in the form of pre-fired series of diagonal strokes on the exterior surface of the bangles. They have a mainly flattened round section except one with square section. The height is in the range from 9.26 mm-10.05 mm.

(4) Tetra/Four strand Bangle

Only one specimen with four strands was collected from the Musa Khel. It is gray fired, plain, and round sectioned. The total height of the bangle is 13.73 mm, each strand measuring 3.63 mm height. This specimen came from the north-western slope of the main mound, the richest area of the site.

Cultural Relation and Context

The spatial horizon of the terracotta bangles is very wide and reported enormously throughout the extent of Indus Civilization. The Musa Khel's current collection of terracotta bangles mainly associated with the Early Harappan-Kot Diji phase while rarely Harappan based on comparative study. Red ware single strand Musa Khel's type bangles are comparable with round sectioned bangles of Gumla III (Dani 1971:Pl. 42, nos. 6,9,11) whereas the gray ware bangles, single to multi coiled with diagonal strokes/zig-zag marks reported from Gumla III (Dani 1971:Pl. 43) as well as Gumla-IV in Gomal Valley (Dani 1971:Pl. 44). Thick sectioned red ware bangles are also comparable with Gumla-IV (Dani 1971:Pl. 45, nos. 3, 7). Both red and gray type bangles are also reported from Kot Diji phase site of Kot Musa in Gomal Valley (Jan 2014:Pl. VIII). Double or conjoined gray ware bangles may also be found at Sarai Khola-II in Pothohar Plateau across the Salt Range (Mughal 1972:26; Pl. IX a, no 7,8).

Single to tetra-strand bangles may also be found abundantly at several sites in Thal Desert (Ghuari 2018: Fig.2.3, p.74; Fig.2.39, p.84), etc. Besides, they are reported throughout the Early Harappan and Harappan phases in Cholistan i.e., red ware and thick sectioned bangles reported

from Hakra phase site (Mughal 1997:Pl. 44, nos. 7-12, p.68); red and gray with versatile sections and single coiled bangles at Kot Diji Phase sites (Mughal 1997:Pl. 49, nos. 14-24, p.73); red ware single-coil bangle at Harappan phase sites (Mughal 1997:Pl. 64, no 13-16, p.79).

Red ware bangles also found at the Early Harappan and Harappan levels at the type site-Kot Diji in the Lower Indus Valley (Khan 1965:Pl. XXIX). They are also reported from Kot Diji Phase sites of Thar I Sindh (Mallah 2010:66). Red ware bangles found almost in all sites of Thar Desert during the Harappan phase (Mallah 2010:73). They are reported in variety throughout the sequence at the type-site Harappa in Central Indus Valley, especially during the Ravi phase and Kot Diji phase (Dale & Kenoyer 1990: Fig.49, p.128). Ravi phase at Harappa has plain and painted red ware bangles whereas gray ware terracotta bangles of various styles are also reported during the Kot Diji phase (Kenoyer & Meadow 2000: Fig.6, p.67).

6.4.3. Toy Cart Wheel

One specimen of the cartwheel was collected from the northwestern slope section of the main mound of the Musa Khel site. It is characterized by a disc-shaped body with a short truncated conical hub in the center of the exterior surface, and a plain interior surface, with a small hole, right in the center for the wooden axle to support the terracotta cart frame. It is fragmental in the condition; the hub is preserved while the edges are damaged and paste is slightly sandy in texture. It is properly baked yellowish red-ware, and has plano-convex section. The hole has a diameter of 5.28 mm, height is 14.97 mm at hub while 7.38 mm at the edge. The preserved radius is 22 mm.

Cultural Relation and Context

Toy cart is usually found in Early Harappan and Harappan phases all over the extent of Indus Civilization. Few of the nearest parallels may be observed during the Early Kot Diji phase at Rehman Dheri-II (Kenoyer 2013)³⁷ and Late Kot Diji phase at Gumla-IV (Dani 1971: Pl. 34, no 3, 4, 6) in Gomal Valley. The other Kot Diji phase comparable are reported from Sarai Khola-II in the Upper Indus Valley (Mughal 1972:26; Pl. IXb, no. 1) and type-site Kot Diji (Khan 1965:Pl. XXX-A, no 1,2,3) in Lower Indus Valley.

³⁷ Kenoyer, J.M. "Early Harappan, Kot Dijian Phase in North Rehman Dheri, Harappa, Kot Diji (2800-2600 BCE)." M.Phil Asian Studies-Class Lecture, The Archaeology of South Asia, From Taxila Institute of Asian Civilizations, Quaid-i-Azam University, October, 2013.

Besides, the comparables may also be observed during the Kot Diji phase and Harappan phase sites in the Cholistan along the dry bed river Hakra (Mughal 1997:79, Pl. 64, no 7). Few other Harappan phase examples are available from Lakhenjo Dero (Sheikh et al 2005:64; Pl. 54, fig 30) and Thar sites (Mallah 2010:72, Fig 6). Based on comparative studies, the Musa Khel's specimen is most probably associated with the Early Harappan Kot Diji phase.

6.4.4. Trapezoidal Brick (Pl. XXXV b)

One specimen of the terracotta brick in wedge-shape or trapezoidal form was collected from the top of the main mound at Musa Khel. Width of one side is slightly lesser than the other. Its surface is yellowish-red while core is red fired with visible whitish grits and hand smoothed impressions on surface. The edges are roughly finished.

Cultural Relation and Context

These types of bricks were used in the wells during the Integration Era of Indus Tradition and well made of wedged bricks is one of the main features of the Harappan phase. The contemporaneous Harappan sites in adjacent regions are devoid of wedge shape bricks or any structure associated with them. They are reported from Harappan levels at type-site Harappa towards the east in Central Indus valley (Wright 2010: Fig.5.7, p.123), Mohenjo Dero (Kenoyer 1998: Fig.3.15, p.60) and Chanhudero in lower Indus Valley, Lothal (Joshi 2008: Fig.6.3, p.115), Kalibangan (Ibid: Fig.6.4, p.115), Dholavira (Ibid: Fig.6.2a, p.113) beyond Indus Valley.

The occupants of ancient Musa Khel may have dug their wells for their immediate water necessity; this is suggested from the recovery of few wedge-shaped burnt bricks found on the surface of the site, which were usually used for the well construction rather than using water from river Indus, which lies on the west at a far distance of about 30 km. The field survey at the site has not revealed any other signs of well, but excavation may reveal their presence.

6.4.5. Cakes and Ball (XXXVI a)

The surface of the Musa Khel's main mound is strewn with terracotta cakes and balls. A few of them were collected from the Musa Khel. They are mainly recovered from the top of the main mound of the Musa Khel. Very few specimens of terracotta cakes were also collected from the north-eastern slope and the north-eastern area of main mound. One complete specimen of the terracotta ball was collected from the top of the main mound of the Musa Khel site.

Morphologically, terracotta cakes are of two types that are found on the site such as (a) Terracotta cakes with a triangular plan and rectangular flat section; (b) Terracotta cakes with an oblong plan and oblong section. While terracotta ball is hand-modeled and made with straw tempered clay. Axis wise, it has varied length, from one long axis to the other, in the range of 57.44 mm to 65.33 mm.

The type of terracotta cakes are as follows:

(a) Cakes with triangular plan and rectangular flat section (Pl. XXXVI a(3))

Majority of the specimens belongs to current type of this type. Not a single complete specimen was found except one. They are stone-hard due to frequent exposure to fire and also show traces of secondary heating as indicated by their sooty surfaces. It is clear that these terracotta cakes were used in hearths, kilns, and other firing activities. Few of them have developed cracks due to frequent exposure to fire and most of them have smoothed surface. The thickness of these cakes is in the range from 19.85 mm-24.27mm.

(b) Cakes with an oblong plan and oblong section (Pl. XXXVI a (1,2))

A few specimens belong to current type. Most of them are complete and have developed cracks on the both sides. They have uneven colors and sooty marks on them. All the specimens are hand pinched as indicated by the presence of finger depressions. All of them show that they are made out straw tempered clay. Most of them have blackened sections due to reduced heating environments. The length of these terracotta cakes is in the range of 130.10 mm -130.25 mm, width from 72.10 mm-83.56 mm, thickness from 40.84 mm-46.82 mm.

Cultural Relation and Context

The current Musa Khel type terracotta cakes and balls are widely reported from Early Harappan and Harappan phase sites throughout the extent of Indus Civilization. The nearest comparables of terracotta cakes are recovered mainly from Gumla (Dani 1971:Pl. 35) and Gandi Umar Khan-IV, etc (Jan et al 2011:Pl. 16, p.16), the Harappan phase in Gomal Valley. They are also found on several other Harappan phase sites in other areas i.e., type-site Harappa in Central Indus Valley (Kenoyer 1998: Fig.8.2, p.150) and several sites in the Cholistan along the dry bed of River Hakra (Mughal 1997:Pl. 66, p.79) and Lakhenjo Dero, etc (Sheikh et al 2005:Pl. 13, no 26). Type-site

Kot Diji has these terracotta cakes during the Early Harappan and Harappan levels (Khan 1965:Pl. XXX-B). Like terracotta cakes, their spatial occurrence is wide across the Greater Indus Valley during the Indus Tradition. The current specimen is associated to Harappan phase at Musa Khel and nearest comparable can be found at Gumla (Dani 1971:Pl. 37, no. 11) in Gomal Valley and beyond at type-site Kot Diji in Lower Indus Valley (Khan 1965:Pl. XXX-B).

The Musa Khel's terracotta cakes and ball are mainly found on the top of the main mound, associated with trapezoidal bricks, baked architecture, and perforated ware. Therefore, they are associated with the Harappan phase, based on comparative studies, context, and associated Harappan finds.

6.4.6. The Debitage of Terracotta Crafts (Pl. XXXVI b)

There are several specimens of melted pottery associated to Early Harappan and Harappan phase have been observed at different areas of the site. Besides, a few vitrified and dry hard terracotta nodules were also collected from the top of the main mound. This specimen indicates the industrial activities at the site and helpful in understanding the economic and technological aspects of the site. These nodules are the left-behinds of clay, used for several purposes i.e., maybe wheels, carts, bangles, pottery etc. The alluvial clay deposits are abundant in the area (Map II). The presence of melted and dry hard terracotta nodules along with the pottery wasters suggests that the terracotta crafts were produced at the site by exploitation of nearby alluvial clay sources.

6.5. Metallurgy (Pl. XXXVII a)

There are no metal crafts were found the site during the current exploration, except a sharp and thin copper wire intact with steatite button seal as discussed above in relevant section. Besides, one piece of copper slag was also found in the south-eastern crop field area, which shows that metallurgy exists there at Musa Khel. The excavation will provide us the more reliable and detailed information about the ancient metallurgy at Musa Khel. There are no proper sources of copper in the vicinity of Musa Khel. The sources of copper are found in Balochistan, Afghanistan, Oman, Iran and Gujarat and Aravali Range in Rajasthan (Law 2008:689). Baluchistan could be a good option for the trade of copper in the form of ores via Gomal and Bannu Basin or it could be Afghanistan via Khyber Pass or Peshawer Valley. We have also found a chunk of Lapis Lazuli at the Musa Khel site, whose source is mainly found in Badkhashan, which strengthens the relation

with Afghanistan. The economic link with one of these regions is for sure but the exact provenience needs scientific analyses.

Comparative studies have shown that the metallurgy exists during the Early Harappan as well as Harappan phase of Indus Civilization (Kenoyer 1991:346). The current specimen is most probably associated with the Early Harappan phase based on its association with steatite button seal with copper wire. Both, the seal and copper slag have been recovered from the same area beside the main mound.

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ANALYSIS & CONCLUSION

Mianwali, the cis-Indus region, where the Musa Khel site is located, is the north-western borderland region of Indus Tradition. The environment of Musa Khel is enriched with natural resources such as fertile land for agricultural produce, alluvial soil deposits for ceramic production, mountains and hills with a variety of minerals for various crafts, and abundant water resources for daily livelihood. Moreover, the site lies on the crossroads that connect the borderland regions such as Gomal Valley, Bannu Basin, Sakesar Valley, and Pothohar Plateau to Punjab plains and further east and south regions of Indus Civilization (PL. I). All these regions were inter-connected during Regionalization and Integration Eras of Indus Tradition via economic and cultural interaction networks, though the routes were through the plains and mountain passes. The nomads from the trans-Indus zone still visit the plains to exploit the water and vegetal resources. The Salt Range is serving as Geological Museum for researchers. The Mianwali region has rich physiography and archaeological heritage. All these features have attracted humans to settle here since Middle Stone Ages.

The Musa Khel site carrying remains of versatile cultural development regarding Indus Civilization in the area. It has suffered human vandalism at a large scale for the last three years. It has yielded remains of the Regionalization and Integration Era in the form of versatile crafts (made from local and exotic raw material), baked brick architecture, industrial activities, resource control, trade network, and interaction with far-off regions.

Several critical issues are related to Indus Civilization despite voluminous work at several prominent sites (such as Harappa, Mohenjo Dero, Rehman Dheri, Sarai Khola, Rakhi Garhi, Dhola vira etc), one of them is its chronological development (Biagi & Starnini 2021:3). In case of the Musa Khel in the absence of stratified layers³⁸, chronology has been assessed with the help of

³⁸ As mentioned in the introductory chapter, Musa Khel is suffering from human and natural vandalism and located right in the middle of the cultural sphere/crescent of north-western borderland areas of Indus Civilization which had made it crucial to be investigated regarding cultural development. Its protection and preservation were very much necessary for future researches. Therefore, preserving the vanishing archaeological heritage of the Indus Civilization in the Mianwali has become one of the main objectives of the study. The illegal digging at the main mound of Musa Khel by the owners have damaged and left behind large quantities of material culture, especially pottery. Unfortunately, due to issues created by the owners, it was not possible to excavate the site and to collect charcoal

stylistic features, forms, and compositional elements of pottery and other artifacts and their comparison with other contemporaneous sites in adjacent and associated regions. Besides, several exposed physical features, and radiocarbon dates from adjacent and associated sites were also useful in the assessment of relative chronology at Musa Khel. There is present a certain level of homogeneity in the material culture of Indus Tradition along with regional diversity, especially the pottery in its morphology and styles, throughout the Greater Indus Valley besides regional diversity.³⁹In the upper Indus Valley, this phenomenon especially occurs among neighboring sites of Gomal Valley and Bannu Basin in trans-Indus, Kacchi Valley (Mianwali), and Sakesar Valley in cis-Indus while Pothohar Plateau in trans-Salt Range zone. The other important regions with comparable sites include Central Indus Valley, Lower Indus Valley, Thal, Cholistan Desert and Ghaggar Plains. Musa Khel is located on significant crossroads that connects all these areas concentrated with remains of Indus Tradition. Hence Musa Khel's material culture was found comparable with these areas. The existence of comparable material culture and stratigraphic context at the Sarai Khola site (Halim & Mughal 1972) in Pothohar Plateau, Rehman Dheri (Durrani 1988) and Gandi Umar Khan (Ali & Jan 2009) in Gomal Valley, Harappa (Kenoyer &

samples for absolute dating. In the absence of excavated stratigraphic levels at Musa Khel, the chronological analysis has therefore focused on the collections from the surface and piles left by the illegal diggers at the site and documentation of exposed sections. The chronology is based on the supposition that the occupation phases at the Musa Khel site are generally represented by its material culture and exposed features. Keeping in mind the relative reliability inherent in the chronological identification of the material culture and exposed features, the survey has collected diagnostic artifacts and documented the exposed features suitable for estimating the qualitative and quantitative archaeological potential of the site.

³⁹ The terms “homogeneity” and “diversity” are truly applicable to Harappan pottery corpus as it shows a gradual evolution and hence different groups can be associated to different regions. Three stages may be developed to portray the evolution of Harappan pottery. Stage I is the most homogenous stage, characterized by extensive decoration with intricate abstract and naturalistic black motifs. Stage II shows previously known decorative tradition to continue but the Indus iconography starts becoming less rigid. The elaborate combinations of designs are more and more transformed into purely decorative repetitions of one or two motifs only and are often less carefully executed. The remarkable homogeneity of the previous stage disappears and stylistic regional differences start occurring. The third stage of the Mature Indus period is the time of regional groupings. This final subperiod has a more diversified repertoire of motifs which corresponds to specific regions showing nevertheless, in pottery style, evidence of contacts (Quiron 2000:178-180; See also Uesugi 2013 & Ceccarelli & Petrie 2020).

Meadow 2000) in Central Indus Valley and Kot Diji (Khan 1965) and Mohenjo Dero (Marshall 1931; Mackay 1938) in Lower Indus valley has provided the foundations for the relative chronology of Musa Khel site.

Many pottery specimens besides black chert microliths at the Musa Khel bear the features of the Pre-Kot Dijian Tochi-Gomal phase (Pl. XVI a, nos. 6p39, 6p118, 6p42, 6p125, 6p41; Pl. XVIII a, no. 3p137; Pl. XVIII b, nos. 6p72, 6p74). This phase is known to occur in geographically bounded trans-Indus regions of Bannu Basin and Gomal Valley (Khan et al 2000:53). The Gomal Valley (Gumla-Dani 1971; Rehman Dheri-Durrani 1988; Gandi Umar Khan-Ali & Jan 2009 etc) and Bannu Basin (Lewan, Islam Chowki, Tarakai Qila, Girdai, Tarakai Ghundai, Sheri Khan Tarakai, Barrai Khuarra I, Lak Largai, Seer Dherai, Ter Kala Dherai-Khan et al 1987; Khan et al 1991; Khan et al 2000) sites are not very far from the Musa Khel Site. It has been proved earlier through provenience studies of rocks and minerals reported from different phases at Harappa that the exploitation of black-brown chert sources, lying near the Musa Khel in the Salt Range, was going on by the Tochi-Gomal phase residents in Gomal Valley and Bannu Basin as well as by the Ravi phase residents at Harappa. The Salt Range black chert type has been reported from levels of the Tochi Gomal phase at Rehman Dheri in Gomal Valley (Law 2008:726), as well as during the Ravi phase at Harappa (Ibid:712). They must have been reported from contemporary levels at Sarai Khola I, the Hakra phase (Mughal & Halim 1972; Shaffer 1991:445) in Taxila Valley but provenience studies are not available from there. The presence of Musa Khel type black cherts in these areas during pre-Kot Dijian phases shows that the Musa Khel area was commercially active. Therefore, the existence of a separate phase, contemporary with Hakra, Ravi and Tochi Gomal phase at Musa Khel with scanty shreds of evidence available so far is suggested based on these observations.

Moreover, the Musa Khel site has yielded other cultural phases i.e., Kot Diji and Harappan phase. Kot Diji phase has a comparatively rich occupation and yielded a well-established and versatile pottery tradition and other crafts i.e., steatite seal, steatite disc beads, terracotta figurines, terracotta bangles, shell bangle, and chert stone tools, etc. Whereas, the Harappan phase occupation has lesser width as compared to Kot Diji phase on mound I. Harappan phase has been identified mainly by the presence of baked brick structures, prominent pottery types and few other

minor antiquities i.e., barrel-shaped beads in serpentine and limestone, parallel-sided chert blades, several types of rock fragments of unknown crafts, terracotta cakes, and balls, etc.

The chronology developed at Musa Khel is somewhat comparable to nearby sites such as Gandi Umar Khan (Ali & Jan 2009) and Rehman Dheri (Durrani 1988) in Gomal Valley on trans-Indus and Nari (Dar 2003) in Sakesar Valley on cis-Indus across the Salt Range as well as at Harappa (Kenoyer & Meadow 2000) along with River Ravi. Besides, there are several types of pottery and minor crafts at Musa Khel found morphologically comparable with Late Kot Diji phase elements in Gomal Valley, Bannu Basin, and Pothohar Plateau. The Late Kot Dijian pottery types include cream/white slipped flanged pots, black and cream on red slipped flanged pots, short-necked banded pots in black on red style with thick section as well as with sandy coating on the belly, black on red style grooved pots, black on red decorated carinated pots, and bowls with straight sided flaring rim, cord impressed bowls, low dish on stands with plain and structural decoration, and few pottery sherds with thick clay bands like *Periano Reserve Slip*. The minor antiquities include limestone ball, thick sectioned single coiled red ware bangles, and single to multi-coiled grey ware bangles with zig-zag marks.

The Musa Khel site is located between the Late Kot Diji phase zones i.e., Pothohar Plateau towards northeast across the Salt Range and Bannu Basin towards the west across the trans-Indus. Therefore, interaction with Late Kot Dijians is quite possible. It is observed that few Harappan pottery types at the Musa Khel site were technically similar to Kot Dijian style in the paste and slip preparation, especially the perforated vessels. Besides the presence of baked architecture, wedged bricks, and other structures and minor antiquities, especially pottery tradition and interaction network at the Musa Khel site shows that the Harappan phase was prominent. The Musa Khel Harappans were in interaction with Late Kot Dijians of the neighboring regions due to which we have witnessed Late Kot Dijian traits in the craft traditions of the Musa Khel, especially in the pottery. The similarities of Musa Khel pottery types with Late Kot Diji phase types at Sarai Khola, Rehman Dheri, Gumla, and Bannu sites, strengthens the possibility of their interaction with Musa Khel Harappans, continued to exist since pre-Kot Dijian times. These regions are geographically and culturally interconnected due to their immediate occurrence close to one another and the natural passages through mountains i.e., Nammal Gorge at the Salt Range (Law 2008) and natural pass at Kalabagh (Dani 1971).

As the area of Kot Diji phase largely considered as Early Bronze Age phase does not correspond to the area of Harappans (Biagi & Sarnini 2021:3), therefore Musa Khel type Harappan pottery is not yet found in the Pothohar Plateau and trans-Indus zone of Bannu Basin, the regions which remain in intense cultural interaction during the Early Harappan phase at Musa Khel. The so-far absence of Musa Khel's Harappan pottery types in these areas indicates a change in patterns of cultural interaction of Musa Khel with these regions during the beginning of the Harappan phase particularly. Musa Khel is found active in cultural interaction with Gomal Valley during the Harappan phase which shows that ideas were traveling across the Indus while the type of cultural interaction developed with Bannu Basin and Pothohar Plateau was different, rather complex (Petrie et al 2008:4). It shows that Kot Diji phase, the precursors of Indus Civilization are not fully investigated (Biagi & Sarnini 2021:3). These versatile patterns must be related to the ideological differences such as challenging new ideas and following the norms of forefathers. These areas were probably out of the administrative influence of the mainstream of Indus Civilization. The scholars like Possehl and McIntosh have related Musa Khel to Late Kot Dijian site (Possehl 1999:712; McIntosh 2008:163). The Late Kot Dijian influence was reaching at Musa Khel during the Harappa phase but it is strange, nothing was affecting across the Salt Range in Pothohar Plateau and trans-Indus Bannu Basin respectively. Based on to date exploration, it seems that there was some kind of restrictions for the Harappans to cross the northern and north-western limits, or might be possible that the Musa Khel site marked the border of proper Harappans in the north-western region of the Greater Indus Valley and therefore multi-linear cultural trajectories have been observed there during the Regionalization and Integration Era in Gomal and Tochi Valley (Dani 1971; Durrani 1988; Ali & Jan 2009; Khan et al 1986; Khan et al 1991; Khan et al 2000). The intensity of Musa Khel cultural interaction appeared to be shifted towards the east with Harappa and Lower Indus Valley during the Harappan phase besides a slight interaction with Baluchistan Tradition.

The relationship between the Harappans and Kot Dijians has become more complex and varied. The evolution of Kot Diji phase at Musa Khel like Pothohar Plateau, Gomal Valley, and Bannu Basin and its development in co-existence with Harappans like in the case of Gumla (Dani 1971; Kondo et al 2008) requires proper stratified data. The available evidence is not enough to highlight the true relationship between Kot Diji phase and the Harappan phase at Musa Khel. Presently, the survival/continuity of Late Kot Dijian traits during the Harappan phase at Musa Khel

can only be seen as the result of the cultural interaction of Musa Khel Harappans with the Late Kot Dijians of Pothohar Plateau, Gomal, and Bannu Basin.

It is also suggested that the Late Kot Dijian phenomena are responsible for the spread of Kot Dijian elements among or to the Harappans in the area particularly and other areas generally. The answer to the emergence of Urbanism in the area lies in this phenomenon. The transfer of cultural traits is more feasible among the contemporary phases rather than preceding one another. The Kot Dijians survived and stand besides Harappans in the adjacent areas and influenced them while retaining their preceding pursuits. The interaction of Musa Khel with the aforementioned regions is already confirmed through scientific studies of provenience of black to brown chert, which was supplied from the Musa Khel region to these regions during different phases of Indus Tradition (Law & Baqiri 2001; Law 2005; Law 2008).

Based on radiocarbon dates (Table-III), available from the contemporaneous sites, the Musa Khel appears to have been developed between c.3300 B.C to 19000 BCE. Therefore, based on spatial analysis of physical features, antiquities, and absolute dating from comparable sites (Table-II), the presence of three phases is proposed at Musa Khel i.e., 1) Early Harappan-Pre Kot Diji phase parallel to Tochi-Gomal / Hakra / Ravi Phase with scanty evidence discovered so far (c.3300-2850 BCE); 2) Early Harappan-Kot Diji Phase (c.2850-2600 BCE) and 3) Harappan Phase (c.2600-1900 BCE).

The Musa Khel site is presently surrounded by agricultural lands irrigated by the supply of water from a small British Era dam constructed at the head of Nammal Gorge. The water coming from the Nammal Gorge through Musa Khel hills into Musa Khel village. The water table in the area is 300-350 feet deep. The locals have constructed their wells as well a modern tube well system is also under use for the irrigation of the agricultural lands⁴⁰. Today the villagers also use the water draining from that Nammal Dam and “*Wahi*” stream besides wells and tube wells. The Nammal Lake came into being due to the construction Namal Dam, which is a recent one. River Indus flows 30 km, towards the west of Musa Khel site. As seen from the phenomena of occasional shifts of river beds, River Indus has experienced these shifts in the past resulted in leaving behind the alluvial deposits. Ahmed Hassan Dani suggests that the Indus River has changed its course

⁴⁰ Interview with Sanaullah Khan Yari Khel s/o Habibullah Khan r/o Musa Khel Village.

(Dani 1971:36). The old river course is at a higher level as compared to the current river course (District Census Report of Dera Ismail Khan 1998:2). It is also suggested by Durrani that the Indus River was flowing further west from its current position as evident from the position of the old bank (Durrani 1988:18). The Indus River system had remained important during the Early Harappan and Harappan periods, as indicated by the presence of a great number of such period sites in mainly upper Indus valley and lower Indus valley. The Musa Khel site like other Early Harappan to Harappan sites has flourished due to fertile lands and available water sources in immediate areas. The original site of the Musa Khel appears to have stood close to some major water source. Current locations of River Indus that flows today about 30 km away from the site towards the west and the presence of Nammal Gorge at a distance of about six kilometers towards the east suggests that the Nammal Gorge could have been the main water source for the ancient occupants of the Musa Khel. Alternatively, the occupants of ancient Musa Khel probably have dug their wells for their immediate water necessity during Integration Era; this is suggested from the recovery of few wedge-shaped burnt bricks found on the surface of the site, usually used for good construction of water well (Pl. VII b, Pl. VIII a). The field survey, illegal digging by the locals, and encroachment at the site have not revealed any other signs of well, but it can be substantiated through excavations.

The baked brick architecture (pattern II of sub-section I) is an interesting and rare discovery in the area which is not yet reported from the Harappan sites in the adjacent area of Gomal Valley. The baked brick architecture is one of the indicators of Indus Civilization and its closest parallel is reported from type-site Harappa, Sahiwal (Kenoyer 1998:55). It indicates the presence of a fully established Harappan phase at Musa Khel and represents a portion of a typical Harappan residential unit, most probably remains of a room of a fully constructed house, supplemented by drains and well (Joshi 2008:50). The baked brick wall structures at Musa Khel are present at a considerable height from the virgin and northern ground levels which shows that these residential structures were intentionally built at a height to prevent the town from being damaged by the floods. The floods in the area were probably common during the past as the site is located at the foot of hills and there are several hill torrents in the area which still supply ample water during the rainy season. The presence of sand and river stones in the deep pit in the upper levels of Musa Khel's main mound also suggests that the site has experienced floods due to hill torrents and River Indus present in its vicinity towards the west.

Additionally, there are remains of river stone foundations (river stone foundation-I, pattern III of sub-section I) right below the baked brick architecture, which shows that the walled structures were built over it. The stone foundations were also found at the type-site Kot Diji in Khairpur, Sindh, below the Harappan occupation (Khan 1965:20) and also at Rojdi (Possehl 2002:82). Rectangular huge stones were also employed in the foundations of Gazkar⁴¹ (Akhtar & Dhanani 2015:111). The stones used in these sites were massive and large, unlike the Musa Khel. The use of river stones for foundation could be a regional and geographical choice of Musa Khel Harappans. The presence of another slightly similar river stone foundation (river stone foundation-I, pattern V of sub-section I) in the preceding levels also shows its association with structures but the presence of any structures (made out of baked, mud bricks or stone) above it was not observed in the exposed section. For now, their presence can only be surmised above the river stone foundation (pattern V of sub-section I) because the portion above it was not scrapped deeply. We were also not able to recover any diagnostic artifacts associated with this pattern. Although the appearance of both foundations is slightly different, which may be due to their different cultural affiliation. One short-necked Kot Dijian miniature pot, few short-necked medium globular Kot Dijian Jars, and grinding stones were documented in upper levels of the eastern half of the main mound, (the pattern II of sub-section II), which could be correlated to the culturally un-identified pattern IV (area without any diagnostic find and structures) and pattern V (river stone foundation-II) of sub-section I. In that case, the river stone foundation-II could be associated with Early Harappan-Kot Diji levels. Likewise, type-site Kot Diji, the Musa Khel Kot Dijians might have reconstructed the residential structures over stone foundations. Sub-section II also witnesses the remnants of a river stone foundation continue from subsection I in a disturbed condition, which might be the continuation of river stone foundation-II of sub-section I. This suggests that Early Harappans have also employed river stones in their architecture. Otherwise, it could be Harappans, who have constructed the river stone foundation-II in the first instance and developed structures over it. Harappans have adopted baked brick architecture as a new construction technology due to geographical settings to stay safe from being disturbed by repeated floods in the area. The idea of baked architecture most probably has reached here due to economic link with the core Harappan

⁴¹ Gazkar is one of the unique Harappan site in the Karachi, Sindh, which revealed stone foundations. It is located along the Super Highway near Langheji River. It was identified in 1979 (Khan 1979) and revisited in 1998, 2004 and 2013 by Khan and Biagi. Site was partially damaged due to construction work in 2013 (Akhtar & Dhanani 2015:111).

area, the type-site Harappa, to which the supply of several minerals from the Salt Range via Musa Khel is already reported during the Regionalization and Integration Era (Law & Baqiri 2001; Law 2005; Law 2008). The adjacent and closest parallel Harappans are found in Gomal Valley with mud-brick architecture before and during the Harappan phase.

Another important and unique element at Musa Khel is the discovery of a conical or convex pit lined with wedged bricks associated with a very large pot close to mound II. It resembles the structure found in one of the rooms around the courtyard facing the main street at Mohenjo Dero (Joshi 2008:51) and is associated with the Harappan phase at Musa Khel.

The top levels of the main mound belong to the Harappan working class as it shows signs of ceramic craft in the form of pottery kiln along with numerous terracotta cakes, nodules, melted pottery, and raw material of several identified and un-discovered crafts. The eastern half of the main mound represents mainly Early Harappan-Kot Dijians while the western shows Harappans elements following Kot Dijians and mound II solely represent Harappans.

Additionally, an interesting and very prominent feature found at the Musa Khel site is the presence of a series of ashy layers and burnt soil, which has been exposed along the north-western section around the main mound. Its thickness slightly varies but mostly represents a uniform pattern. It is found in association with typical Kot Dijian finds i.e., pre-fired inscribed sherd. Such phenomenon was noticed on several other sites between the Early Harappan-Kot Diji phase and Harappan phase; a few of them include Gumla in Gomal Valley (Dani 1971:49) and Kot Diji in Khairpur, Sindh (Khan 1964:40). At these sites, it is depicted that Harappans have destroyed Kot Dijians and there is no transition from Early Harappan to Harappan phase. The firing remains at Musa Khel are present far below or in the lower levels of the site and remains of Kot Diji phase in the form of material culture are found to continue above, within and below these firing remains. The relationship between early Harappan and Harappans is different and varied from region to region. There is a need to analyze the material culture from the proper excavated layers to evaluate the transition or a kind of relationship between Early Harappan-Kot Dijians and Harappans at Musa Khel. The position and associated finds indicate that the series of ashy layers and burnt soil belong to the Early Harappan-Kot Diji phase and the Harappan phase has the possible beginning with river stone platform/foundation-II with a prominent gap from a series of ashy and charcoal layers. These ashy layers and burnt soil mainly represent for now the cultural activities associated

with firing and burning of wood in the oven for cooking or in a kiln for baking ceramic, etc. As mentioned earlier, this mound represents the area of the Harappan working-class, likewise based on Kot Dijian finds such as pottery, terracotta bangles, figurines, etc., it is quite reasonable to associate the series of ashy layers and burnt soil with industrial activities as well as kitchen activities during the Kot Dijji phase at Musa Khel.

The spatial horizon of the pottery types identified at Musa Khel is varied (Table-I). Few pottery types are known to occur throughout the extent of greater Indus Valley e.g., Flanged Pots (EH-Type I), Globular Short Necked Pots (EH-Type II), Grooved Pots (EH-Type III), Offering Stands (EH-Type X, H-Type VII), Knobbed Lids (EH-Lid Type I) and Perforated Jars (H-Type I). While few pottery types are reported from slightly limited extent e.g., Short Necked Sandy Slipped Pots (EH-Sub type II-A), carinated pots (EH-type IV), Convex bowls with Sharp rim (EH-Type VIII). There are also few pottery types identified at Musa Khel that have relatively very limited spatial occurrence e.g., carinated bowls (EH-type V), rope Impressed bowls (EH-type VI), Convex base dish (EH-type IX), Conical Painted Lids, Very Large Plain Convex Bowls (H-Type VI). Also, few pottery types are scarce and no comparable have been identified from any site e.g., Plain Parallel Sided Bowl (H-type VIII), Straight Everted bowl (H-type IX), Rimless Dish (H-type X), Collard and straight-sided vessel (EH-IX, H-XI).

There are many Early Harappan Musa Khel pottery types with wide temporal as well as spatial occurrence, whose origin lies in preceding phases e.g., EH-type I-V, EH-type VIII-X. Few pottery types occur throughout during Early Harappan phases and Harappan phase with temporal variation e.g., EH-type I and EH-type X. Besides preceding and later phases of Indus Tradition, few examples of Flanged pots (EH-type I) are also reported from contemporary Early Harappan phases of Baluchistan Tradition such as Amri, Damb e Sadaat and Kech Makran in different forms. The occurrence of Flanged pots in the Gomal Valley during the Tochi Gomal, the pre-Kot Dijji phase, is very scanty, together only a few examples are reported from Gumla and Gandhi Umar Khan. They are mainly and extensively found to exist during the Kot Dijji phase. At Musa Khel, they mainly represent the Early Harappan-Kot Dijji phase. Likewise Offering stands occur during both the early Harappan and Harappan phase and two separate chronological type pottery types have been identified at Musa Khel i.e., EH-type X and H-type VII. They are also found comparable with already known types throughout the greater extent during the Kot Dijji and

Harappan phases. Their origin also lies in the pre-Kot Dijian phases such as Tochi Gomal, Hakra, and Ravi. The comparable is also found during the Late Kot Dijji phase sites.

The origin of short-necked globular pots (EH-type II) has its roots in Tochi Gomal, Ravi, and Hakra, and while it has become the hallmark of Kot Dijji phase as its main indicator and represents the Kot Dijji phase at Musa Khel. Similarly, EH-type III also had its roots in pre-Kot Dijji levels during the Tochi Gomal phase in Gomal Valley and Bannu Basin and Hakra phase in the Cholistan. Pre-Kot Dijjian grooving style is crude and irregular in style and appears to be the early form of proper grooved ware that is mainly and abundantly reported during the Kot Dijji phase and also continued to Late Kot Dijji and Harappan phase. Unlike other types, few of the specimens of EH-type IV are found comparable to the pre-Kot Dijji phase i.e., Tochi Gomal phase elements of Gomal Valley and Bannu Basin in the form of deep chocolate painted design on a white background and red infills. These elements are scanty so far which need further elements to reach some reliable conclusion. Besides it, the EH-type IV also shows limited similarity to the Late Kot Dijji phase unlike type I to III. They are mostly limited to Tochi Gomal and Early Kot Dijji or proper Kot Dijji phase and seem to be under the greater influence of Gomal and Bannu Basin besides a subsidiary cultural link to other areas. The EH-type VIII reported since Tochi Gomal phase in Gomal and Bannu Basin in the form of brown or chocolate type sharp bands on the white slipped background. Additionally, the black on red style EH-type VIII is very common during the early and Late Kot Dijji phase in adjacent areas. Thick sectioned and large size convex bowls are unique at Musa Khel. The current type at Musa Khel shows its association mainly with the Early to Late Kot Dijji phase of adjacent regions. Besides, comparable can be seen during the Tochi Gomal phase, in scanty forms, which needs further probing through an excavated sample.

Unlike other types, the EH-type IX is specifically reported from the Tochi Gomal phase in Gomal Valley and Bannu Basin. A relatively comparable can also be seen in the Pothohar region. Its presence at Musa Khel strengthens the presence of a phase contemporary with the Tochi Gomal phase at Musa Khel.

The EH sub-type IIA and EH-type VII have clearly shown their association with the Kot Dijji phase. The current types are mainly found during the Late Kot Dijji phase in Gomal and Bannu Basin whereas it is found throughout the Early and Late Kot Dijji phase in the Pothohar region. The current types are not much popular like flanged pots. They are mainly reported from Sarai

Khola in the Pothohar region and Rehman Dheri in Gomal Valley and several sites in Bannu with exceptions in Central Indus Valley and the Cholistan. The black on red style suggests its association with central Indus Valley and lower Indus Valley, the end product of interaction between the Late Kot Diji and Harappan cultural traits in the area. Unlike other types, the comparative analyses suggest that the EH-type VI and sub-type VI A appear to be associated with the Late Kot Diji phase surrounding Musa Khel.

The Harappan pottery types (e.g., H-type I-VII) at Musa Khel are fewer as compared to the Early Harappan phase and most of them have wide spatial extent with some exceptional absence in specific areas such as the Pothohar Plateau, Bannu Basin, and Thal Desert region of District Laiya. Few of the Harappan types have wide spatial extent e.g., H-type I, V, and VII. Pottery types having wide temporal extent, also have wide spatial extent and vice-versa.

Early Harappan carinated pots and sherds depicting Periano Reserve slip along with Harappan perforated ware and ledged pots with round bottom suggests that Musa Khel was also in interaction with Baluchistan Tradition sites. The tradition of chocolate on cream decoration on Early Harappan vessels at Musa Khel are more related to Gomal Valley, Bannu Basin, and Pothohar Plateau while the Early Harappan to Harappan black on red tradition at Musa Khel also suggests its cultural interaction with Harappa, Sindh Sagar Doab, Cholistan, and Lower Indus Valley. It appears that different regions of the Indus Civilization surrounding Musa Khel have influenced its pottery craft.

It is also suggested that the presence of versatile pottery types at Musa Khel and their comparable throughout the varied temporal and spatial extent of Indus Civilization indicate the presence of mechanism, through which the Musa Khel was in intense interaction with all these regions during the Early Harappan and Harappan phase and ideas and technologies were exchanging and resultantly producing vessels with similar forms and styles. Moreover, the elements with wide spatial and temporal horizons such as *the maltese cross* indicate that the Musa Khel site had experienced a social and economic interaction that was not just limited to adjacent sites.

The Musa Khel village potters now a days distribute vessels in two different ways. In one way, the locals ordered in advance for the preparation of the vessels and secondly, the businessman

or the distributors of the main markets came to the workshop and buy the vessels in bulk from the workshop owners. Taranganwala modern potters acquire white slipped pitchers from the neighboring workshops of *Khooiyaan* from the trans-Indus District Tank because of their durability and demand by the locals. Besides, they also acquired glazed dishes from District Jhang for their local demand. Moreover, the locals directly come to the workshop to buy vessels and also order them to manufacture vessels of their own choice. Some times, the potter loads the prepared stuff on their camel cart and sells them by moving within the village. Few of the potters at Kotla Jam have their shops to display and sell the prepared vessels just close to their workshops. It has been observed that the modern potters in the Musa Khel, Thal, and Gomal Valley sell their vessels to distributors having shops in main markets of the respective cities and towns. The shopkeepers acquire vessels from different areas to one single shop and from their onwards, the vessels are distributed among the locals according to their needs. Moreover, the stalls of a variety of pottery from local and neighboring regions are also arranged on large scales during the annual fairs in these areas. Up to some extent, a similar mechanism for the distribution of pottery during the Indus Tradition at Musa Khel may also be proposed.

As a result of comparative studies, the Musa Khel site is mainly found in cultural interaction with Pothohar Plateau, Sakesar Valley, Gomal Valley, Bannu Basin, Thal, and Ravi Plains. Early Harappan interaction is attested to and from all the adjacent regions. During the Harappan phase, Musa Khel's cultural interaction is attested mainly to and from Gomal Valley and Ravi Plains (i.e., Harappa) and beyond. Generally, Musa Khel is found in cultural interaction with sites in Greater Indus Valley and Baluchistan, even beyond towards east. Distribution and exchange of Musa Khel pottery types to and from immediate regions are quite possible. During these chronological phases, all the regions were producing their pottery. Besides producing general and common types, these regions must have produced some specific pottery types, which were exchanging as a result of trade.

The archaeological findings (pottery wasters, terracotta nodules, cakes, balls, ashy remains, and kilns), archaeo-metric analysis and ethnographic results show that pottery production was probably a family profession, and potters were highly experienced. Moreover, the majority of the pottery types were locally manufactured by the exploitation of local sources from alluvium and hills throughout the chronological sequence at the site. The clay employed for the manufacturing

of pottery is of high quality and belongs to varied sources i.e., riverside micaceous, hill type calcareous, and of mixed type from plains. Early Harappan specimens have comparatively more refined pastes. Early Harappans have equally exploited the riverside, plain, and hill clay sources whereas the Harappans appear to exploit river side sources excessively as compared to Early Harappans. The clay from different sources was transported to the site via bullock carts. The use of micaceous sand and calcareous silt as temper (1-40%) has been attested in the majority of pottery types. The ratio of sand and silt temper was somehow affected by the size and function of the vessel at the Musa Khel site. The paste preparation was more advanced and controlled during the Harappan phase at Musa Khel as compared to Early Harappan specimens. For painted decoration, local mineral sources of Musa Khel hills and Dawood Khel region were probably exploited. The ochre deposits of northern Punjab are the most suitable candidates to be used as coloring agents at the Musa Khel site which needs to confirm through chemical analysis. Complete to partial and very rare hand modeling has been observed in pottery collection following single to multi-stage manufacturing mechanisms. For finishing, very rare burnishing, rare rough trimming, abundant scrapping with and without rotation, sometimes along with trimming and versatile smoothing, and predominant smoothing (versatile) have been observed. While the structural decoration such as perforation, incising, impressing, texturing and grooving have been observed in chronologically different pottery types at Musa Khel. Pre-fired and post-fired labeling, directly on vessels with tools and mold respectively has been observed. The majority of vessel types are slipped besides few washed specimens in different colors i.e., red to black and white by a well-controlled mechanism of dipping dry vessels directly into suspension. Very rare polishing of vessels followed by slipping has been found in Musa Khel's pottery collection. The firing of vessels was very controlled and advanced at Musa Khel. Less than 0.1 % of pottery wasters were found in the collection. Moreover, the majority of the pottery pastes are properly oxidized and without any cracks on vessel walls.

The production of specific types of utilitarian vessels with distinctive raw materials, manufacturing techniques, and processes has highlighted the specialization and standardization of Indus Tradition potters at the Musa Khel site. The number of vitrified or melted pottery pieces, terracotta cakes, and signs of firing activities in the form of ashes, burnt clay, and charcoal across the sections of the mounds suggests that the majority of the pottery has been locally produced at Musa Khel. There are chances that few of the pottery types might have reached Musa Khel as a

result of an economic link that needs another separate laboratory-based scientific project and is recommended for future studies. The residents of ancient Musa Khel definitely would never buy melted pottery. The pottery is locally produced by the use of local alluvial deposits in the vicinity. The variety and quantity of scattered, as well as illegally excavated pottery, show a suitable level of production throughout the sequence, mainly during the early Harappan phase at the site. The production of pottery nowadays in the Musa Khel village and neighboring regions has drastically decreased due to modernization and replaced with metal and other ware such as porcelain, stoneware, and metalware, etc. The typology of modern workshops also shows a limited scale of production.

A variety of chronologically different craft traditions other pottery is also attested as a result of present exploration at the Musa Khel site. The processing and manufacturing of these crafts have employed simple to complex techniques and local to exotic materials. The majority of the crafts are local and produced with simple technologies such as terracotta crafts (pottery, figurines, bangles, bricks, cakes & balls), and stone crafts (microliths, grinding stones) besides crafts produced with exotic materials and complex technologies such as stone crafts (steatite bead, steatite seal, and serpentine beads), shell bangles and copper objects (Kenoyer & Meadow 2000:6). The presence of exotic material indicates commercial interaction network of Musa Khel site with distant source regions such as Sar-i-Sang Area of Badkhashan in Northern Afghanistan for Lapis Lazuli (Law 2008:808); Makran and Kutch regions for marine shell (Kenoyer & Meadow 2000:68) and Balochistan for copper ores (Ibid:689). The strategic location of Musa Khel connects it to core regions of Indus Tradition and different source regions via passes and routes through plains and mountain ranges such as Salt Range, Suleiman Range, Thal Desert, Punjab plains, etc. The versatility of local and exotic crafts at Musa Khel indicates the presence of developed industries at the site. It also shows the presence of a social hierarchy during different phases at Musa Khel likewise other important sites of Indus Tradition such as Harappa and Mohenjo Daro.

The comparative analysis of pottery, minor antiquities, and debitage of unknown crafts has attested the presence of a commercial interaction network of Musa Khel with different interconnected zones having sites relating to the Regionalization and Integration Era of Indus Tradition. The Musa Khel has developed its commercial interaction network due to the presence of natural routes through mountains and plains around it and beyond as well as a resource-rich

mountain range in its proximity i.e., Salt Range (MapII-III, Pl. I). Through these passes and routes, cultural and economic relations have been maintained at the Musa Khel site.

The Musa Khel site occupies a strategic position that immediately connects the plain of the Kaachi Valley (Miawali) with that of trans-Indus regions towards the west such as Gomal Valley and Bannu Basin as well as with the trans-Salt Range regions across its north such as Pothohar Plateau; also, the Sakesar Valley in the north-east and Central Indus Valley towards slight south-east. Musa Khel is also found connected to Thal and the Cholistan Desert towards the south and beyond Lower Indus Valley as well as the Baluchistan area (Pl. I).

The Musa Khel site is linked to trans-Indus Bannu Basin through a route that goes via rough fields and Kala Bagh (Dani 1971), where several Early Harappan sites such as Lewan, Tarakai Qila, Islam Chowki, Seer Dherai, Lak Largai, etc, have been reported by British Archaeological Mission (Khan et al 1987; Khan et al 1991; Khan et al 2000). The Bannu Basin is further linked to Gomal Valley where several Early Harappan to Harappan sites are located such as Gumla, Hathala, Hisam Dheri, etc, (Dani 1971); Rehman Dheri (Durrani 1988; Durrani 1991; Durrani & Edrosy 1995); Darazinda (Tochi Gomal), Kot Musa, Maddi (Kot Dijian) Umar Dara Theri I-II, Kauri Hot, Lal Mahra Sharif, Takwara, Rohri II (Harappan) (Ali & Jan 2003; Jan et al 2008); Jhandi Baber (Rehman 1997), Gandhi Umar Khan (Rehman 1997; Ali & Jan 2009). There are several natural passes in the northwest of Bannu Basin and Gomal Valley (Khan 2001:88). The important one in Bannu Basin includes Tochi and Kurram pass and another one is Gomal pass in Gomal Valley. There are also about 32 minor passes from Bannu Basin through Waziristan hills besides primary Kurram and Tochi Rivers (Khan et al 1994:93). These routes and passes through mountain ranges in the west and southwest leads to the far west in Afghanistan, Iran, and Central Asia (Law 2008:84).

Musa Khel also has a connecting link to the north across the Salt Range (Dani 1971) with Pothohar Plateau sites such as Sarai Khola (Khan 1968; Halim & Mughal 1972), Hathial (Khan 1983), Jhang, Khanda, Pind Nowshera (Mughal 1972) and Mohra (Khan et al 2012; Butt 2017; Butt 2020) as well as Sakesar Valley sites such as Nari (Dar 2003), Kalu Wala Dher (Dar 2002) and several un-identified sites. The Nammal Gorge at the Salt Range, lying in the north-east of Musa Khel probably have functioned as a clear pathway for the traveling of Early Harappans and Harappans from and to the Punjab plains (Law 2008:261), especially from Musa Khel to and from

the Sakesar Valley as well as further towards to and from Pothohar Plateau. The Musa Khel region provides access between the Pothohar Plateau and Harappa (Lahiri 1990:432).

The Pothohar Plateau is further connected to Peshawer Valley towards its northeast, from where it connects to the Kabul region of Afghanistan via Khyber Pass. In the north of Musa Khel, Khyber Pass also links Peshawer Valley to Badkhashan, Northern Afghanistan via Malakand and Chitral valley, where the source of Lapis Lazuli is found in Sar-i-Sang Area (Law 2008:808) as well as a Harappan site Shortugai is located (Francfort 1984). Malakand pass connects Peshawer Valley to Swat Valley on the north (Sabri 1994:48), where an important Rock shelter site near Ghaligai has yielded pottery comparable with Kot Diji phase i.e., typical jar with a painted high collar (Stacul 1969: 54). On the other hand, the Jhelum River route connects Pothohar Plateau to the Kashmir Valley (Law 2008:638), where an important Late Neolith site Burzahome is located, from where Kot Diji style pot with carnelian and agate beads were found (Bhatt 2014:52).

Towards south and southeast, Musa Khel is connected to the Thal Desert, which starts in the south and southeast of the Mianwali District and encompasses a few areas of District Khushab (Noor Pur Thal) and District Jhang (local name of Thal) towards the southeast and cis-Indus Districts of Bhakkar (Hyderabad and Mankera Thal), Laiya and Muzaffargarh (Ghauri 2018:2). It is worth mentioning that there are hundreds of new Indus Tradition sites discovered in Thal Desert-District Laiya (Ghauri 2018). These discoveries have opened new cultural horizons and created new links with Musa Khel and further enhanced its interaction zone. The Harappans are surprisingly found missing in the Thal Desert of Sindh Sagar Doab⁴²(Ghauri 2018:141), besides

⁴² The author has based the absence of Harappan in the Thal Desert on the shift of River Indus course towards further west and migration of the residents to other resource rich areas beyond the Chenab and few of them came back to their ancestral land during the Late Harappan time (Ghauri 2018:140-141). Author stated, he has found few pottery types at few sites, which could be comparable to Harappans but excavation is needed to confirm their presenece (personal communication with Zubair Shafi Ghauri). The main problem of the Thal Desert sites is that they are not radio carbon dated and establishing sequence on the bases of pottery comparison is not reliable (commented by Palo Biagi). The present author is also of the view that there is a need to re-consider the area for exploration and excavations at few important sites to obtain data for the evaluation of chronological sequence. Survey Data may also be re-considered to evaluate the chronological analyses done by the author (Ghauri 2013).

Moreover, it is surprising that during a visit to District Bhakkar for the ethnoarchaeological documentation of pottery workshops for the current study, few archaeological remains in Rakh Gulkala, in the form of thin textured banded pottery and light pinkish color chert core were found in Thal Desert, Tehsil Mankera. The discovery of such types of remains in District Bhakkar and hundreds of sites in another part of the Thal Desert of District Laiya suggest the presence of more sites in the Thal Desert of Bakker. These areas are not devoid of cultural remains of Indus Tradition, as previously was presumed.

Pothohar Plateau across the Salt Range (Khan 1968; Halim & Mughal 1972; Khan 1983; Butt 2017; Butt 2020) and Bannu Basin on Trans-Indus (Khan et al 1987; Khan et al 1991; Khan et al 2000).

The Thal Desert is connected to Central Indus Valley in Punjab plains towards south-east where type-site Harappa (Dales & Kenoyer 1991), Jalilpur (Mughal 1967:7; Mughal 1972:117-126); Vainiwal (Mughal 1967:6; Mughal 1996:302; Wright et al 2005; Ghauri 2019:1-34) as well as several other sites i.e., Bhir Chak 29 M, Chak 133-10R, Chak 18.19M Bhir, Lohama Lal Tibba, Mai Manoor Bhir, Tibba Chak 27 M, etc (Mughal 1996:302-303) are located. It is further connected to the Cholistan Desert where several early Harappan and Harappan sites are located along the dry bed of Ghaggar Hakra river such as Hakra phase sites-Jangipar, Moniwala, Lakhman, etc; Kot Diji phase sites-Gujranwala, Akhera, Malhalewala Thar; Harappan phase sites-Ganveriwala, Tarsoowala, Hansawala; and Late Harappan phase sites -Kudwala, Dunkkian, Lurewala, etc, (Mughal 1997).

Ghaggar Hakra River and Indus River might have remained the main routes to Sindh from Cholistan (Law 2008:64) where Kot Diji (Khan 1965), Amri (Casal 1964), Mohenjo Dero (Marshal 1931), Chanhu Dero (Mackay 1943), Lakhueenjo Dero (Kazi 1989) and several other important sites are located. The lower Indus valley is further linked to southern Baluchistan sites of Mehrgarh (Jarrige 1981) and Nausharo (Jarrige 1989) via the natural Bolan River route.

The Thal Desert also appears also appears to be connected to Northern Baluchistan via Sanghar pass, that is the intermediate pass between the Bolan and Gomal pass leads from close to the Dera Ghazi Khan (Newall 1984:222). The Central Baluchistan is connected to southern Baluchistan via Bolan pass where Mehrgarh (Jarrige 1981) and Nausharo (Jarrige 1989) are situated and to Northern Baluchistan, from where it connects back to Gomal Plains via Zhobe Valley (Dani 1971:168) where Periano Ghundai and Moghul Ghundai sites are located (Mughal 1970:340). From here, the route goes back to Musa Khel via Bannu Basin. Bolan Pass also connects Baluchistan with Afghanistan via Khojak pass (Sabri 1994:48). The other important sites in Baluchistan include Kili Gul Mohammed, Kechi Beg, Damb Sadaat in Quetta Valley-Northern Baluchistan; Rana-Ghundai, Sur-Jangal, Dabar-Kot in Loralai Valley; Anjira in Surab Region (Mughal 1970:340).

The area under study is enriched with a variety of mineral resources. These resources have attracted the people to settle here at Musa Khel as early as c.3300 BCE. The Salt Range, which is lying at the north and northeast in the vicinity of Musa Khel (Pl. I) is one of the the main source of a variety of stones and minerals such as gypsum (alabaster, selenite), quartz crystals, gray or pinkish granite (Law 2005:182-187); jasper, purple-hued chert chalcedony, fossils, sulfur, pinkish-red to maroon color sandstone (Ibid:555-556). The Musa Khel might have played an economic role in the supply of chert sources towards trans-Indus zones i.e., Gomal and may be Bannu as well as towards Central Indus Valley with Harappa, Pothohar Plateau in the north of Salt Range (Law 2008). Whereas, their presence across the Salt Range in Sakesar Valley sites i.e., Nari (Dar 2003) and Kallu Wala Dher(Dar 2002) suggests that the sources of chert variety might have been exploited by the residents at their own due to their immediate access as these sites are lying across the Salt Range in the vicinity of Buri Khel Nala and Sakesar chert formation and the presence chert further in Pothohar Plateau sites i.e., Hathial(Khan 1983) and Mohra (Butt 2017; Butt 2020) is possibly operated via Nari (Dar 2003)and Kallu Wala Dher (2002) sites of Sakesar Valley.

The Thal and the Cholistan Desert are devoid of any type of immediate mineral resources. Several Musa Khel pottery types and minor antiquities found culturally similar with Thal and Cholistan sites, therefore these might have been receiving Musa Khel-Salt Range type rich chert and other mineral resources, via trade.

All the phases at the type-site Harappa had witnessed the presence of Salt Range rock and minerals such as black-brown chert, purple-hued chert chalcedony, and alabaster during the Ravi phase; black-brown chert, alabaster, limestone (probably), obsidian (might be) during the Kot Diji⁴³ phase; bi-pyramidal quartz and alabaster during Harappan phase (Law 2008:555-556). Of these, several types of minerals have been found from the different phases at Musa Khel i.e., black-brown chert, light grey to white chert, and alabaster. All this suggests that there existed a well-

⁴³Maximum chert recovered from Kot Diji levels at type-site Harappa received from the west-central Salt Range. However, added quantity were receiving from the Rohri Hills and a little from the Mohmand Agency may be (Law 2008:716).

established mechanism through which these rocks and minerals were exchanged or traded with other regions, especially Harappa during Ravi and Kot Diji phase.

The exchange of Salt Range chert appears to be stopped during the Harappan phase at Harappa and is replaced by the Rohri Hill chert sources but Salt Range Alabaster continues to exchange during the Harappan phase at Harappa (Ibid:716-722).⁴⁴ It is possible; the establishment of Harappans at Musa Khel might have played their role in this shift of chert resource exchange from the Salt Range to Rohri hills. The Musa Khel Harappans possibly have taken the control of chert sources of the Salt Range and stopped supplying chert resources to Harappa due to a change in economic ties between them.

Other than chert, there are few types of artifacts and raw material, whose mineral composition clearly shows that the residents of Musa Khel have exploited local mineral and stone sources. These artifacts include limestone bead, limestone ball/weight, limestone grinding stones, limestone nodule fragments, alabaster nodule fragment, sandstone pestle, and siltstone fragment. Besides the presence of resource full Salt Range in the vicinity of Musa Khel, there are few minor antiquities and stone fragments found from different areas of the site, whose raw material is not in immediate access of Musa Khel residents i.e., steatite beads and seal, serpentine beads and chunks, copper wire and slag, Basalt and Gabbro stone fragments, lapis lazuli fragment, and marine shell bangles. However, to confirm the association of these minerals with this specific above-mentioned source needs a chemical analysis to reach some reliable conclusion. At least, the presence of such minerals at Musa Khel shows that they have been reached here as a result of some kind of economic as well as cultural link with the source areas.

⁴⁴ Law stated that varieties of rocks and minerals came from the small area of Period 3A (2600 to 2450 BC) from Harappa shows that “Some changes in acquisition patterns took place (or were taking place) around the time fully urban lifeways emerged at Harappa. The Rohri Hills of Sindh appear to have been the sole chert source used by site residents at this time. Most of the chert used at Harappa during the Period 3B (2450 to 2200 BC) still appears to be from the Rohri Hills, there are indications that some may have been obtained from the Mohmand Agency, NWFP” (Law 2008:724).

The Musa Khel is the only important and significant site with a long chronological sequence that could have played its role in the trade of these rocks and minerals throughout its cultural sequence in a greater portion of Greater Indus Valley i.e., Gandi Umar Khan (Ali & Jan 2009) in the west to Harappa (Kenoyer & Meadow 2000) in the east and Hathial in the north (Khan 1983) to Cholistan sites in the south (Mughal 1997). The Musa Khel site is lying on a strategic location and has played its role in the economy during the Regionalization and Integration era of Indus Tradition in the area. Therefore, it is quite possible that the Musa Khel site has attained considerable importance in its role of monitoring and supplying trade items with adjacent and far-off areas of Indus Tradition.

The current exploration has yielded a variety of crafts along with the architectural finds at Musa Khel that may be found at any other significant Indus Tradition site like Harappa and Mohenjo Dero. Thus, the Musa Khel site approves the status of an advanced and fully developed small urban town during the Harappan phase of Indus Tradition in the area.

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APPENDICES

Appendix-I: The Catalogue of Pottery from Musa Khel

Sr.#	Reg. No.	Sherd Type	Func. Form & diag. feature	Rim & lip/base form	Body Form	VSC /SSC	Ext. Deco./intr. Deco.	EST/IST	Inclusions (%+sort.+ texture)	Overall Paste	Voids & Porosity of Paste	Firing pattern	Paste Firing	Manu.	Phase	Chron. Type #
1	MK 2017 3P 104	Body Sherd	Motif	—	—	/medium	A painted motif composed of hatched squares which are arranged vertically in alternating style in black color (5 yr 2.5/1) with whitish pink slip (5 yr 8/2)/ whitish pink slipped	Smoothing and scrapping with rotation on both sides	10%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) of paste with fine to medium size and angular to rounded shape inclusions in brown, gray and white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-1
2	MK 2017 3P 1 (II)	Rim Sherd	Pot, flanged	Complex, external concave shape flange, lower than simple vertical rim with plain and flat lips/-	Globular	Very large/heavy	Completely painted with dark reddish gray color (10 yr 4/1)/one broad horizontal band over half of the rim in same color, with red slip (10	Smoothing with rotation on both sides	10%; well sorted; very fine to medium sandy	A mixed type (calcareous+ micaceous) pastes with predominant micaceous inclusions. The colors of main inclusions are black (angular and medium); brown	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1

							r 4/6) till start of shoulder, remaining is plain (very pale brown 10 yr 8/3)			(subrounded to sub angular and medium-abundant); light green (rounded and medium-rare); gray (sub rounded and medium); yellowish white (rounded to sub rounded and medium); and light pink (rounded to sub rounded and medium).						
3	MK 2017 3P 2	Rim Sherd	Pot, flanged	Complex, external flat flange, lower than simple vertical rim with plain and flat lips/-	Globular	Very large/thick	Appear to be completely painted in dark reddish gray color /traces of same color band on the rim down to throat	Smoothing with and without rotation/smoothing without rotation	10%; well sorted; very fine to medium sandy	Abundant calcarous concretions in the paste. The colors of inclusions are black (sub-angular and medium), brown (sub-rounded to sub-angular-abundant), white (sub-rounded to sub-angular and medium-rare), and yellowish white (sub rounded).	Slightly compact	Margins = 7.5 yr 6/3 light brown, Core= 2.5 yr 6/6 light red	Incompletely or fully oxidized.	Wheel= rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1

4	MK 2017 3P 3	Rim Sherd	Pot, flanged	Complex, external concave flange lower than simple vertical rim and plain to round lips/-	Globul ar	Large/me dium	One broad band on rim upto flange, one narrow or sharp band below the flange with hatched intersecting circle design below in reddish black color (10 r 3/1) with pale brown slip (2.5 y 8/2)/A painted band continue from exterior on rim with red slip (10 r4/6), remaining vessel is plain (2.5 yr 6/4 light reddish brown)	Smoothing with rotation on both sides	3%; moderately sorted; fine to medium sandy	A slight calcareous clay with superficial incompletely oxidized layer on exter margin. The main inclusions are 1) white colored, sub rounded to sub angular and medium to coarse; 2) green colored, angular to fine.	Multiple medium voids; porous	Margins = (7.5 yr 6/3) light brown, Core = (5 yr 6/6) reddish yellow	Incompletel y or fully oxidized.	Wheel= rim, upper body, flange; flange attache d separat ely	Kot Diji	EH Type-1
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5	MK 2017 3P4	Rim Sherd	Pot, flanged	Complex, external triangular flange lower than simple vertical rim with plain and flat lips/-	Globul ar	Very large/me dium	One band on rim, one on flange, three sharp bands or lines below flange in dark reddish gray color (5 r 4/1) with yellowish red slip (5 yr 5/6)/same color band continue from exterior, slightly on rim, with same slipped upto flange area, remaining is plain (5 yr 6/4)	Smoothing with rotation/raise d and twisted bands	10%; well sorted; fine to medium sandy	A slightly calcarous clay. The main inclusions are brown colored rounded to sub rounded to angular and fine to medium; light gray (transparent) rounded to sub rounded and fine to medium; pink colored with white streaks, sub angular and medium; white colored rounded to sub rounded to subangular and fine to medium.	Few tiny voids; porous	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body, flange; flange attache d separat ely	Kot Diji	EH Type-1
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6	MK 2017 3P 5	Rim Sherd	Pot, flanged	Complex, external S walled flange lower than simple vertical rim and plain to flat lips/-	Globular	Large/thick	One broad band on complete rim in reddish black color (2.5 yr 2.5/1) with red slip (10 r 4/6) down to flange; one band on flange to throat region; seven bands or sharp lines below the flange in same color with very pale brown (10 yr 8/2) slip in background /same color band continue from exterior, slightly on the rim, with same slip upto throat area, remaining is plain (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A Very slight calcarous paste. The main inclusions are sub angular and fine black to brown colored; sub rounded to sub sangular and fine to medium white colored- abundant; round to sub rounded and fine light gray (transparent) colored.	Few wide voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1
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7	MK 2017 3P91	Rim Sherd	Pot, flanged	Complex, external S walled flange lower than simple vertical rim and plain to flat lips/-	Globul ar	Very large/hea vy	One broad dark reddish gray (5 r 3/1) band on rim down to throat; one band over the flange, remaining surface is pale yellow slipped (5 y 8/4)/A painted band continue from exterior on top of rim. The rim is red slipped (10 r 6/8), remaining is plain (10 r 6/8).	Smoothing with rotation on both sides	5 %; moderately sorted; more very fine to fine; rare medium sandy	A very slight calcarous paste. The main inclusions are very fine to medium and angular to rounded brown colored; dark green colored; sub rounded and medium light gray (transparent) colored; fine to medium and angular to sub rounded white colored.	Few tiny voids; porous	Normal- red (10 r 5/8)	Completely oxidized	Wheel= rim, upper body, flange; flange attache d separat ely	Kot Diji	EH Type-1
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8	MK 2017 3P 92	Rim Sherd	Pot, flanged	Complex, external flat flange lower than simple vertical rim with plain and flat lips/-	Globular	Very large/thick	One broad reddish black (5 r 2.5/1) band on rim down to throat; one band over flange, remaining surface is red slipped (10 r 4/6)/red slipped (10 r 4/6) A painted band on top of rim with red slip, remaining surface is plain (2.5 yr 6/8 light red)	Smoothing with rotation on both sides	5% moderately sorted; very fine to medium sandy	A mixed type (calcareous+ micaceous) paste with high calcareous concretions. The main inclusions are very few fine and rounded to platy in black colored; fine to medium in brown and dark brown colored; very few rounded and medium light gray (transparent) colored; several subs rounded to subangular and fine to medium white colored.	Few wide voids; porous	Normal- red (10 r 5/8)	Completely oxidized	Wheel= rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1
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9	MK 2017 3P 93	Rim Sherd	Pot, flanged	Complex, external concave flange lower than simple everted rim with plain to flat lips/-	Globular	Medium/medium	Reddish black (5 r 2.5/1) bands; one on rim, one on flange and two bands below the flange, remaining vessel is red (10 r 4/6) slipped/Same painted band over top of the rim and same slipped till throat, remaining is plain (2.55 yr 6/8 light red)	Smoothing with rotation on both sides	5%; well sorted; more very fine to fine and rare medium sandy	A very slight calcarous paste. The main inclusions are rounded to sub rounded and fine to medium black colored, several fine to medium in brown, dark brown, light red colored; several rounded to sub rounded yellowish white colored; few subs angular grayish white colored.	Multiple tiny voids; porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel=rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1
10	MK 2017 3P 94	Rim Sherd	Pot, flanged	Complex, external concave flange lower than simple everted rim and plain to round lips/-	Globular	Medium/medium	A dark reddish gray band (5 r 3/1) on rim and flange, remaining is red slipped (10 r 4/6)/Same painted band continue over top of rim with same slipped, remaining is plain (5 r 6/4 light reddish brown)	Smoothing with rotation on both sides	5%; moderately sorted; very fine to medium sandy	A very slight calcarous paste. The main inclusions are rounded to sub rounded brown colored in abundance, very few angular and medium gray colored, angular to sub rounded and fine to medium light to dark green colored; very few fine and medium white colored.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1

11	MK 2017 5P 11	Rim Sherd	Pot, flanged	Complex, external S walled flange lower than simple vertical with plain and round lips/-	Globular	Very large/medium	One horizontal and broad band on rim and one band on flange in dark reddish gray color (5 yr 4/1), with red slip between the flange and rim (10 yr 5/6), while pale brown slip below the flange (2.5 yr 8/3)/red slip (10 yr 5/6) applied upto throat, remaining plain (7.5 yr 7/4 pink)	Smoothing with rotation on both sides	20%; well sorted; more very fine to fine; rare medium sandy	A micaceous type paste. The main inclusions are very fine to fine platy shape black colored in abundance; very fine to fine and rounded to sub rounded to sub angular white colored in abundance; very few sub rounded green colored; few sub rounded brown colored, few angular gray (transparent) colored, few sub rounded pink colored.	Few wide voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1
12	MK 2017 6P 1	Rim Sherd	Pot, flanged	Complex, external concave flange lower than rim, rim is simple inverted; plain and flat lips/	Globular	Very large/thick	Traces of paint in very dusky red color (2.5 yr 2.5/2) on the whole body/traces of same paint in dark reddish brown (2.5 yr 3/4) down to inflection point, remaining vessel is plain (7.5 yr 3/4 pink)	Smoothing with rotation on both sides	5%; well sorted; more very fine to fine; rare medium sandy	A very slight calcarous paste. The main inclusions are rounded to sub rounded and fine to medium black and dark green colored; fine to medium brown; rounded to sub rounded yellowish white colored; few sub angular grayish white colored.	Multiple tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1

13	MK 2017 6P 2	Rim Sherd	Pot, flanged	Complex, external flat flange lower than simple vertical rim and plain to flat lips/-	Globular	Large/medium	One painted band each on rim, lower part and below the flange and four thin bands on shoulder in dark reddish gray color (7.5 r 3/1) with red slip in back ground on whole vessel (10 r 5/6)/A painted band on rim in dark reddish- brown color (7.5 yr 3/1), red slipped (10 r 5/6) rim, remaining is washed (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	3%; well sorted; medium sandy	A calcareous paste. The main inclusions are brown and dark brown colored; few sub rounded white colored; few light green, pink and black colored.	Few tiny voids; porous	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1
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14	MK 2017 6P 3	Rim Sherd	Pot, flanged	Complex, external concave flange lower than simple vertical rim with plain and round lips/-	Globular	Large/thick	Completely slipped or painted (7.5 yr 2.5/1)/A thin painted band on rim continue from exterior in black (7.5 yr 2.5 /1), slipped in red color down to inflection point (10 r 4/4), remaining washed in light red (2.5 yr 6/6)	Smoothing with rotation on both sides	5%; moderately sorted; more very fine to fine, rare medium and coarse sandy	A slight calcareous paste. The main inclusions are sub rounded to sub angular and fine to medium dark green and black colored; sub rounded to sub angular brown colored; a coarse sub angular white colored; few medium gray (transparent) colored; few sub angular pink colored.	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body, flange; flange attached separately	Kot Diji	EH Type-1
15	MK 2017 1P 40	Body Sherd	Black on brown	-	-	/heavy	A wide horizontal band in very dusky red (5 r 2.5/2) color with dark reddish brown slip (2.5 yr 3/4)/plain light red (2.5 yr 6/8)	Smoothing with rotation/scraping with rotation	10; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) of paste. The main inclusions are fine to medium and angular to rounded in black, green, gray and white colors.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=body	Kot Diji	EH Type-2
16	MK 2017 6P 131	Body Sherd	Black on brown	-	-	Medium/medium	A thin horizontal painted band on body in black color (5 yr 2.5/1) with traces of pale-yellow slip (2.5 yr 8/2) and black paint on upper	Scrapping with rotation/smoothing with rotation	5%; well sorted; fine to medium sandy	A calcareous paste with high levigations. The main inclusions are fine to medium and angular to rounded in brown, gray and yellowish white colors.	Few tiny voids; porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2

							body/washed (5 yr 6/4 light reddish brown)									
17	MK 2017 6P 142	Body Sherd	Black on dark gray	-	-	/thick	Traces of one wide and three thin horizontal bands in very dark gray (10 yr 3/1) color with very dark grayish brown slip (10 yr 3/2)/traces of same slip on upper body, remaining is plain (very pale brown (10 yr 7/4)	Smoothing with and without rotation/smoothing with rotation	5%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste with mainly calcareous concretions. The main inclusions are fine to medium and angular to rounded in black, brown, gray, and white colors.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2
18	MK 2017 3P 111	Body Sherd	Black on red	-	-	/medium	One slightly wavy sharp band/line on main body in black color (5 yr 2.5/1) with slightly thick red slip (10 yr 5/8)/plain (2.5 yr 6/6)	Scrapping without rotation/smoothing with rotation	2%; well sorted; fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and angular to rounded black, brown, dark brown, orange, pink and white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2

19	MK 2017 3P 20	Body Sherd	Black on red	-	Globul ar	/medium	One horizontal band on shoulder or lower body in black color (5 yr 2.5/1) with red slip(10 r 4/6)/plain (light red 2.5 yr 6/6)	Smoothing with rotation/smo othing with and without rotation	20%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and angular to rounded brown, gray, pink, white and yellowish white in colors.	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2
20	MK 2017 3P 21	Body Sherd	Black on red	-	-	/medium	Six horizontal dark reddish gray (5 r 3/1) bands on main body, tope first and bottom last band are slightly broad with reddish brown (2.5 yr 5/4) slip/plain- washed (2.5 yr 6/6 light red)	Smoothing without rotation/ smoothing without rotation	5%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and angular to rounded black, brown, dark brown, white, and yellowish white in colors.	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2

21	MK 2017 4P 17	Body Sherd	Black on red	-	-	-	Two broad horizontal bands on main body in black color (5 yr 2.5 /1) with red slip (10 r 4/6)/plain ((2.5 yr 6/8) light red)	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste with mainly calcareous composition. The main inclusions are fine to medium and angular to rounded in black, brown, gray, light red, pink, and white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji?	EH Type-2
22	MK 2017 5P 35	Body Sherd	Black on red	-	-	/medium	One horizontal band on upper body in black (5 yr 2.5/1) with red slip (10 r 4/6)/plain (10 r 7/6 light red)	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and angular to rounded in brown, gray, and white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2
23	MK 2017 5P 36	Body Sherd	Black on red	-	-	/medium	One painted band on upper body in dark reddish gray (3 r 3/1) color with weak red slip (10 r 4/4)/plain (5 yr 7/4 pink)	Smoothing with rotation on upper body and scrapping with rotation on lower body/smoothened	10%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in black, brown, gray, light green, light pink, and white colors.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Hand = body; spatula marks	Kot Diji	EH Type-2

24	MK 2017 5P 56	Body Sherd	Black on red	-	-	/medium	One broad painted band on tope, one band below with three to four sharp bands in between in dark reddish gray color (10 r 3/1) with weak red slip (10 r 4/4)/plain (2.5 y 6/6 light red)	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in brown, dark brown, gray, light green, and white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2
25	MK 2017 5P 60	Body Sherd	Black on red	-	-	/medium	Two narrow painted bands on main body in reddish black color (10 r 2.5/1) with reddish brown slip (2.5 yr 4/4) on whole vessel/light red slipped (2.5 yr 6/6)	Smoothing with rotation on both sides	30%; well sorted; fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and angular to rounded in black, brown, green, gray, light red, white, yellow, and yellowish white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2
26	MK 2017 6P 128	Body Sherd	Black on red	-	-	Medium/medium	Remains of a thin horizontal painted band on upper body and a thin, slight oblique band below it in black color (gley 1 2.5/n), with red (10 r 5/6)	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and angular to rounded in dark brown, brown, black, gray, pink and white colors.	Few tiny voids; porous	Margins = 7.5 yr 7/4 pink, Core = (2.5 yr 6/8) light red	Incompletely or fully oxidized.	Wheel = body	Kot Diji	EH Type-2

							slip/plain (5 yr 7/4 pink)									
27	MK 2017 6P 134	Body Sherd	Black on red	-	-	Medium/medium	A sharp horizontal painted band in dark gray color (7.5 yr 4/1), and weak red slip (10 r 5/4) in back ground, slip have whitish shades/plain (7.5 yr 7/6 reddish yellow)	Smoothing with rotation on both sides	Less than 1 %; well sorted; fine to medium sandy	A calcareous paste with a high level of levigation. The main inclusions are fine to medium and angular to rounded in white colors.	Few tiny voids; porous	Margins = 5 yr 6/6 reddish yellow, Core = 7.5 yr 5/4 brown)	Incompletely or fully oxidized.	Wheel = body	Kot Diji	EH Type-2
28	MK 2017 6P 136	Body Sherd	Black on red	-	-	Medium/medium	Remains of two horizontal painted bands in black color (5 yr 2.5/1), with red slip (2.5 yr 4/6)/plain (5 yr 6/6 reddish yellow)	Smoothing with rotation, slightly roughening/smoothering with rotation	3%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and angular to rounded in brown, dark brown, gray, pink, and white colors.	Few tiny voids; porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2

29	MK 2017 6P 143	Body Sherd	Black on red	-	-	/thick	A horizontal painted band on shoulder in black color (5 yr 2.5/1) with red slip (10 r 4/6)/light red (2.5 yr 6/6)	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in brown, green, gray, pink, white, and yellowish white colors.	Few tiny voids; porous	Margins = 2.5 yr 6/6 light red, Core = 7.5 yr 7/6 reddish yellow	Incompletely or fully oxidized.	Wheel = body	Kot Diji	EH Type-2
30	MK 2017 3P 17	Body Sherd	Black on red and white	-	-	/medium	One reddish black color (2.5 yr 2.5/1) band in middle with red slip (10 r 4/6) on upper body and very pale brown (10 yr 8/2) slip on lower body/plain-washed (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	3%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) of paste. The main inclusions are fine to medium and angular to rounded in brown, dark brown, gray, and white colors.	Few tiny voids; porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2
31	MK 2017 3P 22	Body Sherd	Black on red and white	-	-	/medium	One broad reddish black (10 r 2.5/1) band on shoulder with pale brown slip on upper body (2.5 yr 8/3) and light red (slip 10 r 4/6) on lower body/plain (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and angular to rounded in brown, pink, and white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2

32	MK 2017 4P 14	Body Sherd	Black on red and white	-	-	-	One horizontal painted band in the middle of body in black color (2.5 yr 2.5/1) color with red slip (10 r 4/6) on upper, whereas pale brown (2.5 y 8/3) slip on lower body/plain (2.5 yr 7/6 light red)	Smoothing with rotation on both sides	Less than 1%; well sorted; fine to medium sandy	A calcareous and well levigated paste. The mian incluions are fine to medium and angular to rounded in brown and white colors.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2
33	MK 2017 5P 55	Body Sherd	Black on red and white	-	-	/medium	Two horizontal and painted bands on upper body in reddish black color (10 r 2.5/1) with one band below in weak red color (10 r 4/3) and pale brown slip on the whole vessel (2.5 y 8/2)/washed (7.5 yr 7/4 pink)	Smoothing with rotation on both sides	3%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The mian incluions are fine to medium and angular to rounded in black, brown, dark brown, light gray, white, and yellowish white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2

34	MK 2017 6P 140	Body Sherd	Black on red and white	-	-	Medium/ medium	A thin horizontal painted band on main body in dark brown color (7.5 yr 3/2)with dusky red slip (10 r 3/2) on tope and pale yellow slip (2.5 y/8.5) on lower body/plain (7.5 yr 6/4 light brown)	Smoothing with rotation on both sides	1%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in gray and white colors.	Few tiny voids;poro us	Margins = light brownish gray to (2.5 yr 6/6) light red, Core = (gley 1 10 y 4/1) dark greenish gray	Incompletel y oxidized	Wheel = body	Kot Diji	EH Type-2
35	MK 2017 6P 171	Body Sherd	Black on red and white	-	-	Medium/ medium	A thin horizontal painted band in reddish black color (5 r 2.5/1) in middle with red slip (10 r 4/6) on upper body and pale yellow slip (2.5 y8.5/2) on lower body/plain (7.5yr 7/4 pink)	Smoothing with rotation on both sides	Less than 1%; well sorted;fine to medium sandy	A calcareous and well levigated paste. The mian inclusions are fine to medium and angular to rounded in gray and white colors.	Few tiny voids;poro us	Margins = 7.5 yr 7/6 reddish yellow, Core= 2.5 yr 7/6 light red	Incompletel y or fully oxidized.	Wheel = body	Kot Diji	EH Type-2

36	MK 2017 6P 120	Body Sherd	Black on white	-	-	/thick	One wide and four thin horizontal painted bands, four filled petalled flowers in a horizontal row below, connected side by side with one another with band on upper body, also having plus mark symbole in between the flowers in dark grayish brown color(10 yr 4/2),with pale yellow slip(2.5 y8/2) (intersecting circles)plain (7.5 yr 7/4 pink)	Smoothing with rotation on both sides	5%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in black, green, gray, and yellowish white colors.	Few tiny voids;porous	Normal-(5 y 7/2) light gray	Un-oxidized or reduced	Wheel = body	Kot Diji	EH Type-2
37	MK 2019 3P 156	Complete	Miniature, short necked, painted gobular pot	Simple vertical rim ; pinched lips/contiguous flat base	Globular	Miniature/thin	Four bands in dark chocolate color from rim to main body with red slip in background /black band continue from exterior and red slip	Smoothing with rotation on upper while scrapping with rotation on lower/smoothing	-	-	-	-	-	Wheel = rim, base, body	Kot Diji	EH Type-2

							on the whole									
38	MK 2017 3P 14	Rim Sherd	Pot, black on dark reddish gray	Simple vertical rim ; plain and flat lips/-	Globular	Small/medium	One black color band on rim (5 yr 2.5/1) with dark reddish gray slip (2.5 yr 3/1)/band continue from exterior on top of rim with same slipped till throat, remaining is plain (5 yr 8/2) pale yellow	Smoothing with rotation/sandy surface	20%; well sorted; fine to medium sandy	A highly calcareous paste. The main inclusions are rounded to sub rounded and medium type in black, brown, grayish white, and white colors.	Few tiny voids; porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

39	MK 2017 6P 19 (I)	Rim Sherd	Pot, black on dark reddish gray	Simple vertical rim ; plain and flat lips/	Globular	Small/medium	A wide horizontal band on rim down to inflection point in black color (5 yr 2.5/1) with dusky red slip (2.5 yr 3/2)/slipped slightly below inflection in red color (10 r 4/6), vessel is washed 7.5 yr 7/4 (pink).	Smoothing with rotation /scrapping like smoothing with rotation	5%; well sorted; fine to medium sandy	A slight calcareous paste. The main inclusions are fine and rounded greenish black, gray and transparent gray colored; fine to medium and angular to rounded yellowish white and brown colored in abundance.	Multiple medium voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2
40	MK 2017 6P 20	Rim Sherd	Pot, black on dark reddish gray	Simple everted ; flat lips/	Globular	Small/medium	A wide, painted horizontal band on rim down to inflection point in black color (10 r 2.5/1) with dark brown slip (7.5 yr 3/2)/painted band continued from exterior upto top of rim only in black color (10 r 2.5/1) with dark brown slip in on the rim (10 r 4/6)/vessel is washed in pink (5 yr 7/4)	Smoothing with rotation on both sides	3%; well sorted; very fine to coarse sandy	A calcareous paste. The main inclusions are angular and medium dark brown to brown colored; rounded and medium yellow, light green, gray colored; angular to rounded and fine to coarse yellowish white colored.	Few tiny voids; porous	Normal-reddish brown (5 yr 5/4)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

41	MK 2017 3P 9	Rim Sherd	Pot, black on dark reddish gray and white	Simple vertical rim ; plain and flat lips/	Globular	Small/medium	One band on rim, and emains of three to four bands down to throat and shoulder in black color (7.5 yr 2.5/1) with very pale brown slip (10 yr 8/3)/same color band continue from exterior, slightly on rim, with dusky red (2.5 yr 3/2) slip upto throat area	Smoothing with rotation on both sides	20%; well sorted; more fine to medium; rare very coarse sandy	A heavily calcareous paste. The main inclusions are sub rounded and medium black, whitish gray and gray colored; very coarse and angular yellowish white colored.	Slightly compact	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2
42	MK 2017 5P 17	Rim Sherd	Pot, black on dark reddish gray and white	Simple vertical rim ; plain and flat lips/	Globular	Medium/medium	One slight broad painted band on rim, another on shoulder in reddish black (2.5 yr 2.5/1), traces of reddish black slip between shoulder and rim with pale brown slip (2.5 y 8/3) below the shoulder/same dark slip applied on rim, remaining	Polished, smoothing with rotation/damaged surface	3%; well sorted; fine to medium sandy	A heavily calcareous paste. The main inclusions are fine and rounded to angular black colored; medium to coarse and rounded to angular yellowish white colored; medium and angular brown colored; rounded greenish gray colored in abundance	Few tiny voids; porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

							vessel is plain (7.5 yr 6/3 light brown)									
43	MK 2017 5P 65	Rim Sherd	Pot, black on dark reddish gray, ledged	Simple everted ; flat lips/	Globular	Medium/medium	One broad horizontal band on rim till throat in black color (5 yr 2.5/1) with reddish brown slip (5 yr 4/3)/same band continue from exterior on the rim and slipped in same color upto shoulder, remaining is plain (7.5 yr 7/4 pink)	Smoothing with rotation upper body, scrapping without rotation on main body/smoothing with rotation, smoothing with spatula?	10%; well sorted; medium to very coarse sandy	A calcareous paste. The main inclusions are sub rounded and medium to very coarse orange colored; rounded and coarse yellowish white colored; medium and rounded greenish gray colored; fine and rounded whitish gray colored; angular and medium dark brown colored.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

44	MK 2017 6P 4	Rim Sherd	Pot, black on dark reddish gray, ledged	Simple everted rim ; plain and round lips/	Globul ar	Large/me dium	A wide horizontal band on rim down to inflection point in black color (5 yr 2.5/1) with dark reddish brown slip (5 yr 3/2)/painted band continued from exterior upto slightly upper half of rim in black color (5 yr 2.5/1) and slipped upto slightly little below the rim in dark reddish brown color (5yr 3/2)	Scrapping with rotation on both sides	20%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are angular and fine to medium in black, dark gray, grayish white, greenish black and transparent gray colores.	Few tiny voids;poro us	Normal- light brown (7.5 yr 6/4)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
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45	MK 2017 3P 83	Rim Sherd	Pot, black on red	Simple everted rim ; plain and round lips/	Globular	Medium/medium	One broad reddish black (5 r 2.5/1) band on rim and shoulder with red slip (10 r 5/6)/painted band continue from exterior on rim only, remaining is plain (7.5 yr 8/4 pink)	Smoothing with rotation on both sides	2%; moderately sorted;very fine to medium sandy	A calcareous paste. The main inclusions are very fine to medium and rounded, ub rounded to angular white colored; rounded and fine dark brown colored; angular and medium brown colored; few light green and granular black colored.	Multiple medium voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2
46	MK 2017 3P 84	Rim Sherd	Pot, black on red	Simple vertical rim ; plain and round lips/	Globular	Small/medium	One band on rim, one spiral band on shoulder, three sharp bands below spiral band in dark reddish gray color (5 r 3/1) with red slip (10 r 5/8)/dark reddish gray band continue from exterior on rim (5 r 3/1), red slipped till shoulder.	Smoothing with rotation on both sides	Less than 1%; well sorted; more very fine, rare medium sandy	A mixed type (calcareous+ micaceous) and well levigated paste. The main inclusions are medium and angular besides granular in white and black colors.	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

47	MK 2017 3P 86	Rim Sherd	Pot, black on red	Simple vertical rim ; plain and round lips/	Globul ar	Large/me dium	One dark reddish gray (5r 3/1) broad band on rim, remaining is red slipped (10 r 5/8)/painted band continue from exterior on top of rim and same slip, remaining is plain (10 r 6/8 light red)	Straight, horizontal, parallel grooving with slightly wide gaps in between the grooves, ridges tips are pointed//smo othing with rotation	5%; well sorted; very fine to medium sandy	A mixed type (calcareous+ micaceous) paste with predominant calcareous inclusions. The main inclusions are angular to sub rounded and medium in black color; angular light green colored, angular to rounded and fine to medium brown and gray colored, angular to rounded and very fine to medium white colored.	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
48	MK 2017 3P 87	Rim Sherd	Pot, black on red	Simple vertical rim ; pinched lips/	Globul ar	Small/me dium	Traces of dark reddish band on rim (5 r 4/1) and light pink slip (5 r 8/2)/traces of same colore band on rim continue from exterior, remaining is plain (10 r 6/8 light red)	Smoothing with rotation on both sides	3%; moderately sorted;very fine to coarse sandy	A micaceous paste. The main inclusions are fine to medium and angular greenish black colored; angular to sub rounded medium brown and gray colored; very fine to coarse and angular to sub angular grayish white colored.	Few tiny voids;poro us	Margins = 5 yr 6/3 light reddish brown, Core = 10 r 6/8 light red	Incompletel y or fully oxidized.	Wheel= rim, upper body	Kot Diji	EH Type-2

49	MK 2017 4P 7	Rim Sherd	Pot, black on red	Simple vertical rim ; plain and flat lips/	Globul ar	Small/me dium	One horizontal broad band on rim in black color (5 yr 2.5/1), with red slip (10 r 4/6)/painted band continue from exterior upto rim and slipped in same color upto throat, remaining is plain (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	20%; very well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and platy to angular black colored in abundance; fine to medium and angular brown colored; sub rounded; transparent gray colored; angular to rounded and fine to medium white colored; few rounded and fine gray colored.	Slightly compact	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
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50	MK 2017 4P 9	Rim Sherd	Pot, black on red	Simple vertical rim ; plain and flat lips/	Globular	Medium/medium	One horizontal band on rim reddish black color (2.5 yr 2.5/1) with dark reddish-brown slip (2.5 yr 3/3)/painted band continue from exterior on rim, with traces of dark reddish slip slightly below the rim, remaining reddish yellow slipped (5 yr 7/6)	Scrapping and smoothing with rotation/smoothing with rotation	10%; well sorted; fine to very coarse sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are very fine and granular black colored; few rounded to angular and very fine light green colored; sub rounded and medium greenish black colored; rounded and medium brown, transparent gray and gray, and white colored; very coarse and rounded yellowish white colored.	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2
51	MK 2017 5P 18	Rim Sherd	Pot, black on red	Simple everted ; flat lips/	Globular	Large/medium	One slightly broad painted band on rim in dark reddish gray color (7.5 yr 3/1), with red slip (10 yr 5/6)/red slip applied on rim, below is plain (5 yr 7/6 reddish yellow)	Smoothing without rotation/sandy surface	5%; moderately sorted; fine to medium sandy	A highly calcareous paste. The main inclusions are rounded and medium reddish brown and brown colored; fine and rounded whitish gray gray colored; fine to medium and angular to rounded yellowish	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

										white colored.						
52	MK 2017 5P 19	Rim Sherd	Pot, black on red	Simple everted rim ; plain and round lips/	Globular	Medium/medium	One slightly broad painted band on rim in black color (5 yr 2.5/1), with red slip (10 yr 4/6)/red slip applied on rim, remaining is plain (2.5 yr 7/6 light red)	Smoothing with rotation/sandy surface	5%; moderately sorted; fine to medium sandy	A slight calcareous paste. The main inclusions are fine to medium and angular to rounded dark brown and brown colored; fine to medium and rounded to angular whitish gray colored; sub rounded and medium white colored; sub rounded and medium yellowish white colored.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

53	MK 2017 6P 18	Rim Sherd	Pot, black on red	Simple vertical rim ; plain and round lips/	Globul ar	Small/me dium	A wide horizontal painted band on rim and slightly below it in very dark gray color (7.5 yr 3/1), with reddish brown slip (2.5 yr 4/4)/a thin painted band on rim continue from exterior in same color and same slip on rim, remaining is plain (reddish yellow 5 yr 7/6)	Smoothing with rotation on both sides	1%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are rounded and medium greenish black, greenish gray colored; angular and medium yellowish white colored.	Few tiny voids;poro us	Margins = 7.5 yr 7/6 reddish yellow, Core = 2.5 yr 6/6 light red	Incompletel y or fully oxidized.	Wheel= rim, upper body	Kot Diji	EH Type-2
54	MK 2017 6P 24	Rim Sherd	Pot, black on red	Simple vertical rim ; plain and flat lips/	Globul ar	Medium/ medium	A wide painted band on rim down to inflection point in black color (7.5 yr 2.5/1) with reddish brown slipped back ground (2.5 yr 4/4)/same red slip upto inflection point and remaining vessel is plain (5 yr	Smoothing with rotation on both sides	5%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are granular black colored; angular and medium light and dark brown, gray and white colored.	Few wide voids; porous	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2

							7/6 reddish yellow)									
55	MK 2017 6P 30	Rim Sherd	Pot, black on red	Simple inverted rim ; plain and flat lips/	Globular	Small/medium	A wide painted band on rim in black (5 yr 2.5/1) with red slip (10 r 4/6)/painted band on rim continue from exterior in black (5 yr 2.5/1) with red slip (10 r 4/6)	Smoothing with rotation on both sides	3%; well sorted; fine to coarse sandy	A calcareous paste. The main inclusions are rounded to angular greenish black colored; rounded and medium dark brown colored; angular and medium dark gray colored; angular to rounded and fine to coarse white and yellowish white colored.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

56	MK 2017 6P 40	Rim Sherd	Pot, black on red	Simple vertical rim ; pinched lips/	Globular	Small/medium	Two painted bands, one on rim and one on neck/shoulder in black color (5 yr 2.5/1) with red slip (2.5 yr 5/6) on the remaining vessel/one painted band continued from the exterior of the rim in black color (5 yr 2.5/1) with red slip (2.5 yr 5/6) in diagonal manner, remaining vessel is plain (5 yr 7/6 reddish yellow)	Smoothing with rotation on both sides	–	A mixed type (calcareous+micaceous) paste with calcareous and micaceous inclusions.	Slightly compact	Margins =2.5 yr 7/6 light red, Core=5/1 10y greenish gray gley 1	Incompletely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2
57	MK 2017 6P 8	Rim Sherd	Pot, black on red	Simple vertical rim ; pinched lips/	Globular	Medium/medium	A wide painted band on rim in dark reddish gray color (5 yr 3/1) with red slip (2.5 yr 5/6)/a painted band continue from the exterior in dark reddish gray (5 yr	Smoothing with rotation on both sides	2%; well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are granular black, white; fine and rounded brown colored.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

							3/1) with red slip in (2.5 yr 5/6) on the rim and vessel is washed (7.5 yr 7/4 pink)									
58	MK 2017 6P 14	Rim Sherd	Pot, black on red, ledged	Simple everted rim ; plain and round lips/	Globular	Large/medium	A wide horizontal, painted band in dusky red color (7.5 yr 3/2) on the whole rim with red slip (10 r 4/6)/rim is slipped in red (10 r 4/6) and washed in reddish yellow color (5 yr 7/6)	Smoothing with rotation on upper body, scrapping with rotation lower body (base)/smoothing with and without rotation (irregular)	3%; well sorted; medium sandy	A calcareous paste. The main inclusions are granular brown colored; medium and rounded brown colored; angular and medium light and dark gray colored; rounded and medium greenish gray colored.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

59	MK 2017 3P 16	Rim Sherd	Pot, black on red, ledged	Simple vertical rim ; plain and flat lips/	Globular	Large/medium	One black color (5 yr 2.5/1) band on rim, with red slipped (10 r 5/8)/same band continue from exterior on top of rim and same slipped till throat, remaining is washed (2.5 yr 6/6)	—	5%; poorly sorted; more fine to medium; rare very coarse sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are brown colored; sub rounded to rounded and fine to very coarse white and yellowish white colored in abundance; rounded to sub rounded and medium brown colored.	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
60	MK 2017 6P 12	Rim Sherd	Pot, black on red, ledged	Simple vertical rim ; plain and flat lips/	Globular	Medium/medium	A wide, painted band on rim down to inflection point with remains of a horn of horned deity on main body in black color (7.5 yr 2.5/1) with red slip (10 r 5/6)/a thin painted band continue from the exterior in black (7.5 yr 2.5/1) with red slip in (10 r 5/6) on the whole rim, slightly	Smoothing with rotation on both sides	5%; well sorted; very fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are granular black colored; rounded to angular and fine to medium dark brown colored; fine to medium and angular to rounded transparent gray colored; very fine to medium and angular to rounded white colored in abundance	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2

							below and vessel is washed in light red (2.5 yr 6/6)									
61	MK 2017 6P 13	Rim Sherd	Pot, black on red, ledged	Simple vertical rim ; plain and flat lips/	Globular	Large/thick	A wide painted band on rim, down to inflection point in black color (5 yr 2.5/1) with red slip (10r 5/6) in back ground/painted band continued from exterior upto top of rim only in black color (5 yr 2.5/1) with red slip on the rim upto little below inflection	Smoothing with rotation/smoothing with rotation on rim, scrapping with rotation	5%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are rounded to sub rounded and angular brown and dark brown colored; fine to medium and angular white colored.	Few wide voids; porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

							point (10 r 5/6), vessel is washed in reddish yellow color (5 yr 6/6)												
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62	MK 2017 6P 137	Rim Sherd	Pot, black on red, ledged	Simple vertical rim ; plain and flat lips/	Globul ar	Large/me dium	A wide painted band on rim, down to inflection point in reddish black color (2.5 yr 2.5/1) with red slip (2.5 yr 5/6) in back ground/a painted band on the upper half of the rim, continue from exterior in reddish black color (2.5 yr 2.5/1),slipp ed in red upto slightly down inflection point (2.5 yr 5/6), remaining vessel is plain in reddish yellow color (5 yr 7/6)	Smoothing with rotation on upper body, smoothing without rotation on lower body/smoothi ng with rotation	10%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are few fine and rounded greenish black and gray colored; angular to rounded and fine to medium white colored; fine to medium rounded to angular brown and dark brown colored.	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
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63	MK 2017 6P 23	Rim Sherd	Pot, black on red, ledged	Simple vertical rim ; plain and flat lips/	Globul ar	Small/me dium	A wide, horizontal painted band inflection point in reddish black color (2.5 yr 2.5/1) with dusky red slip (10 r 3/2)/painted continued from exterior upto top of rim and slightly upto upper half of rim in reddish black color (2.5 yr 2.5/1) with dusky red slip(10 r 3/2) on rim slightly below the inflection point, remaining vessel is washed (7.5 yr 7/4)	Smoothing with rotation, perforation across the flange, vertical, from top to downwards, two preserved holes/smooth ing with rotation	2%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded greenish gray and gray colored.	Few tiny voids;poro us	Normal- light brown (7.5 yr 6/4)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
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64	MK 2017 3P 85	Rim Sherd	Pot, black on white	Simple vertical rim ; plain and flat lips/	Globular	Small/medium	One broad dark reddish gray (5 r 3/1) band on rim down to beginning of shoulder and one band on shoulder with light pink slip in between (5 r 8/2)/light pink slip over rim, remaining is plain (2.5 yr 6/8)	Smoothing with rotation on both sides	10%; well sorted; very fine to medium sandy	A mixed type (calcareous+ micaceous) paste with predominant micaceous grains. The main inclusions are very fine to medium and rounded black colored, fine to medium and angular to rounded brown colored; few angular and medium greenish black colored; angular to sub rounded grayish white and white colored.	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
65	MK 2017 6P 122	Body Sherd	Pot, black on white	-	Globular	/medium	Two thin horizontal painted bands with slight gap, with third band below out of which emerges oblique , thin bands in reddish black color (2.5 yr 2.5/1) with pale brown (2.5 y 8/2)slip/light slip in very pale brown color (10 yr 7/3)	Smoothing with rotation, polished later/smoothing with rotation	1%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium sandy in green, gray, light red, yellowish white colors.	Slightly compact	Normal- (5 y 7/2) light gray	Un-oxidized or reduced	Wheel= rim, upper body	Kot Diji	EH Type-2

66	MK 2017 4P 19	Rim Sherd	Pot, black on white and white sandy	Simple vertical rim ; plain and round lips/	Globul ar	Medium/ medium	One broad horizontal band on rim, one narrow band on shoulder in black color (5 yr 2.5/1), with pale brown slip in between the bands (2.5 y 8/3), lower body is sandy slipped in pale brown color (2.5 y 8/3), diagonal incised lines that might be script/paint ed continue from exterior on rim, with painted in reddish slip (2.5 yr 4/4) on rim, remaining is plain (5yr 7/3 pink)	Sandy clay coating and roughening /smoothing with rotation	5%; moderately sorted;very fine to medium sandy	A slight calcareous paste. The main inclusions are very fine and granular black colored; fine to medium and angular greenish black colored; fine to medium and rounded white and yellowish white colored; medium and angular grayish white colored.	Few tiny voids;poro us	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2 A
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67	MK 2017 6P 26	Rim Sherd	Pot, black on white and white sandy	Simple vertical rim ; plain and round lips/	Globul ar	Medium/ medium	One painted, horizontal band on rim in dark reddish brown color (5 yr 4/2) and traces of two thin bands on shoulder in reddish brown color (5 yr 5/3) with a mixed type slip in between, prominant light greenish gray color (5 gy 8/1 (gley 1), with sandy slip applied below shoulder in pale yellow color (5 y 8/2)/painted band continue from exterior on rim and slightly below in light greenish gray color (5 gy 8/1), remaining vessel is washed (7.5 yr 7/4 pink)	Sandy slip/smoothin g with rotation	10%; well sorted;fine to medium sandy	A ighly calcareous paste.The main inclusions are medium and rounded dark gray colored; fine to medium and rounded light and dark brown colored; angular and medium whitish gray colored.	Few tiny voids;poro us	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2 A
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68	MK 2017 4P 10	Rim Sherd	Pot, black on white and white sandy, ledged	Simple vertical rim ; plain and flat lips/	Globular	Large/thick	One horizontal band on rim and one band on shoulder in black color (5 yr 2.5/1) with light pink slip (5 r 8/2) in between these bands, lower body is sandy slipped in pale brown (2.5 y 8/2) color/painted band continue from exterior on the top of rim and same red slipped, remaining plain (5 yr 7/4 pink)	Sandy slip/smoothing with rotation	10%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are rounded to sub rounded and fine to medium white colored in abundance; rounded to sub rounded and fine to medium light and dark brown colored.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2 A
69	MK 2017 3P 79	Rim Sherd	Pot, black on white, ledged	Simple everted rim ; plain and round lips/	Globular	Very large/medium	One dark reddish gray (5 r 3/1) band on rim and shoulder with pale yellow slip below shoulder (5 y 8/2)/painted band continued from exterior on rim, same slipped till start of	Smoothing with rotation on both sides	3%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are angular and fine black colored; rounded to sub rounded and very fine to medium white and brown colored.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

							shoulder, remaining is plain (light red 10 r 6/8)									
70	MK 2017 6P 25	Body Sherd	Pot, ledged	Simple everted rim; plain and round lips/	Globular	Medium (in case of pot with mbd 26)/medium	A painted anthropomorphic design i.e., remains of a so-called horned diety In black (7.5 yr 2.5 /1) with weak red slip in back ground (10 r 4/4)/reddish yellow, light slipped back ground (5 yr 7/6)	Scrapping like smoothing with rotation/scrapping like smoothing on wheel with tool or nails	5%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste with fine to medium brown, gray, pink, white, yellowish white colored inclusions	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

71	MK 2017 6P 10	Rim Sherd	Pot, ledged, black on plain	Simple vertical rim ; plain and round lips/	Globular	Large/medium	A thin painted band on rim in black color (5 yr 2.5 /1), remaining vessel is plain (2.5 yr 6/6 light red)/painted band on rim continued from exterior of the vessel in black (5 yr 2.5/1), with washed back ground (2.5 yr 6/6 light red)	Sandy slip/smoothing with rotation	2%; Well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste with fine to medium black, brown, dark green, gray, white colored inclusions	Slightly compact	Margins = 2.5 yr 5/6 red, Core=10 y 6/1 greenish gray gley 1	Incompletely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
72	MK 2017 1P 4	Rim Sherd	Pot, ledged, complete red	Simple vertical rim ; plain and round lips/	Globular	Medium/medium	A completely painted vessel in weak red (10 yr 5/3) color/slipped over rim in light red (10 yr 4/6) till junction of rim and body, remaining is plain	Smoothing with rotation/scraping like smoothing on wheel with tool or nails	3%; well sorted; more coarse to less fine sandy	A mixed type (calcareous+ micaceous) paste with brown, gray and yellowish white colored fine to coarse sandy inclusions.	Slightly compact	Normal-red (10 yr 5/8)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2

73	MK 2017 3P 8	Rim Sherd	Pot, reddish gray on brown	Simple inverted ; plain and round lips/	Globul ar	Small/thi ck	One broad reddish black band on rim down to throat (2.5 yr 2.5/1), with reddish brown (2.5 yr 4/4) slip/same band continue from exterior on top of rim and same slipped upto throat, remaining is plain (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	1%; well sorted;fine to medium sandy	A calcareous paste with black, greenish yellow,white colored fine to medium sandy inclusions	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
74	MK 2017 3P 80	Rim Sherd	Pot, reddish gray on brown	Simple vertical rim ; plain and round lips/	Globul ar	Small/me dium	One dark red (5 r 3/6) band on rim and one on shoulder with red slip (10 r 5/6), wet impression in between shoulder and rim/painted band continued from exterior on rim, remaining is plain (5 yr r 7/6 reddish yellow)	Smoothing with rotation on both sides	10%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste with black, brown, gray, and white colored fine to medium sandy inclusions	Slightly compact	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2

75	MK 2017 3P 88	Rim Sherd	Pot, reddish gray on brown	Simple vertical rim ; plain and flat lips/	Globul ar	Large/thi ck	One dusky red (7.5 r 3/2) broad band on rim, with red slip (10 r 4/6)/red slipped till throat, remaining is plain (5 yr 6/4 light reddish brown)	Smoothing with rotation	2%; well sorted;fine to medium sandy	A calcareous paste with fine to medium sandy brown, gray, white colored inclusions	Slightly compact	Normal- pink (5 yr 7/3)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
76	MK 2017 6P 6	Rim Sherd	Pot, reddish gray on brown	Simple everted ; flat lips/	Globul ar	Medium/ medium	A painted horizontal band on rim in dark reddish gray (10 r 3/1) with red slip (10 r4/6)/painted band continued from exterior upto top of rim only in dark reddish gray color (10 r 3/1) with red slip on the rim upto little below inflection point (10 r 4/6), vessel is washed in reddish yellow color (2.5 yr 6/6)	Smoothing with rotation on both sides	3%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste with fine to medium sandy brown, dark brown, gray, white, greenish yellow colored inclusions	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2

77	MK 2017 6P 67	Rim Sherd	Pot, reddish gray on brown	Simple everted rim ; plain and round lips/	Globular	Very large/thick	A wide, painted band on the rim down to shoulder in dusky red color (5 r 3/2) with reddish brown (2.5 yr 5/4)/traces of reddish brown slip on rim (2.5 yr 5/4), remaining vessel clay washed (7.5 yr 7/4 pink)	Smoothing with rotation on both sides	2%; well sorted; fine to medium sandy	A micaceous paste with fine to medium sandy brown, gray, white, yellowish white colored inclusions	Slightly compact	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2
78	MK 2017 6P 7	Rim Sherd	Pot, reddish gray on brown	Simple vertical rim ; plain and flat lips/	Globular	Medium/heavy	Main body is slipped with mixed color i.e., light red (2.5 yr 6/6) and dark reddish gray (5 r 4/1)/roughly applied painted band on upper portion of the rim in dark reddish gray (5r 4/1), with roughly applied slip upto inflection point in reddish brown color (5 yr 5/4),	Scrapping with rotation and polished (glossy appearance)/scrapping with and without rotation, regular and irregular	5%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) of paste with fine to medium black, brown, green, gray, and white colored inclusions	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-2

							remaining vessel is washed (7.5 yr 7/4 pink)									
79	MK 2017 1P 30	Rim Sherd	Pot/jar	Simple vertical rim ; plain and round lips/	Oblong	Small/medium	Two narrow bands or lines on rim in black color with remains of a sandy slip or slurry below shoulder/rim is red slipped (7.5 yr 5/8)	Smoothing with rotation on both sides	2%; well sorted; more fine sand to slight coarse sandy	A mixed type (calcareous+ micaceous) paste with fine to coarse brown, dark brown, pink, white, off white colored inclusions	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2 A

80	MK 2017 4P 11	Rim Sherd	Pot/jar	Simple everted ; flattened round lips/	Oblong	Large/thick	One horizontal broad band on rim in black color (5 yr 2.5/1), one narrow band on shoulder in dark reddish gray color (5 yr 4/2) with dark gray slip in between these bands (5 yr 4/1) with a pale brown sandy slip applied on lower body (2.5 yr 8/2)/same band on rim continue from exterior, dusky red slip (10 yr 3/4) till throat, remaining is plain (5 yr 8/4 pink)	Sandy slip/smoothing with rotation	2%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste with fine to medium brown, green and gray inclusions	Slightly compact	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2 A
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81	MK 2017 6P 27	Rim Sherd	Pot/jar	Simple vertical rim ; plain and round lips/	Oblong	Small/medium	A wide horizontal band on rim upto slightly below inflection point and two sharp thin painted bands on shoulder in black color (7.5 yr 2.5/1) with reddish brown slip(2.5 yr 4/4) in between these bands, and sandy slip below shoulder in very pale brown color (10 yr 8/3)/rim is slipped upto slightly below inflection point in reddish brown color (2.5 yr 4/4), remaining vessel is washed (5 yr 7/4 pink)	Sandy slip/smooth ing with rotation	3%; well sorted; fine to medium sandy	A calcareous paste with fine to medium brown, light gray, gray, greenish yellow, light red, and white colored inclusions	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2 A
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82	MK 2017 3P 6	Rim Sherd	Pot/jar, ledged	Simple vertical rim ; plain and round lips/	Oblong	Medium/ medium	Traces of one reddish black band (2.5 yr 2.5/1) on rim, one narrow band on shoulder in dusky red color (2.5 yr 3/2), with reddish brown slip (2.5 yr 4/3)between n bands bands, and pale brown sandy slip or slurry (2.5 y 8/2) applied below shoulder/sa me color band continue from exterior on rim, remaining plain (5 yr 6/4 light reddish brown)	Sandy surface/twisting clay	3%; well sorted;fine to medium sandy	A slight calcareous paste with fine to medium brown, light pink, white, and yellowish white colored inclusions	Slightly compact	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-2
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83	MK 2017 3P 62	Body Sherd	Red slipped	—	—	/medium	Plain (5 yr 5/6 yellowish red)/plain (2.5 yr 6/4 light reddish brown)	In determinant/in determinant	20%; well sorted; fine to medium sandy	A paste with abundant calcarous grains. The main inclusions are fine to medium and angular to rounded black, brown, dark brown, gray, orange, white, yellow, and yellowish white colored.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-2
84	MK 2017 3P 7	Rim Sherd	Pot, black on brown and pink sandy, ledged	Simple vertical rim ; plain and round lips/	Globular	Large/thick	One dark reddish black band on half of the rim with mixed slip dark to light gray upto shoulder and pink color (5 yr 7/4) sandy slip applied below shoulder/same color band continue from exterior, slightly on top of rim, with red (10 r 4/6) slip upto throat area, remaining is plain (10 r 6/6 light red)	Sandy slip/smoothing with rotation	5%; well sorted; fine to medium sandy	A micaceous paste. The main inclusions are fine rounded black and greenish black colored; rounded and medium light and dark brown colored; few medium angular transparent gray and white colored.	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

85	MK 2017 3P 75	Rim Sherd	Pot, black on brown and pink sandy, ledged	Simple vertical rim ; plain and round lips/	Globular	Medium/medium	One broad reddish black (2.5 yr 2.5/1) band on rim down to throat, with red (10 r 4/6) slip in between rim and shoulder and pink (7.5 yr 7/3) sandy slip applied below shoulder/same band continue from exterior on top of rim and same red (10 r 4/6) slipped upto throat, remaining is plain	Sandy slip/smoothin g with rotation	20%; well sorted; very fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are angular to rounded and fine to medium brown colored; coarse and rounded transparent gray colored; angular to rounded and fine to medium white colored.	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
86	MK 2017 3P 78	Rim Sherd	Pot, black on brown and pink sandy, ledged	Simple vertical rim ; plain and round lips/	Globular	Small/thick	One dark reddish gray (5 r 3/1) band on rim down to shoulder, one band on shoulder with reddish brown (2.5 yr 5/4) slip in between, and pink color (7.5 yr 7/4) sandy slip below shoulder/painted band	Sandy slip/smoothin g with rotation	10%; well sorted; fine to medium sandy	A highly calcareous paste. The main inclusions are angular and medium whitish gray colored; medium and rounded transparent gray and white colored; rounded and medium light and dark brown colored; rounded and	Few tiny voids;porous	Margins = 2.5 yr 6/6 light red, Core = 2.5 yr 6/6 light red	Incompletely or fully oxidized.	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

							continued from exterior on rim, same slip on whole rim			medium black colored.						
87	MK 2017 4P 18	Rim Sherd	Pot, black on brown and pink sandy, ledged	Simple vertical rim ; plain and round lips/	Globular	Medium/medium	One broad horizontal band on rim, one band on shoulder in black color (5 yr 2.5/1) with dark reddish gray slip, lower body is coated with clay and wet texture is produced (7.5 yr 6/4 light brown)/band continue from exterior on rim and rim is slipped in weak red (7.5 yr 5/4), with three finger	Sandy slip/smoothing with rotation	20%; well sorted; very fine to medium sandy	A highly calcareous paste. The main inclusions are very fine to medium and granular to angular white and yellowish colored; fine to medium and rounded to angular black and greenish black colored; medium and rounded gray colored.	Few tiny voids; porous	Normal-reddish brown (5 yr 5/4)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

							prints and remaining is plain									
88	MK 2017 3P 10	Rim Sherd	Pot, black on dark reddish gray and white sandy	Simple vertical rim ; plain and flat lips/	Globular	Medium/medium	One broad band on rim down to throat, one on shoulder in black (7.5 yr 2.5/1) with dark reddish black slip (2.5 yr 3/3)/same color band continue from exterior with same slip upto throat area, remaining is plain (2.5 yr 6/6 light red)	Sandy slip/smoothing with rotation	5%; well sorted; fine to medium sandy	A slight calcareous paste. The main inclusions are angular and fine black and greenish black colored; rounded brown and gray colored, rounded to angular and fine to medium white colored.	Multiple medium voids; porous	Margins = 5 yr 6/6 reddish yellow, Core = 2.5 yr 5/8 light red	Incompletely or fully oxidized.	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

89	MK 2017 6P 28	Rim Sherd	Pot, black on dark reddish gray slip and white sandy	Simple vertical rim ; plain and round lips/	Globul ar	Large/me dium	A wide, horizontal painted band on the rim and two sharp thin bands on shoulder in black color (7.5 yr 2.5/1) with dark reddish gray slip (7.5 yr 4/1) in between them,with sandy slip in pale brown color below shoulder (2.5 yr 7/3)/painted band continued from exterior on rim in black color (7.5r 2.5/1) with very pale brown washed (clay suspension ?) In back ground (10 yr 8/2)	Sandy slip/smoothin g with rotation	20%; well sorted;fine to coarse sandy	A highly calcareous paste. The main inclusions are fine to coarse and rounded to angular white and yellowish white colored; rounded and fine black, greenish black and gray colored.	Few tiny voids;poro us	Normal- light gray (5 y 7/2)	Un-oxidized or reduced	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
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90	MK 2017 3P 12	Rim Sherd	Pot, black on red and pink sandy	Simple vertical rim ; plain and flat lips/	Globul ar	Small/me dium	One reddish black (2.5 yr 2.5/1) band on complete rim down tothroat and red slipped (10 r 4/6) down to shoulder and one reddish black band on shoulder, with pink (5 yr 7/4) sandy slip below shoulder/sa me band continue from exterior on top of rim and same slipped till throat, remaining is plain (5 yr 6/4 reddish brown)	Sandy slip/smoothin g with rotation	5%; moderately sorted; fine to coarse sandy	A calcareous paste. The main inclusions are rounded to sub rounded and medium in light and dark brown; fine and rounded grayish white, gray; rounded to sub rounded and medium to coarse white colored.	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
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91	MK 2017 3P 13	Rim Sherd	Pot, black on red and pink sandy	Simple vertical rim ; plain and round lips/	Globul ar	Small/me dium	One broad black (5 yr 2.5/1) band on complete rim with two sharp bands on shoulder and red slip (10 r 4/6) in between these bands, pink (7.5 yr 8/3) sandy slip applied below shoulder/sa me band continue from exterior on top of rim and same red (10 r 4/6) slipped whole rim, remaining is plain (2.5 yr 6/6 light red)	Sandy slip/smoothin g with rotation	5%; moderately sorted; more fine, rare medium sandy	A calcareous paste. The main inclusions are fine and angular dark brown colored; angular and fine gray and white colored.	Few wide voids; porous	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
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92	MK 2017 6P 22	Rim Sherd	Pot, black on red and pink sandy	Simple vertical rim ; plain and flat lips/	Globul ar	Medium/ medium	A wide horizontal band on rim down to inflection point and two sharp thin painted bands on shoulder in black color (7.5 yr 2.5/1) with dusky red slip(10 r 3/4) in between these bands, sandy slip applied below the shoulder in very pale brown color (10 yr 8/2) /painted band continue from exterior in black color (7.5 yr 2.5 /1) and slipped upto slightly below inflection point in dusky red color (10 r 3/4), remaining vessel is washed (5 yr 7/4 pink)	Sandy slip/smoothin g with rotation	10%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are rounded and fine to medium white; light to dark brown; angular and fine to medium gray colored.	Few tiny voids;poro us	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
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93	MK 2017 6P9	Rim Sherd	Pot, black on red and pink sandy	Simple vertical rim ; pinched lips/	Globul ar	Small/me dium	A wide painted horizontal band on rim, one thin band on shoulder in black color (10 r 2.5/1) with red slip in (2.5 yr 4/6) between these bands, sandy slip applied below the shoulder in pink color (7.5 yr 7/4 pink)/paint ed band continue from exterior in black (10 r 2.5/1), vessel is washed (7.5 yr 7/4 pink)	Sandy slip/smoothin g with rotation	20%; well sorted; fine to medium sandy	A mixed paste with predominantl y calcareous grains. The mian inclusions are granular black; fine to medium and angular to rounded light and dark brown; few angular and medium gray, white colore; few greensih gray colored.	Multiple medium voids; porous	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
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94	MK 2017 3P 1 (I)	Rim Sherd	Pot, black on red and pink sandy, ledged	Simple vertical rim ; plain and round lips/	Globular	Small/medium	One broad reddish black (2.5 yr 2.5/1) band on rim down to throat, one sharp band on shoulder, with red slip in between these bands, sandy slip applied below shoulder/same band continue from exterior on top of rim and same red slip (10 r 4/6) on whole rim, remaining is plain (2.5 yr 6/6 light red)	Sandy slip/smoothing with rotation	5%; moderately sorted; more very fine to fine; rare medium and coarse sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are granular and very fine to fine brown colored in abundance, few transparent gray, angular and medium to coarse white colored.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
95	MK 2017 4P 12	Rim Sherd	Pot, black on red and pink sandy, ledged	Simple vertical rim ; plain and round lips/	Globular	Very large/heavy	One broad horizontal band on rim in black color (5 yr 2.5/1), with red slip (10 r 4/6) till shoulder, lower body is sandy slipped in pink color (7.5 yr 7/4)/rim is red slipped, remaining washed	Sandy slip/smoothing with rotation	2%; well sorted; medium sandy	A calcareous paste. The main inclusions are very fine and granular white colored; rounded and medium white colored; angular gray and brown colored.	Multiple medium voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

							(7.5 yr 7/4 pink)									
96	MK 2017 6P 21	Rim Sherd	Pot, black on red and pink sandy, ledged	Simple vertical rim ; plain and round lips/	Globular	Small/medium	A wide, horizontal painted band on the complete rim and two sharp thin bands on shoulder in black color (5 yr 2.5/1) with red slip (10 r 5/6) in between them, with pink slip below shoulder (5 yr 8/3)/light slip in red color (10 r 5/6) is applied on the rim with washed background ((2.5 yr 6/8) light red)	Sandy slip/smoothing with rotation	3%; well sorted; very fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are very fine to medium and granular to angular white colored; rounded and medium brown to dark brown colored, angular and medium gray colored.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

97	MK 2017 3P 74	Rim Sherd	Pot, black on red and red sandy	Simple vertical rim ; plain and round lips/	Globul ar	Very large/me dium	One dark reddish gray (5 r 3/1)band on rim and one on shoulder with red slipped (10 r 5/8) background /painted band continued from exterior slightly on rim with same slip on complete rim, remaining is plain (10 r 6/8 light red)	Sandy slip/smoothin g with rotation	10%; well sorted; fine to coarse sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are angular to rounded and fine to medium brown colored; coarse and round transparent gray colored, angular to rounded and fine to medium white colored.	Multiple medium voids; porous	Normal- red (10 r 5/8)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
98	MK 2017 3P 76	Rim Sherd	Pot, black on red and white sandy, ledged	Simple vertical rim ; plain and flat lips/	Globul ar	Medium/ medium	One broad dark reddish gray band on rim down to shoulder and one on shoulder with mixed slip in range from red (10 r 5/6) to pale yellow (2.5 y 8.5/2), with white slip below the shoulder/pa inted band continued from exterior on	Sandy slip/smoothin g with rotation	5%; well sorted; more fine to medium; rare coarse sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are angular and coarse reddish brown colored; angular and rounded fine to coarse light and dark brown colored; rounded to angular and fine to medium white colored	Multiple medium voids; porous	Normal- red (10 r 5/8)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

							rim, (red 10 r 5/8) slipped till start of shoulder, remaining is plain (10 r 6/8 light red)									
99	MK 2017 4P 13	Rim Sherd	Pot, black on red and white sandy, ledged	Simple everted rim ; plain and round lips/	Globular	Medium/medium	One broad horizontal band on rim in black color (5 yr 2.5/1), with dusky red slip (7.5 r 3/4) till shoulder, lower body is sandy slipped in pale brown color (10 yr 8/3)/one band on rim continue from exterior with red slip (10 r 5/8) on rim, remaining plain (2.5 yr 6/6 light red)	Sandy slip/smoothing with rotation	10%; well sorted; fine to medium sandy	A slight calcareous paste. The main inclusions are fine to medium and light to dark brown color in abundance; angular to rounded and fine to medium white colored.	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

100	MK 2017 3P 103	Body Sherd	Sandy; black on red and red sandy	-	-	/thick	Two horizontal bands on shoulder in reddish brown (2.5 yr 4/4) with red slip (10 r 5/8) on upper body, while sandy slip in red color below/plain or slightly washed (10 r 7/8 light red)	Sandy slip/smoothin g with rotation	5%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste with fine to medium and angular to rounded in brown, gray and white colors.	Few tiny voids; poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
101	MK 2017 3P 18	Body Sherd	Sandy; black on red and red sandy	-	-	/thick	Two narrow and sharp reddish black (5 r 2.5/1) bands on shoulder with red slip (10 r 4/6) and light red (2.5 yr 6/6) sandy slip applied below shoulder/pl ain (2.5 yr 6/6 light red)	Sandy slip/smoothin g with rotation	5%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and angular to rounded in brown, green, gray, and white colors.	Few tiny voids; poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

102	MK 2017 3P 77	Body Sherd	Sandy; black on red and red sandy	-	-	/medium	One reddish black (5 r 2.5/1) band on throat, two sharp bands on shoulder (5 r 2.5/1) with red slip (10 r 4/6) in between/remains of red slip on throat, remaining is plain (2.5 yr 6/8) light red	Sandy slip/smoothing with rotation	20%; well sorted; fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and angular to rounded black, brown, gray, reddish brown, pink and white colored.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
103	MK 2017 3P 61	Body Sherd	Sandy; Brown sandy	-	-	/medium	light red (2.5 yr 6/6) /plain (2.5 yr 5/8 red)	Sandy slip/smoothing with rotation	3%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and angular to rounded black, brown, dark brown, dark gray, gray, and white colored.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, sand slipping on belly	Kot Diji	EH Type-2 A
104	MK 2017 3P 119	Body Sherd	Sandy; dark gray on white	-	-	/medium	Two horizontal bands on shoulder in dark reddish black (2.5 yr 4/1) color with pale red slip (10 r 6/4) on upper body, while pale	Sandy slip/smoothing with rotation	10%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded brown, green, gray, pink, white and yellowish white colored.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

							yellow sandy slip (2.5 y 8/2) on lower body/washed (2.5 yr 6/6 light red)									
105	MK 2017 5P 20	Body Sherd	Sandy; dark gray on white sandy	-	-	/thick	One narrow painted band on shoulder in brown color (10 yr 4/3) with brown slip on upper body and very pale brown slip on lower body (10 yr 7/3)/weak red slip down to throat (2.5 yr 4/2), remaining is very pale brown slipped	Sandy slip/smoothing with rotation	5%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded black, brown, light red, white and yellowish white colored.	Few tiny voids; porous	Light gray (5 y 7/2)	Un-oxidized or reduced	Wheel= body, sand slipping on belly	Kot Diji	EH Type-2 A
106	MK 2017 1P 25	Body Sherd	Sandy; dark reddish gray on pink sandy	-	-	/medium	Two bands on the sherd, one band in reddish black (5 r 2.5/1) color on upper body while other one in weak red (10 r 5/3) color on	Sandy slip/smoothing with rotation	20%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and angular to rounded black, brown, gray, white colored.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

							lower body/plain (pale red 10 r 6/4)									
107	MK 2017 5P 37	Body Sherd	Sandy; dark reddish gray on pink sandy	-	-	/medium	Two sharp bands in very dark gray color (5 yr 3/1) with dusky red slip (10 r 3/3) slip on upper body, with light and sandy slip on lower body/plain	Sandy slip/smoothing with rotation	10%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste with fine to medium and angular to rounded brown, gray, green, and white colored inclusions.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
108	MK 2017 6P 135	Body Sherd	Sandy; dark reddish gray on pink sandy	-	-	/thick	A thin painted band on shoulder in black color (gley 1 2.5/n) with very dusky red (2.5 yr 2.5/2) slip on upper body and very pale brown (10 yr 7/4) light slip on lower body along with slightly thick sandy slip/plain (7.5 yr 8/3 pink)	Sandy slip/smoothing with rotation	3%; well sorted; fine to medium sandy	A calcareous paste with fine to medium and angular to rounded black, green, gray and yellowish white inclusions	Few tiny voids; porous	Light gray (5 y 7/2)	Un-oxidized or reduced	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A

109	MK 2017 6P 96	Body Sherd	Sandy; Green sandy	-	-	/thick	Sandy slip in olive green color (5 yr 6/3)/plain (10 yr 5/3 brown)	Sandy slip/smoothing with rotation	-	-	Slightly compact	Normal-dark gray (10 yr 4/1)	Unoxidized or smudged; may also be reduced.	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
110	MK 2017 6P 127	Body Sherd	Sandy; light red on yellowish red sandy	-	-	Very large/medium	A thin, horizontal painted band on shoulder in dark reddish color, with red slip (2.5 yr 5/6) on upper body, and sandy slip in reddish yellow color (7.5 yr 7/6) on lower body applied randomly/plain (7.5 yr 7/6 reddish yellow)	Sandy slip/smoothing with rotation	3%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste with fine to medium and angular to rounded brown, gray and white inclusions	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
111	MK 2017 6P 91	Body Sherd	Sandy; red on red sandy	-	-	/medium	Upper body is slipped in red color (10 yr 4/6), lowerbody is coated with clay mixed with grits in light red color (2.5 yr 7/8)/slipped (clay suspension) in light red color (2.5 yr 7/8)	Wet texture/smoothing with rotation	3%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and angular to rounded in brown, dark green, light red, gray, white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, sand slipping on belly	Kot Diji	EH Type-2 A

112	MK 2017 6P 92	Body Sherd	Sandy; Red sandy	-	-	/thick	Sandy slip in light red color (2.5 yr 6/6)/plain (2.5 yr 6/8) light red)	Sandy slip/smoothin g with rotation	10%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in black, brown, gray, light red, and white colors	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, sand slipping on belly	Kot Diji	EH Type-2 A
113	MK 2017 6P 94	Body Sherd	Sandy; Red sandy	-	-	/medium	Sandy slip in light red colore (2.5 yr 6/6)/plain (2.5 yr 6/6 light red)	Sandy slip/smoothin g with rotation	2%; well sorted;fine to medium sandy	A calcareous and well levigated paste. The main inclusions are fine to medium and angular to rounded in brown, light red, and white colors.	Few tiny voids;poro us	Margins = 5 yr 6/6 light red, Core =2.5 yr 5/8 red	Incompletel y or fully oxidized.	Wheel= body, sand slipping on belly	Kot Diji	EH Type-2 A
114	MK 2017 6P 95	Body Sherd	Sandy; Red sandy	-	-	/medium	Sandy slip in light red color (2.5 yr 6/8)/plain (2.5 yr 6/6 light red)	Sandy slip/smoothin g with rotation	3%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and angular to rounded black, brown, dark brown, dark gray, and yellowish white in colors.	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, sand slipping on belly	Kot Diji	EH Type-2 A

115	MK 2017 3P 56	Body Sherd	Sandy; White sandy	-	-	/medium	Sandy slurry or slip (2.5 y 8/2 pale yellow)/light red slipped (2.5 yr 6/6)	Sandy slip/smoothing with rotation	2%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and angular to rounded in brown, gray, and white colors.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
116	MK 2017 5P 41	Body Sherd	Sandy; White sandy	-	-	/medium	Pale brown color (2.5 y 8/3) light sandy slip on upper body, lower body is plain pale brown (2.5 y 8/3)/plain pink (7.5 yr 7/3)	Sandy slip/smoothing with rotation	2%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste; brown, gray, white, yellowish white	Slightly compact	Normal-pink (5 yr 7/3)	Completely oxidized	Wheel= body, hand = sand slipping on belly	Kot Diji	EH Type-2 A
117	MK 2017 3P 27	Body Sherd	Horizontal straight grooved, black slipped	-	-	/medium	Dark reddish gray slipped (2.5 yr 3/1)/plain (2.5 yr 7/6 light red)	Horizontal, straight and parallel combing/smoothing with rotation	5%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are granular and sub rounded black and greenish black in few numbers; rounded to sub rounded and medium in brown color; few sub rounded and medium in whitish gray color; few sub rounded and medium white to transparent	Few tiny voids; porous	Margins = 10 yr 7/3 very pale brown, Core = 5 yr 6/6 reddish yellow	Incompletely or fully oxidized.	Wheel= body; grooving with rotation	Kot Diji	EH Type-3

									gray color inclusions							
118	MK 2017 6P 110	Body Sherd	Horizontal straight grooved, black slipped	-	-	/medium	Lower body is slipped in dark reddish gray color (5 yr 3/1) while a painted horizontal band or slip in black color (5 yr 2.5/1) on upper body with horizontal, parallel, straight grooving (close and sharp with pointed tips) /washed (7.5 yr 7/4 pink)	Horizontal, straight and parallel combing/smoothing with rotation	Less than 1%; very well sorted; fine sandy	A calcareous paste. The main inclusions are sub rounded to sub angular and fine in white color	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3

119	MK 2017 4P 16	Body Sherd	Horizontal straight grooves, black on red slipped	-	-	/thick	One narrow horizontal band on main body in black color (5 yr 2.5/1) with red slip (10 r 5/6)/plain (5 yr 6/6 reddish yellow)	Horizontal, straight and parallel combing/smoothing with rotation	3%; poorly sorted; very fine to medium; rare very coarse sandy	A calcareous paste. The main inclusions are fine to medium and sub angular in gray color; very fine to coarse and angular in dark brown color; very fine to coarse and granular to rounded and angular in white color inclusions	Few tiny voids; porous	Margins = 5 yr 5/6 yellowish red, Core = 7.5 yr 6/4 light brown	Incompletely or fully oxidized.	Wheel= body; grooving with rotation	Kot Diji	EH Type-3
120	MK 2017 5P 29	Body Sherd	Horizontal straight grooves, black on red slipped	-	-	/medium	Upper body is reddish black painted (2.5 yr 2.5/1), lower body is red slipped (10 r 4/6) till start of rounded base, remaining is very pale brown slipped (10 yr 8/4)/light red slipped (2.5 yr 6/6)	Horizontal, straight and parallel combing/smoothing with rotation	5%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are sub angular to platy and medium in dark brown color; fine and rounded in gray color; sub rounded and fine to medium in brown(hues) color, angular to sub rounded in whitish gray color; medium and rounded in yellowish white color.	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3

121	MK 2017 3P 29	Body Sherd	Horizontal straight grooves, red on white slipped	-	-	/medium	Pale yellow (2.5 y 8/2) slip on upper body while weak red slipped on grooves (7.5 yr 4/4)/plain (7.5 yr 7/4 pink)	Horizontal, straight and parallel combing/smoothing with rotation	3%; well sorted; fine to medium sandy	A calcareous and well levigated paste. The main inclusions are sub angular and medium in gray and white color; rounded and fine to medium in brown color; few angular in yellowish white color.	Few tiny voids; porous	Margins = (2.5 yr 6/8) light red, Core = 7.5 yr 7/4 pink	Incompletely or fully oxidized.	Wheel= body; grooving with rotation	Kot Diji	EH Type-3
122	MK 2017 3P 102	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Red slipped/plain (2.5 yr 6/6 light red)	Horizontal, straight and parallel combing/smoothing with rotation	3%; well sorted; very fine sandy	A calcareous and well levigated paste. The main inclusions are fine and sub rounded dark brown; granular and very fine gray and white (in abundance); sub rounded to angular and medium in white; rounded and fine in orange colors.	Few tiny voids; porous	Margins = 10 yr 6/4 light yellowish brown, Core = 2.5 yr 5/6 red	Incompletely or fully oxidized.	Wheel= body; grooving with rotation	Kot Diji	EH Type-3

123	MK 2017 3P 105	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Red slipped (10 r 4/6)/washed (10 r 6/8 light red)	Horizontal, straight and parallel combing/smoothing with rotation	5%; moderately sorted; fine to medium sandy	A mixed paste. The main inclusions are granular and very fine in black and greenish black; rounded and fine to medium in reddish brown; sub angular to sub rounded and medium in white; sub rounded and medium in yellowish white colors	Few tiny voids; porous	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3
124	MK 2017 3P 26	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Weak red slipped (7.5 yr 4/4)/plain (5 yr 7/6 reddish yellow)	Horizontal, straight and parallel combing/smoothing with rotation	10%; moderately sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine to medium and granular to platy in black; angular and medium in greenish black; rounded to sub angular and medium in brown; angular to sub rounded and medium in white to yellowish white colors.	Few tiny voids; porous	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3

125	MK 2017 3P 28	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Red slipped (10 yr 4/6)/plain (5 yr 6/6 reddish yellow)	Horizontal, straight and parallel combing/smoothing with rotation	3%; well sorted; more very fine to fine; rare medium sandy	A calcareous paste. The main inclusions are sub rounded to sub angular in gray to whitish gray and transparent gray; granular to rounded and very fine to medium in black and greenish black; angular to sub rounded and fine to medium in white colors.	Few tiny voids; porous	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3
126	MK 2017 3P 31	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Red slipped (2.5 yr 5/6)/plain (5 yr 6/6 reddish yellow)	Horizontal, straight and parallel combing/smoothing with rotation	Less than 1%; well sorted; very fine to fine sandy	A calcareous and well levigated paste. The main inclusions are granular and very fine to fine in white colors.	Multiple wide voids; porous	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3

127	MK 2017 4P 15	Body Sherd	Horizontal straight grooves, red slipped	-	-	-	Red slipped (10 r 5/6), slightly sandy surface/plain (2.5 yr 6/6 light red)	Horizontal grooving with rotation with a comb tool with round ends, grooving are wide with pointed tips/smoothing with rotation	3%; well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are fine and platy in black; angular and medium in gray and yellowish white colors.	Slightly compact	Margins = 5 yr 5/6 yellowish red, Core = 5 yr 5/2 olive gray	Incompletel y oxidized	Wheel= body; groovin g with rotation	Kot Diji	EH Type-3
128	MK 2017 5P 32	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Yellowish red slipped (5 yr 5/6)/plain (2.5 yr 6/6 light red)	Horizontal grooving with rotation with a comb tool/smoothing ng with rotation	5%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and sub rounded to sub angular in brown, gray, white, and , yellowish white colors	Slightly compact	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; groovin g with rotation	Kot Diji	EH Type-3

129	MK 2017 5P 33	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Upper body is red slipped (10 yr 4/6), lower body is grooved with light slip pink (5 yr 8/4)/light slipped or washed (2.5 yr 7/6)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	10%; well sorted; fine to coarse sandy	A calcareous paste. The main inclusions are fine and rounded in black and dark brown; rounded to sub angular and fine to medium in brown; angular and medium in transparent gray; fine and rounded in greenish black; subangular to sub rounded and medium in whitish gray and yellowish white colors.	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3
130	MK 2017 6P 104	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Slipped in reddish brown color (2.5 yr 5/3)/washed-light slipped in (7.5 yr 7/3 pink)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	20%; well sorted; very fine to coarse sandy	A micaceous paste. The main inclusions are very fine to coarse and platy to sub angular in black (in abundance); very fine to fine and granular to rounded in gray and brown colors.	Slightly compact	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3

131	MK 2017 6P 105	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Slipped in red color (10 r 5/8)/plain (5 yr 7/6 reddish yellow)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	10%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are granular in black; fine to medium and rounded to subangular in brown; medium and rounded in pinkish white; medium and sub angular gray; rounded to sub angular and medium in white colors.	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3
132	MK 2017 6P 109	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Slipped in light red color (2.5 yr 6/6)/plain (5 yr 7/6 reddish yellow)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	Less than 1%; very well sorted; fine sandy	A calcareous and well levigated paste. The main inclusions are angular and fine in black and white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3
133	MK 2017 6P 111	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Slipped in weak red color (10 r 5/4)/plain (5 yr 7/4 pink)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	Less than 1%; poorly sorted; fine to very coarse sandy	A calcareous and well levigated paste. The main inclusions are sub rounded and very coarse in orange; fine to coarse and sub rounded to sub angular in yellowish white colors.	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3

134	MK 2017 6P 114	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Slipped in weak red color (10 r 4/4)/washed (5 yr 7/6 reddish yellow)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	Less than 1%; well sorted; very fine to fine sandy	A calcareous and well levigated paste. The main inclusions are granular in gray and black; fine and angular in dark brown colors.	Few tiny voids;porous	Margins = 5 yr 7/6 reddish yellow, Core = 2.5 yr 6/6 light red	Incompletely or fully oxidized.	Wheel= body; grooving with rotation	Kot Diji	EH Type-3
135	MK 2017 3P 81	Rim Sherd	Pot, horizontal straight grooved, black on red	Simple vertical rim ; plain and round lips/	Globular	Small/medium	One broad dark reddish gray band (5 r 3/1) on rim and a sharp band on shoulder with light red slip (2.5 yr 6/8)/painted band continue from exterior on top of rim and rim slipped in same color.	Straight horizontal grooving with rotation, comb tool with round ends, slightly wide grooving with pointed tips/	Less than 1%; well sorted; medium sandy	A calcareous and well levigated paste. The main inclusions are sub angular and medium in dark brown; fine and medium in whitish gray colors.	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body; grooving with rotation	Kot Diji	EH Type-3

136	MK 2017 3P 82	Rim Sherd	Pot, horizontal straight grooved, black on red	Simple everted rim ; plain and round lips/	Globular	Small/medium	One broad reddish black (5 r 2.5/1) band on rim with red slip (2.5 yr 6/8)/painted band continue from exterior on top of rim with same slip, remaining is plain (10 r 6/8 light red)	Straight horizontal grooving with rotation, comb tool with round ends, slightly wide grooving with pointed tips/ smoothing with rotation	10%; moderately sorted; very fine to medium; rare very coarse sandy	A mixed paste. The main inclusions are rounded and very coarse in yellowish white; rounded to angular and very fine to medium in brown(hues) & white colors.	Few tiny voids;porous	Margins = 10 r 5/8 red, Core = 5 yr 6/6 reddish yellow	Incompletely or fully oxidized.	Wheel=rim, upper body; grooving with rotation	Kot Diji	EH Type-3
137	MK 2017 5P 64	Rim Sherd	Pot, horizontal straight grooved, black on red	Simple vertical rim ; plain and round lips/	Globular	Small/medium	One broad horizontal painted band on the rim in very dark gray color (5 yr 3/1) with dusky red slip (10 r 3/3) in background /dusky red slip applied uptill throat, remaining washed (5 yr 7/6 yellowish red)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	5%; poorly sorted; medium to very coarse sandy	A calcareous paste. The main inclusions are coarse to very coarse and sub rounded to sub angular in orange; coarse and rounded in yellowish white; fine and rounded in whitish gray; angular and medium in reddish brown colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body; grooving with rotation	Kot Diji	EH Type-3

138	MK 2017 6P 32	Rim Sherd	Pot, horizontal straight grooved, black on red, ledged	Simpled everted rim ; plain and round lips/	Globular	Small/medium	Traces of painted band on rim in black color (7.5 yr 2.5/1) with dusky red slip (2.5 yr 3/2)/A thin painted band on the rim continue from the exterior in black color (7.5 yr 2.5/1) on upper half of rim, dusky red (2.5 yr 3/2) slipped upto inflection point, remaining vessel is plain (pink 7.5 yr 7/4).	Straight, horizontal, parallel grooving with slightly wide gaps in between the grooves, flattened raised surfaces between the grooves, ridges tips are round, grooves are pointed//smoothing with rotation	10%; well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are granular in black, brown, transparent gray and whitish gray; medium to coarse and sub rounded in yellowish white colors.	Few tiny voids;porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel=r rim, upper body; grooving with rotation	Kot Diji	EH Type-3
139	MK 2017 2P 1	Rim Sherd	Pot, horizontal straight grooved, black on white	Simple vertical rim ; plain and round lips/	Globular	Medium/medium	A painted band on shoulder to throat with red slip (10 r 4/6) on upper body, very pale brown (10 yr 8/4) slip on lower body/A dark reddish gray (5 r 3/1) band on rim with red slip (10 r 4/6), remaining	Horizontal grooving with rotation with a comb tool/smoothing with rotation	5%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are rounded to platy and fine in black; rounded and fine to medium in brown, rounded to sub angular and medium in whitish gray and transparent gray; sub rounded and medium in	Multiple wide voids; porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel=r rim, upper body; grooving with rotation	Kot Diji	EH Type-3

							plain (light red 10 r 6/8)			yellowish white colors.						
140	MK 2017 6P 103	Body Sherd	Horizontal wavy grooves, red slipped	-	-	/medium	Slipped in weak red color (10 r 4/4)/washed (5 yr 7/6 reddish yellow)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	3%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are rounded to sub rounded and medium in greenish gray; sub rounded to platy and medium in yellowish white; subangular and medium in whitish gray colors.	Few wide voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3 A

141	MK 2017 6P 100	Body Sherd	Horizontal wavy grooves, red slipped	-	-	/medium	Slipped in weak red color (10 r 4/4)/washed (7.5 yr 7/4 pink)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	3%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine and rounded in black and greenish black; angular and medium in dark brown; angular and fine in whitish gray; angular and medium in yellowish white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3 A
142	MK 2017 6P 99	Body Sherd	Horizontal wavy grooves, red slipped	-	-	/medium	Slipped in light red color (10 r 6/6)/washed in light red color (2.5 yr 6/6)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	Less than 1%; well sorted; very fine to fine sandy	A micaceous and well levigated paste. The main inclusions are rounded and fine in greenish gray and orange; granular and platy in dark brown and black colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3 A
143	MK 2017 3P 32	Body Sherd	Horizontal straight grooves, plain	-	-	/thick	Plain (7.5 yr 7/3 pink) on both sides	Horizontal grooving with rotation with a comb tool/smoothing with rotation	3%; well sorted; medium sandy	A calcareous paste. The main inclusions are sub rounded and medium greenish gray and yellowish white; angular and medium white in colors	Multiple tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3 B

144	MK 2017 6P 130	Body Sherd	Horizontal straight grooves, black on reddish white slipped	-	-	/thick	A painted band on upper body in dark reddish gray (2.5 yr 3/1) color, with weak red slip (10 r 5/4) while lower body is horizontal grooved with rotation, grooves are round, have wide gaps and flattened surface tips/plain (2.5 yr 7/6 light red)	Horizontal grooving with rotation with a comb tool/smoothi ng with rotation	30%; well sorted; very fine to medium sandy	A mixed paste with predominantl y micaceous inclusions. The main inclusions are very fine to medium in granular to platy and sub angular in black, greenish black and dark brown (in abundance); very fine to medium and angular to sub rounded in whitish gray and white colors (in abundance)	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= body; groovin g with rotation	Kot Diji	EH Type-3 C
145	MK 2017 6P 107	Body Sherd	Horizontal straight grooves, pink slipped	-	-	/medium	Slipped in pink color (7.5 yr 7/4)/washed/light slipped in light reddish brown (5 yr 6/4)	Horizontal grooving with rotation with a comb tool/smoothi ng with rotation	10%; moderately sorted; fine to very coarse sandy	A calcareous paste with alots of calcareous concretions around the inclsions. The main inclusions are rounded and fine in grayish white; rounded to sub angular and fine to medium in brown(hues); sub angular and medium in greenish black; rounded and medium in	Multiple wide voids; porous	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= body; groovin g with rotation	Kot Diji	EH Type-3 C

									yellowish white colors							
146	MK 2017 6P 112	Body Sherd	Horizontal straight grooves, red slipped	-	-	/medium	Slipped in reddish brown color (2.5 yr 4/4)/washed (7.5 yr 7/4 pink)	Horizontal grooving with rotation with a comb tool/smoothing with rotation	10%; moderately sorted; fine to medium sandy	A calcareous paste. greenish black fine and angular, rounded and sub rounded medium brown, rounded medium white inclusions	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body; grooving with rotation	Kot Diji	EH Type-3 C

147	MK 2017 3P 124	Rim Sherd	Pot, carinate d, globular, parallel sided	Simple vertical rim ; pinched lips/	Globul ar	Medium/ medium	Traces of very dark gray (5r 3/1) band on rim with weak red (10r 4/4) slip on whole vessel/paint ed band continue from exterior with same slip till throat, remaining is plain (7.5 yr 7/4 pink)	Scrapping with and without rotation/smo othing with rotation	5%; very well sorted; fine to medium sandy	A slight calcareous paste. The main inclusions are fine to medium and rounded to sub angular in brown (abundant); very fine and granular in black; medium and sub rounded in transparent gray; fine to medium and sub rounded to sub angular in white colors	Few tiny voids;poro us	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= rim, body; Molded =base	Kot Diji	EH Type-4
148	MK 2017 3P 135	Rim Sherd	Pot, carinate d, globular, parallel sided	Simple vertical rim ; plain and round lips/	Globul ar	Medium/ medium	One band on rim in black color (5 yr 2.5/1) with red (10 r 4/6) slip and a post fired incised graffitti, depicting tri-dent pointing downwards on main body, made with pointed sharp tool/painte d band continue from exterior with same slip till shoulder,	Scrapping horizontal/scr apping with rotation	5%; well sorted; more very fine to fine; rare medium sandy	A slight calcareous paste. The main inclusions are very fine to fine and rounded to sub angular in brown (abundant); very fine and granular in black; very fine to medium and granular to sub rounded to sub angular in white colors (abundant)	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, body; Molded =base	Kot Diji	EH Type-4

							remaining is plain (2.5 yr 6/6 light red)									
149	MK 2017 6P 43	Rim Sherd	Pot, carinate d, globular, parallel sided	Simple vertical rim ; plain and round lips/	Globular	Small/thin	One thin, horizontal painted band on rim and one diagonal painted band on shoulder in reddish gray color (2.5 yr 5/1) with red slip (2.5 yr 5/6)/one horizontal painted band, little wide on the rim continued from exterior in reddish gray color (2.5 yr5/6).	Smoothing with rotation/smoothing with rotation, groove over rim	3%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine and sub angular in black; fine and rounded in brown; medium and rounded in transparent gray and gray, very fine to fine in granular to angular in yellowish white colors	Multiple tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body; Molded =base	Kot Diji	EH Type-4

150	MK 2019 3P 150	Body Sherd	Motif, chocolate on white	-	-	/medium	Horizontal and wavy painted bands with one of the bands is decorated with eye shape hatched figure in chocolate on white/plain	Scrapping with rotation/smo othing with rotation	-	-	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-4
151	MK 2017 3P 109	Base Sherd	Pot, carinate d, globular, straight constrict ing	-	Globul ar	Small/thi n	One horizontal painted band near round base in dark reddish gray color (2.5 yr 4/1) with upper body red slipped (10 r 4/8)/red slipped (10 r 4/8)	Scrapping with rotation upper body only, slightly roughened surface/smo othing with rotation	5%; well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine to fine and granular to rounded in brown; very fine to medium and granular to angular to rounded in white colors	Few wide voids; porous	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, hand=b ody; Molded =base; spatula marks on body and irregula r walls, hand rubbing marks on exterior of body	Kot Diji	EH Type-4 A

152	MK 2017 5P 39	Rim Sherd	Pot, carinate d, globular, straight constrict ing	Simple inverted rim ; pinched lips/	Globul ar	Small/thi n	One horizontal band on rim in black (5 yr 2.5/1) with red slip (10 r 4/6) in back ground/one horizontal band on rim in black (5 yr 2.5/1) continued from exterior and three bands below with red slip (10 r 4/6) in back ground	Smoothing with rotation on both sides	1%;well sorted; very fine to fine sandy	A calcareous and well levigated; very fine and granular black and very fine to fine granular and rounded white inclusions	Few tiny voids;poro us	Margins =2.5 yr 7/6 light red, Core=5/ 1 10y greenish gray gley 1	Incompletel y oxidized	Wheel= rim, body; Molded =base	Kot Diji	EH Type-4 A
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153	MK 2017 5P 47	Rim Sherd	Pot, carinate d, globular, straight constrict ing	Simple inverted ; plain and round lips/	Globul ar	Medium/ medium	One painted horizontal painted band on rim with a row of v like symbols, lying horizontal with pointed side towards right, along with two painted bands below this friez in dark reddish gray color (7.5 r 3/1), red slip above and below the rim (10 r 4/6)/five narrow, horizontal painted bands on rim in same color and with same slip in upto shuolder with remaining plain (5 yr 7/6 reddish yellow)	Trimming (bad or improper), scrapping without rotation/ smoothing without rotation	3%; well sorted; more very fine to fine; rare medium sandy	A calcareous paste. The main inclusions are angular and sub angular and fine in brown; fine and sub angular to platy in dark brown and greenish black; fine to medium and rounded to sub angular in white colors	Few wide voids; porous	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, body; Molded =base	Kot Diji	EH Type-4 A
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154	MK 2017 5P 48	Rim Sherd	Pot, carinate d, globular, straight constrict ing	Simple inverted rim ; pinched lips/	Globul ar	Small/me dium	One narrow, horizontal and painted band on rim and one on main body in dark reddish gray (5r 3/1) color with red slip (10 r 5/8) on whole vessel/one horizontal painted band on rim in same color and same slip upto throat, with different slip in red color(2.5 yr 5/6) on remaning vessel	Trimmed base, scrapping horizontal/ smoothing with rotation	-	-	Slightly compact	Margins = yellowis h red; Core = gley 1 5/n gray	Incompletel y oxidized	Wheel= rim, hand=b ody; Molded =base, spatula marks on body	Kot Diji	EH Type-4 A
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155	MK 2017 6P 118	Base Sherd	Pot, carinate d, globular, straight constrict ing	—	Globular	Small/medium	A stepped band with a series of five vertical and very thin sharp band within the series of two horizontal painted bands; also a wide painted band on body-base junction in dusky red color (2.5 yr 3/2), with dark reddish brown slip (2.5 yr 3/4) on whole vessel/plain (5yr 4/2 dark reddish gray)	Smoothing with rotation on upper body, scrapping with rotation on lower body/smoothing with rotation	5%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine and rounded in black and greenish black; fine and sub rounded in grayish white; very fine to fine and granular to rounded in yellowish white and white colors	Slightly compact	Margins = 2.5 yr 6/6 light red, Core = 10 yr 5/2 grayish brown	Incompletely oxidized	Wheel= rim, body; Molded =base	Pre Kot Diji?	EH Type-4 A
156	MK 2017 3P 128	Rim Sherd	Pot, carinate d, parallel sided	Simple everted rim ; plain and round lips/	Parallel sided	Small/medium	A dark reddish gray band on rim (5 r 3/1), red slip in the background (10 r 5/8), remaining vessel is washed/painted band continue from exterior, half of body is red slipped, lower body is light	Scrapping with rotation on both sides	3%; moderately sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine to medium and granular to rounded to angular in brown and white colors	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, body; Molded =base	Kot Diji	EH Type-4 B

							slipped (2.5 yr 6/6 light red)									
157	MK 2017 3P 129	Rim Sherd	Pot, carinate d, parallel sided	Simple vertical rim ; plain and round lips/	Parallel sided	Small/medium	A dark reddish gray (2.5 yr 3/1) band on rim with weak red slip(10 r 4/4)/painted band continue from exterior on rim with same slip till throat, lower body is light reddish brown slipped (5 yr 6/4)	Polished, smoothing with rotation/polished, smoothing with rotation	3%; well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine and granular in black and brown; fine and rounded in transparent gray; angular to sub rounded and fine in white colors	Few wide voids; porous	Normal-reddish brown (5 yr 5/4)	Completely oxidized	Wheel=rim, body; Molded =base	Kot Diji	EH Type-4 B

158	MK 2017 3P 131	Rim Sherd	Pot, carinate d, parallel sided	Simple vertical rim ; pinched lips/	Parallel sided	Small/ medium	A narrow painted band or line on throat in weak red color (5 r 5/2) with red slip (10 r 5/6) on the whole vessel and a slight narrow band on body-base junction/same color painted band or line on rim with same red slip	Smoothing with rotation on both sides	-	-	-	-	-	Wheel=rim, hand=body; Molded=base, spatula marks on body	Kot Diji	EH Type-4 B
159	MK 2017 3P 132	Rim-Base Sherd	Pot, carinate d, parallel sided	Simple vertical rim ; plain and round lips/	Parallel sided	Miniature/medium	One band on rim, two bands just above the body-base junction in weak red (5 r 4/2) with light red (2.5 yr 6/6) slip/painted band continue from exterior on rim with same slip till throat/shoulder, remaining is plain (7.5 yr 7/4)	Smoothing with rotation on both sides	1%; poorly sorted; very fine to coarse sandy	A calcareous paste. The main inclusions are fine to coarse and rounded in brown; very fine and rounded in dark gray; very fine to medium and granular to angular in white colors	Few wide voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, hand=body; Molded=base, spatula marks on body	Kot Diji	EH Type-4 B

160	MK 2017 3P 133	Rim Sherd	Pot, carinate d, parallel sided	Simple vertical rim ; plain and round lips/	Parallel sided	Small/medium	One band on rim, two bands on throat in weak red color with red slip (10 r 5/8)/a painted band continue from exterior on rim with same slip	Smoothing with rotation on both sides	5%; well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine to medium and rounded to angular in white and yellowish white colors (abundant)	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body; Molded=base	Kot Diji	EH Type-4 B
161	MK 2017 3P 23	Rim Sherd	Pot, carinate d, parallel sided	Simple vertical rim ; pinched lips	Parallel sided/	Small/medium	One broad reddish black (5 r 2.5/1) band on rim and one on shoulder with reddish gray slip (5 r 6/1) in between these bands/same band continue from exterior on rim and same red (10 r 5/6) slip till throat/shoulder, remaining is plain (7.5 yr 7/4 pink)	Smoothing without rotation/ smoothing with rotation	1%; well sorted; very fine to fine sandy	A calcareous paste. The main inclusions are angular and fine in gray; very fine to fine and granular to rounded in white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, hand=body; Molded=base, spatula marks on body	Kot Diji	EH Type-4 B

162	MK 2017 3P 24	Rim- Base Sherd	Pot, carinate d, parallel sided	Simple everted rim ; plain and round lips/	Paralle l sided/	Small/me dium	One dark reddish gray band (5 r 4/1) on rim, two bands on throat, one broad band on shoulder down to body base junction, with red slip down to body- base junction/sa me band continue from exterior on top of rim and same slipped down to throat, remaining is plain (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	5%; moderately sorted;more e very fine to fine; rare coarse sandy	A calcareous paste. The main inclusion are very fine and granular in black; very fine and sub angular in gray; very fine to coarse and angular in white and brown colors (abundant)	Few wide voids; porous	Normal- light brown (7.5 yr 6/4)	Completely oxidized	Wheel= rim, hand=b ody; Molded =base, spatula marks on body	Kot Diji	EH Type-4 B
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163	MK 2017 5P 46	Rim Sherd	Pot, carinate d, parallel sided	Simple vertical rim ; plain and round lips/	Parallel sided/	Small/medium	One horizontal painted band on rim and one on main body in dark reddish gray color (5r 4/1) with red slip (2.5 yr 4/6)/painted band continue fro exterior only at rim in same color and same slipped background upto middle of main body, below is plain (7.5 yr 7/6 reddish yellow)	Smoothing with rotation on both sides	3%; well sorted; very fine to medium sandy	A mixed type (calcareous+ micaceous) paste; Few granular black; few whitish angular gray, very fine to fine angular white inclusions	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, hand=body; Molded=base; spatula marks on body and irregular walls	Kot Diji	EH Type-4 B
164	MK 2017 6P 125	Body Sherd	Pot, carinate d, parallel sided	-	Parallel sided/	Medium/medium	A T like symbol, lying horizontal with pointed pin like one side of the head, pointed towards up in black color (gley 1 2.5 /n) with dark reddish brown (5 yr 3/2) slip/light washed	Smoothing with rotation on both sides	1 %; very well sorted; fine sandy	A calcareous paste. The main inclusions are fine sub rounded and angular brown, gray inclusions	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, body; Molded=base	Kot Diji	EH Type-4 B

							(7.5 yr 8/4 pink), traces of dark reddish brown (5 yr 3/2) slip on upper body									
165	MK 2017 6P 42	Rim Sherd	Pot, carinate d, parallel sided	Simple vertical rim ; plain and round lips/	Parallel sided/	Small/thin	Painted design with wavy horizontal thick bands in dark reddish brown color (5 yr 3/2) with very pale brown slip (10 yr 8/2)/one horizontal painted band, continued from exterior in dark reddish brown color , remaining washed in pink color (7.5 yr 8/4)	Scrapping with rotation on both sides	%;well sorted; very fine to fine sandy	A micaceous paste. The main inclusions are granular in black; fine and sub rounded in greenish black; rounded to sub rounded and fine in brown, fine and angular in transparent gray; fine and granular in white colors	Multiple tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim, body; Molded =base	Pre Kot Diji?	EH Type-4 B

166	MK 2017 3P 125	Rim Sherd	Pot, carinate d, s walled	Simple everted rim ; plain and round lips/	S walled /	Small/thick	One painted band on rim and one band above the carination in black color (5 yr 2.5/1) with red (10 r 4/6) slip till half of the base/painted band continue from exterior with dark slip upto throat, remaining is washed	Smoothing with rotation on both sides	20%; well sorted; more very fine to fine; rare medium sandy	A micaceous paste. The main inclusions are very fine to fine and granular to platy black (abundant); very fine to fine and granular to rounded in brown; very fine to medium and subangular to platy in dark brown; fine and granular in gray, very fine to medium and granular in white and yellowish white; fine and angular in whitish gray and transparent gray colors	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, hand=body; Molded=base, spatula marks on body	Kot Diji	EH Type-4 C
167	MK 2017 3P 126	Rim Sherd	Pot, carinate d, s walled	Simple everted rim ; plain and round lips/	S walled /	Small/medium	A dark reddish gray (5r 3/1) band on rim and above the body-base junction with red slip(10 r 4/6)/painted band continue from exterior on rim with same slip	Scrapping with rotation, smoothing with rotation upper body/smoothing with rotation	1 %; very well sorted; fine sandy	A calcareous paste. The main inclusions are fine and angular in brown and grayish white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, body; Molded=base	Kot Diji	EH Type-4 C

168	MK 2017 3P 127	Base Sherd	Pot, carinate d, s walled	—	S walled /	Small/medium	A dark reddish gray band on rim, base and main body (5r 3/1) with red (7.5 yr 6/4) slip/red slipped till throat remaining washed (7.5 yr 6/4 light brown)	Smoothing with rotation on both sides	1%; well sorted; very fine to fine sandy	A calcareous paste. The main inclusions are fine and sub rounded in grayish white, white and gray colors	Few tiny voids; porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel=rim, hand=body; Molded=base, spatula marks on body	Kot Diji	EH Type-4 C
169	MK 2017 3P 134	Rim Sherd	Pot, carinate d, s walled	Simple everted rim ; plain and round lips/	S walled /	Small/thin	One painted band in dark gray color (gley 1 3/n) on rim and red slip (10 r 5/8) on whole vessel/plain	Smoothing with rotation on both sides	3%; poorly sorted; more very fine to fine; rare medium sandy	A calcareous paste. The main inclusions are fine and angular in greenish black and dark brown ; very fine to fine and rounded in brown; very fine to medium and angular to sub angular in yellowish white and white colors	Few wide voids; porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel=rim, body; Molded=base	Kot Diji	EH Type-4 C

170	MK 2017 6P 39	Rim Sherd	Pot, carinate d, s walled	Simple inverted rim ; pinched lips/	S walled /	Medium/ medium	A sharp thin painted band on rim in reddish brown color (10 r 2.5/1), two painted thin bands on neck (upper=10 r 2.5/1 reddish brown, lower r=10 r 4/8 red), below these bands a connected eye motive with red infilled (10 r 4/8) with a very pale brown (10 yr 8/2) slip in background /thin painted band continued from exterior in reddish brown color (10 r 2.5/1) and remaining vessel is red slipped(10 r 5/6)	Smoothing with rotation on upper body, scrapping with rotation on lower body/smoothi ng with rotation along with slight vertical scrapping without rotation	1 %; well sorted; very fine sandy	A calcareous paste. The main inclusions are very fine and granular to rounded in black, greenish black, brown and gray colors	Multiple wide voids; porous	Margins =7.5 yr 6/6 reddish yellow, Core=3/ n gley 1 very dark gray	Incompletel y oxidized	Wheel= rim, body; Molded =base	Kot Diji	EH Type-4 C
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171	MK 2017 6P 41	Rim Sherd	Pot, carinate d, s walled	Simple everted rim ; plain and pinched lips/	S walled /	Small/me dium	A sharp, thin vertical and horizontal bands forming a cage like pattren in dark reddish gray color(10 r 3/1),with very pale brown (10 yr 8/3) slip/thin painted band over the rim in dark reddish gray color remaining vessel is pink (7.5 yr 8/4)	Smoothing with rotation on both sides	5%; well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are very fine to medium and granular, rounded and platy in black, greenish black, brown and gray; fine and rounded to angular in white and yellowish white colors	Multiple tiny voids;poro us	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, hand =body; Molded =base, sptula marks	Pre Kot Diji?	EH Type-4 C
172	MK 2017 6P 44	Body Sherd	Pot, carinate d, s walled	-	S walled /	Small/me dium	Two vertical, sharp, thin painted bands in dark reddish gray color (5 r 4/1) on main body with red slip(10 r 5/6)/presen se of the slip upto neck/shoul der in red color (10 r 5/6) ,remaining vessel is plain (5 yr 7/4 pink)	Scrapping with rotation on both sides	3%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are medium and rounded in brown; medium and angular in grayish white, medium and sub rounded in yellowish white colors	Slightly compact	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, body; Molded =base	Kot Diji	EH Type-4 C

173	MK 2017 6P 46	Rim Sherd	Pot, carinate d, s walled	Simple everted rim ; plain and round lips/	S walled /	Small/medium	Thin painted band on rim in black color (5 yr 2.5/1), remaining vessel is slipped in red color (2.5 yr 4/6) with post firing graffiti on main body/thin painted band continued from exterior in black color (5 yr 2.5/1) with dark slip in dusky red color (2.5 yr 3/2) upto half of the main body, remaining vessel is washed/slipped in very pale brown color(10 yr 8/2)	Smoothing with rotation on both sides	10%; poorly sorted; very fine to medium, rare coarse sandy	A calcareous paste. The main inclusions are very fine to medium and rounded to platy in black; medium and sub rounded in brown, medium and angular in transparent gray and whitish gray; fine to coarse and sub angular in yellowish white colors	Slightly compact	Normal-reddish brown (5 yr 5/4)	Completely oxidized	Wheel= rim, body; Molded =base	Kot Diji	EH Type-4 C
174	MK 2019 3P 153	Body Sherd	Motif, black on red	-	-	/thin	An tree with the main stem and branches with free dots among them are shooting off from the main stem in black on	Smoothing like scrapping on both sides	-	-	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-4 C

							brownish red slip/plain									
175	MK 2017 6P 36	Rim Sherd	Pot, carinate d, s walled	Simple everted rim ; plain and pinched lips/	S walled	Medium/ medium	One sharp, thin painted band on the rim in black color (5 yr 2.5/1) remaining vessel is brown slipped (7.5 yr 4/2)/thin painted band over the rim in black color(5 yr 2.5/1) remaining vessel is slipped/washed in light gray (2.5 y 7/2))	Burnished base, smoothing with rotation/smoothing with rotation	3%; poorly sorted; very fine to medium sandy	A highly calcareous paste. The main inclusions are fine to medium and granular to platy in black; fine and rounded in yellowish white; fine and rounded in gray colors	Slightly compact	Noraml/ (5 y 7/2) light gray	Un-oxidized or reduced	Wheel= rim, body; Molded =base	Kot Diji	EH Type-4 C

176	MK 2017 6P 37	Rim Sherd	Pot, carinate d, straight constricted	Simple inverted rim ; plain and flat lips/	Straight constricted	Small/medium	A wide painted band on the rim in black color (5 yr 2.5/1) with red slip (10 r 4/6) and a plant motive in black on red style on the main body/thin painted band continue from exterior in black color (5 yr 2.5/1) on rim with red slip(10 r 4/6) upto shoulder, remaining vessel is plain (5 yr 7/6 reddish yellow)	Smoothing with rotation on both sides	5%; moderately sorted; fine to medium; rare coarse sandy	A calcareous paste. The main inclusions are fine and rounded in brown; fine to medium and platy in dark brown; medium and angular in grayish white; fine to coarse and sub rounded to sub angular in yellowish white colors	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body; Molded =base	Kot Diji	EH Type-4 D
177	MK 2017 6P 38	Rim Sherd	Pot, carinate d, straight constricted	Simple inverted rim ; plain and flat lips/	Straight constricted	Large/medium	Traces of a thin painted band on rim in black color (5 yr 2.5/1) /thin painted band continued from the top of the rim in black color (5 yr 2.5/1) and remaining vessel is washed/slip ped in reddish yellow	Smoothing with rotation on both sides	3%; well sorted; very fine to fine sandy	A calcareous paste. The main inclusions are fine granular to platy in black; very fine to fine and granular to rounded in white colors	Multiple tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body; Molded =base	Kot Diji	EH Type-4 D

							color (5 yr 7/6)									
178	MK 2017 1P 26	Rim-Base Sherd	Bowl, carinate d	Simple everted rim ; plain to round lips/ round	S walled	Small/me dium	One black band on rim and one on body-base junction with red slip (7.5 r 5/8) on rim and body, reddish yellow (5 yr 6/6) slip on base, flower desgin on main body in black color/one black band on rim, two bands on collar, one on base with same red slip	Smoothing with rotation on both sides	3%; moderately sorted;more very fine to fine, few medium sandy	Predominantly a micaceous paste. The main inclusions are very fine to fine and rounded to granular in black and greenish black; fine and sub rounded in white; very fine and sub angular in transparent gray; medium and angular to sub rounded in yellowish white colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, body;M olded= base	Kot Diji?	EH Type-5

179	MK 2017 3P 130	Rim-Base Sherd	Bowl, carinate d	Simple everted rim ; plain to round lips/	S walled	Large/me dium	One band in dark reddish gray (5r 3/1) color on rim and another above body base junction with red slip (10 r 4/6)/band continue from exterior and same slipped	Smoothing with rotation upper, without rotation lower body/smoothing with rotation	3%; well sorted;fine to medium sandy	Predominantly a micaceous paste. The main inclusions are few granular and very black, fine to medium angular and sub angular gray and whitish gray in abundance, few angular and medium white; angular to sub angular medium brown;	Few tiny voids;porous	Margins = 5 yr 6/6 reddish yellow, Core = gley 1 10y 7/1 light greenisg gray	Incompletely oxidized	Wheel=rim, body;Molded=base	Kot Diji	EH Type-5
180	MK 2017 4P 3	Body Sherd	Bowl, rope impression, convex	-	Convex	Very large/heavy	Very pale brown slipped (10 yr 8/3) and horizontal rope or string impression like twisting bands/damaged surface (5 yr 6/6 reddish yellow)	rope impressing /indeterminate	5%; well sorted;fine to medium sandy	A micaceous paste. The main inclusions are fine and rounded, angular to platy in black; fine and rounded in greenish black; fine and angular in transparent gray (abundant); fine and rounded to sub angular in brown; fine to medium and angular to rounded in yellowish white colors	Multiple wide voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel =body, horizontal rope impression on belly	Kot Diji	EH Type-6

181	MK 2017 6P 63	Body Sherd	Bowl, rope impression, convex	—	Convex	Very large/thick	Plain (7.5 yr 7/4 pink), one horizontal row of robe impression/plain (2.5 yr 6/6 light red)	rope impressing /smoothing with rotation	20%; poorly sorted; fine to coarse sandy	A calcareous paste. The main inclusions are fine and rounded in black and greenish gray; fine to coarse and angular to sub rounded in brown (abundant); fine to medium and rounded in grayish white; fine to very coarse and angular to rounded in yellowish white colors	Slightly compact	Margins = 5 yr 7/6 reddish yellow, Core = 2.5 yr 6/6 light red	Incompletely or fully oxidized.	Wheel =body, horizontal rope impression on belly	Kot Diji	EH Type-6
182	MK 2017 6P 64	Rim Sherd	Bowl, rope impression, convex	Simple everted ; flat lips/	Convex	Very large/thick	A wide, horizontal painted band on rim in dark gray color (5 yr 4/1) with reddish brown slip (5 yr 5/4) on preserved vessel along with two horizontal rows of rope impression below the rim, apart from one another/slipped in dusky red (10 r 3/2)	rope impressing /smoothing with rotation	3%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine and sub angular in brown; medium and sub rounded to sub angular in yellowish white colors	Few tiny voids; porous	Margins = 7.5 yr 7/6 reddish yellow, Core = 2.5 yr 7/6 light red	Incompletely or fully oxidized.	Wheel =rim, upper body, horizontal rope impression on belly	Kot Diji	EH Type-6

183	MK 2017 6P 66	Rim Sherd	Bowl, rope impressi on, convex	Simple everted ; flat lips/	Conve x	Large/thi ck	A wide painted horizontal bands on rim in black color (gley 1 2.5/n), with pink slip (5 yr 8/4), a rough horizontal band in red color (10 r 4/6) is drawn randomly on shoulder, also there is a horizontal row of a rope or string impression on shoulder/a thin horizontal painted band continue from exterior in same color with same slip on the whole vessel	rope impressing /smoothing with rotation	5%; moderately sorted;very fine to coarse sandy	A slightly calcareous paste. The main inclusions are fine to medium and rounded to subangular in orange; fine to medium and rounded to sub rounded in brown; fine to coarse and angular to sub rounded in white; medium and angular in transparent gray and greenish gray color	Multiple wide voids; porous	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel =rim, upper body, horizon tal rope impress ion on belly	Kot Diji	EH Type-6
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184	MK 2017 6P 68	Body Sherd	Bowl, rope impression, convex	—	Convex	Very large/thick	Plain (2.5 yr 6/6 light red), a horizontal row of robe impression/plain same	rope impressing /smoothing with rotation	5%; poorly sorted; more fine to medium; rare very coarse sandy	A slight calcareous paste. The main inclusions are fine to very coarse and angular in yellowish white; fine and angular in transparent gray, brown, whitish gray colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel =body, horizontal rope impression on belly	Kot Diji	EH Type-6
185	MK 2017 6P 69	Rim Sherd	Bowl, rope impression, convex	Simple everted ; flat lips/	Convex	Very large/thick	A wide, horizontal painted band on rim in very dark gray color (2.5 yr 3/1), with reddish brown slip(2.5 yr 5/4) on upper body on preserved vessel, along with one horizontal row of rope impression on shoulder/painted band continue from exterior in same color, remaining slipped in dusky red (2.5 yr 3/2)	rope impressing /smoothing with rotation	20%; well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and sub rounded in brown; sub angular in light green, medium and rounded in gray and white; fine to medium and angular to sub angular in yellowish white colore (abundant)	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel =rim, upper body, horizontal rope impression on belly	Kot Diji	EH Type-6

186	MK 2017 6P 71	Rim-Base Sherd	Bowl, rope impression, convex	Simple everted ; plain and flat lips/non-contiguous discoid	Convex	Very large/heavy	A wide, horizontal painted band on rim in black color (7.5 yr 2.5/1), with weak red slip (10 r 4/4) on preserved vessel, along with two horizontal rows of rope impression on shoulder, apart from one another/slipped in very dark gray (5 yr 3/1)	rope impressing /smoothing with rotation	5%; well sorted; fine to medium sandy	A highly calcareous paste. The main inclusions are fine and rounded in black, medium and angular in dark brown; fine to medium and angular in grayish white; medium and sub angular in yellowish white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim, body, horizontal rope impression	Kot Diji	EH Type-6
187	MK 2017 6P 70	Body Sherd	Bowl, rope impression, convex	-	Concave	Very large/heavy	Three rows of rope pattern apart from one another, upper body is reddish brown slipped (5 yr 5/4) , lower is plain (7.5 yr 7/4 pink)/slipped in reddish brown color (5 yr 5/4)	rope impressing /smoothing with rotation	10%; well sorted; fine to medium sandy	A highly calcareous paste. The main inclusions are very fine and granular in black; rounded in greenish gray and brown; fine to medium and angular to rounded in transparent gray; medium and angular to sub angular in white and yellowish white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel =body, horizontal rope impression on belly	Kot Diji	EH Type-6 A

188	MK 2017 3P 49	Rim Sherd	Bowl, concave, painted, very large	Simple everted rim ; flat lips/	Conca ve	Very large/thick	A black band on rim, remaining is red slipped (7.5 yr 4/6)/black band continue from exterior on rim with six same color sharp bands below with same same slip	Smoothing with rotation/scrapping without rotation, roughening	5%; well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine and granular in black; medium and sub angular to sub rounded in brown(abundant); very fine to medium and granular to rounded white colors (abundant).	Few tiny voids;porous	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-7
189	MK 2017 3P 95	Rim Sherd	Bowl, concave, painted, very large	Simple everted rim ; flat lips/	Conca ve	Very large/thick	One dark reddish gray (7.5 r 3/1) band on rim and pale yellow (2.5 y 8/2) slip/same painted band over top of rim down to throat and mixed slip in reddish black (2.5 yr 4/4) to dark red (2.5 yr 3/6)	Smoothing with rotation on both sides	2%;well sorted;fine to coarse sandy	A calcareous paste. The main inclusions are fine and angular in brown; medium and angular in transparent gray; medium and angular in pink; fine to coarse and angular in white colors	Few tiny voids;porous	Margins = 5 yr 6/4 light reddish brown, Core = 10 r 5/8 red	Incompletely or fully oxidized.	Wheel= rim, upper body	Kot Diji	EH Type-7

190	MK 2017 6P 88	Rim Sherd	Bowl, concave, painted, very large	Simple everted ; flat lips/	Concave	Large/thick	A horizontal painted band on the rim in black color (grey 1 2.5/n) with red slip (10 r 4/6) on upper half of the body, lower body is plain (7.5 yr 8/3 pink)/same band continue from exterior and is slipped in same color	Smoothing with rotation on both sides	10%;well sorted;fine to medium sandy	A mixed type of paste. The main inclusions are very fine to fine and granular to rounded in black and greenish black; medium and angular to sub rounded in brown; medium and rounded in transparent gray and light red; medium and angular to rounded in white and yellowish white colors	Few tiny voids;porous	Margins = 2.5 yr 6/6 light red, Core = 7.5 yr 7/6 reddish yellow	Incompletely or fully oxidized.	Wheel= rim, upper body	Kot Diji	EH Type-7
191	MK 2017 6P 90	Rim Sherd	Bowl, concave, painted, very large	Simple everted, short round internal projection/	Concave	Very large/thick	A wide painted band on base and one on slightly above the base margin in dark reddish brown color (5 yr 2.5/2) with light red slip (2.5 yr 6/6)/plain (10 yr 7/3 very pale brown)	Smoothing with rotation on both sides	-	-	Slightly compact	Light gray (5 y 7/2)	Un-oxidized or reduced	Wheel= rim, upper body	Kot Diji	EH Type-7

192	MK 2017 3P 97	Rim Sherd	Bowl, straight everted, painted	Simple everted rim ; flat lips/	Straig ht everte d	Large/me dium	Pale yellow slipped (2.5 y 8/2 pale yellow)/ver y dusky red painted broad band on rim (7.5 yr 2.5/3), with red slip (10 r 4/6)	Smoothing with rotation on both sides	-	-	Slightly compact	-	-	Wheel= rim, upper body	Kot Diji	EH Type-7 A
193	MK 2017 3P 98	Rim Sherd	Bowl, straight everted, painted	Simple everted rim ; flat lips/	Straig ht everte d	Large/me dium	A black painted band on rim (7.5 yr 2.5/1) with reddish brown slip (5 yr 5/3)/band continue from exterior, very dark gray (7.5 yr 3/1) slipped	Smoothing with rotation on both sides	5%;well sorted;fine to coarse sandy	A highly calcareous paste. The main inclusions are very fine to medium and rounded to angular in black; medium and rounded in transparent gray; medium to coarse and rounded to angular in yellowish white colors	Multiple wide voids; porous	Normal- light brown (7.5 yr 6/4)	Completely oxidized	Wheel= rim, upper body	Kot Diji?	EH Type-7 A

194	MK 2017 5P 14	Rim Sherd	Bowl, straight everted, painted	Complex, external projected concave ledged lips/	—	/thick	One broad painted band below the beak of the rim in black color (5 yr 2.5/1), weak red slip below band (10 r 4/4), pale brown slip above beak (2.5 y 7/3)/pale brown slip (2.5 y 7/3)	Scrapping with rotation, smoothing without rotation/smoothing with rotation	5%;well sorted;fine to medium sandy	A slight calcareous paste. The main inclusions are fine to medium and rounded to angular in brown (hues) and transparent gray (abundant); fine to medium and platy to sub rounded in black and greenish black; yellowish white and greenish gray colors	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji?	EH Type-7 A
195	MK 2017 6P 124	Body Sherd	Bowl, straight everted, painted	—	Straight everted	Very large/thick	Plain (7.5 yr 8/4 pink)/nine sharp bands or lines on rim region with red slip (10 r 4/6) in .	Smoothing with rotation on both sides	3%;well sorted;fine to medium sandy	A slight calcareous paste. The main inclusions are fine to medium and angular to sub angular in brown and dark brown; fine and angular in transparent gray and grayish white; fine to medium and angular to rounded in yellowish white colors	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=body	Kot Diji	EH Type-7 A

196	MK 2017 6P 87	Body Sherd	Bowl, straight everted, painted	—	Straight everted	Medium/heavy	Two thin horizontal painted bands on main body in dark reddish gray color (2.5 yr 4/1) with very pale brown slip (10 yr 8/2) on upper body and reddish yellow (5 yr 6/8) slip on lower body/slippe d in reddish yellow (5 yr 6/8)	Smoothing with rotation on both sides	3%;well sorted;fine to medium sandy	A micaceous paste. The main inclusions are medium and angular in dark brown; fine to medium and angular in whitish gray; fine and angular to sub rounded in white colors	Few tiny voids;porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel= body	Kot Diji	EH Type-7 A
197	MK 2017 6P 138	Body Sherd	Brown on white	—	—	/thick	A wide horizontal painted band in middle in dark reddish brown (2.5 yr 3/3) color with pale yellow slip (2.5 yr 8/2) above and reddish brown slip(5 yr 5/4) below the band/plain (5 yr 7/4 pink)	Scrapping with rotation, slightly polished/scrapping with rotation	1%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in gray and white colors	Few tiny voids;porous	Margins = (2.5 yr 6/8) light red, Core = 10 yr 6/4 light yellowish brown	Incompletely or fully oxidized.	Wheel = body	Kot Diji	EH Type-7 A

198	MK 2017 6P 86	Base Sherd	Pedestal ?	/complex external projected small concave ledged base	—	/medium	A wide horizontal painted band on rim in dusky red color (5 r 3/3), with red (10 r 5/6) slip in/plain (5 yr 7/6 reddish yellow)	Smoothing without rotation/sand y surface	1%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to sub angular in gray and white colors	Slightly compact	Margins = 5 yr 7/6 reddish yellow, Core = 5 y 6/2 light olive gray	Incompletel y oxidized	Wheel = base	Kot Diji	EH Type-7 A
199	MK 2017 6P 89	Base Sherd	Pedestal ?	/complex, external projected, triangular lip base	Straig ht everted	/thick	A wide horizontal painted band below the rim lip in very dark gray color (7.5 yr 3/1), with red slip (2.5 yr 4/8) in back ground/light wash in reddish yellow color (5 yr 7/6	Smoothing with rotation/scrap ping with slow rotation or without rotation	10%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to subangular in brown, gray, white, and yellowish white colors	Slightly compact	Normal- red (10 r 5/8)	Completely oxidized	Wheel = base	Kot Diji?	EH Type-7 A

200	MK 2017 2P 2	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Small/me dium	One dark brown (5 r 3/1) broad band on rim with pale brown slipped (2.5 y 8/2)/reddis h black (5 r 2.5/1) narrow bands on rim, throat and shoulder, red slipped (10 r 4/6)	Smoothing with rotation upper body, scrapping with rotation slightly little lower body/smoothi ng with rotation	3%;well sorted;fine to medium sandy	A highly calcareous paste. The main inclusions are very fine and granular in black; fine and angular to platy in greenish black; medium and angular in gray; mediumm and angular to rounded in grayish white; medium and rounded in yellowish white; medium and angular in brown colors	Slightly compact	Normal- reddish brown (5 yr 5/4)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-8
201	MK 2017 3P 120	Base Sherd	Bowl, convex, painted	/contiguo us flat base	Conve x	Small/me dium	Traces of red slip (10 r 5/8) on body, base is plain (7.5 yr 8/4 pink)/plain (7.5 yr 8/4 pink)	Smoothing with rotation on upper body, scrapping with rotation on lower body/smoothi ng with rotation	5%; very well sorted; very fine to fine sandy	A calcareous paste. The main inclusions are very fine and granular to rounded in black and brown; very fine to fine and granular to rounded in white (abundant) colors	Slightly compact	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel = body, base; spatula marks on body and irregula r walls	Kot Diji	EH Type-8

202	MK 2017 3P 136	Rim- Base Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/conti guous flat	Conve x	Medium/ medium	One weak red color band on rim, remaining vessel is plain and slightly discolored ranging in color from red (10 r 5/6) to very pale brown (10 yr 8/3)/same color band on rim with red slip (10 r 5/6)	Smoothing with rotation/dam aged surface	3%; moderately sorted;very fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine and angular in whitish gray; very fine to medium and rounded to angular in white colors	Few tiny voids;poro us	Margins = 5 yr 6/6 reddish yellow, Core = gley 1 n/3 very dark gray	Incompletel y oxidized	Wheel= rim, body, base	Kot Diji	EH Type-8
203	MK 2017 3P 137	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Very large/me dium	One broad reddish black (5 r 2.5/1) band on rim with reddish yellow slipped (5 yr 7/6)/seven sharp bands or lines in same color with light pink slip (7.5 yr 8/2)	Smoothing with rotation on both sides	Less than 1%; very well sorted; very fine sandy and silty	A mixed and well levigated paste. The main inclusions are very fine and granular as well as silty type black, gray, and white colors	Slightly compact	Normal- yellowwis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, hand=b ody	Kot Diji	EH Type-8

204	MK 2017 3P 138	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Medium/ medium	One broad reddish black (2.5 yr 2.5/1) band on rim with reddish brown slip (2.5 yr 4/4) till throat or shoulder, remaining vessel is plain (7.5 yr 7/4 pink)/one broad band on rim continue from exterior with four narrow bands or lines below in same color with same slip	Smoothing with rotation upper body, scrapping with rotation lower body/smoothi ng with rotation	10%; moderately sorted; more very fine to medium, rare coarse sandy	A mixed paste with predominantl y calcareous paste. The main inclusions are fine to coarse and rounded to angular in white; fine and sub rounded to sub angular in brown(hues); very fine and granular in black; fine and rounded in greenish black and subangular in transparent gray colors	Few wide voids; porous	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-8
205	MK 2017 3P 139	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Large/me dium	One broad band (5yr 2.5/1) on rim with red slip (10 r 4/6) on whole vessel/one slightly broad band on rim, continue from exterior with five sharp lines or narrow bands below in same color with same slip	Scrapping with rotation/smo othing with rotation	5%; moderately sorted; fine to medium sandy	A mixed paste. The main inclusions are fine to medium and angular to rounded in brown and dark brown; fine and angular to rounded in gray; fine to medium and rounded to angular in white colors	Multiple medium voids; porous	Normal- red (10 r 5/8)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-8

206	MK 2017 3P 140	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Medium/ medium	One broad dusky red band (5 r 3/2) on rim with reddish brown slip (2.5 yr 4/4) till throat or shoulder, remaining vessel is plain (10 yr 8/3 very pale brown)/thre e painted band on rim with same color with same slip	Smoothing with rotation upper body, scrapping with rotation lower body/smoothi ng with rotation	10%;well sorted; very fine to medium sandy	A slight calcareous paste. The main inclusions are very fine to fine and rounded to sub angular in brown, gray, greenish and black colors; coarse and angular in orange; fine and rounded in yellowish white colors	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body; spatula marks on body	Kot Diji	EH Type-8
207	MK 2017 3P 141	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Medium/ medium	One black color (5 yr 2.5/1) band on rim with red slip (10 r 4/6) in till shoulder, remaining is plain (5 yr 7/6 reddish yellow)/fiv e bands on rim area with same slip on complete vessel	Smoothing with rotation on both sides	3%; moderately sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and sub rounded to angular in white; medium and angular in greenish gray and brown colors	Slightly compact	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-8

208	MK 2017 3P 142	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Small/me dium	Light red slip applied (2.5 yr 6/6)/very dark gray bands below rim on shoulder in three number with light red slip (2.5 yr 6/6)	Smoothing with rotation on upper body, smoothing without rotation on lower body/smoothing with rotation	5%; moderately sorted; fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and angular to rounded in grayish white; fine to coarse and rounded in brown; medium and angular in light green, pink; fine and rounded to angular in white colors	Multiple medium voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body; spatula marks on body	Kot Diji	EH Type-8
209	MK 2017 3P 41	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Medium/medium	One horizontal band on rim in black (5 yr 2.5/1) with weak red slip till half of the vessel, molded area is washed in pink (7.5 yr 7/4), four incised grooves on main body/one horizontal band continue from exterior with six to seven narrow bands or lines below rim band in same color with dusky	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to sub rounded in transparent in gray (abundant); angular in yellowish white; angular to sub angular and fine to medium in brown; angular to rounded and very fine to medium in greenish black and black colors	Multiple medium voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-8

							red (10 r 3/4) slipped									
210	MK 2017 3P 42	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Large/me dium	One black color (5 yr 2.5/1) band on rim with light red slip (10 r 4/6) till the curvature of base, remaining appear washed, lower half is double light slipped or washed, half side very pale brown (10 yr 8/3), half light red/slightly wide band continue from	Smoothing with rotation and polished/poli shed, smoothing with rotation	5%; well sorted; fine to very coarse sandy	A calcareous paste. The main inclusions are rounded to sub rounded and fine to medium in brown and dark brown; fine and rounded in greenish gray and transparent gray; fine to coarse and rounded to sub rounded in white colors	Multiple wide voids; porous	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-8

							exterior on rim with four sharp bands below with same slip									
211	MK 2017 3P 43	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Medium/medium	One broad and one very narrow band on rim in black (5 yr 2.5/1) with red slip (10 r 6/6)/one band continue from exterior on rim with eight sharp bands or lines below rim in same color and with red slip (10 r 5/8) in	Smoothing with rotation on both sides	3%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine and angular in black and gray; fine to medium in greenish gray and white colors	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-8

212	MK 2017 3P 44	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Very large/me dium	Dark slip or painted in reddish black (10 r 2.5/1) till throat or sholuder, remaining is plain (5 yr 6/4 light reddish brown)/one band on rim continue from exterior, four narrow bands or lines below with reddish black slip (5 yr 2.5/1) on complete vessel	Scrapping with rotation on both sides	3%; poorly sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to sub rounded in white; yellowish white, greenish gray and brown colors	Multiple wide voids; porous	Margins = 5 y 6/2 light olive gray, Core = 5 yr 5/4 reddish brown	Incompletel y or fully oxidized.	Wheel= rim, upper body	Kot Diji	EH Type-8
213	MK 2017 3P 45	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Small/me dium	One broad black band (5yr 2.5/1) on rim with red slip (10 r 5/8) on whole vessel/black band continue from exterior on rim with same red slip on complete vessel	Scrapping without rotation/smo othing with rotation	5%; poorly sorted; very fine to coarse sandy	A mixed paste. The main inclusions are sub angular in dark brown and gray; granular to medium and angular to rounded in white and yellowish white colors; few rounded and angular in black and greenish black colors	Slightly compact	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-8

214	MK 2017 3P 46	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and pinched lips/	Conve x	Medium/medium	One dark reddish gray band (2.5 yr 3/1) on rim/nine sharp bands or lines on rim region with red slip (10 r 4/6)	Smoothing with rotation on both sides	Less than 1%; very well sorted; very fine sandy and silty	A calcareous paste. The main inclusions are very fine and granular in white, black and dark brown and greenish gray colors	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-8
215	MK 2017 4P 21	Rim Sherd	Bowl, convex, painted	Simple vertical rim ; plain and round lips/	Conve x	Large/medium	One horizontal band on rim in reddish black color (2.5 yr 2.5/1), red slipped till shoulder (10 r 4/6), remaining is plain (5 yr 7/4 pink)/painted band continue from exterior on rim, with traces of same slip	Scrapping without rotation/smoothing with rotation	10%;well sorted;fine to coarse sandy	A mixed paste with sub rounded and fine inclusions in greenish gray;angular to rounded and fine to coarse in brown; angular and medium in grayish white; angular and sub rounded inclusions in white colors	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-8

216	MK 2017 4P 23	Rim-Base Sherd	Bowl, convex, painted	Simple vertical rim ; pinched lips/non-contiguous flat	Convex	Small/medium	One narrow horizontal band on rim in black (5 r 2.5/1), with red slip (10 r 4/6) till half of main body, remaining is plain (5 yr 6/6 reddish yellow)/red slipped 10 r 4/6)	Scrapping with rotation, spatula marks on body/smoothing with rotation	3%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are very fine and granular in black; rounded to sub rounded and medium in brown; rounded to angular and fine to medium in gray and grayish white; angular and medium in white colors	Multiple medium voids; porous	Margins = 5 yr 6/6 reddish yellow, Core = gley 1 10y 7/1 light greenish gray	Incompletely oxidized	Wheel=r rim, body, base	Kot Diji	EH Type-8
217	MK 2017 5P 22	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Convex	Large/medium	One broad painted band on rim (5 yr) in very dark gray color, with red slip in (2.5 yr 5/6)/five narrow horizontal painted bands on rim in very dark gray color with red slip	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are few angular in greenish black and black, angular to sub rounded and medium in brown; sub angular to sub rounded in medium in white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim, upper body	Kot Diji	EH Type-8
218	MK 2017 5P 38	Rim Sherd	Bowl, convex, painted	Simple everted ; flat lips/	Convex	Very large/thick	One horizontal painted band on rim in dark reddish gray (5 r 3/1) color with weak red slip (10 r 4/4)/five narrow, horizontal	Scrapping with rotation/smoothing with rotation	3%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are angular and medium in black; rounded and medium in white colors	Multiple wide voids; porous	Margins = 2.5 yr 5/6 red, Core = gley 1 10y/4/1 dark greenish gray	Incompletely oxidized	Wheel=r rim, upper body	Kot Diji	EH Type-8

							<p>painted bands on rim in same color and with same slip</p>									
219	MK 2017 5P 68	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Convex	Small/medium	<p>One horizontal painted band on rim in very dark gray (5 yr 3/1) color with red slip till shoulder (10 r 4/6), remaining vessel is plain (2.5 yr 6/6)/band continue from exterior on rim and slipped in same</p>	Smoothing with rotation on both sides	5%;well sorted; very fine to medium sandy	<p>A calcareous paste. The main inclusions are fine rounded in brown and gray; very fine to medium and angular to sub rounded in white colors</p>	Multiple wide voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, hand = upper body; spatula marks	Kot Diji	EH Type-8

220	MK 2017 6P 60	Rim-Base Sherd	Bowl, convex, painted	Simple everted ; plain and round rim/non-contiguous flat	Concave	Small/medium	A thin painted band on rim in dusky red color (5 r 3/2) with red slip (2.5 yr 5/6) on whole vessel/a horizontal painted band on rim in same color with red slip (10 r 5/6)	Smoothing with rotation on both sides	5%; very well sorted; very fine to medium sandy	A high;y calcareous paste. The main inclusions are few granular in greenish gray and black; rounded in grayish white; granular to rounded and fine in brown; medium and rounded in yellowish white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim, hand=body, base; spatula marks	Kot Diji	EH Type-8
221	MK 2017 6P 61	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Convex	Large/medium	A wide horizontal painted band on rim in dusky red color (2.5 yr 3/2), with very pale brown slip (10 yr 8/2)/a thin horizontal painted band continued from exterior, with a series of very sharp seven thin horizontal bands below it in same color with red slip (10 r 5/6)	Scrapping with rotation on both sides	10%;well sorted; more very fine to fine; rare medium sandy	A calcareous paste. The main inclusions are very fine to fine and rounded to granular in black, greenish black, greenish gray, brown and gray; very fine to medium and granular to angular in white colors	Few wide voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=r rim, upper body	Kot Diji	EH Type-8

222	MK 2017 6P 62	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Medium/ medium	A wide horizontal painted band on rim in dark reddish gray color (7.5 yr 4/1), with red slip(2.5 yr 5/6)/a thin horizontal painted band continued from exterior, with a series of six thin horizontal bands below it in same color with same slip	Smoothing with rotation on both sides	3%;well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine to medium and angular in brown and greenish black; very fine to medium and angular to rounded in white colors	Multiple medium voids; porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel= rim, upper body	Kot Diji	EH Type-8
223	MK 2017 6P 65	Rim Sherd	Bowl, convex, painted	Simple everted rim ; plain and round lips/	Conve x	Medium/ medium	Washed (5 yr 7/6 reddish yellow), remains of horizontal painted band on preserved rim in reddish black (2.5 yr 2.5/1)/a series of very thin horizontal painted bands in dark reddish gray color (5 r 3/1), on upper body	Smoothing with rotation on both sides	Less than 1%;well sorted; medium sandy	A calcareous paste. The main inclusions are rounded and medium in dark brown; granuler and very fine in white colors	Multiple medium voids; porous	Margins = 2.5 yr 6/6 light red, Core = 5 yr 7/6 reddish yellow	Incompletel y or fully oxidized.	Wheel= rim, upper body	Kot Diji	EH Type-8

							with red slip (10 r 5/6)									
224	MK 2017 6P 85	Rim Sherd	Bowl, convex, painted	Simple everted ; flat lips/	Convex	Large/thick	One horizontal painted band on rim in reddish black color (2.5 yr 2.5/1), with red slip (10 r 4/6) on upper body, lower body is plain (7.5 yr 7/4 pink)/same band continue from exterior and is slipped in same color	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are rounded and medium in greenish gray; fine to medium in yellowish white colors	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Kot Diji	EH Type-8

225	MK 2017 6P 72	Rim- Base Sherd	Dish, white slip, convex base	Simple everted rim ; plain and round lips/conti guous flat (slight convex)	Everted	Very large/thick	A wide painted band in dark reddish gray color (5 r 3/1) on the whole rim, base is plain (7.5 yr 7/4 pink)/one painted band on rim continue from exterior with row of pointed downwards filled triangles, below there are three thin painted band on bottom around the center with gaps in between, having traces of a designs made of circles in dark reddish gray color with pale yellow (2.5 yr 8.5/2) slip on whole remaining vessel	Smoothing with rotation on both sides	20%; poorly sorted; fine to very coarse sandy	Predominantl y a calcareous paste. The main inclusions are rounded to angular and very fine to medium in black, greenish black, gray; rounded to sub rounded and fine in whitish gray; fine to very coarse and rounded in yellowish white colors	Few tiny voids;porous	Margins = 7.5 yr 7/6 reddish yellow, Core = 10 yr 5/2 grayish brown	Incompletel y oxidized	Wheel= rim, body;M olded= base	Pre Kot Diji?	EH Type-9
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226	MK 2017 6P 74	Rim- Base Sherd	Dish, white slip, convex base	Simple everted rim ; plain and flattened round /contiguo us flat (slight convex)	Everted	Large/me dium	A wide painted band in dusky red color (10 r 3/2) on the whole rim, base is washed (7.5 yr 7/4 pink)/one painted band on rim continue from exterior with row of pointed downwards filled triangles in color, below there are three thin painted bands on bottom around the center with gaps in between, having traces of a designe,wit h white slip on whole vessel	Scrapping with rotation/smo othing with rotation	Less than 1%;very well sorted; Silty	A slight calcareous and well levigated paste with brown and white color silty grains	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, body;M olded= base	Kot Diji	EH Type-9
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227	MK 2017 3P 100	Rim- Base Sherd	DOS; painted, dish/dish portion of DOS	Simple everted direct rim ; plain and round lips/round contiguou s	Shallo w, paralle l sided	/thick	Traces of painted band on rim and body in reddish black (2.5 yr 2.5/1) as well as one band on base in reddish brown color (2.5 yr 4/4), remaining is washed (2.5 yr 4/4)/painte d band continue from exterior on rim, reddish brown slipped background slipped rim (2.5 yr 4/4), remaining red slipped (10 r 5/8)	Smoothing with rotation/polis hed, smoothing with rotation	5%;well sorted;fine to medium sandy	A slight calcareous paste. The main inclusions are granular in black; rounded and medium in light and dark brown; medium and rounded in gray and white colors	Few tiny voids;poro us	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, body;M olded= base	Kot Diji	EH Type- 10
228	MK 2017 3P 48	Rim Sherd	DOS; painted, dish/dish portion of DOS	Simple everted rim ; plain and flat lips/round contiguou s	S walled	/medium	One horizontal painted band on rim in black color (5 yr 2.5/1), with reddish black slip(5 r 2.5/1) on upper body, and dusky red slip (10 r 3/2) on lower body/painte d band on rim,	Smoothing with rotation on both sides	-	-	Slightly compact	-	-	Wheel= rim	Kot Diji	EH Type- 10

							continue from exterior and reddish black slipped									
229	MK 2017 3P 50	Rim Sherd	DOS; painted, dish/dish portion of DOS	Simple everted ; plain and flat lips/round contiguous	S walled	/medium	One horizontal painted band on rim and one band on body-base junction with slipped/painted band on rim and slipped vessel	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in light brown, dark brown, gray and white colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim	Kot Diji	EH Type-10

230	MK 2017 3P 99	Rim Sherd	DOS; painted, dish/dish portion of DOS	Simple everted ; plain and round lips/round contiguous	Concave	/medium	One horizontal band on rim in dark reddish gray color (7.5r 3/1) with dusky red slipped (7.5 r 3/4)/painted on rim, continue from exterior and same slipped	Straight horizontal grooving with rotation, comb tool with round ends, slightly wide grooving with pointed tips/ smoothing with rotation	5%;well sorted;fine to medium sandy	A highly calcareous paste. The main inclusions are rounded to sub rounded and fine to medium in white, brown and greenish black colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim	Kot Diji	EH Type-10
231	MK 2017 5P 1	Base Sherd	DOS; painted, column of DOS	/high pedestal; column	Parallel sided	-	Red slipped (10 r 4/6)/plain (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A mixed paste. The main inclusions are rounded and fine to medium in white (abundant),light brown and dark brown; angular and fine to medium in gray; rounded and medium in black colors	Few tiny voids;porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel=column	Kot Diji	EH Type-10
232	MK 2017 5P 2	Base Sherd	DOS; painted, column of DOS	/high pedestal; column	Straight constricted	/thick	Red slipped (10 r 4/6)/plain (5 yr 6/6 reddish yellow)	Smoothing with rotation on both sides	3%;well sorted; very fine to fine sandy	A calcareous paste. The main inclusions are very fine to fine and granular to rounded in gray and brown colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=column ; pronounced twisting interior	Kot Diji?	EH Type-10

233	MK 2017 5P 3	Base Sherd	DOS; painted, column of DOS	/high pedestal; column	Parallel sided	/medium	Dark reddish brown slipped (2.5 yr 3/3)/plain (5 yr 7/4 pink)	Smoothing with rotation on both sides	5%; moderately sorted; more fine to medium; rare very coarse sandy	A highly calcareous paste. The main inclusions are sub rounded and medium black; brown, greenish gray and very coarse white	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= column ; pronounced twisting interior	Kot Diji?	EH Type-10
234	MK 2017 5P 6	Base Sherd	DOS; painted, pedestal of DOS	/low pedestal	Non-contiguous walls	/heavy	One broad horizontal painted band on middle in reddish black color (2.5 yr 2.5/1) with red slip on upper body and reddish brown slip (2.5 yr 4/4) on lower body/plain (7.5 yr 8/4 pink)	Smoothing with rotation /smoothing with rotation	5%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in white, gray, brown, black and greenish gray colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base	Kot Diji	EH Type-10
235	MK 2017 5P 8	Base Sherd	DOS; painted, dish and pedestal portion of DOS	/dish (dos)	-	/thick	One broad painted band on central projection of the dish in red color (10 yr 4/6) with pale brown slip (2.5 yr 8/2)/two narrow, concentric painted bands around the centre of the dish in black color (5 yr 2.5/1)	Smoothing with rotation on both sides	5%; well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine to medium and granular to angular in white, brown and transparent gray colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, base	Kot Diji	EH Type-10

							with red slip in (10 r 5/8)									
236	MK 2017 6P 58	Base Sherd	DOS; painted, dish/dish portion of DOS	/contiguous flat base	-	-	Rough, irregular surface, plain (10 yr 7/3 ver pale brown)/traces of circular band in white color (5 y 8/1) around the centre, above which there is a row of conical trees lying horizontal like symbols in a series from right to left in brown color (7.5 yr 4/2), with brown slip (7.5 yr 4/3)	Smoothing with rotation on both sides	20%;well sorted; very fine to medium sandy	A highly calcareous paste. The main inclusions are very fine to medium and granular to angular in gray, white, greenish gray, dark gray and black colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim	Kot Diji	EH Type-10

237	MK 2017 6P 77	Base Sherd	DOS; painted, pedestal of DOS	/high pedestal	Contiguous wall pedestal	/thick	Dusky red color slip (2.5 yr 3/2)/plain (5 yr 7/4 pink)	Scrapping with rotation/smoothing with rotation	10%;well sorted; very fine to very coarse sandy	A highly calcareous paste. The main inclusions are sub rounded and medium in black; brown, greenish gray; very coarse and rounded in white to yellowish white colors	Multiple tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body	Kot Diji	EH Type-10
238	MK 2017 6P 79	Rim-Base Sherd	DOS; painted, dish/dish portion of DOS	Simple external projecting direct rim ; plain and round lips/contiguous flat (slight convex)	Shallow	Medium/medium	One wide painted band on rim, one on junction of rim and base in very dark gray color (gley 1 3/n), with red slip (10 r 5/8) on whole remaining vessel/one painted band continue from exterior on rim in same color with same slip	Smoothing with rotation on both sides	10%;well sorted;fine to medium sandy	A mixed paste. The main inclusion are sub rounded to sub angular and medium in white, light to dark brown and greenish black colors	Few wide voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = rim, base	Kot Diji	EH Type-10

239	MK 2017 6P 80	Base Sherd	DOS; painted, dish and pedestal portion of DOS	/dish (dos)	–	/thick	Slipped in weak red color (10 r 4/4), raised clay margins for attachment to column/two thin concentric bands around the centre in dark reddish gray color (10 r 4/1), and slipped in red color (10 r 4/6)	Sandy slip or slurry applied on lower body/smoothing with rotation	10%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium in brown, dark brown, gray, greenish gray, greenish black and light pink in colors	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = base	Kot Diji	EH Type-10
240	MK 2017 6P 82	Rim Sherd	DOS; painted, dish/dish portion of DOS	Simple everted ; plain and round lips/contiguous flat	Concave	Medium/medium	A thin painted band on rim in weak red (5 r 5/2) color with weak red (10 r 4/4) slip/a thin band continue from exterior in same color with dark reddish brown (2.5 yr 3/3) slip	Smoothing with rotation upper body, slightly scrapping lower body/smoothing with rotation	5%;well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are very fine to granular in black, gray and white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim	Kot Diji	EH Type-10
241	MK 2017 3P 96	Base Sherd	Pedestal ?	–	–	Very large/thick	Two pair of dark reddish gray bands on rim, with reddish brown slipped/washed pink	Smoothing with rotation on both sides	3%;well sorted;fine to medium sandy	A mixed paste with fine to medium in brown, dark brown, gray, greenish yellow, light gray, and light red color inclusions	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = base	Kot Diji	EH Type-10

242	MK 2017 4P 20	Base Sherd	DOS; painted, pedestal of DOS	/complex external projected concave ledged base lip	Contig uous walled pedest al	—	One horizontal band on beak of rim in black color (5 yr 2.5/1) with red slip (10 r 4/6) on whole vessel/was hed (7.5 yr 8/4 pink)	Smoothing with rotation on both sides	10%;well sorted;fine to medium sandy	A highly calcareous paste. The main inclusions are sub rounded to sub angular in black, gray and greenish gray, brown and white colors	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim	Kot Diji	EH Type- 10 A
243	MK 2017 4P 22	Base Sherd	DOS; painted, bowl on stand	/low pedestal (complex external projected ledged and rolled triangular base lips)	Conve x	Large/he avy	One horizontal band in dark reddish gray (5 r 3/1) color on base-rim with red (10 r 5/8) slip in on complete vessel/two narrow painted bands around the main body in same color and same slipped bottom is washed (7.5 yr 6/4 light brown)	Scrapping without rotation/smo othing with rotation	5%;well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine to medium and angular to rounded in brown, greenish gray, white, and grayish white colors	Few tiny voids;poro us	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim	Kot Diji	EH Type- 10 A

244	MK 2017 5P 7	Base Sherd	DOS; painted, pedestal of DOS	/low pedestal (simple everted and plain flat base lips)	—	/thick	One slightly broad painted band on base lip in reddish black color (2.5 yr 2.5/1) along with red slip (10 r4/6) above the band and on remaining lip of the base/plain (2.5 yr 6/6 light red)	Scrapping with rotation/smo othing with and without rotation	5%;well sorted; very fine to fine; rare medium	A mixed paste with a very fine to medium and granular shape inclusions in white, brown and gray colors	Few wide voids; porous	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = base	Kot Diji	EH Type- 10 A
245	MK 2017 3P 15	Rim Sherd	Pot, elongate d and straight sided neck	Simple external projected rim ; plain and pinched lips/	Globul ar, perpen dicular neck	Large/me dium	One black color band on rim and one on shoulder (5 yr 2.5/1) with reddish brown slip in (2.5 yr 4/4)/painte d band continued from exterior on top of rim and slightly down to lips as well, same slipped till throat, remaining is plain (7.5 yr 7/4 pink)	Scrapping with rotation on both sides	20%; poorly sorted; more very fine to medium; rare coarse to very coarse sandy	Predominantl y calcareous and well levigated paste. The main inclusions are very fine to very coarse and rounded to sub angular in white (abundant), brown, gray; very fine to medium and granular to angular in black, greenish black, gray, whitish gray and brown colors	Few tiny voids;poro us	Normal- reddish brown (5 yr 5/4)	Completely oxidized	Wheel= rim, body	Kot Diji	EH Type- 11

246	MK 2017 3P 60	Body Sherd	Pot, elongated and straight sided neck	-	Globular	Small/medium	Light red (2.5 y 6/6) to light reddish brown(5 yr 6/4) plain surface on both sides	Smoothing without rotation/smoothing without rotation	1%;well sorted;fine to medium sandy	A calcareous and well levigated paste with granular and very fine in black; rounded and medium in brown; angular and fine to medium in white and dark gray colors	Few tiny voids;porous	Margins = 7.5 yr 5/4 brown, Core = gley 1 10y/7 light greensih gray	Incompletely oxidized	Wheel= body	Kot Diji	EH Type-11
247	MK 2017 3P 89	Rim Sherd	Pot, elongated and everted neck	Simple external projecting rim/ everted neck	Globular, everted neck	Very large (in case of pot with about 50 cm mbd)/medium	Red slipped 10 r 5/8, two ledges, low on shoulder/slipped over rim, remaining is plain (2.5 yr 6/8) light red	Smoothing with rotation on both sides	3%;well sorted;fine to medium sandy	A mixed type (calcareous+micaceous) paste with fine to medium and angular to rounded shape inclusions in white, brown and greenish gray colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, body	Kot Diji?	EH Type-11
248	MK 2017 2P 3	Lid Sherd	Lid knob	-	Bell shaped /concave sides	/heavy	Plain (7.5 yr 6/4 light brown) on both side	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and angular to rounded in brown and dark brown; fine to medium and angular to rounded in gray and white; few fine and rounded in greenish gray colors	Few tiny voids;porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel = knob	Kot Diji	EH Type-12(L-I)

249	MK 2017 3P 144	Lid Sherd	Lid, knobbed	Simple everted rim ; pinched lips/conti guous flat	Everte d	Small/me dium	Washed (very pale brown 10 y 8/3), drops of red slip (10 r 4/6)/washed or light slip (2.5 yr 6/6 light red)	Scrapping horizontal with rotation/smo othing with rotation	3%; moderately sorted; fine to medium sandy	A mixed type paste. The main inclusions are angular to sub angular and fine to medium grayish white; very fine and rounded in white and gray colors	Multiple wide voids; porous	Margins = 2.5 r 6/6 yellowish red, Core = gley 1 10 y 6/1 greenish gray	Incompletel y oxidized	Wheel= rim, body, base	Kot Diji	EH Type- 12(L-1)
250	MK 2017 3P 145	Lid Sherd	Lid, knobbed	Simple vertical ; plain and round lips/non- contiguou s flat	Straig ht constric ted	Small/me dium	One band on rim, one broad band on body- base junction continued to margin of bottom, two round bands around the lid in reddish black color (5 r 2.5/1) with weak red slip (10r4/4) slip in on whole vessel/red slipped (10 r 4/6)	Smoothing with rotation on both sides	5%;well sorted; very fine to medium sandy	A mixed type paste. The main inclusions are fine to medium and platy to subangular in black; fine to medium and rounded to sub angular in brown and gray; angular to rounded and fine to medium in white and yellowish white colors	Few tiny voids;poro us	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= rim, body, base	Kot Diji	EH Type- 12(L-1)

251	MK 2017 3P 146	Lid Sherd	Lid, knobbed	Simple vertical; plain and round lips/contiguous flat base	Parallel sided	Large/medium	Traces of reddish black band on margin (10 r 2.5/1), apparently plain (10 r 6/8)/very pale brown slipped (10 yr 8/2)	Scrapping with rotation/scrapping with rotation	5%; well sorted; fine to medium sandy	A mixed type paste. The main inclusions are rounded and granular in black and gray; angular to rounded and fine to medium in brown and gray; medium and rounded in light green; fine and angular in white colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body, base	Kot Diji	EH Type-12(L-1)
252	MK 2017 3P 147	Lid Sherd	Lid knob	-	Bell shaped /concave sides	/heavy	Remains of two dark reddish gray bands (2.5 yr 3/1), with narrow plain (10 r 5/8) space in between/round band in same color on interior bottom of knob with red slip (10 r 5/8)	Smoothing with rotation on both sides	5%; poorly sorted; very fine to coarse sandy	A mixed type paste. The main inclusions are granular to sub rounded and medium in black; angular and medium in dark brown; angular and sub rounded in brown; few angular and fine in whitish gray; medium in white colors	Few wide voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body, base	Kot Diji	EH Type-12(L-1)

253	MK 2017 3P 35	Lid Sherd	Lid, knobbed	Simple vertical ; plain and round lips/conti guous flat base	Paralle l sided	Large/me dium	One broad black (5 yr 2.5/1) band on throat,one on body base junction down to bottom with red slip (10 r 4/6)/pink slip (5 yr 8/4)	Scrapping with rotation/smo othing with rotation	10%;well sorted;fine to medium sandy	A slight calcareous paste. The main inclusions are angular to sub rounded and medium in brown; very fine and platy in black; angular in transparent gray; angular to sub rounded and medium in white colors	Few wide voids; porous	Normal- red (10 r 5/8)	Completely oxidized	Wheel= rim, body, base	Kot Diji	EH Type- 12(L-1)
254	MK 2017 3P 36 (II)	Lid Sherd	Lid, knobbed	Simple everted ; plain and round lips/conti guous flat	Everte d	Large/me dium	One broad black (2.5 yr 2.5/1) band on rim, one on body base junction down to bottom and one in center of main body with red slip (10 r 5/6)/washed (2.5 yr 6/6 light red)	Smoothing with rotation/smo othing with and without rotation	10%;well sorted; very fine to medium sandy	A mixed type paste. The main inclusions are granular to platy and fine black; angular to sub angular in brown; rounded to sub rounded and fine in white; angular and medium in transparent gray colors	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, body, base	Kot Diji	EH Type- 12(L-1)

255	MK 2017 5P 12	Lid Sherd	Lid, knobbed	Simple everted rim ; plain and round lips/non-contiguou s flat	Everted/bell shape knob	Medium/medium	One band on rim, one broad band on knob, one band on midde, one on body-base junction in very dark gray color (5 yr 3/1) with red slip (10 r 4/6)/plain (2.5 yr 7/6 light red)	Smoothing with rotation on both sides	5%; poorly sorted; fine to medium sandy	A mixed type paste. The main inclusions are granular and very fine in black; sub rounded and fine in greenish black; angular to sub rounded and fine to medium in brown; fine to medium and rounded to sub angular in greenish gray and white colors	Multiple wide voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body, base	Kot Diji	EH Type-12(L-1)
256	MK 2017 5P 13	Lid Sherd	Lid, knobbed	Simple everted ; plain and round lips/contiguous flat	Everted	Large/medium	One broad horizontal painted band on body base junction in dark reddish gray (5r 3/1) with red slip (10r 4/6)/washed (7.5 yr 7/4 pink)	Smoothing with rotation/smoothing with and without rotation	10%;well sorted; very fine to medium sandy	A mixed type paste. The main inclusions are granular to platy and fine to meidum in black; angular to sub angular and fine to medium in brown and transparent gray; fine to medium and angular to sub rounded in white and grayish white colors	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body, base	Kot Diji	EH Type-12(L-1)

257	MK 2017 5P 49	Lid Sherd	Lid, knobbed	Simple vertical rim ; plain and round lips/	Parallel sided	Large/medium	One broad horizontal painted band on rim, one on body base junction, two on bottom around the centre in dark reddish gray (5r 3/1) with red slip (10r 4/6) /washed (7.5 yr 7/4 pink)	Smoothing with rotation on both sides	10%;well sorted;fine to medium sandy	A micaceous paste. The main inclusions are platy and fine to medium in black and greenish black (abundant); rounded to sub rounded and fine to medium in brown and dark brown; angular to sub rounded and fine to medium in white, grayish white and yellowish white colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body, base	Kot Diji	EH Type-12(L-1)
258	MK 2017 5P 51	Lid Sherd	Lid, knobbed	Simple vertical ; plain and round lips/continuous flat base	Evertd	Large/medium	One horizontal painted band on rim, one on body base junction in reddish black color (7.5 yr 2.5/1) with red slip (10r 4/6)/washed (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	10%; moderately sorted; more fine to medium; rare coarse sandy	A mixed type paste. The main inclusions are granular and rounded in black, rounded to sub rounded in brown and dark brown and gray; very fine to medium and rounded to angular in white and coarse to rounded in white colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body, base	Kot Diji	EH Type-12(L-1)

259	MK 2017 5P 52	Lid Sherd	Lid, knobbed	Simple vertical rim ; plain and flat lips/contiguous flat base	Parallel sided	Large/medium	One horizontal painted band on rim, one on body base junction in reddish black color (10 yr 2.5/1) with weak red slip (10 r 4/4) in/very pale brown slipped (2.5 yr 6/6)	Smoothing with rotation on both sides	5%; moderately sorted; fine to medium sandy	A calcareous paste. The main inclusions are sub rounded and fine in greenish black; angular to sub angular and fine to medium in brown; fine and sub rounded in gray and greenish gray; fine to medium and rounded to sub angular in white and yellowish white colors	Multiple wide voids; porous	Normal-reddish brown (5 yr 5/4)	Completely oxidized	Wheel=rim, body, base	Kot Diji	EH Type-12(L-1)
260	MK 2017 5P 53	Lid Sherd	Lid, knobbed	Simple vertical ; plain and round lips/non-contiguous flat	Parallel sided	Large/medium	One horizontal painted band on rim, one body base junction and two around the centre of bottom in dusky red color (5r 3/2) with light brown slip (7.5 yr 6/4) in on whole vessel/washed (10 yr 7/3 very pale brown)	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	Predominantly a calcareous paste. The main inclusions are angular to platy and fine to medium in black; rounded to sub rounded in grayish white, brown; rounded in dark gray; sub angular and fine to medium in white colors	Few tiny voids;porous	Normal/ (5 y 7/2) light gray	Un-oxidized or reduced	Wheel=rim, body, base	Kot Diji	EH Type-12(L-1)

261	MK 2017 6P 73	Lid Sherd	Lid, knobbed	Simple vertical rim ; plain and round lips/contiguous flat base	Parallel sided	Large/medium	One painted band on rim, one on junction of rim (body)-base in very dark gray color (gley 1 3/n) with reddish brown slip(2.5 yr 5/4) on complete bottom vessel and half of lower body of rim-body portion/traces of very pale yellow (2.5 yr 9/2) light slip on complete vessel	Smoothing with rotation, parallel straight wide groove or ridges, rounded grooves and ridges/smoothing with rotation	5%;well sorted;fine to medium sandy	A calcareous and well levigate paste. The main inclusions are sub angular to sub rounded and medium in white; rounded to sub rounded in brown and dark brown; few angular in grayish white, transparent gray, dark gray and few angular and medium in light green colors.	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim, body, base	Kot Diji	EH Type-12(L-1)
262	MK 2017 3P 148	Lid Sherd	concave Knob	/knob, plain and round base lips	-	Miniature/medium	Washed (10 yr 8/2 very pale brown) on both side	Smoothing with rotation/smoothing with and without rotation	-	N/f	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = knob	Kot Diji	EH Type-12(L-1)
263	MK 2017 3P 72	Lid Sherd	concave Knob	Simple everted rim ; plain and flat lips/low pedestal	-	Miniature/medium	Plain (8.5 yr 5/6), sharp and narrow raised clay band on column/red dish black color (5 yr 2.5/1) band around concave roof of knob with (10 yr 4/6)	Smoothing with rotation on both sides	10%;well sorted;fine to medium sandy	A mixed paste with brown, dark brown, gray, white, yellowish white inclusions	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = knob	Kot Diji?	EH Type-12(L-1)

							red slip, remaining washed									
264	MK 2017 5P 21	Lid Sherd	Lid,pain ted, conical	Simple everted rim ; plain and round lips/	Conica l	Small/me dium	One horizontal painted band on rim, two on main body in dark reddish gray color (10 r 3/1) with red slip (10 r 5/6)/very pale brown slip	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A calcareous paste with rounded to subangular and medium size inclusions in brown; few granular in black and greenish black; greenish gray; medium and angular in transparent gray and white colors	Few tiny voids;poro us	Normal- yellowis h red (5 yr 5/6)	Completely oxidized	Wheel= rim, body, base	Kot Diji	EH Type- 12(L- II)

265	MK 2017 1P 24	Body Sherd	Sandy clay parallel, horizontal, straight bands	-	-	/medium	Horizontal straight clay bands, wide in pink color (2.5 yr 8/4)/plain	Sandy Bands/Smoothing with rotation	10%; poorly sorted; more fine to medium; rare very coarse sandy	A calcarous paste. The main onclusions are fine to medium and angular to rounded in white, yellowish white and grayish white; very coarse and sub rounded in yellowish white; fine to medium and rounded to angular in brown, greensih gray and greenish black colors	Few tiny voids;porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel= body, hand = sandy clay banding	Kot Diji	EH Type-Misc.B S
266	MK 2017 3P 110	Body Sherd	Sandy clay parallel, horizontal, straight bands	-	-	/medium	Horizontal sandy bands in light red (2.5 yr 6/8) and sandy slip on lower body/slightly thick light red slip applied ((2.5 yr 6/8))	Sandy band/Smoothing with rotation	Less than 1%;well sorted; very fine sandy	A micaceous paste. The main inclusions are very fine and granular in greenish black and gray colors	Few tiny voids;porous	Margins = 2.5 yr 6/5 light red; Core = gley 1 10y/1 greenish gray,	Incompletely oxidized	Wheel= body, hand = sandy clay banding	Kot Diji	EH Type-Misc.B S
267	MK 2017 5P 59	Body Sherd	White slipped, slight rigged	-	-	/thick	Wide horizontal grooving with pale brown slip (2.5 y 8/2)/washed (2.5 yr 5/6 red)	ridging/smoothing with rotation	5%;well sorted;fine to medium sandy	A mixed type paste. The main inclusions are fine to medium and angular to rounded in brown, pink, gray, white, and yellowish white colors	Few tiny voids;porous	Margins = 2.5 yr 5/6 red, Core = 5 yr 5/4 reddish brown	Incompletely or fully oxidized.	Wheel = body	Kot Diji	EH Type-Misc.B S

268	MK 2017 6P 148	Body Sherd	Black slipped, light string impression	-	-	Medium/medium	Slipped in black color (gley 1 2.5/n)/plain (2.5 yr 6/6 light red)	Scrapping with rotation/scrapping with rotation and wet impressions	5%; moderately sorted; very fine to medium sandy	A calcareous paste. The main inclusions are angular to rounded and fine to medium in light and dark brown, gray; rounded to sub rounded to granular and very fine to medium in white colors	Few tiny voids; porous	Reddish yellow (5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-Misc.B S
269	MK 2017 6P 155	Body Sherd	Black slipped	-	-	Medium/medium	Slipped in black color (gley 1 2.5/n)/plain (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A mixed type paste. The main inclusions are fine to medium and rounded to angular in grayish white, gray, black, and brown colors	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-Misc.B S
270	MK 2017 6P 151	Body Sherd	Red slipped, light string impression	-	-	/thick	Slipped in red (10 r 4/6) and cord impression in horizontal manner/plain (5 yr 7/6 reddish yellow)	Scrapping without rotation/smoothing with rotation	5%; well sorted; fine to medium sandy	A mixed type paste. The main inclusions are fine to medium and angular to rounded in black, gray, and white colors	Few tiny voids; porous	Margins = yellowish red; Core=gley 1 5/n gray	Incompletely oxidized	Wheel= body, hand = horizontal string impression	Kot Diji	EH Type-Misc.B S
271	MK 2017 6P 163	Body Sherd	Sandy clay parallel, horizontal, wavy bands	-	-	/thick	Horizontal wavy sandy clay bands in grayish brown (10 yr 5/2), apparently drawn with the help of some mold/plain	Sandy bands/Smoothing with rotation	5%; well sorted; more fine; rare medium sandy	A mixed type paste. The main inclusions are sub rounded to sub angular and fine to medium in gray, grayish white, black	Few tiny voids; porous	Light gray (5 yr 7/2)	Un-oxidized or reduced	Wheel= body, hand = sandy clay banding	Kot Diji	EH Type-Misc.B S

							(7.5 yr 7/2 pinkish gray)			and brown colors						
272	MK 2017 6P 164	Body Sherd	Sandy clay parallel, horizontal, wavy bands	-	-	Medium/medium	Horizontal wavy clay bands in light red color (2.5 yr 6/6)/plain (5 yr 6/6 reddish yellow)	Smoothing with rotation on both sides	5%; poorly sorted; very fine to very coarse sandy	A calcareous paste. The main inclusions are rounded and coarse gray; rounded and very coarse yellowish white; granular very fine white and black	Few wide voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand = sandy clay banding	Kot Diji	EH Type-Misc.B S
273	MK 2017 1P 34 (I)	Body Sherd	Dark reddish gray slipped, cord impression	-	-	/medium	Horizontal cord impression and dark reddish gray slip (5r 3/1)/plain pink (7.5 yr 7/4), incised diagonal grooves wide, hatched pattern	Cord impression/s moothing with and without rotation	5%; well sorted; more very fine; rare fine to medium sandy	A calcareous paste. The main inclusions are very fine to fine and greenish gray and gray; sub rounded and medium in grayish white colors	Few tiny voids; porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel = body, horizontal rope impression exterior, criss cross incised hatched squares interior	Kot Diji	EH Type-Misc.B S

274	MK 2017 3P 118	Body Sherd	Sandy slip grits/Ap plique	-	-	/medium	Gritty slip (light red 2.5 yr 6/8)/plain (light red 2.5 yr 6/8)	Sandy slip and scrapping with rotation on whole vessel/smoot hing with rotation	5%;well sorted;fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and angular to rounded in black, brown, green, gray, pink, and white colors	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, sand slipping on belly	Pre Kot Diji?	EH Type- Misc.B S
275	MK 2017 3P 108	Body Sherd	Light wet texture	-	-	/medium	Wet texture (7.5 yr 8/3 pink)/plain ((2.5 yr 6/8) light red)	Wet texturing/sm oothing with rotation	5%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in white, light and dark brown in abundance and gray colors	Few tiny voids;poro us	Margins = 2.5 y 6/6 light red, Core = 5 yr 6/4 light reddish brown	Incompletel y or fully oxidized.	Wheel= body	Kot Diji	EH Type- Misc.B S
276	MK 2017 5P 57	Body Sherd	Wet texture	-	-	/medium	Slurry, wet textured (5 yr 6/8 reddish yellow)/wa shed (5 yr 6/8 reddish yellow)	Wet texturing/sm oothing with rotation	5%;well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are angular to rounded and fine to medium in white, gray and brown colors	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = body, hand and cloth = wet texture	Kot Diji	EH Type- Misc.B S

277	MK 2017 5P 58	Body Sherd	Thick slurry with grits/applique	-	-	/thick	Slurry, free hand sandy clay coating on roughened surface, rough pattern (2.5 yr 6/6)/washed (5 yr 6/6 reddish yellow)	Clay coating/smoothing with rotation	5%;well sorted;fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are angular to sub rounded and fine to medium in light and dark brown and white; fine greenish gray and gray colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body, hand = slurried	Pre Kot Diji?	EH Type-Misc.B S
278	MK 2017 6P 97	Body Sherd	Thick slurry	-	-	/thick	Heavy clay coating/slurry in irregular manner in reddish brown color (5 yr 5/4)/plain (10 yr 6/3 pale brown)	clay coating/Smoothing with rotation	3%;well sorted;fine to medium sandy	A highly calcareous paste. The main inclusions are fine to medium and rounded in yellowish red, black and dark gray colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body, hand = slurried	Kot Diji	EH Type-Misc.B S
279	MK 2017 3P 115	Body Sherd	Motif, red slipped	-	-	/medium	Three vertical bands in red color (2.5 yr 4/6) with reddish yellow slipped background (7.5 yr 8/6)/red slipped (2.5 yr 5/6)	Scrapping without rotation/smoothing with rotation	5%;well sorted;fine to medium sandy	A slight calcareous paste. The main inclusions are fine to medium and angular to rounded in black, brown, greenish gray, gray, pink and white colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-Misc.B S

280	MK 2017 3P 116	Body Sherd	Motif, black on white	-	-	/medium	Five narrow horizontal bands with three vertical connected bands in black color (5 yr 2.5/1) with pinkish white (5 yr 8/2) slipped/was hed (2.5 yr 6/8) red)	Scrapping with rotation on base, upper body smoothened with rotation/smo othing with rotation	5%;well sorted;fine to medium sandy	A mixed type paste. The main inclusions are fine to medium and angular to rounded in brown, gray, pink, and white colors	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type- Misc.B S
281	MK 2017 6P 133	Body Sherd	Brown on white	-	-	Medium/ medium	A wide horizontal (very slight oblique) painted band in dusky red color (5r 3/2) with very pale brown slip (10 yr 8.5/2) above and reddish brown slip (2.5 yr 4/4) below the band/plain (5 yr 7/6 reddish yellow)	Smoothing with rotation on both sides	1%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in brown, gray, and yellowish white colors	Few tiny voids;poro us	Margins = 7.5 yr 7/6 reddish yellow, Core = (2.5 yr 6/8) light red	Incompletel y or fully oxidized.	Wheel = body	Kot Diji	EH Type- Misc.B S
282	MK 2017 6P 146	Body Sherd	Motif, red on pink	-	-	Medium/ medium	Three vertical, thin painted bands with gap in between in dusky red color (7.5 yr 3/2), and pink slip (7.5 yr 7/4)	Smoothing and scrapping with rotation /smoothing with rotation	3%;well sorted;fine to medium sandy	A mixed type paste. The main inclusions are fine to medium and angular to rounded in black, brown, gray, and white colors	Few tiny voids;poro us	Margins = 5 yr 7/4 pink, Core = 2.5 y 7/3 pale brown	Incompletel y or fully oxidized.	Wheel = body	Kot Diji	EH Type- Misc.B S

							in/plain (5 yr 7/4 pink)									
283	MK 2017 6P 154	Body Sherd	Plain	-	-	Medium/medium	Plain (10 yr 8/3 very pale brown)/plain (7.5 yr 7/4 pink)	Smoothing with rotation, slightly polished/smoothing with rotation	2%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in brown, light gray, white, and yellowish white colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-Misc.B S
284	MK 2017 6P 31	Body Sherd	Plain	-	-	Medium/medium	Plain (10 yr 8/4 very pale brown)/thin clay slip applied in reddish yellow color (5 yr 7/6)	-	2%;well sorted;fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and angular to rounded in black, brown, gray, and white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Hand= body? Spatula marks	Kot Diji	EH Type-Misc.B S

285	MK 2019 3P 154	Rim Sherd	Motif, black on red	Simple vertical rim ; plain and flat lips/contiguous flat base	-	Large/medium	A thick black band on rim with two sharp horizontal bands on main body with remains of long horn of buffaloe in black on main body with red slip/black band on rim margin with red slip on whole rim	Smoothing with rotation on upper while scrapping with rotation on lower/smoothing	-	-	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = rim, body	Kot Diji	EH Type II
286	MK 2017 5P 45	Body Sherd	Plain	-	-	/medium	Plain reddish yellow (7.5yr 8/6), sandy surface on both sides	Smoothing with rotation on both sides	30%; poorly sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and angular to rounded in black, brown, dark brown, dark gray, green, white, and yellowish white colors	Few tiny voids; porous	Normal yellow (10 yr 7/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-Misc.B S
287	MK 2017 6P 117	Body Sherd	Motif, black on red	-	-	/medium	Fish scales in black color (5 yr 2.5/1) with light reddish brown slip (5 yr 6/4)/plain (7.5 yr 7/4 pink)	Smoothing with and without rotation/smoothing with rotation	3%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in brown, gray, and white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-Misc.B S

288	MK 2019 3P 149	Body Sherd	Motif, black on red	-	-	/thin	Longitudin al fish scales, pure black on red/plain	Smoothing with rotation on both sides	-	-	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = base	Kot Diji	EH Type- Misc.B S
289	MK 2019 3P 152	Body Sherd	Motif, chocolate on white	-	-	/medium	An outline of pipal leaf on chocolate on white background /plain	Irregular scrapping/sm oothing with rotation	-	-	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = base	Kot Diji	EH Type- Misc.B S
290	MK 2019 3P 151	Body Sherd	Motif, chocolate on yellowish	-	-	/medium	Three dots arranged in triangular pattern in chocolate color, with sharp chocolate band and red slip, yellowish natural slip and smart horizontal thread impression below,/plain	Scrapping with rotation/smo othing like scrapping with rotation	-	-	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = base	Kot Diji	EH Type- Misc.B S
291	MK 2017 3P 106	Body Sherd	Motif, brown on white	-	-	/medium	Spiral band, black on pinkish white /plain (2.5 yr 6/8) light red)	Scrapping with rotation/smo othing with rotation, slightly polished	10%;well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main incusions are fine to medium and angular to rounded in brown, gray, light green and white colors	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type- Misc.B S

292	MK 2017 5P 40	Body Sherd	Motif, brown on white	-	-	/thick	Round spiral band in reddish brown (5 yr 4/3) with very pale brown slip in (10 yr 8/2)/washed (10 yr 8/2 very pale brown)	Trimming free hand, scrapping with rotation on bottom, scrapping without rotation lower body/trimming irregular	2%;well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and angular to rounded in brown, gray, and yellowish white colors	Few tiny voids;porous	Normal-pink (5 yr 7/3)	Completely oxidized	Wheel = body	Kot Diji	EH Type-Misc.B S
293	MK 2017 3P 112	Body Sherd	Motif, black on white	-	-	/medium	A painted design made of horizontal bands in reddish black color (7.5 yr 2.5/1) with pale yellow slip (2.5 yr 8.5/2)/plain (2.5 yr 6/6 light red)	Smoothing with rotation on upper body, scrapping with rotation on lower body/smoothing with rotation, slightly polished	2%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in brown and white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body	Kot Diji	EH Type-Misc.B S
294	MK 2017 6P 119	Body Sherd	Motif, black on white	-	-	/thick	A series of four oblique painted bands, upper two bands have wavy interior margins (upper wavy band have remains) in black color	Smoothing with rotation on both sides	3%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and angular to rounded in brown, gray, and white colors	Few tiny voids;porous	Margins = 2.5 yr 5/6 red, 7.5 yr 5/2 brown	Incompletely or fully oxidized.	Wheel = body	Kot Diji	EH Type-Misc.B S

							(5 yr 2.5/1) with white slip (2.5 yr 9.5/1)/washed (7.5 yr 7/4 pink)									
295	MK 2017 6P 48	Base Sherd	Contiguous flat base	/contiguous flat base	—	Medium/medium	Plain (2.5 yr 6/6 light red)/plain (2.5 yr 6/6 light red)	Smoothing with rotation/scraping like smoothing with rotation, nails	2%;well sorted;fine to medium sandy	A calcareous and well levigated paste. The main inclusions are fine to medium and rounded to angular in black, brown, pink and white colors	Few tiny voids;porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel = base	Kot Diji	B.EH Type-1
296	MK 2017 3P 143	Base Sherd	Contiguous flat base	/contiguous flat base	—	/heavy	Concentric, basket impression on bottom and drops of red slip (10 r 4/6), vessel walls are discolored, ranging from (10 r 7/6) light red to very pale brown (10 yr 8/3)/reddish black color (7.5 r 2.5/1) round band, around the centre with	Smoothing with rotation upper body, mold marks lower body/smoothing with rotation	5%;well sorted;fine to medium sandy	A mixed type paste. The main inclusions are fine to medium to rounded to angular in black, brown, dark brown, dark gray, light gray, orange, reddish brown, and white colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel =base	Kot Diji	B.EH Type-2

							red slip (10 r 4/6)									
297	MK 2017 6P 59	Base Sherd	Contiguous round and carinate base	/contiguous round and carinated base	Carinated	Medium/ medium	A wide painted band on body-base junction, out of which a vertical band arise towards up on upper body in dark reddish gray color (2.5 yr 3/1) with reddish brown slip (2.5 yr 5/4) down to slightly below junction, remaining plain (7.5 yr 7/4 pink)/plain (5 yr 7/4 pink)	Smoothing with rotation on both sides	2%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in brown, gray, white, and yellowish white colors	Few tiny voids;porous	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base	Kot Diji	B.EH Type-3

298	MK 2017 6P 47	Base Sherd	Contiguous round and carinated base	/contiguous round and carinated base	Carinated	Medium/medium	A wide painted band, slightly oblique in black color (5 yr 2.5/1), above body-base junction with pale yellow slip (2.5 yr 8/2) background /plain (5 yr 7/4 pink)	Smoothing without rotation/ smoothing without rotation	1%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in brown, white, and yellowish white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Molded =base	Kot Diji	B.EH Type-3
299	MK 2017 6P 144	Base Sherd	Contiguous flat base?	/contiguous flat base?	-	Medium/medium	Plain (7.5 yr 7/4 pink)/two concentric circular bands around the centre of the base in dark reddish color(5 yr 3/1) with red slip (5 yr 5/6)	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in brown, gray, and yellowish white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body	Kot Diji	B.EH Type-4
300	MK 2019 3P 155	Base Sherd	Non-contiguous flat	Non-contiguous flat	-	/medium	Pre-fired inscribed and flipped roman alphabet "A" close to body base juncture/plain	Smoothing like scrapping on both sides/	-	-	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = base	Kot Diji	B.EH Type-4

301	MK 2017 1P 27	Base Sherd	Non-contiguous flat base	/non-contiguous flat	–	Miniature/medium	Light brown slipped (7.5 yr 6/4)/light red slipped (10 r 6/8)	Smoothing with rotation/sandy surface	10%;well sorted;fine to medium sandy	A mixed type of paste. The main inclusions are fine to medium and rounded to angular in black, brown, gray, white and yellowish white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base	Kot Diji	B.EH Type-4
302	MK 2017 2P 4	Base Sherd	Non-contiguous flat base	/non-contiguous flat	–	Small/thick	Plain (light red 10 r 6/8) on both sides	Scrapping with rotation and smoothing with rotation/smoothing with rotation	10%;well sorted;fine to medium sandy; very coarse size snail shell	A calcareous and well levigated paste; Fine to medium, rounded to angular gray, white	Few tiny voids;porous	Margins = 10 r 6/8 light red, Core = 7.5 yr 6/3 light brown	Incompletely or fully oxidized.	Wheel = base	Kot Diji	B.EH Type-4
303	MK 2017 3P 64	Base Sherd	Non-contiguous flat base	/non-contiguous flat	–	Small/medium	Washed (2.5 yr 6/6 light red)/two concentric circular bands around the centre of the base in black color(5 r 3/1) with red slip (10 r 4/6)	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in brown, light green, and white colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = base	Kot Diji	B.EH Type-4
304	MK 2017 5P 28	Base Sherd	Non-contiguous flat base	/non-contiguous flat	–	Small/medium	Plain (7.5 yr 7/4 pink)/painted band close to body-base junction in black color (7.5 yr 2.5/1),with weak red	Smoothing with rotation, very light/smoothing with rotation	5%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in black, brown, gray, pink,	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = base	Kot Diji	B.EH Type-4

							slip (10 r 4/4)			and white colors						
305	MK 2017 6P 49	Base Sherd	Non- contiguous flat base	/non- contiguous flat	-	Small/medium	Plain (2.5 yr 6/6 light red)/plain (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	3%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in brown, gray and white colors	Few tiny voids;porous	Normal- yellowish red (5 yr 5/6)	Completely oxidized		Kot Diji	B.EH Type-4
306	MK 2017 6P 50	Base Sherd	Non- contiguous concave base	/non- contiguous concave	-	Small/thick	Slipped in pale brown color (2.5 y 8/2), potter mark/stroke marks on sides, just above the body base junction/plain (2.5 yr 6/6 light red)	Smoothing with rotation on both sides	5%;well sorted;fine to medium sandy	A mixed paste, predominantly A calcareous paste. The main inclusions are fine to medium and rounded to angular in black, brown, gray, and white colors	Few tiny voids;porous	Margins = 7.5 yr 7/4 pink, Core = (2.5 yr 6/8) light red	Incompletely or fully oxidized.	Molded =base	Kot Diji	B.EH Type-5
307	MK 2017 3P 122	Base Sherd	Non- contiguous discoid base	/non- contiguous flat	-	Small/thick	Washed (2.5 yr 7/6 light red)/washed same	Smoothing without rotation/ smoothing with rotation	2%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in black, brown, gray, light green and yellowish white colors	Few tiny voids;porous	Margins = 2.5 yr 7/6 light red, Core = gley 1 10y/7 light greenish gray	Incompletely oxidized	Wheel = base	Kot Diji	B.EH Type-6

308	MK 2017 3P 67	Base Sherd	Non-contiguous flat base	/non-contiguous flat	–	Small/thin	Washed (2.5 yr 6/8 light red) on both sides	Scrapping like smoothing without rotation/punctuation design	Less than 1%;well sorted;fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and rounded to angular in black, brown, and white colors		Margins = 2.5 yr 5/8 red, Core = 5 yr 6/8 reddish yellow	Incompletely or fully oxidized.	Wheel = base	Kot Diji	B.EH Type-6
309	MK 2017 1P 33	Base Sherd	Non-contiguous discoid base	/non-contiguous discoid	–	Small/thick	Dark reddish brown slipped (2.5 yr 5/3), traces of very pale brown slipped on lower body (10 yr 8/4)/dark reddish brown slipped	Smoothing with rotation, scrapping without rotation lower body/smoothing with rotation	10%;well sorted;fine to medium sandy	A mixed type paste. The main inclusions are fine to medium and rounded to angular in black, brown, green, gray, and white colors	Few tiny voids;porous	Margins = 2.5 yr 5/6 red, Core = 5 yr 7/6 reddish yellow	Incompletely or fully oxidized.	Wheel= base; string cut marks	Kot Diji	B.EH Type-6
310	MK 2017 6P 57	Base Sherd	Non-contiguous discoid extended base	/non-contiguous discoid, extended	–	Small/medium	Light slipped in pale brown color (2.5 yr 8/2)/plain (2.5 yr 7/6 light red)	Smoothing with rotation /smoothing with rotation, hubs, thinning	10%;well sorted;fine to medium sandy	A mixed type paste. The main inclusions are fine to medium and rounded to angular in brown, gray, and white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base	Kot Diji	B.EH Type-7
311	MK 2017 1P 19	Base Sherd	Non-contiguous discoid extended base	/non-contiguous discoid, extended	–	Large/medium	Pink slipped (5 yr 8/4) upper body/(2.5 yr 6/8) light red washed	Smoothing with rotation on both sides	20%;well sorted;fine to medium sandy	A mixed type paste. The main inclusions are fine to medium and rounded to angular in black, brown, dark brown, gray, white and yellowish white colors	Few tiny voids;porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = base, body	Kot Diji	B.EH Type-7

312	MK 2017 5P 27	Base Sherd	Non- contiguous discoid extended base	/non- contiguous discoid, extended	—	Small/medium	Plain, hubs, raised ridges or bands due to wheel throwing (10 yr 7/3 very pale brown)/plain same	Smoothing without rotation/ smoothing with rotation	2%;well sorted;fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and rounded to angular in black, brown, and gray colors	Few tiny voids;porous	Light gray (5 yr 7/2)	Un-oxidized or reduced	Wheel = base	Kot Diji	B.EH Type-7
313	MK 2017 3P 65	Base Sherd	Non- contiguous ring base	/non- contiguous ring	—	Small/thin	Washed (7.5 yr 8/3 pink)/two concentric bands in black (5 yr 2.5/1) around the centre of bottom with red slip (10 yr 4/6)	Scrapping with rotation/smoothing with rotation	10%;well sorted;fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and rounded to angular in black, brown, gray, light green and white colors	Few tiny voids;porous	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base, attached ring	Kot Diji	B.EH Type-7
314	MK 2017 6P 53	Base Sherd	Non- contiguous ring base	/non- contiguous ring	—	Small/medium	Plain (light reddish brown 5 yr 6/4)/washed in light brown (7.5 yr 6/4)	Smoothing with rotation on both sides	2%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in brown, gray and yellowish white colors	Few tiny voids;porous	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base, attached ring	Kot Diji	B.EH Type-8

315	MK 2017 6P 54	Base Sherd	Non-contiguous ring base	/non-contiguous ring	—	Small/medium	Slipped in pink color (7.5 yr 8/4)/plain (5 yr 8/4 pink)	Scrapping with rotation and sandy slurry or slip applied below shoulder with free hand/smoothing with rotation	5%;well sorted;fine to medium sandy	A micaceous paste. The main inclusions are fine to medium and rounded to angular in black, brown, dark brown, gray, and white colors	Few tiny voids;porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel = base, attached ring	Kot Diji	B.EH Type-8
316	MK 2017 6P 55	Base Sherd	Non-contiguous ring base	/non-contiguous ring	—	Small/medium	Washed (2.5 yr 8/2 pale brown)/plain same	Sandy slip, scrapping with rotation before sandy slip application/smoothing with rotation	2%;well sorted;fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in brown, gray, light red, and white colors	Few tiny voids;porous	Normal-reddish brown (5 yr 5/4)	Completely oxidized	Wheel = base, attached ring	Kot Diji	B.EH Type-8
317	MK 2017 3P 71	Base Sherd	Small, low pedestal	/small, low pedestal, simple everted base lips	—	Miniature/medium	Washed (2.5 yr 8/3 pale brown)/washed same	Smoothing without rotation/smoothing without rotation	5%;well sorted;fine to medium sandy	A micaceous paste. The main inclusions are fine to medium size in brown, gray, white, and yellowish white colors	Slightly compact	Margins = 7.5 yr 5/4 brown, Core = gley 1 10y/6 greensih gray	Incompletely oxidized	Wheel = base	Kot Diji?	B.EH Type-9

318	MK 2017 6P 169	Mold Sherd	Base mold	Simple everted rim ; plain and round lips/	Everted	Large/thick	Light brown washed (7.5 yr 6/4)/washed, same, inscribed pre-firing graffiti	-	20%; moderately sorted; medium to coarse sandy	A highly calcareous paste. The main inclusions are sub rounded and medium in whitish gray (abundant); angular and coarse in white; sub angular to sub rounded and medium in gray; rounded and medium in dark green and black colors	Few tiny voids;porous	Normal- light brown (7.5 yr 6/4)	Incompletely or fully oxidized.	Wheel = base, body	Kot Diji	M.EH Type
319	MK 2017 1P 18	Body Sherd	Perforated, body sherd	-	-	/heavy	Wash (10 yr 8/4 very pale brown)/plain (10 r 6/8 light red)	Perforation and Smoothing with rotation/ Smoothing with rotation	3%; poorly sorted; more very fine; rare fine to very coarse sandy	A mixed type paste(micaceous+calcareous). The main inclusions are very fine to fine and sub rounded to sub angular in brown; angular to sub angular and medium in black to greenish black; very fine to medium and granular to sub angular in white(abundant) and sub rounded yellowish white colors	Multiple medium voids; porous	Normal- yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand and pointed tool= rounded perforations on main body	Harappan	H-I

320	MK 2017 IP 6	Body Sherd	Perforat ed, body sherd	-	-	/thick	Slight sandy pale brown slipped (2.5 y 8/2), round perforation from exterior to interior/ver y pale brown slip (10 yr 8/3)	Perforation and Smoothing with rotation/Smoo thing with rotation	30-40%; well sorted; more very fine to fine and rare medium sandy	Predominantl y a calcareous paste with few micaceous inclusions. The main inclusions are medium and sub rounded to rounded in yellowish white (abundant); fine to medium and sub angular to sub rounded and platy in black and greenish black; very few medium and subangular in greenish white colors; few sub rounded and fine in brown colors inclusions	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, hand and tool= round d perforat ions on main body	Harappan	H-I
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321	MK 2017 1P 7	Body Sherd	Perforated, body sherd	-	-	/thick	Pale brown slipped (2.5 yr 8/3), slight sandy surface/plain (2.5 yr 7/8 light red)	Perforation and Smoothing with rotation/Smoothing with rotation	5%; moderately sorted; fine to medium sandy	A mixed type paste (with a lot of micaceous grains and lesser calcarious grains). The main inclusions are very few fine and angular in black; few rounded to angular and fine in brown; few sub rounded and medium in green; few sub angular and medium gray; very few sub angular shape in transparent gray colors	Few wide voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand and tool= rounded perforations on main body	Harappan	H-I
322	MK 2017 1P 8	Body Sherd	Perforated, body sherd	-	-	/thick	Very pale brown slip (10 yr 8/3); sandy surface/plain (7.5 yr 8/4 pink)	Perforation and Smoothing with rotation/Smoothing with rotation	1%; well sorted; more very fine, rare fine to medium sandy; coarse size snail shell void	A mixed type (calcareous+micaceous) paste. The main inclusions are very fine to medium and granular to rounded in greenish gray color; very few very fine and sub angular in white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand and tool= rounded perforations on main body	Harappan	H-I

323	MK 2017 3P 51	Body Sherd	Perforat ed, body sherd	-	-	/medium	Pale brown slipped (2.5 y 8/2), round perforat ions from exterior to interior/pal e brown (2.5 y 8/3)	Perforation and Smoothing with rotation/Smoo thing with rotation	10%; well sorted; fine to medium sandy	A mixed type paste (calcareous + micaceous clay). The main inclusions are few rounded to sub rounded and fine in black and greenish black; very few fine to medium and sub angular to sub rounded in reddish brown; few fine and rounded in orange; few fine to medium and sub rounded in brown; fine to medium and sub rounded in whitish gray, pinkish white; several medium and sub rounded in yellowish white colors	Few tiny voids; poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, hand and tool= round ed perforat ions on main body	Harappan	H-I
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324	MK 2017 3P 52	Body Sherd	Perforated, body sherd	-	-	/medium	Pale brown slipped (2.5 y 8/2), round perforations from exterior to interior/pale brown (2.5 y 8/3)	Perforation and Smoothing with rotation/Smoothing with rotation	3%; well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are with very coarse void composed of white grains; few rounded medium brown inclusions, few rounded medium orange inclusions; very fine to medium, rounded to anugulr white inclusions	Few wide voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, hand and tool= rounded perforations on main body	Harappan	H-I
325	MK 2017 3P 53	Body Sherd	Perforated, body sherd	-	Cylindrical, parallel sided	/thick	Vitrified (5 y 7/2) light gray/vitrified 5 r 3/1 dark reddish gray	Perforation and Smoothing with rotation/Smoothing with rotation	-	-	Slightly compact	-	Vitrified	Wheel= body, hand and tool= rounded perforations on main body	Harappan	H-I

326	MK 2017 4P 5	Rim Sherd	Perforat ed, jar	Complex, external projected, short beaked/	Tall/cy lindric al/para llel sided	Very large/thick	Very pale brown (10 yr 8/3) slipped, round perforations below shoulder, two horizontal grooves on shoulder/pl ain (2.5 yr 6/6 light red)	Perforation and Smoothing with rotation/Smoothing with rotation	5%; well sorted; more very fine to fine; and rare medium sandy	A micaceous paste. The main inclusions are very fine to medium and angular to sub rounded and platy in black (abundant); few angular to sub rounded and medium in greenish black; very fine to medium and rounded in reddish brown; fine to medium and angular to sub rounded in brown; medium and sub angular light gray; granular and very fine in white colors	Slightly compact	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, body, hand and tool=ro unded perforat ions on main body	Harappan	H-I
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327	MK 2017 5P 42	Body Sherd	Perforated, body sherd	-	-	/thick	Plain (7.5 yr 6/6 reddish yellow)/plain (7.5 yr 6/6 reddish yellow)	Perforation and Smoothing with rotation/Smoothing with rotation	5%; moderately sorted;very fine to medium sandy	A mixed type paste. The main inclusions are very few rounded and very fine in black and greenish black; medium and sub rounded in brown; sub angular and medium in gray; very fine to medium and granular to angular and sub rounded in yellowish white (abundant); very few in transparent gray colors	Slightly compact	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel= body, hand and tool= rounded perforations on main body	Harappan	H-I
328	MK 2017 5P 43	Body Sherd	Perforated, body sherd	-	-	/thick	Pale brown slipped (2.5 y 8/2), round perforations from exterior to interior/pale brown slipped (2.5 y 8/2)	Perforation and Smoothing with rotation/Smoothing with rotation	5%; moderately sorted; medium to coarse and very coarse sandy	Predominantly calcareous with lesser micas. The main inclusions are very few fine and rounded in greenish black; medium to coarse and subangular in yellowish white; very coarse and sub rounded in dark brown; few medium and sub rounded in transparent gray colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand and tool= rounded perforations on main body	Harappan	H-I

329	MK 2017 5P 44	Body Sherd	Perforated, body sherd	-	-	/thick	Plain (5 yr 6/6 reddish yellow)/plain (5 yr 7/6 reddish yellow)	Perforation and Smoothing with rotation/Smoothing with rotation	5%; well sorted; more very fine to medium, rare coarse and very coarse sandy	A micaceous paste. The main inclusions are very fine to fine and platy shape in black (abundant); few rounded and medium in dark brown; few subangular in transparent gray; a very coarse and sub rounded in yellowish white color	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, hand and tool= rounded perforations on main body	Harappan	H-I
330	MK 2017 6P 165	Body Sherd	Perforated, body sherd	-	-	Medium/medium	Plain (2.5 yr 6/6 light red), perforation from exterior to interior irregularly/plain (2.5 yr 6/6 light red)	Perforation and Smoothing with rotation/Smoothing with rotation	10%; moderately sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are very fine to fine and sub rounded in black and brown; sub angular to sub rounded and medium in gray and transparent gray; sub angular and medium in white colors	Slightly compact	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= body, hand and tool= rounded perforations on main body	Harappan	H-I

331	MK 2017 4P 6	Rim Sherd	Pot, white slipped	Complex external projecting short beaked/	Globular, ledge shouldered	Very large/thick	Very pale brown slipped (10 yr 8/3) on both sides	Smoothing with rotation on both sides	5%; poorly sorted; medium to very coarse sandy	A calcareous paste. The main inclusions are with rounded to sub rounded and medium to coarse in gray and greenish gray; sub rounded and very coarse in white; rounded to angular and medium to coarse in yellowish white colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body	Harappan	H-II
332	MK 2017 1P 15	Rim Sherd	Pot, plain	Simple external projected; plain and flat lips/	Globular	Large/thick	Nil	Scrapping with rotation/scraping and Smoothing with rotation	2%; well sorted; very fine to fine sandy	A calcareous paste. The main inclusions are very fine to fine and granular to rounded in gray and white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Harappan	H-III
333	MK 2017 1P 38	Rim Sherd	Pot, plain	Simple external projected; plain and flat lips/	Globular	Very large/thick	Plain surface (reddish yellow 5 yr 7/6) on both sides	Smoothing with rotation on both sides	5%; well sorted; very fine to fine sandy	A calcareous paste. The main inclusions are very fine to fine and granular to rounded in gray and white colors	Few wide voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, upper body	Harappan	H-III

334	MK 2017 6P 35	Rim Sherd	Pot, plain	Complex external projected beaked/	Globular	Very large/thick	Plain (7.5 yr 6/6 reddish yellow)/plain (7.5 yr 6/6 reddish yellow)	Polished, Smoothing with rotation/Smoothing with rotation	5%; well sorted; very fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are with fine to medium and rounded to angular in light and grayish brown; sub rounded and coarse in black with white streaks; granular and very fine in white colors	Few tiny voids; porous	Margins =10 yr 7/6 yellow, Core=10 yr 6/1 greenish gray gley	Incompletely oxidized	Wheel=rims, upper body	Harappan	H-III
335	MK 2017 1P 35 (II)	Rim Sherd	Pot, parallel sided	Complex external projected narrow short beaked/	Parallel sided	Very large/thick	One band on beak of rim and two joined bands on throat in black color (5 yr 2.5/1) with red slip (10 yr 4/8)/one band on rim in black color (5 yr 2.5/1) with red slip (10 yr 4/8) till throat	Smoothing with rotation on both sides	3%; well sorted; medium to coarse sandy	Predominantly a calcareous paste. The main inclusions are rounded and coarse in gray; round to angular and medium in dark brown; very fine and granular in white and black; sub rounded and medium in yellowish white colors	Slightly compact	Normal-red (10 yr 5/8)	Completely oxidized	Wheel=rims	Harappan	H-IV

336	MK 2017 3P 90	Rim Sherd	Pot, parallel sided	Complex external projecting short beaked/	Parallel sided	Very large/thick	Red slipped (2.5 yr 4/6), few horizontal grooves on neck/very pale brown slight thick slipped (10 yr 8/4)	Smoothing with rotation	2%; moderately sorted; very fine to very coarse sandy	A micaceous paste. The main inclusions are granular and very fine in black; medium to very coarse and angular to sub rounded in gray; angular and medium in brown and transparent gray colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim	Harappan	H-IV
337	MK 2017 5P 10	Body Sherd	Pot, ledged (cooking)/	-	Globular	Medium/medium	Red slip (10 yr 4/6) applied above the ledge area while plain below the ledge (7.5 yr 8/4 pink)/light slipped in pink color (7.5 yr 8/4)	Gritty slip (pottery crush)/Smoothing with rotation	5%; well sorted; medium to coarse sandy	A micaceous paste. The main inclusions are sub angular to sub rounded and very fine to medium in black (abundant-micas); medium and sub rounded in dark green; medium to coarse and sub angular in brown; sub angular and medium in transparent gray colors (abundant)	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body, sharp ledge with hand or tool	Harappan	H-V

338	MK 2017 5P 61	Body Sherd	Pot, ledged (cooking)/		Globular	Medium/medium	Dusky red slip (10 r 3/4) above the ledge while pink washed (7.5 yr 7/4) below the ledge/plain (2.5 yr 6/6 light red)	Smoothing and roughening with rotation /Smoothing with rotation	20%; well sorted; very fine to medium sandy	A mixed type paste with fine to medium and platy shape micas in black; fine to medium and rounded to sub angular in brown; few medium and sub angular in transparent gray; very fine to medium and rounded to sub angular in white (abundant)	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body, sharp ledge with hand or tool	Harappan	H-V
339	MK 2017 5P 62	Body Sherd	Pot, ledged (cooking)/	-	Globular	Medium/medium	One horizontal painted band in reddish black color (2.5 yr 2.5/1) above the ledge, remaining washed (pale brown color 10 yr 6/3)/washed (7.5 yr 7/4 pink)	Smoothing without rotation/Smoothing without rotation	5%; well sorted; very fine to coarse sandy	A micaceous paste. The main inclusions are with very fine to medium and platy to sub rounded to sub angular in black; few medium to coarse and sub angular in green; sub rounded to sub angular and medium in gray colors	Slightly compact	Margins = 10 yr 6/3 pale brown, Core= 1 6/1 greenish gray	Incompletely oxidized	Wheel = body, sharp ledge with hand or tool	Harappan	H-V

340	MK 2017 5P 63	Body Sherd	Pot, ledged (cooking)	—	Globular	Very large/medium	One horizontal painted band above the ledge in reddish black color (2.5 r 2.5/1) with reddish brown slip on whole vessel/plain (2.5 yr 6/8 light red)	Smoothing without rotation/Smoothing and thinning with rotation	5%; well sorted; very fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are sub angular to sub rounded and fine to medium in brown; medium and sub rounded in transparent gray; medium and rounded in pinkish white; fine and sub angular to sub rounded in white and yellowish white colors	Few tiny voids; porous	Margins = 5 yr 6/6 reddish yellow, Core= 2.5 yr 5/8 red	Incompletely or fully oxidized.	Wheel = body, sharp ledge with hand or tool	Harappan	H-V
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341	MK 2017 5P 9	Rim Sherd	Pot, ledged (cooking)/	Complex, external projecting, narrow, long beaked	Globular	Very large/medium	One narrow painted band on rim and ledge in dark reddish gray color (2.5 yr 4/1), remaining applied with mixed slip form light reddish brown (2.5 yr 6/4) to very pale brown (10 yr 8/4) color/painted band continued from exterior of vessels slipped on half of rim in same color	Smoothing with rotation on both sides	20 %; moderately sorted; fine to medium and coarse	Predominantly a micaceous paste. The main inclusions are very fine to coarse and platy micas in abundance (black); few fine to coarse and sub rounded brown inclusions; few inclusions are sub rounded to sub angular and medium in gray; subangular and medium in white; sub angular to sub rounded and medium to coarse in yellowish white colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = rim, sharp ledge with hand or tool	Harappan	H-V
342	MK 2017 1P 21	Rim Sherd	Bowl, plain, convex/	Complex, external projected, narrow, beaked	Convex	Very large/thick	Pale brown washed (2.5 yr 7/3), lower body plain (light reddish brown 2.5 yr 6/4)/reddish brown (5 yr 5/4) band on rim, lower body is brown slipped (2.5 yr 7/3)	Smoothing with rotation on both sides	1%; well sorted; medium sandy	A calcareous paste. The main inclusions are fine to medium and granular to sub angular and rounded in white and yellowish white colors	Multiple medium voids; porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel = rim, body; Mold = base; mold marks on lower body	Late Kot Diji/Harappan?	H-VI

343	MK 2017 1P 22	Rim Sherd	Bowl, plain, convex/	Complex, external projected, narrow, beaked	Convex	Very large/thick	Light brown washed (7.5 yr 6/4) on both sides	Smoothing with rotation upper body, slightly polished, scrapping with rotation lower body/Smoothing with rotation	30%; well sorted; fine to very coarse sandy	A calcarious paste. The main inclusions are sub rounded to sub angular and fine to medium in brown; granular to sub rounded and very fine to fine in black and greenish black; angular to rounded and fine to medium in white; angular to sub rounded and fine to very coarse in grayish white colors	Few wide voids; porous	Margins = 2.5 yr 5/4 reddish brown, Core= gley 2 6/1 bluish gray	Incompletely oxidized	Wheel=rims, body; Moded =base; mold marks on lower body	Late Kot Diji/Harappan?	H-VI
344	MK 2017 5P 23	Rim Sherd	Bowl, plain, convex/	Complex, external projectin g, narrow, round	Convex	Very large/thick	Very pale brown washed (10 yr 7/3)/same washed	Smoothing with rotation on both sides	5%; poorly sorted; very fine to coarse sandy	A calcareous paste. The main inclusions are with fine to medium and rounded to angular brown (hues) in abundance; fine to coarse and rounded to angular in yellowish white; sub rounded and coarse in graysh white colors	Multiple wide voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rims, body; Moded =base; mold marks on lower body	Late Kot Diji/Harappan?	H-VI

345	MK 2017 5P 24	Rim Sherd	Bowl, plain, convex/	Complex, external projecting, narrow, round	Convex	Very large/thick	Plain (5 yr 6/6 reddish yellow) on both sides	Smoothing with rotation on both sides	20%; well sorted; fine to medium sandy	A micaceous paste. The main inclusions are with granular to platy and very fine in black; fine to medium and angular to rounded in brown, gray and grayish white and transparent gray colors	Multiple wide voids; porous	Margins = 5 yr 7/6 reddish yellow, Core= 2.5 yr/2 greenish gray	Incompletely oxidized	Wheel= rim, body; Moded = base; mold marks on lower body	Late Kot Diji/Harappan?	H-VI
346	MK 2017 5P 25	Rim Sherd	Bowl, plain, convex/	Complex, bilateral, more external projected, beaked	Convex	Very large/thick	Light slip or wash (5 yr 7/6 reddish yellow), two low ridges on throat/same slip	Smoothing with rotation on both sides	10%; well sorted; fine to coarse sandy	A mixed type (calcareous + micaceous) paste. The main inclusions are angular to sub angular and fine in black and greenish black; fine to coarse and angular to sub rounded in brown, grayish white, transparent gray; sub angular and medium in white colors	Slightly compact	Margins = 2.5 yr 5/6 red, Core= 2.5 yr 6/2 light brownish gray	Incompletely oxidized	Wheel= rim, body; Moded = base; mold marks on lower body	Late Kot Diji/Harappan?	H-VI

347	MK 2017 6P 83	Rim Sherd	Bowl, plain, convex/	Complex, external projected, narrow, short beaked	Convex	Very large/thick	Plain, washed (5 yr 7/6 reddish yellow)/very light slip in reddish yellow color (5 yr 7/6)	Scrapping with rotation/Smoothing with rotation	3%; moderately sorted; fine to coarse sandy	Predominantly a calcareous paste. The main inclusions are with few fine and angular to platy in black and greenish black; fine to coarse and angular to sub rounded in grayish white in abundance; medium and rounded in yellowish white colors	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rims, body; Moded=base	Late Kot Diji/Harappan?	H-VI
348	MK 2017 1P 10	Rim Sherd	Bowl, plain, convex/	Complex, external projected, narrow, beaked	Convex	Very large/thick	Light red slip (2.5 yr 6/6) on both sides	Smoothing and scrapping with rotation/Smoothing with rotation on upper body, scrapping with rotation on lower body	3%; well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are with very fine and granular in black; rounded to angular and medium in brown; few fine in whitish gray; angular to sub rounded and medium in dark gray colors	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rims, body; Moded=base; mold marks on lower body	Late Kot Diji/Harappan?	H-VI
349	MK 2017 6P 51	Base Sherd	Bowl, plain, convex/	/non-contiguous flat	Convex	Large/heavy	Plain lower body (7.5 yr 8/4 pink) on both sides; traces of red slip on upper body (10 yr 4/6) on exterior	Scrapping with rotation, roughening/Smoothing with rotation	5%; well sorted; fine to medium sandy	Predominantly micaceous paste. The main inclusions are fine to medium and rounded to angular in black, brown,	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized		Late Kot Diji/Harappan?	H-VI

										gray, and white colors						
350	MK 2017 1P 36 (II)	Base Sherd	DOS/painted	/external concave ledge	–	Very large/thick	Five sharp bands or lines above and three below in black on red (10 r 5/8), pink slip (7.5 yr 8/4) on jar rim/plain (2.5 yr 6/8) light red	Smoothing with rotation on both sides	3%; moderately sorted; very fine to medium sandy	A micaceous paste. The main inclusions are rounded and fine to medium in brown; angular and fine to medium in gray; angular and medium in transparent gray; fine and sub rounded in white colors	Multiple medium voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Harappan	H-VII
351	MK 2017 1P 37	Rim Sherd	DOS; plain, bowl/bowl portion of bowl on stand	Simple external projected rim ; plain and round lips	Convex	Very large/heavy	Very slight sandy pale yellow slip (2.5 yr 8.5/2)/four narrow dark reddish gray (5 r4/1) bands on rim, two bands on body around centre, light red slip (2.5 yr/8) in background , no slip on lower bands,	Smoothing with rotation/scraping with rotation	5%; well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are with granular and very fine in black; rounded to angular and fine to medium white, brown colors; medium and rounded in transparent gray colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, upper body; Moded =base	Harappan	H-VII

							remaining plain (pink 5 yr 8/4)									
352	MK 2017 IP 1	Base Sherd	DOS; painted, pedestal of DOS/	/high pedestal	Non-contiguous walls	/heavy	A black band on main or centre of pedestal, red slipped (10 r 4/6), plain surface (light red 10 r 6/5)/weak red slipped (7.5 r 4/4), lower part is ledged.	—	5%; well sorted; very fine to medium, rare coarse sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are with very fine to medium and granular in white, gray and brown; angular and coarse in white colors	Few tiny voids; porous	Normal-red (10 r 5/8)	Completely oxidized	Wheel= base	Harappan	H-VII A
353	MK 2017 SP 5	Base Sherd	DOS; painted, pedestal of DOS/	/high pedestal	Non-contiguous walls	/thick	Red slipped (2.5 yr 5/8)/plain (5 yr reddish yellow)	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are with fine to medium, rounded to angular white, light and dark brown, whitish gray and greenish gray	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base	Harappan	H-VII A

354	MK 2017 6P 166	Base Sherd	DOS; dish?/	/non-contiguou s flat	—	Medium/ medium	Light slipped in pale yellow color (2.5 y 8/2)/slipped in red color (10r 5/8), finger prints	Smoothing with rotation on both sides	20%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are rounded to angular in white; sub rounded in whitish gray, greenish gray, light and dark brown; very fine and granular in black colors	Few wide voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel= rim, base	Harappan	H-VII A
355	MK 2017 6P 75	Base Sherd	DOS; painted, column of DOS	/high pedestal; column	Parallel sided	/thick	Red slipped (10 r 4/6)/plain (5 yr 6/4 light reddish brown)	Sandy slip, Smoothing with rotation upper body, scrapping with rotation lower body for the application of sandy slip/Smoothing with rotation	20%; well sorted; very fine to medium sandy	A calcareous paste. The main inclusions are very fine to medium and granular to angular and platy shape in black (abundant), white, brown and transparent gray colors	Slightly compact	Margins = 5 yr 6/6 reddish yellow, Core= 7.5 yr 7/6 reddish yellow	Incompletely or fully oxidized.	Wheel= column	Harappan	H-VII A

356	MK 2017 5P 50	Rim Sherd	Bowl, painted, convex, internal sharp beaked	Complex, bilateral, more internal beak shape projection/	Convex	Large/thick	Washed (7.5 yr 8/3 pink)/one painted band on top margin of the rim in reddish black (5 yr 2.5/1) with red slip (10 yr 4/6) upto half of vessel with horizontal painted band below in same color, with reddish yellow (5 yr 7/6) slip on lower vessel	Smoothing with rotation and polished/scraping with rotation	5%; very well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are granular to platy and very fine to medium in black, brown, gray, and white; rounded to sub rounded and fine in yellow; rounded to sub rounded in gray, whitish gray, brown, and light green colors	Multiple wide voids; porous	Margins = 2.5 yr 5/6 red, Core= gley 1 10 yr 8 light greenish gray	Incompletely oxidized	Wheel=rim, body	Harappan	H-VII A
357	MK 2017 1P 12	Rim Sherd	DOS; plain, bowl/bowl portion of bowl on stand	Simple external projected rim ; plain and round lips/	Convex	Very large/thick	Plain (very pale brown 10 yr 7/4)/plain (reddish yellow 5 yr 7/6)	Smoothing with rotation on both sides	5%; well sorted; very fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are granular and very fine in black and brown; fine and rounded in light and dark brown; fine and rounded in whitish gray; fine to medium and sub rounded to sub angular in white colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body; Moded =base; mold marks on lower body	Late Kot Diji/Harappan	H-VII B

358	MK 2017 1P 32	Base Sherd	DOS; plain, pedestal of DOS	/high pedestal	Contiguous walls	/thick	Reddish yellow slipped (5 yr 7/6)/light red slipped (10 r 6/6)	Smoothing with rotation on both sides	5%; well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are very fine and granular in black; angular and medium in dark gray; fine and rounded in whitish gray in abundance; sub rounded and fine in yellowish white colors	Multiple medium voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base	Late Kot Diji/Harappan	H-VII B
359	MK 2017 1P 39	Rim Sherd	DOS; plain, bowl/bowl portion of bowl on stand	Complex external projecting narrow triangular /	Convex	Very large/thick	Plain surface (reddish yellow 5 yr 7/6) on both sides	Smoothing with rotation on both sides	10%; well sorted; very fine to medium sandy	A slight calcareous paste. The main inclusions are granular to rounded and very fine to medium in black and white; fine to medium and rounded in whitish gray colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim	Late Kot Diji/Harappan	H-VII B

360	MK 2017 1P 5	Base Sherd	DOS; plain, dish and pedestal of DOS	/low pedestal	Contig uous walls	/thick	Incised design on interior dish bottom, concentric circles along with spokes originating from centre like wheel, plain (light red 2.5 yr 7/8), traces of red slip/plain (light red 2.5 yr 7/8), slip is damaged completely	Smoothing with rotation on both sides	10%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are very fine to medium and granular to rounded in black and greenish black; rounded to angular and fine to medium in light and dark brown; rounded and coarse in transparent gray colors	Few tiny voids; poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = rim, base	Late Kot Diji/Hara ppan	H-VII B
361	MK 2017 3P 113	Base Sherd	DOS; plain, dish and pedestal of DOS	/dish (dos)	-	/thick	Plain (2.5 yr 6/8 light red)/two incised lines around centre of bottom with a series of diagonal punctated strookes likes spokes originating from the centre of a wheel, plain (7.5 yr 6/8 light brown)	Smoothing with rotation on both sides	20%; well sorted; very fine to medium sandy	Predominantl y a calcarious paste. The main inclusions are very fine to medium and granular to rounded and angular in white (abundance) and black; rounded to angular and fine to medium in greenish black; fine to medium and rounded to angular in brown colors	Few tiny voids; poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = rim, base	Late Kot Diji/Hara ppan	H-VII B

362	MK 2017 3P 121	Base Sherd	DOS; plain, dish and pedestal of DOS	/low pedestal	Contig uous walls	/heavy	Plain (2.5 yr 7/6 light red)/plain (same)	Smoothing with rotation on both sides	5%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine and rounded in black; sub rounded and fine to medium in greenish gray; fine to medium and angular in whitish gray; fine to medium and rounded in light and dark brown; sub rounded to sub angular and medium in white colors	Few tiny voids;poro us	Normal- light red (2.5 yr 6/6)	Completely oxidized	Wheel = rim, base	Late Kot Diji/Hara ppan	H-VII B
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363	MK 2017 3P 33 (1)	Base Sherd	DOS; plain, dish and pedestal of DOS	/low pedestal	-	/heavy	Plain (7.5 yr 5/4 brown) on both sides	Burnished base slightly, Smoothing with rotation on rim or upper body, scrapping with rotation on bottom or below the rim or lower body/Smoothing with rotation, along with a deep and narrow groove on the bottom	-	-	Slightly compact	-	-	Wheel = rim, base	Late Kot Diji/Harappan	H-VII B
364	MK 2017 3P 36 (1)	Base Sherd	DOS; plain, dish and pedestal of DOS	/low pedestal	-	/thick	Light brown (7.5 yr 6/4) washed/very pale brown (10 yr 8/4)slipped, punctated design in the form of series of circles	Smoothing with rotation on both sides	5%; well sorted; very fine to medium sandy	A calcareous paste.The main inclusions are very fine to medium and granular to rounded and angular in white, grayish white; light and dark brown colors	Few tiny voids;porous	Margins = 7.5 yr 6/4 light brown, Core= gley 1 10 y 7/1 light greenish gray	Incompletely oxidized	Wheel = rim, base	Late Kot Diji/Harappan	H-VII B

365	MK 2017 3P 37	Base Sherd	DOS; plain, dish and pedestal of DOS	/low pedestal	Non-contiguous walls	/thick	Light red slipped (2.5 yr 6/6), series of circles, punctated circles/plain (2.5 yr 6/6 light red)	Smoothing with rotation/raised and twisted bands	10%; moderately sorted; more very fine; rare fine to medium and coarse sandy; very coarse snail shell	A micaceous paste. The main inclusions are granular and very fine in black and gray in abundance; (very coarse size snail shell); rounded and very coarse gray; medium and angular in white and brown colors	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = rim, base	Late Kot Diji/Harappan	H-VII B
366	MK 2017 3P 40	Base Sherd	DOS; plain, dish and pedestal of DOS	/dish (dos)	-	/thick	Plain (7.5 yr 6/3 light brown)/horizontal band in reddish black color around the rim (5 yr 2.5/1), remaining is plain (7.5 yr 6/3 light brown)	Scrapping with rotation/Smoothing with rotation	10%; well sorted; fine to medium sandy	A highly calcareous paste. The main inclusions are rounded to angular and medium in grayish white; angular and fine to medium in dark gray; rounded and medium in brown; rounded and medium in dark gray with white streaks; rounded to sub rounded and medium in white and yellowish white colors	Few tiny voids; porous	Light gray (5 yr 7/2)	Un-oxidized or reduced	Wheel = rim, base	Late Kot Diji/Harappan	H-VII B

367	MK 2017 5P 4	Base Sherd	DOS; plain, column of DOS	/high pedestal; column	Straight constricted	/medium	Plain/plain	Smoothing with rotation on both sides	5%; well sorted; fine to medium sandy	A highly calcareous paste. The main inclusions are rounded to sub rounded and medium in greenish black; gray; whitish gray and white to yellowish white colors	Slightly compact	Normal-yellowish red (5 yr 5/6)	Un-oxidized or reduced	Wheel=column; pronounced twisting interior	Late Kot Diji/Harappan	H-VII B
368	MK 2017 6P 78	Base Sherd	DOS; plain, column of DOS	/high pedestal; column	Parallel sided	/thick	Plain (5 yr 7/6 reddish yellow)/plain, oblique raised clay, thin structures	Smoothing with rotation on both sides	2%; well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are very fine and granular in black; angular to sub rounded and fine to medium in white; rounded and medium in orange colors	Slightly compact	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=column; pronounced twisting interior	Late Kot Diji/Harappan	H-VII B
369	MK 2017 6P 81	Base Sherd	DOS; plain, column of DOS	/high pedestal; column	Straight constricted	/thick	Plain, sandy surface (2.5 yr 6/6 light red)/plain, oblique, raised clay, thin structures same	Sandy slip/Smoothing with rotation	5%; very well sorted; very fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are very fine to medium and angular to rounded in white, light to dark brown and orange colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=column	Late Kot Diji/Harappan	H-VII B

370	MK 2017 IP 20	Base Sherd	Low pedestal, heavy	/simple everted base ; plain and flat lips;low pedestal	-	Large/heavy	Very pale brown surface or light wash (10 yr 6/6)/plain (2.5 yr 6/6 light red)	Scrapping with rotation/Smoothing with rotation	5%; well sorted; more fine sand to slight coarse sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to coarse and granular to angular in black, brown, green, gray and white colors	Slightly compact	Light gray (5 yr 7/2)	Completely oxidized	Wheel = base	Harappan	H-VII B
371	MK 2017 IP 31	Rim-Base Sherd	DOS; plain, dish portion of DOS kot dijian	Simple everted rim ; plain and round lips/convex	S walled	-	Reddish yellow slipped (5 yr 7/6) on both sides	Smoothing with rotation/scrapping without rotation	5%; well sorted; very fine to medium sandy	A micaceous paste. The main inclusions are angular and fine to medium in black; rounded and fine to medium in light brown; subangular and medium in green and gray; very fine and granular in white colors	Few tiny voids;porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=r rim, body; Molded= base	Late Kot Diji/Harappan	H-VII B
372	MK 2017 IP 11	Rim Sherd	Bowl, parallel sided	Complex, bilateral, more external projected/	Parallel sided	Very large/thick	Dark reddish brown slipped (2.5 yr 3/4), along with traces of pink slip (7.5 yr 8/4) on both sides	Scrapping horizontal/scrapping horizontal	3%; moderately sorted;very fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are angular to rounded and very fine in black; fine to medium in brown; sub rounded to sub angular and medium in yellowish white and	Few tiny voids;porous	Margins = 5 yr 6/8 reddish yellow, Core= gley 1 4/1 dark greenish gray	Incompletely oxidized	Wheel=r rim, upper body	Late Kot Diji/Harappan	H-VIII

										transparent gray colors						
373	MK 2017 4P 8	Rim Sherd	Bowl, straight everted, plain	Complex, bilateral equal projected, flat/	Straight everted	Very large/thick	Weathered badly, yellowish layering like iron rusting on both sides	Smoothing without rotation/ Smoothing without rotation	2%; well sorted; fine to medium sandy	A micaceous paste. The main inclusions are fine to medium sandy in black, brown and gray colors	Slightly compact	Margins =yellowish red; Core =gley 10y/5 greenish gray	Incompletely oxidized	Wheel=rim, upper body	Late Kot Diji/Harappan	H-IX
374	MK 2017 5P 67	Rim-Base Sherd	Dish, rimless	Simple vertical rim ; pinched lips/continuous flat base	Parallel sided	Large/medium	One very narrow horizontal painted band on the top of rim in black color (5 yr 2.5/1), pink slipped (7.5 yr 8/4 pink), bottom is plain (5 yr 6/4 light reddish brown)/painted band continue from exterior,	Smoothing with rotation, sandy slurry or slip applied below shoulder free hand/Smoothing with and without rotation, regular and irregular	5%; well sorted; very fine to medium sandy	A highly calcareous paste. The main inclusions are rounded to sub angular in brown; rounded and fine in whitish gray; very fine to medium and rounded to sub angular in yellowish white colors	Multiple tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel=rim, base	Harappan ?	H-X

							red slip (10 r 4/8)									
375	MK 2017 3P 54	Rim Sherd	Pot, elongated and straight sided heavy neck	Simple external projected rim ; pinched lips/	Globular, perpendicular neck	/heavy	A narrow dark reddish brown band on tip of rim, light reddish brown (5 yr 6/4) slipped on complete rim, remaining is plain (5 yr 6/4 light reddish brown)/narrow dark reddish A brown band on tip of rim, light reddish brown (5 yr 6/4) slipped on complete rim,	Smoothing with rotation/scraping with rotation	5%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are rounded to subrounded and fine to medium in white, grayish white, gray, and transparent gray; very fine and granular in black colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel=rim, body	Harappan ?	H-XI

							remaining is plain (7.5 yr 8/4) pink									
376	MK 2017 1P 2	Body Sherd	Black slipped	-	-	/thick	Black slipped/plain (brown 7.5 yr 5/2)	Smoothing with rotation on both sides	5%; moderately sorted; fine to medium sandy	A highly calcareous paste. The main inclusions are fine to medium and rounded in yellowish white; sub angular to rounded in gray and whitish gray; rounded to angular and fine to medium in dark green; rounded and fine to medium in brown colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body	Harappan	H-Misc.B S

377	MK 2017 3P 101	Body Sherd	Black slipped	-	-	/thick	Black slipped (5 yr 2.5/1)/plain (2.5 yr 7/6 light red)	Smoothing with rotation on upper body, Smoothing without rotation lower body and base/Smoothing with rotation upper body, without lower body (spatula marks)	5%; well sorted; fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are sub rounded and medium in black; sub rounded to angular and medium in brown; angular to sub rounded in white and yellowish white colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Wheel = body	Harappan	H-Misc.B S
378	MK 2017 3P 63	Body Sherd	Black slipped	-	-	/heavy	5 yr 6/4 light reddish brown/plain (5 yr 5/3 reddish brown)	Smoothing with rotation on both sides	2%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are with fine to medium and rounded to angular in white, gray and yellowish white colors	Few tiny voids; porous	Margins = very dark gley 1 n/3, Core= reddish black 5 yr 5/3	Incompletely oxidized	Wheel = body	Harappan	H-Misc.B S
379	MK 2017 6P 147	Body Sherd	Black slipped	-	-	/thick	Slipped in black color (gley 1 2.5/n)/plain (light brown 6/3)	Smoothing with rotation on both sides	10%; well sorted; very fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are very fine to medium and rounded in black, white to yellowish white and whitish gray colors	Multiple tiny voids; porous	Normal-pink (5 yr 7/3)	Completely oxidized	Wheel = body	Harappan	H-Misc.B S

380	MK 2017 6P 149	Body Sherd	Black slipped	-	-	/thick	Slipped in black color (2.5 yr 2.5/1)/plain (5 yr 7/6 reddish yellow)	Smoothing without rotation upper body, scrapping with rotation on lower body, finishing with spatula/ scrapping with rotation	10%; well sorted;fine to medium sandy	Predominantl y a calcareous paste. The main inclusions are rounded to angular and platy in black and dark green; rounded to sub rounded in white, grayish white; brown, green, and gray colors	Few tiny voids;poro us	Margins = (10 yr 7/4) very pale brown, Core= 7.5 yr 7/6 reddish yellow	Incompletel y or fully oxidized.	Wheel = body	Harappan	H- Misc.B S
381	MK 2017 6P 150	Body Sherd	Black slipped	-	-	Medium/ medium	Slipped in very dark gray color (7.5 yr 3/1)/plain (7.5 yr 6/3 light brown)	Scrapping with rotation, tool or nails, thinning or flattening with spatula/scrapp ing like Smoothing with rotation,nails, Smoothing without rotation, uneven body	3%; well sorted;fine to medium sandy	A mixed type (calcareous+ micaceous) paste. The main inclusions are fine to medium and rounded in brown, greenish gray, and white colors	Few tiny voids;poro us	Light gray (5 y 7/2)	Un-oxidized or reduced	Wheel = body	Harappan	H- Misc.B S

382	MK 2017 1P 17	Body Sherd	Ridged	-	-	/medium	Wide ridged, very pale brown slipped (10 yr 8/4)/plain reddish yellow 5 yr 7/6	Smoothing with rotation, slightly polished/scraping without rotation	3%; moderately sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and rounded to angular in gray, white and brown colors	Few wide voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel= body, ridding with rotation via sharp tool	Harappan ?	H-Misc.B S
383	MK 2017 3P 117	Body Sherd	Contiguous flat base?	/contiguous flat base?	-	/thick	Plain (10 yr 6/4 light yellowish brown)/stamped impression of a tree branch with row of leaves on either side, pale yellow slipped (5 yr 8/3)	Scrapping with rotation on base, remaining smoothed without rotation/Smoothing with rotation	5%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and rounded to angular in brown, green, gray, and white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base	Late Kot Diji/Harappan?	H-Misc.B S
384	MK 2017 6P 121	Body Sherd	Motif, black on red	-	-	/thick	Hatched leaves stalked one above the other, beside lying a vertical twisting/spiral band out lining the stalked leaves in black color (5 yr 2.51) with red slip (10 yr 4/8)in/plain or damaged surface due abrasion? (5 yr 7/6)	Smoothing with rotation on both sides	3%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and angular to rounded in black, brown, gray, and white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = body	Harappan	H-Misc.B S

							reddish yellow)									
385	MK 2017 3P 66	Base Sherd	Non-contiguous flat	/non-contiguous flat	-	Medium/medium	Plain (10 yr 8/4 very pale brown)/plain (7.5 yr 7/4 pink)	Smoothing with rotation upper body/scrapping without rotation	5%; well sorted; fine to medium sandy	A mixed type (calcareous + micaceous) paste. The main inclusions are fine to medium and rounded to angular in black, brown, and white colors	Few tiny voids; porous	Margins = 2.5 yr 5/6 red, Core = gley 1 10 y 7/ light greenish gray	Incompletely oxidized	Wheel = base, attached ring	Harappan	B.H-I
386	MK 2017 3P 69	Base Sherd	Non-contiguous discoid narrow base	/non-contiguous discoid narrow	Oblong	Miniature/thick	Pale yellow slipped (2.5 y/8.5/2)/washed (5 yr 7/6 reddish yellow)	Smoothing with rotation on both sides	1%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in gray, white, and yellowish white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Wheel = base, body	Harappan	B.H-II

387	MK 2017 3P 68	Base Sherd	Non-contiguous discoid, slight extended, narrow, heavy base	/Non-contiguous discoid, slight extended, narrow, heavy base	-	Small/medium	Plain, traces of red slip (2.5 yr 6/6 light red)/plain ((2.5 yr 6/8) light red)	Roughening, irregular surface polished, Smoothing with rotation	10%; well sorted; fine to medium sandy	Predominantly a micaceous paste. The main inclusions are fine to medium and rounded to angular in black, brown, dark green, gray, and white colors	Few tiny voids; porous	Margins = (2.5 yr 6/8) light red, Core = 7.5 yr 6/4 light brown	Incompletely or fully oxidized.	Wheel = base, body	Harappan	B.H-III
388	MK 2017 3P 70	Base Sherd	Non-contiguous discoid, slight extended, narrow, heavy base	/Non-contiguous discoid, slight extended, narrow, heavy base	-	Small/thick	Light slipped in pale yellow color (2.5 yr 8/2)/washed (7.5 yr 8/4 pink)	Burnished, vertical scrapping/burnished, vertical scrapping	3%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in brown, reddish brown, white, and yellowish white colors	Few tiny voids; porous	Normal-light brown (7.5 yr 6/4)	Completely oxidized	Wheel = base, body	Harappan	B.H-III
389	MK 2017 6P 56	Base Sherd	Non-contiguous concave base	/non-contiguous concave	-	Small/thick	Plain, sandy surface (10 yr 6/6 light red)/plain, sandy surface same	Smoothing with rotation on both sides	20%; well sorted; fine to medium sandy	A calcareous paste. The main inclusions are fine to medium and rounded to angular in brown, gray, white, and yellowish white colors	Few tiny voids; porous	Normal-light red (2.5 yr 6/6)	Completely oxidized	Molded = base	Harappan	B.H-IV

390	MK 2017 1P 36 (I)	Base Sherd	Non-contiguous short extended ring base	/non-contiguous short extended ring base		Medium/medium	White slipped (2.5 yr 9.5/2) /plain (2.5 yr 6/8 light red)	Smoothing with rotation on both sides	2%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and rounded to angular in black, gray, and yellowish white colors	Few tiny voids; porous	Margins = 5yr 6/4 light brown, Core= 10 yr 5/1 gray	Incompletely oxidized	Molded =base	Harappan	B.H-V
391	MK 2017 4P 1	Base Sherd	Non-contiguous extended ring base	/non-contiguous ring, extended	-	Medium/medium	One narrow band on top of base-lip in black (5 yr 2.5/1) and red slip on upper body (10 yr 4/6) while pink slip below the band (7.5 yr 7/4)/plain (5 yr 7/4 pink)	Straight, parallel grooving with rotation//Smoothing with rotation	20%; well sorted; fine to medium sandy	A mixed type (calcareous+micaceous) paste. The main inclusions are fine to medium and rounded to angular in brown, gray, reddish brown, white, and yellowish white colors	Few tiny voids; porous	Normal-yellowish red (5 yr 5/6)	Completely oxidized	Molded =base	Harappan	B.H-VI
392	MK 2019 1P 41	Body Sherd	Motif, black on red	-	-	/medium	A bird, might be a peacock or drongo with a hatched body, and a tail and limbs, in black on the red style on the exterior of vessel.	-	-	-	-	Normal	Completely oxidized	Wheel = body	Harappan	H-Misc.B S

393	MK 2017 6P 152	Body Sherd	Black slipped	—	Globular?	/thick	black slip on complete body (gley 1 2.5/n)/plain (2.5 y 6/1 gray)	Scrapping, thinning or flattening with spatula, uneven surface/scrapping with rotation	5%; well sorted; very fine to coarse sandy	A micaceous paste. The main inclusions are very fine to coarse and granular to rounded and sub rounded in black and white colors	Slightly compact	Normal/dark gray (2.5 y 4/1)	Unoxidized or smudged; may also be reduced.	Wheel - body	Harappan	Gray Ware ?
394	MK 2017 1P 3	Rim Sherd	Bowl, black slipped, convex	Complex everted, horizontal channel	Convex	Medium/medium	Pure black slipped/pure black slipped	Smoothing with rotation and polished/Smoothing with rotation	Less than 1%; very well sorted; very fine sandy and silty	A slight calcareous paste. The main inclusions are granular and very fine in yellowish white color	Slightly compact	Normal/greenish gray (gley 1 10 y 6/1)	Un-oxidized or reduced	Wheel-rim, body	Late Kot Dijian/Harappan	Gray Ware Type-I
395	MK 2017 1P 34 (II)	Base Sherd	Bowl, trapezoidal	/very low pedestal; non-contiguous extended ring and concave	Trapezoidal; slightly concave sides	Large/medium	Pure black slipped/pure black slipped	Smoothing with rotation, slightly polished/smoothing with rotation	—	—	Slightly compact	—	Vitrified	Wheel-body, Molded-base	Late Kot Dijian/Harappan	Gray Ware Type-II
396	MK 2017 5P 34	Rim Sherd	DOS; painted, pedestal portion of DOS	Hollow, low pedestal	-	/medium	Black slipped/plain (5 y 6/1 gray)	Smoothing with rotation on both sides	Less than 1%; very well sorted; coarse sandy	A slight calcareous paste. The main inclusions are coarse and rounded in yellowish white color	Slightly compact	Margins = 2.5 y 6/1 gray, Core = 2.5 y 4/1 dark gray	Un-oxidized or reduced	Wheel-rim, upper body	Late Kot Dijian/Harappan	Gray Ware Type-III

397	MK 2017 6P 76	Rim Sherd	DOS; painted, dish portion of DOS	Simple external projected, direct ; plain and round lips/conti guous flat base	Paralle l sided	/thick	Slipped in very dark gray color (10 yr 3/1)/slippe d in same color	Smoothing with rotation/scrap ping like smoothing with rotation, nails	1%; well sorted; very fine to medium	A calcareous paste. The main inclusions are granular to rounded and very fine to medium in yellowish white and gray colors	Multiple medium voids; porous	Normal/ dark gray (2.5 y 4/1)	Un-oxidized or reduced	Wheel- rim, base	Late Kot Dijian/Ha rappan	Gray Ware Type- III
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Appendix-II: The Catalogue of Minor Antiquities from Musa Khel (other than pottery).

(1) Button Seal (Fig. LIX, Pl. XXV b)

Sr.#	Reg.#	Description	Measurements			Context/Phase
			L	W	T	
1	MK 2017 6-1	Fragment of a steatite seal with a carved band of alternating triangles around the margin on obverse and pair of urial/antelope with their heads in opposite direction carved on the reverse. It is white in appearance due to high firing and a lengthwise hole with remains of copper wire for hanging purpose is preserved.	19.10	9.85	3.72	Area 6/Early Harappan-Kot Diji phase

(2) Beads (Fig. LX, Pl. XXVI a)

S.#	Type	Reg.#	Description	Measurements			Context/Phase
				Hole Dia.	Dia.	H	
1	Serpentine bead	MK 2017 4-1	It is dark green in color with white bands and complete. Shape = barrel, plan = lenticular or circular.	3.33	11.13 mean, 7.60 extreme	29.49	Area 4, Harappan
2	Serpentine bead	MK 2017 6-2	It is black in color with filled red spots. Broken, Shape = barrel, plan = lenticular or circular.	4.12 pole, 3 at middle	13.70 at the mean, 7.83 at extreme	23.20	Area 6, Harappan
3	Limestone bead	MK 2017 3-70	Broken, Shape = barrel, plan = lenticular or circular	3.13 at the middle, 2.52 at the pole	10.71 at the mean, 7.10 at extreme	20.87	Area 3, Harappan
4	Steatite disc bead	MK 2017 7-1	Shape = disc, plan = circular, two beads attached /stick together,	2.87	10.25	2.32 of both beads, 1.03 of	Area/Early Harappan-Kot Diji phase

			white in color, indicating fired at high temperature during the manufacturing process. Beads are complete and fragile in condition. Parallel, regular and fine striations as a result of cutting with some saw-like tool.			a single bead	
5	Steatite disc bead	MK 2019 8-1	Shape = disc, plan = circular, white in color, indicating fired at high temperature during the manufacturing process. Bead is complete and slightly fragile, marks of cracks, and a mixture of parallel and irregular sharp striations as a result of cutting with toothed copper saw.	3	10	2.5 to 4.5	Area 8, Harappan

(3) Chert Blades (Fig. LXI-LXIII, Pl. XVI b)

S. #	Reg.#	Description	Measurements			Context/ Phase
			L	W	T	
1	MK 2017 6-15	A light gray chert blade with intact cortex on vertical side and other side is broad fine (semi- abrupt) retouched. It has a plain butt and trapezoidal transverse section at the distal end and butt end.	25.03	11.21	3.68	Area 6/ Early Harappan
2	MK 2017 2-10	A dark gray chert blade with both sides fine retouched (direct), plain butt and a triangular transverse section on butt side while trapezoidal transverse section on the distal end.	19.78	13.16	2.89	Area 2/ Early Harappan
3	MK 2017 5-2	A gray chert blade with both sides slightly retouched (fine and direct). It has a broken butt with a triangular transverse section on both ends.	25.66	15.46	5.07	Area 5/ Early Harappan

4	MK 2017 3-52	A dark gray chert blade with direct and fine retouch on both sides. It has a short butt and triangular transverse section on the distal end while the trapezoidal transverse section on the butt end.	24.57	15.28	4.94	Area 3/ Early Harappan
5	MK 2017 5-1	A light brown chert blade with one side treated with notch type retouching and other side is broad-fine retouched (semi-abrupt and alternating retouch). It has a short butt/broken butt and triangular transverse section on both ends.	49.99	22.23	5.57	Area 5/ Early Harappan
6	MK 2017 7-9	A gray chert blade, with direct and fine retouch application on one side. It has a short/broken butt and triangular transverse section on distal end while the trapezoidal transverse section on the butt end.	28.89	11.29	3.27	Area 7/ Early Harappan
7	MK 2017 1-1	A dark gray chert blade with intact pebble cortex on vertical side, found with retouch application. It has a triangular transverse section on both ends.	24.80	8.92	2.61	Area 1/ Harappan
8	MK 2017 3-55	A gray chert blade, found with fine and direct retouch application on both sides. It has a broken butt and triangular transverse section on distal end while the trapezoidal transverse section on the butt end.	37.85	17.95	3.35	Area 3/ Early Harappan
9	MK 2017 7-8	A dark gray chert blade with both sides is treated with semi-abrupt to alternating retouch application. The butt side has intact cortex and has triangular transverse section on both ends.	65.99	23.50	6.47	Area 7/ Early Harappan
10	MK 2017 3-44	A dark gray chert blade with fine and direct retouch application on both sides and both ends are broken with trapezoidal transverse sections.	13.18	15.06	3.74	Area 3/ Early Harappan
11	MK 2017 6-16	A dark gray chert blade with both sides fine and direct retouched. Pebble cortex is intact on the distal end while butt end is broken. The trapezoidal transverse section on the butt end	47.52	22.15	5.55	Area 6/ Early Harappan
12	MK 2017 6-14	A whitish chert blade without retouch application. It has a broken butt while both ends have the trapezoidal transverse section.	28.08	10.04	4.14	Area 6/ Early Harappan
13	MK 2017 3-50	A dark gray chert blade with fine and direct retouch application on both sides with intact cortex on butt side and has triangular transverse sections on both ends.	42.07	15.05	2.92	Area 3/ Early Harappan
14	MK 2017 6-12	A gray chert blade with intact cortex on the vertical side. It has a fine and direct retouch application on both sides. The butt end is broken with the triangular section while it is the square on the distal end.	35.99	16.59	3.16	Area 6/ Early Harappan
15	MK 2017 3-66	A thick and gray chert blade with alternate fine to flat indirect retouch on both sides. It has trapezoidal transverse section at both ends.	49.21	11.41	7.14	Area 3/ Early Harappan

16	MK-2017-6-13	A dark gray chert blade with intact cortex and fine to direct retouch application on both sides. It has a broken butt with triangular transverse section at both ends.	28.09	16.16	5.30	Area 6/ Early Harappan
17	MK-2017-6-3	A complete gray chert blade with fine and direct retouch application on both sides. It has a faceted butt, the trapezoidal transverse section while triangular section on the distal end.	52.40	21.80	4.82	Area 6/ Early Harappan
18	MK-2017-3-45	A dark gray chert blade with fine and direct retouch application on both sides. It has a broken butt with the trapezoidal transverse section while triangular transverse section on the distal end.	-	-	-	Area 3/ Early Harappan
19	MK-2017-3-65	A pinkish white chert blade with direct and fine retouching on one side. It has a plain butt with the trapezoidal transverse section while triangular transverse section on the distal end.	34.09	10.96	4.74	Area 3/ Early Harappan
20	MK-2017-4-3	A dark gray chert blade with direct and fine retouching on one side. It has a plain butt with rectangular transverse section while distal end is broken with trapezoidal transverse section.	22.06	8.47	2.98	Area 4/ Early Harappan/ Early Harappan
21	MK-2017-3-60	A light brown chert blade without retouch application. The cortex is intact on vertical/dorsal side. It has a broken butt with trapezoidal transverse section.	25.27	10.54	4.10	Area 3/ Early Harappan
22	MK-2017-3-58	A black and white mixed type chert blade with direct and fine retouching on both sides. It has a faceted butt with trapezoidal transverse section while distal end is broken with the triangular transverse section. It has exceptionally glossy surface.	15.14	15.32	4.99	Area 3/ Early Harappan
23	MK-2017-3-61	A light gray chert blade intact cortex on vertical/dorsal side with direct and fine retouching on one side. It has a broken butt with the trapezoidal transverse section while the distal end has rectangular transverse section.	17.42	18.22	3.14	Area 3/ Early Harappan
24	MK-2017-3-57	A chert blade with light brown to chocolate, wide and vertical bands and found treated without retouch application. It has a plain butt with the triangular transverse section while rectangular transverse section on the distal end. It has also exceptionally shiny and glossy surface.	32.89	11.98	3.58	Area 3/ Early Harappan
25	MK-2017-3-47	A gray chert blade with direct and fine retouching on both sides. It has a faceted butt with the triangular transverse section while trapezoidal transverse section on the distal end.	41.67	14.15	4.81	Area 3/ Early Harappan
26	MK-2017-3-53	A dark gray chert blade with direct and fine retouching on one side with intact cortex on butt end. It has a triangular transverse section on both ends.	20.54	7.31	2.93	Area 3/ Early Harappan

27	MK-2017 1-2	A dark gray chert blade with alternate and broad-fine (semi-abrupt) retouching on both sides. It has a broken butt with the trapezoidal transverse section while triangular transverse section on the distal end.	25.22	12.54	4.60	Area 1/Harappan?
28	MK-2017 3-56	A gray chert blade with indirect and fine retouching on one side with a plain butt and triangular transverse section on both ends.	35.33	16.59	2.98	Area 3/ Early Harappan
29	MK-2017 3-51	A gray chert blade with direct and fine retouching on one side with faceted butt and the triangular transverse section on both ends.	48.08	11.54	2.91	Area 3/ Early Harappan
30	MK-2017 6-17	A dark brown chert blade with fine retouching on one side. It has a broken butt with the trapezoidal transverse section while the triangular transverse section on the distal end.	18.22	10.32	2.57	Area 6/ Early Harappan
31	MK-2017 2-9	A white and gray mixed type chert blade with direct and fine retouching on both sides. Both ends are broken with trapezoidal transverse sections.	32.32	13.62	2.64	Area 2/ Early Harappan
32	MK-2017 3-54	A gray chert blade with direct and fine retouching on both sides. It has a faceted butt with the triangular transverse section and pointed distal end.	44.51	12.65	2.19	Area 3/ Early Harappan
33	MK-2017 3-48	A gray chert blade with direct and fine retouching on both sides. It has a broken butt with a triangular transverse section on both ends.	22.89	9.58	2.75	Area 3/ Early Harappan
34	MK-2017 5-3	A light pinkish white chert blade with direct and fine retouching on both sides. It has a faceted butt with the trapezoidal transverse section and broken distal end with triangular transverse section.	32.91	12.20	2.09	Area 5/ Early Harappan
35	MK-2017 3-49	A gray chert blade with direct and fine retouching on both sides. It has a faceted butt with triangular transverse sections on ends.	51.26	20.87	6.40	Area 3/ Early Harappan
36	MK-2017 3-62	A white chert blade with direct and fine retouching on both sides. Both ends are broken with triangular transverse sections.	25.20	9.57	3.04	Area 3/ Early Harappan
37	MK-2017 3-46	A gray chert blade with direct and fine retouching on both sides. It has a faceted butt with the trapezoidal transverse section and triangular transverse section on the distal end.	38.76	17.00	3.73	Area 3/ Early Harappan

(4) Chert Cores (Fig. LXIV, Pl. XXVII a)

S.#	Reg.#	Description	Measurements		Context/ Phase
			L	W	
1	MK 2017 6- 25	A dark gray chert trimming blade core with intact pebble cortex. It has found with smooth edges and irregular negative scars of removed blades.	33.76	11.8 0	Area 6, Early Harappan

2	MK 2017 3- 23	A dark gray chert blade core with regular and parallel negative scars of removed blades. It is found with intact pebble cortex. Striking platform is damaged while the distal end is tapering and has ovoid transverse section at the butt end.	23	3.93	Area 3, Early Harappan
3	MK 2017 4-2	A dark gray chert blade core with intact pebble cortex. The edges are smoothed and found with regular negative scars of removed blades. The distal end is damaged with an ovoid transverse section.	15.18	7.27	Area 4, Early Harappan
4	MK 2017 2-7	A dark gray chert blade core with intact pebble cortex and smooth edges. It also has regular negative scars of removed blades. The distal end is missing with an ovoid transverse section.	24.56	15.1 5	Area 2, Early Harappan
5	MK 2017 3- 26	A dark gray chert blade core with intact pebble cortex, smooth edges, regular negative scars of removed blades, the distal end is missing, an ovoid transverse section at the distal end	22.51	16.1 0	Area 3, Early Harappan
6	MK 2017 6- 20	A tan-gray chert small blade core with intact pebble cortex, smooth edges and regular negative scars of removed blades. The distal end is missing with flattened ovoid transverse section.	17.53	15.7 1	Area 6, Early Harappan
7	MK 2017 6- 24	A complete gray chert small asymmetrical flake core with intact pebble cortex, smooth edges and irregular negative scars of removed flakes.	32.88	29.4 0	Area 6, Early Harappan
8	MK 2017 6- 23	A complete gray chert asymmetrical small flake core with intact pebble cortex, rough edges and irregular negative scars of removed flakes.	45.90	33.5 5	Area 6, Early Harappan
9	MK 2017 3- 75	A gray chert small blade core with white grains and negative scars of thin blades. The butt end is damaged with rounded transverse section at both ends.	15.76	6.19	Area 3, Early Harappan
10	MK 2017 3- 27	A dark gray chert small blade core with negative scars of thin blades. The butt end is damaged with rounded transverse section at the butt end while preserved distal end has a triangular transverse section.	26.25	7.75	Area 3, Early Harappan
11	MK 2017 3- 24	A dark gray chert small blade core with negative scars of small and thin blades. The butt end is damaged with rounded flattened transverse section and tapering towards distal end.	22.52	12.0 4	Area 3, Early Harappan
12	MK 2017 3- 22	A dark gray chert blade core of small-medium size. It has irregular negative scars of blades and butt end is damaged with a triangular transverse section at the butt end.	30.11	19.1 9	Area 3, Early Harappan
13	MK 2017 6- 19	A dark gray chert blade core, symmetrical in shape with negative scars of regular thin blades. The butt end is damaged with flattened round transverse section at the butt end while distal end is pointed.	24.20	6.37	Area 6, Early Harappan
14	MK 2017 3- 25	A dark gray chert blade core with regular negative scars of thin blades. The butt end is preserved with pebble cortex while distal end is damaged.	18.74	16.1 4	Area 3, Early Harappan

15	MK 2017 2-8	A tan-gray small-medium chert blade core with negative scars of thin blades. The distal end is damaged and butt end is preserved with intact pebble cortex.	37.01	16.4 3	Area 2, Early Harappan
16	MK 2017 3- 29	A gray chert blade core with negative scars of thin blades. The distal end is damaged while butt end is preserved with intact pebble cortex and rounded transverse section.	17.36	16.3 7	Area 3, Early Harappan
17	MK 2017 3- 28	A gray chert small blade core with negative scars of thin blades or flakes. It has a flattened round transverse section at the butt end.	19.93	10.7 5	Area 3, Early Harappan
18	MK 2017 3-59	A tan-brown asymmetrical chert flake core with irregular negative scars and roughened edges.	-	-	Area 3, Early Harappan

(5) Chert Flakes (Pl. XXVIII a)

Sr.#	Reg.#	Description	Context/Phase
1	MK 2017 3-36	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
2	MK 2017 3-37	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
3	MK 2017 3-38	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
4	MK 2017 3-39	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
5	MK 2017 3-40	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
6	MK 2017 3-41	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
7	MK 2017 3-42	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
8	MK 2017 3-43	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
9	MK 2017 7-10	A gray chert primary flake with intact pebble cortex.	Area 7, Harappan?
10	MK 2017 4-4	A gray chert primary flake with intact pebble cortex and treated with retouched application.	Area 4, Early Harappan
11	MK 2017 4-7	A tan-gray chert secondary flake with intact pebble cortex and treated with retouched application.	Area 4, Early Harappan

12	MK 2017 7-12	A gray chert primary flake with intact pebble cortex.	Area 7, Harappan
13	MK 2017 6-26	A dark gray chert primary flake with intact pebble cortex.	Area 6, Early Harappan
14	MK 2017 4-5	A dark gray chert primary flake with intact pebble cortex and treated with retouched application.	Area 4, Early Harappan
15	MK 2017 1-4	A gray chert primary flake with intact pebble cortex.	Area 1, Harappan
16	MK 2017 3-63	A gray chert secondary flake and treated with retouched application.	Area 3, Early Harappan
17	MK 2017 6-18	A dark gray chert primary flake with intact pebble cortex.	Area 6, Early Harappan
18	MK 2017 3-30	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
19	MK 2017 3-31	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
20	MK 2017 3-32	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
21	MK 2017 3-33	A dark gray chert primary flake with intact pebble cortex.	Area 3, Early Harappan
22	MK 2017 2-12	A dark gray chert secondary flake with signs heat spalla.	Area 2, Early Harappan
23	MK 2017 6-22	A dark gray chert secondary flake.	Area 6, Early Harappan
24	MK 2017 7-13	A dark gray chert primary flake with intact pebble cortex.	Area 7, Harappan
25	MK 2017 2-11	A gray chert primary flake with intact pebble cortex on vertical side.	Area 2, Early Harappan
26	MK 2017 7-11	A gray chert primary flake with intact pebble cortex on vertical side.	Area 7, Harappan
27	MK 2017 6-21	A gray chert primary flake with intact pebble cortex.	Area 6, Early Harappan
28	MK 2017 3-35	A dark brown chert flake with signs of platform rejuvenation.	Area 3, Early Harappan
29	MK 2017 3-64	A tan-gray chert secondary flake with retouch application might be broken blade.	Area 3, Early Harappan
30	MK 2017 1-3	A dark gray chert chunk	Area 1/Harappan?

(6) Chert Nodules (Pl. XXVII b, XXVIII b)

Sr.#	Reg.#	Description	Context/Phase
1	MK 2017 3-34	A gray chert nodule in fragmental and chipped state with intact pebble cortex.	Area 3/ Early Harappan
2	MK 2017 2-18	A gray chert nodule in fragmental and chipped state with intact pebble cortex.	Area 2/ Early Harappan
3	MK 2017 3-21	A gray chert nodule in fragmental and chipped state with intact pebble cortex.	Area 3/ Early Harappan
4	MK 2017 1-15	A tan-brown chert nodule in fragmental and chipped state with intact pebble cortex.	Area 1/Harappan

(7) Stone Ball/Weight (Fig. LXV, Pl. XXIX a)

S. #	Reg.#	Description	Measurements	Context/Phase
			Mean Dia.	
1	MK 2017 3-68	A reddish-brown lime stone ball with remains of pebble cortex.	20.52	Area 3, Early Harappan-Kot Diji phase

(8) Pestle and Grinding Slabs (Pl. XIX b)

S. #	Type	Reg.#	Description	Measurements			Context
				Long axis	Short axis	Int. axes	
1	Pestle?	MK 17-7.GS.1	Fragment of pounding stone with a preserved lengthy piece, made of blackish-brown sandstone. It is cylindrical in shape with slightly concave one side with consecutive striking marks. Margins are struck and damaged.	139.46	30.42	62.98	Area 7, Harappan
2	Grinding Slab	MK 17-1.GS 2	A very small fragment in white color lime stone with dark brown dots. It has a concave and smoothed surface while the dorsal surface is roughened.	70.16	35.44	69.41	Area 1, Harappan
3	Grinding Slab	MK 17-1.GS 3	More than half is preserved, made of yellowish white porous lime stone (kanjur stone),	161	50.60	139.93	Area 1, Harappan

			the concave side is slightly smoothed while convex side or lower side is flattened.				
4	Grinding Slab	MK 17-1.GS 4	Lengthwise sides are slightly damaged and made of light reddish lime stone. The concave side is broken with slight pounding marks. Plan = rectangular, section = rectangular.	314.1	62.12	151.23	Area 1, Harappan

(9) The Stone Craft Debitage

S.#	Type of Stone	Reg.#	Description	Context
4	Basalt Stone	MK-2017 1-5	Fragment of dark greenish gray color basalt stone.	Area 1/Harappan?
5	Basalt Stone	MK-2017 1-6	Fragment of dark greenish gray color basalt stone.	Area 1/Harappan?
7	Basalt Stone	MK 2017 6-28	Fragment of light green color basalt stone.	Area 6, Early Harappan
8	Hammer Stone	MK 2017 1-16	Fragment of light green color eroded hammer stone.	Area 1/Harappan?
9	Gabbro Stone	MK 2017 2-13	An eroded fragment of white colored gabbro stone with dark greenish spots.	Area 2, Early Harappan
10	Lime Stone	MK 2017 2-5	A nodule fragment of lime stone with a reddish color and white veins.	Area 2, Early Harappan
11	Lime Stone	MK 2017 2-3	A reddish color lime stone chunk.	Area 2, Early Harappan
12	Lime Stone	MK-2017 3-72	A nodule fragment of orange color lime stone.	Area 3, Early Harappan
13	Lime Stone	MK-2017 3-69	A reddish color lime stone chunk with gray band.	Area 3, Early Harappan
14	Lime Stone	MK 2017 1-10	A reddish color lime stone flake with white veins.	Area 1/Harappan?
15	Lime Stone	MK 2017 1-7	A reddish color lime stone flake.	Area 1/Harappan?
16	Silt Stone	MK 2017 6-29	A fragment of light green color silt stone.	Area 6, Early Harappan
17	Alabaster Stone	MK-2017 3-74	An eroded nodule of pinkish color alabaster stone	Area 3, Early Harappan
18	Serpentine Stone	MK 2017 2-1	A light green colored serpentine stone flake with white veins and black grains.	Area 2, Harappan?
21	Serpentine Stone	MK 2017 2-2	A light green colored serpentine stone flake with white veins and black grains.	Area 2, Harappan?

22	Banded chert stone	MK 2017 2-6	A fragment of white chert stone with dark gray bands might be a bead rough out. It is rectangular in shape. It is executed with very minute working on shaping the stone for making a bead. No other specific marks of manufacturing stages are visible on the rough out.	Area 2, Early Harappan
23	Lapis Lazuli stone	MK 2019 6-1	A dark blue colored lapis lazuli stone flake with white veins	Area 6, Harappan?

(10) The Shell Crafts (Fig. LXX, Pl. XXXIII c)

S.#	Reg.#	Description	Measurements		Context
			H	T	
1	MK 2017 7-2	A fragment of conch shell bangle which is not entirely circular and has a ledged border. It has a triangular transverse section.	26.68	0 to 2.25	Area 7, Harappan?
2	MK 2017 3-7	A fragment of conch shell bangle with more than 50 % of preserved portion with oblong section.	17.69	0-9.19	Area 3, Early Harappan- Kot Diji phase

(11) Terracotta Figurines (Fig. LXV, Pl. XIV a)

S.#	Type	Reg.#	Description	Measurements				Context
				H	L	W	T	
1	Female figurine	MK 2017 3-19	A fragment of seated female figurine with pointed legs and plain surface. The margins are damaged and proper fired to yellowish red ware.	30.5 0	43.7 3	17.52	9.11- 16.16	Area 3, Early Harappan- Kot Diji phase
2	Female figurine	MK 2017 4-8	A fragment of a seated female figurine with a broad buttock like upside down cobra head in red-ware.	35.5 0	42.2 8		7.79	Area 4/ Early Harappan- Kot Diji phase
3	Animal figurine	MK 2017 3-18	A fragment of seated bird figurine with gray core and plain surface.	24.0 7	42.2 7	31.78		Area 3, Early Harappan- Kot Diji phase

4	Animal figurine	MK 2017 2-17	A fragment of f some animal figurine, probably forelimb of an elephant with cracks and gray core.	16.06	10.90			Area 2, Early Harappan-Kot Diji phase
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(12) Terracotta Bangles (Fig. LXVI-LXIX, Pl. XXXIV b- XXXV a)

S. #	Type	Reg.#	Description	Measurement		Context
					H	
1	tetra strand gray ware bangle	MK 2017 3-2	A fragment of tetra strands gray ware terracotta bangle. Each strand ha rounded section.	13.73,3.63	each	Area 3, Early Harappan
2	triple-strand gray ware bangle	MK 2017 3-3	A fragment of the triple-strand gray ware terracotta bangle with round and square sections and series of oblique strokes on exterior side of one strand.	9.39,3.57	each	Area 3, Early Harappan
3	triple-strand gray ware bangle	MK 2017 3-4	A fragment of the triple-strand gray ware terracotta bangle. It has pre-fired series of diagonal strokes on exterior of all round to flatten sectioned strands.	10.05,3.81	each	Area 3, Early Harappan
4	triple-strand gray ware bangle	MK 20193-1	A fragment of the triple-strand gray ware terracotta bangle with a pre-fired series of diagonal strokes on exterior of round to flatten sectioned strands.	13,4.3	each	Area 3, Early Harappan
5	Triple strand gray ware bangle	MK 2017 5-4	A fragment of a triple strand gray ware terracotta bangle with a series of vertical strokes on exterior side.	-		Area 5, Early Harappan
6	Double strand gray ware bangle	MK 2017 3-6	A fragment of the double strand gray ware terracotta bangle with pre-fired series of slightly diagonal strokes on exterior of all strands.	7.56,3.79	each	Area 3, Early Harappan
7	Double strand gray ware bangle	MK 2017 3-7	A fragment of a double strand, gray ware terracotta bangle with a round section.	8.81,4.75	each	Area 3, Early Harappan
8	Double strand gray ware bangle	MK 2017 3-8	A fragment of a double strand, gray ware terracotta bangle with few pre-fired diagonal strokes on exterior of all strands. All the strands are round sectioned.	7.74,4.07		Area 3, Early Harappan
9	Single strand gray ware bangle	MK 2017 3-9	A fragment of a single strand, gray ware terracotta bangle with round section.	4.67		Area 3, Early Harappan

10	Double strand gray ware bangle	MK 2017 3-10	A fragment of the double strand, gray ware terracotta bangle with a series of oblique strokes and round section.	8.28,4.23 each	Area 3, Early Harappan
11	Single strand gray ware bangle	MK 2017 3-11	A fragment of single strand gray ware bangle. It is deformed and has rounded to square section.	5.36	Area 3, Early Harappan
12	Single strand gray ware bangle	MK 2017 3-12	A fragment of single strand, gray ware bangle with a rounded square section.	5.31	Area 3, Early Harappan
13	Single strand gray ware bangle	MK 2017 3-13	A fragment of single strand terracotta bangle, flattened in shape and rectangular sectioned.	6.14	Area 3, Early Harappan
14	Single strand gray ware bangle	MK 2017 3-14	A fragment of single strand terracotta bangle, with four grooves exterior and whitish surface with rectangular section.	6.64	Area 3, Early Harappan
15	Single strand gray ware bangle	MK 2017 3-15	A fragment of single strand terracotta bangle with a series of slight oblique strokes.	4.02	Area 3, Early Harappan
16	Single strand gray ware bangle	MK 2017 3-17	A fragment of a single strand gray ware terracotta bangle with a rounded square section.	4.56	Area 3, Early Harappan
17	Single strand gray ware bangle	MK 2017 2-14	A fragment of a single strand terracotta bangle with oval section and whitish in color.	6.85, width 9.50	Area 2, Early Harappan
18	Single strand gray ware bangle	MK 2017 2-15	A fragment of single strand, gray ware terracotta bangle with a flattened square section.	4.07	Area 2, Early Harappan
19	Single strand gray ware bangle	MK 2017 2-16	A fragment of single strand, gray ware terracotta bangle with flattened square sectioned.	4.05	Area 2, Early Harappan
20	Single strand gray ware bangle	MK 2017 6-5	A fragment of a single strand gray ware terracotta bangle with a rectangular section.	6.27	Area 6, Early Harappan
21	Single strand gray ware bangle	MK 2017 6-6	A fragment of the single strand gray ware terracotta bangle with round section.	4.81	Area 6, Early Harappan
22	Single strand gray ware bangle	MK 2017 6-7	A fragment of single strand gray ware terracotta bangle with flat to round section.	5.98	Area 6, Early Harappan
23	Single strand gray ware bangle	MK 2017 6-8	A fragment of a single strand gray ware terracotta bangle, square sectioned with a series of oblique strokes and polished or slipped surface.	4.19	Area 6, Early Harappan
24	Single strand gray ware bangle	MK 2017 6-9	A fragment of single strand gray ware terracotta bangle with square type section.	6.33	Area 6, Early Harappan

25	Single strand gray ware bangle	MK 2017 6-10	A fragment of single strand gray ware terracotta bangle, flat exterior and round interior section.	5.88	Area 6, Early Harappan
26	Single strand gray ware bangle	MK 2017 6-11	A fragment of a single strand gray ware terracotta bangle round section.	4.09	Area 6, Early Harappan
27	Single strand gray ware bangle	MK 2017 3-5	A fragment of the single strand, gray ware terracotta bangle with square section.	6.05	Area 3, Early Harappan
28	Single strand gray ware bangle	MK 2017 1-14	A fragment of a single strand gray ware bangle with round section.	4.36	Area 1, Early Harappan
29	Single strand gray ware bangle	MK 2017 7-3	A fragment of a single strand terracotta bangle with a series of oblique strokes, in alternate style and has flattened to rectangular sections.	7.52	Area 7, Early Harappan
30	Single strand gray ware bangle	MK 2017 7-4	A fragment of a single strand terracotta bangle with oblique strokes and flattened round section.	4.77	Area 7, Early Harappan
31	Single strand gray ware bangle	MK 2017 7-5	A fragment of a single strand gray ware bangle with a flattened to rectangular section.	6.31	Area 7, Early Harappan
32	Single strand gray ware bangle	MK 2017 7-6	A fragment of a single strand terracotta bangle, flattened square section, with a series of oblique strokes.	4.99	Area 7, Early Harappan
33	Single strand red ware bangle	MK 2017 3-20	A fragment of single strand terracotta bangle, plain surface, yellowish red paste, black and white inclusions, and circular sectioned.	13.23	Area 3, Early Harappan
34	Single strand red ware bangle	MK 2017 4-6	A fragment of a single strand red terracotta bangle with a round section and yellowish-red ware.	7.86	Area 4/ Early Harappan,
35	Single strand red ware bangle	MK 2017 6-4	A fragment of a single strand red terracotta bangle, roughly sprinkled red slip, calcium carbonate spalls on surface.	7.74	Area 4/ Early Harappan,
36	Single strand red ware bangle	MK 2017 5-5	A fragment of single strand red ware terracotta bangle with round section.	9.12	Area 5, Early Harappan
37	Single strand red ware bangle	MK 2017 5-6	A fragment of a single strand red ware terracotta bangle with a round section.	8.84	Area 5, Early Harappan
38	Single strand red ware bangle	MK 2017 5-7	A fragment of a single strand red ware terracotta bangle with a round section.	8.90	Area 5, Early Harappan

39	Single strand red ware bangle	MK 2017 7-7	A fragment of a single strand red ware terracotta bangle with oval section.	6.05	Area 7, Harappan?
40	Single strand red ware bangle	MK 2017 3-20	A fragment of single strand terracotta bangle with plain and yellowish red surface and circular section.	13.23	Area 3, Early Harappan
41	Single strand red ware bangle	MK 2017 3-16	A fragment of single strand burnt red, oval sectioned.	6.93	Area 3, Early Harappan
42	Single strand red ware bangle	MK 2017 1-11	A fragment of a single-strand bangle, light gray core, round section,	8.57	Area 1, Harappan
43	Single strand red ware bangle	MK 2017 1-12	A fragment of the single-strand bangle, round section, iron rust like weathered surface.	8.45	Area 1, Harappan
44	Single strand red ware bangle	MK 2017 1-13	A fragment of the single-strand bangle, brown slipped on half side of the strand, varied thickness, round sectioned.	8.60	Area 1, Harappan

(13) Terracotta Toy Cart Wheel

S.#	Type	Reg.#	Description	Measurements			Context
				Hole Dia	Radius	H.	
1	Terracotta wheel	MK 2017 3-73	A fragment of miniature terracotta cart wheel. The hub is preserved while edges are damaged. It is plain and little sandy in texture. It is properly baked to yellowish-red ware.	5.28	22	14.97 at the hub, 7.38 at the edge	Area 3, Early Harappan Kot Diji phase

(14) Terracotta Trapezoidal Brick (Pl. XXXV b)

S.#	Type	Reg.#	Description	Measurement			Context
				L	W	T	
1	Wedge d terracotta brick	MK 2017 Br.1	Trapezoidal or wedged brick, the width of one side slightly lesser than other. It has a yellowish-red surface and red fired core. The yellowish white grits are visible in the section. It also shows hand swapping	261	150-115	64.69	Area 1/Harappan

			impressions on one side and the edges are found finished roughly.				
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(15) Terracotta Cakes and Ball (XXXVI a)

S. No	Type	Reg. No	Description	Measurements			Context/ Phase
				L	W	T	
1	Triangular Terracotta Cake	MK-2017 -TC.1	Plan = triangular, section = flat rectangular. 90-95 % portion is preserved and surface is stone-hard. The surface is flat surface and core reduced to blackish in color.	95.0 1	95.77	22.08	Area 1/Harappan
2	Oblong Terracotta Cake	MK-2017- TC.2	Plain = oblong, section = oblong. It is restored and has hand and pinch impressions on the surface. The cracks have been developed on the surface. They are blackish due to direct firing and reduced to blackish core. Polar edges are slightly damaged.	130. 10	83.56	40.84	Area 1/Harappan
3	Oblong Terracotta Cake	MK-2017 -TC.3	Plain = oblong, section = oblong. One side is damaged and there are three smooth and oblique stocks or incised lines on one side and two on another side. It also has slight hand and finger pinching impressions with blackish core.	130. 25	80.90	46.82	Area 1/Harappan
4	Triangular Terracotta Cake	MK-2017 -TC.4	Plan = triangular, section = flat rectangular. Less than 50 percent is preserved. It has a flat surface and properly fired.	55.7 3	80.25	19.93	Area 1/Harappan
5	Triangular Terracotta Cake	MK-2017 TC.5	Plan = triangular, section = flat rectangular. Less than 50 percent is preserved. It has a flat surface and properly fired.	64.1 6	73.72	24.27	Area 1/Harappan

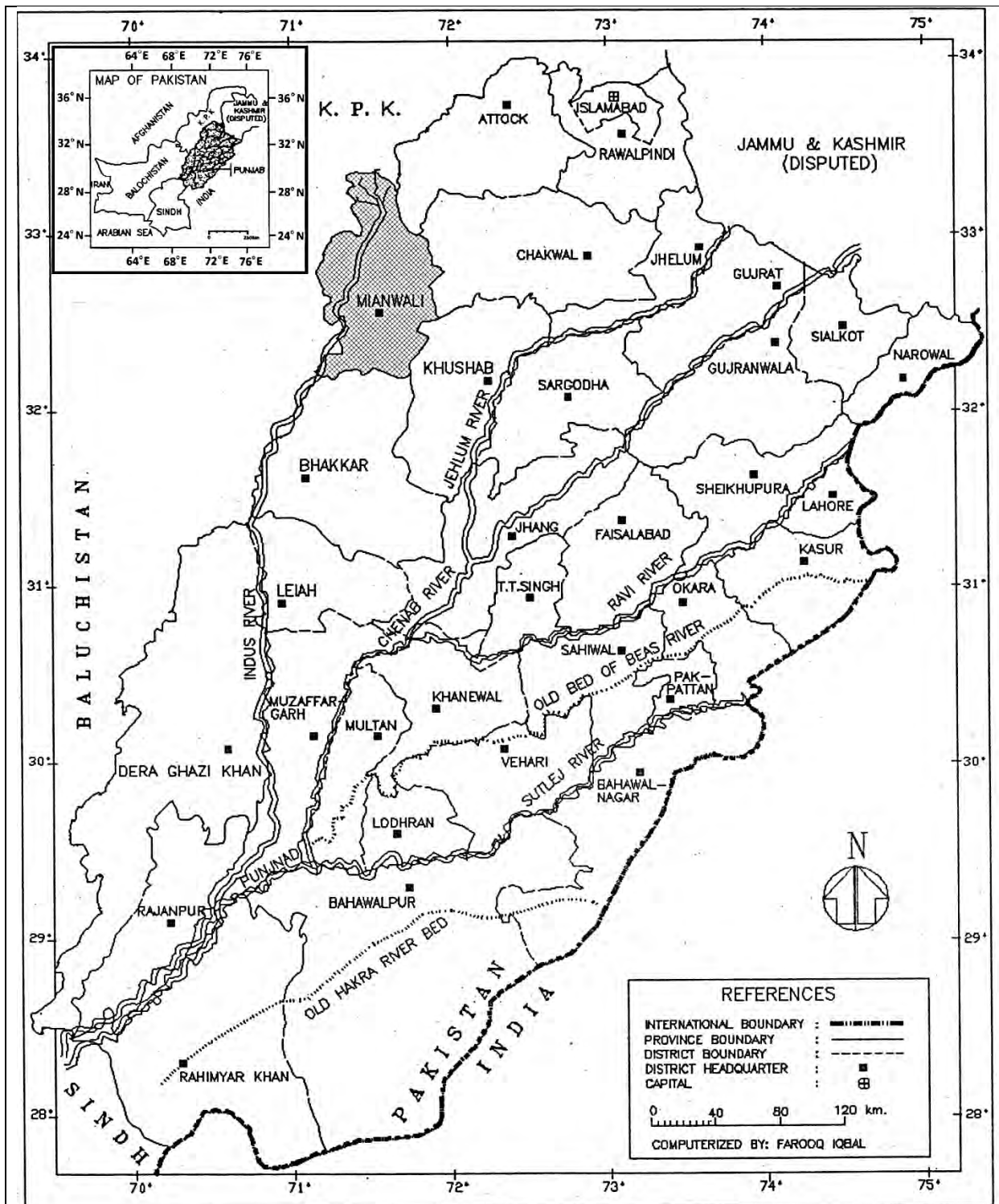
6	Triangular Terracotta Cake	MK-2017 TC.6	Plan = triangular, section = flat rectangular. Less than 25 percent is preserved with flat surface. It is improperly fired and reduced to blackish core with cracks developed on surface.	52.7 1	61.82	23.86	Area 1/Harappan
7	Terracotta Ball	MK-2017 ? -TC.7	A hand-modeled terracotta ball with incised lines of straw impression.	57.4 4	65.33	-	Area 1/Harappan
8	Triangular Terracotta Cake	MK-2017 Area 3- TC.1	Plan = triangular, section = flat rectangular. Less than 25 percent is preserved and smoothly made. It has a flat surface with one whitish surface. It is stone-hard, improperly fired and reduced to blackish core.	54.7 5	75.07	19.85	Area 3/Harappan
9	Oblong Terracotta Cake	MK-2017 Area 5- TC.2	Plain = oblong, section = oblong. One side is damaged, crude shape with prominent hand and finger pinching impressions. The core is blackish and improperly baked. It has straw marks and cracks developed on surface.	70.5 6	72.10	43.36	Area 1/Harappan
10	Triangular Terracotta Cake	MK-2017 Area 5- TC.1	Plan = triangular, section = flat rectangular. Less than 40 percent is preserved, stone-hard, improperly fired and the core is blackish.	31.7 2	80.61	21.68	Area 1/Harappan
11	Triangular Terracotta Cake	MK-2017 TC.8	Plan = triangular, section = flat rectangular. Flat and stone-hard surface. It is improperly fired and core is reduced, blackish in color.	30.8 8	37.40	20.67	Area 1/Harappan
12	Triangular Terracotta Cake	MK-2017 TC.9	Plan = triangular, section = flat rectangular. Less than 10 percent is preserved with flat and stone-hard surface. It is improperly fired with blackish core.	36.3 9	29.33	23.52	Area 1/Harappan

13	Triangular Terracotta Cake	MK-2017 TC.10	Plan = triangular, section = flat rectangular. It has a smooth flat and stone-hard surface. It is improperly fired and core is reduced to black color.	43.2 8	25.79	10.52	Area 1/Harappan
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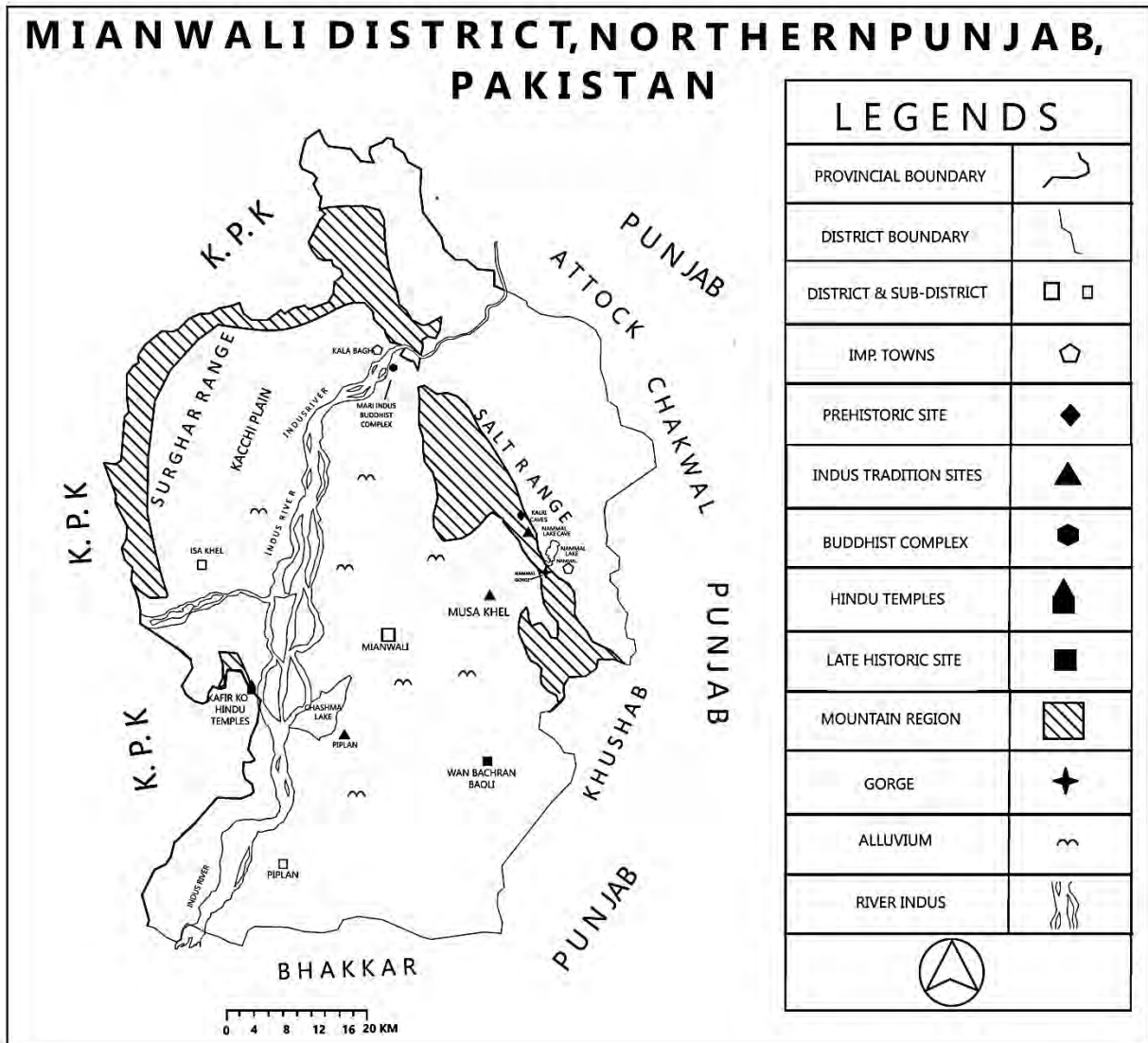
MAPS & PLANS

DRSML QAU



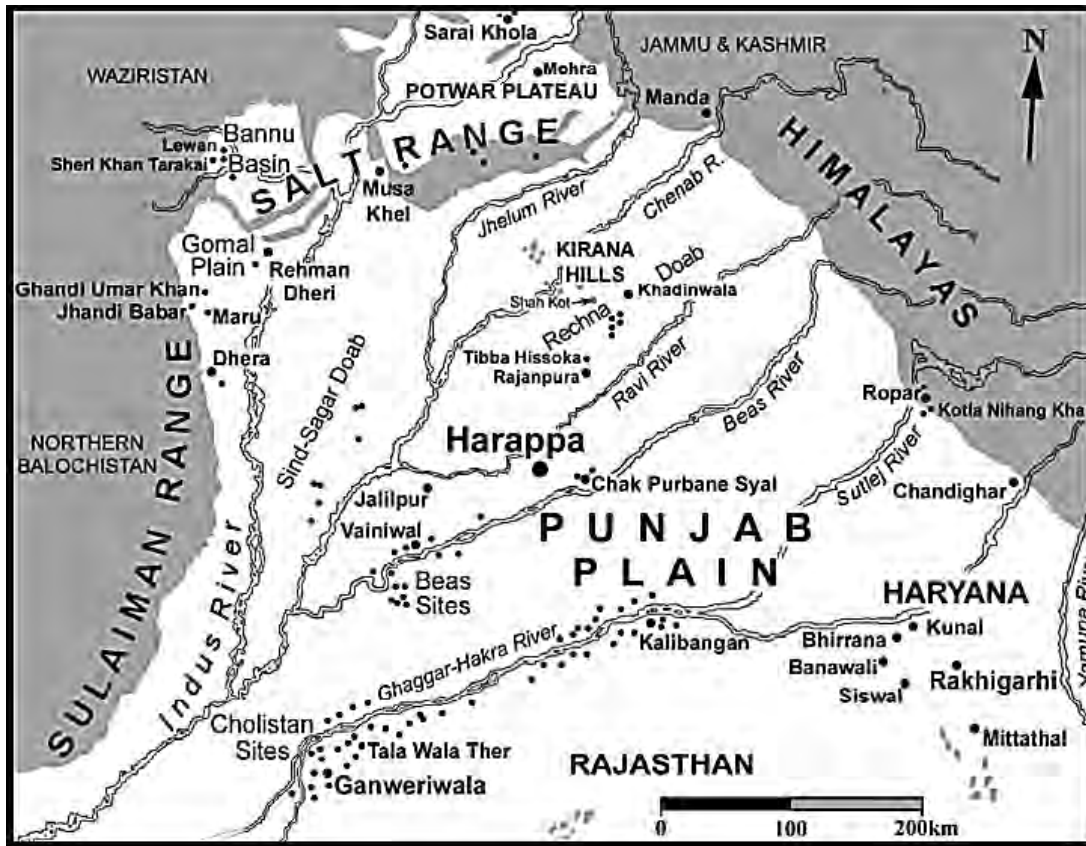
Map I: The Punjab Province of Pakistan, showing highlighted Mianwali District (Updated After Mughal et al 1996)

MIANWALI DISTRICT, NORTHERN PUNJAB, PAKISTAN

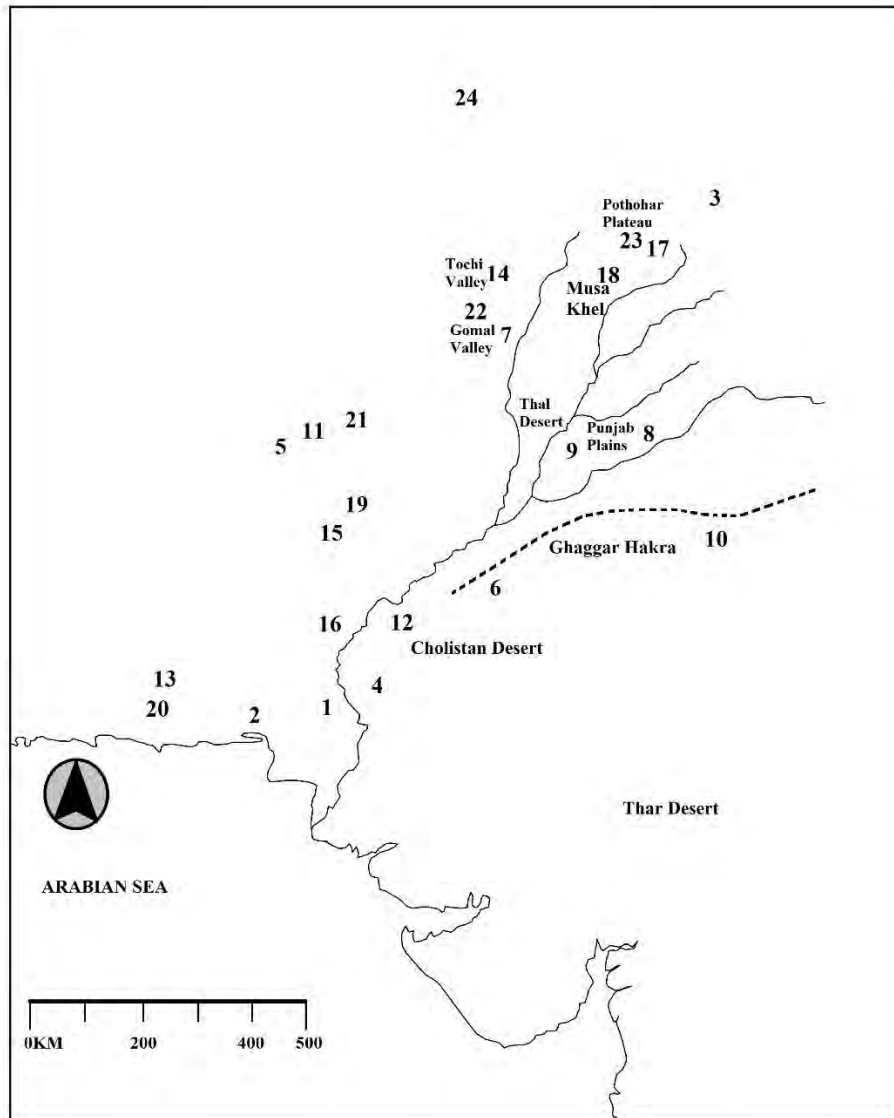


LEGENDS	
PROVINCIAL BOUNDARY	
DISTRICT BOUNDARY	
DISTRICT & SUB-DISTRICT	
IMP. TOWNS	
PREHISTORIC SITE	
INDUS TRADITION SITES	
BUDDHIST COMPLEX	
HINDU TEMPLES	
LATE HISTORIC SITE	
MOUNTAIN REGION	
GORGE	
ALLUVIUM	
RIVER INDUS	

Map II: The Kacchi Valley, Mianwali District, with its geographical features and archaeological sites (Developed by the Author).

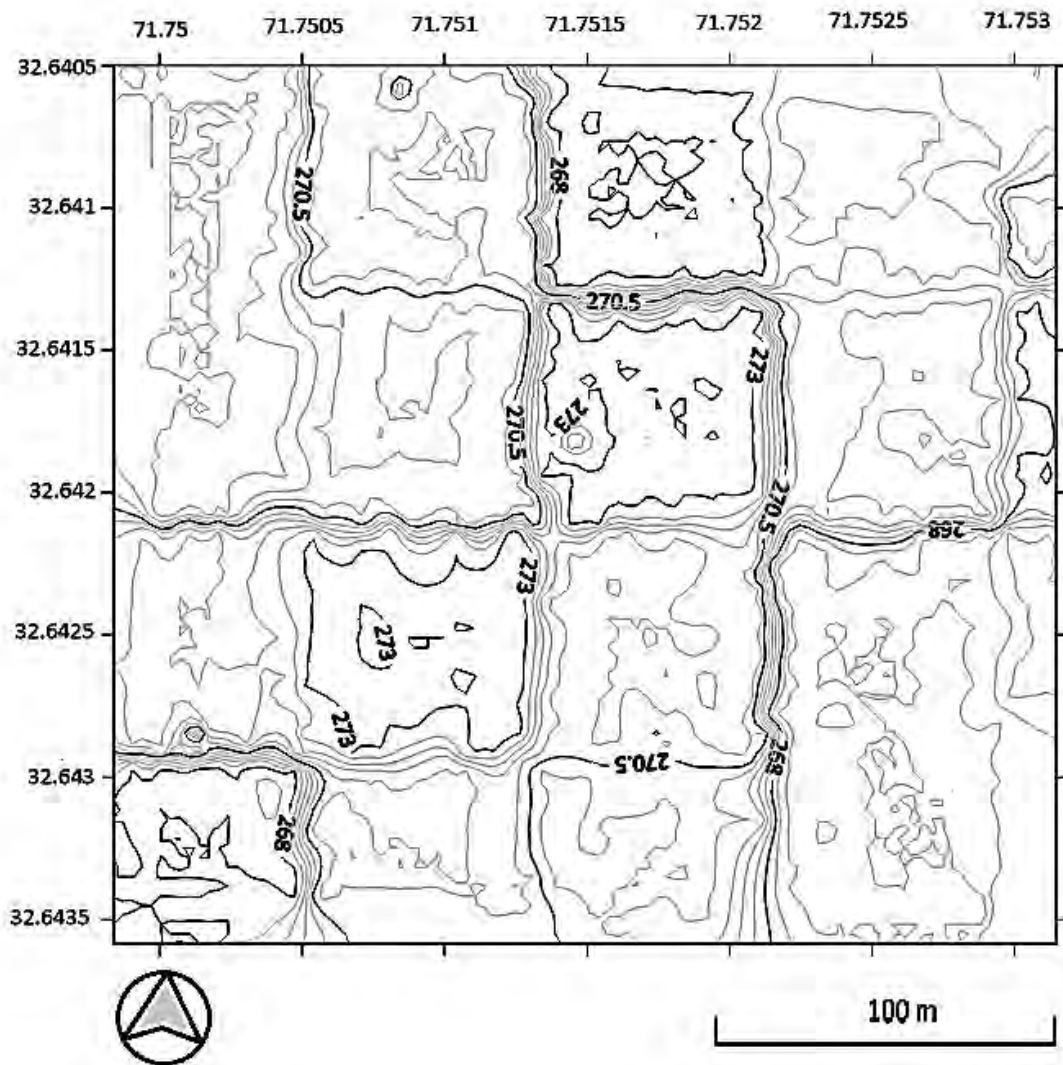


Map III: The upper and lower Indus Valley with physical and Indus Tradition sites (After Law 2008; Updated by the Author).

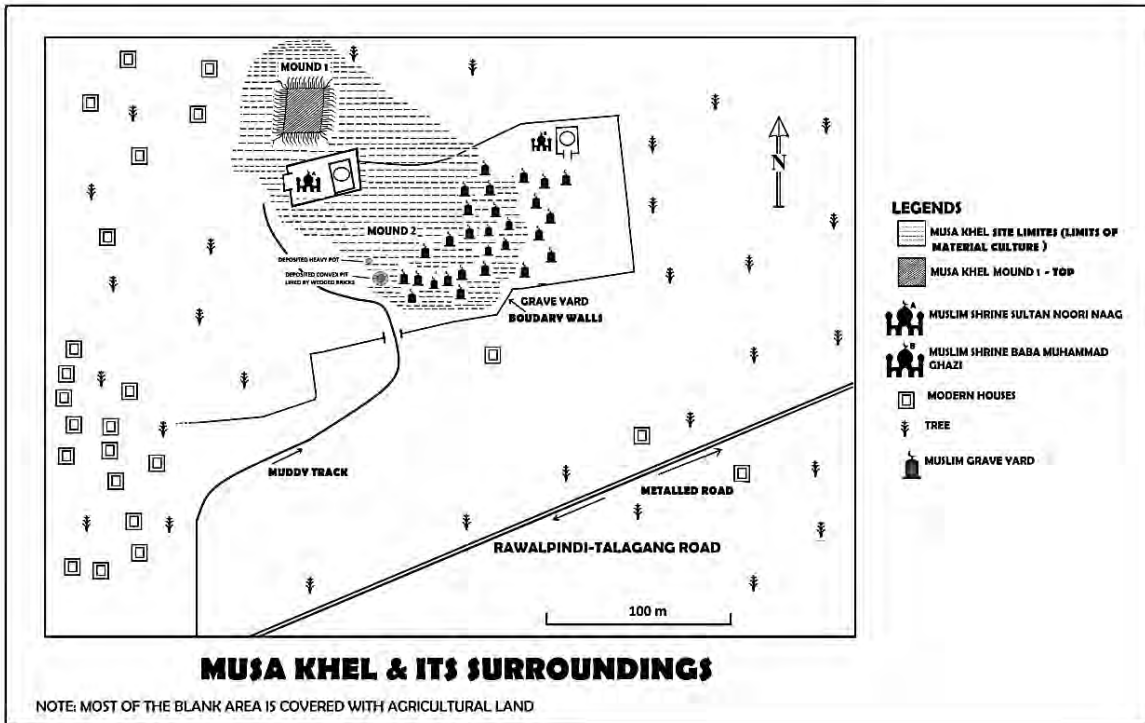


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|----------------|-----------------------|---------------------|
| 1. Amri | 9. Jalilpur | 17. Mohra |
| 2. Balakot | 10. Kalibangan | 18. Musa Khel |
| 3. Burzahome | 11. Kili Gul Muhammad | 19. Naushero |
| 4. Chanhu Daro | 12. Kot Diji | 20. Nindowari |
| 5. Damb Sadaat | 13. Kulli | 21. Periano Ghundai |
| 6. Ganveriwala | 14. Lewan | 22. Rehman dheri |
| 7. Gumla | 15. Mehrgarh | 23. Sarai Khola |
| 8. Harappa | 16. Mohenjo Dero | 24. Shortugai |

Map IV: Showing the location of Musa Khel among the Prominent Early Harappan and Harapan Sites in Greater Indus Valley mentioned in the present study (Developed by the Author).

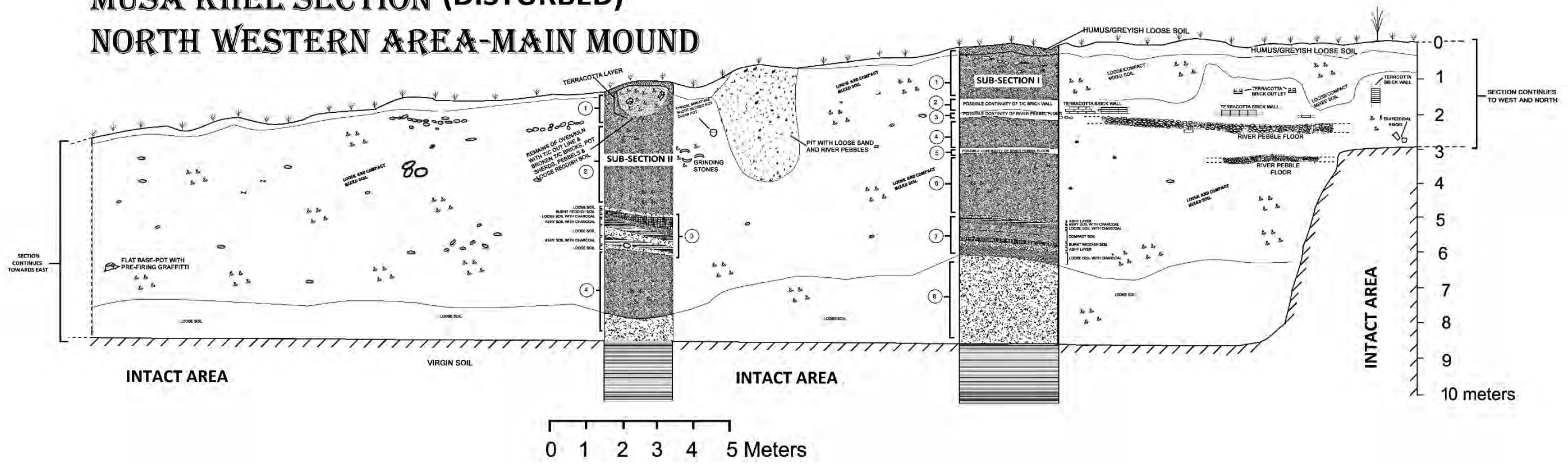


Plan I: Musa Khel site contour plan (Developed by the Author).



Plan II: Musa Khel site, its physical features, immediate environment and accessibility (Developed by the Author).

MUSA KHEL SECTION (DISTURBED) NORTH WESTERN AREA-MAIN MOUND



Plan III: Chronological profile of Musa Khel retrieved from illegally exposed section at north side of main mound (Developed by the Author).

TABLES

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Table-I: Spatial Distribution of Pottery types identified at Musa Khel Site (X=Present; =Not found).

PHASE	Musa Khel Pottery Types	Gomal Valley	Bannu Basin	Pothohar Plateau	Ravi Area	Thal Desert	Ghaggar-Hakra Valley	Central Indus Valley	Lower Indus Valley	Baluchistan	Beyond East
EARLY HARAPPAN PHASE	Type I: Flanged Pots	X	X	X	X	X	X	X	X	X	X
	Type II: Painted Globular Short Necked Pots	X	X	X	X	X	X	X	X	X	X
	Sub-type II: Painted Globular Short Necked Sandy Slipped Pots	X	X	X	?	?	X	X	Rare	Rare; mainly technique	Rare; mainly technique
	Type III: Painted and Grooved Globular Short Necked Pots	X	X	X	X	X	X	X	X	X	X
	Type IV: Carinated Painted Pots	X	X	X	X	X	X	?	?	X	?
	Type V: Carinated Bowls with flaring rims	X	X	X	?	?	?	?	?	X	Rare
	Type VI: Rope Impressed Bowls	X	X	X	?	X	?	?	Technique continue during Harappan phase	Only technique	?
	Type VII: Very Large Painted Concave Bowls	X	X	X	?	?	?	?	?	?	?
	Type VIII: Convex, Rimless/Sharp rim, Painted Bowls	X	X	X	X	X	X	?	?	?	Only Forms

	Type IX: Black on white convex base dish	X	X	X	?	?	?	?	?	?	?
	Type X: Painted Offering Stands	X	X	X	X	X	X	X	X	X	X
	Type XI: Collard Vessels	?	?	?	?	?	?	?	?	?	?
	Painted, Knobbed and Flat Covers/Lids	X	X	X	X	?	X	X	X	X	X
	Conical Painted Lids	X	X	X	?	?	?	?	X	?	?
Harappan Phase	Type I: Perforated Jars	X	?	?	X	?	X	X	X	X	X
	Type II: Shouldered Pot	X	?	?	X	?	X	X	X	?	?
	Type III: Very large Globular Plain Pots	X	?	?	X	?	X	X	X	?	?
	Type IV: Parallel Sided Very Large Pots	X	?	?	X	?	X	X	X	?	?
	Type V: Cooking Pot	X	?	?	X	?	X	X	X	X	X
	Type VI: Very Large, Convex Bowls	X	?	?	?	?	?	?	?	?	?
	Type VII: Ledged and Painted, Very Large Offering Stand	X	?	?	?	?	X	X	X	?	?
	Sub-type VII A: Painted Bowl on High, and Hollow Stand	X	?	?	?	?	X	X	X	?	?
	Sub-type VII-B: Plain Bowls/Disches on Stands	X	X	X	X	?	X	X	X	X	X

Type VIII: Plain Bowl with Parallel Sided and Equal Bilateral Projected Rim	?	?	?	?	?	?	?	?	?	?	?
Type IX: Plain, Straight Everted, Equal Bilateral Projected Rim Bowl	?	?	?	?	?	?	?	?	?	?	?
Type X: Painted and Rimless Dish	?	?	?	?	?	?	?	?	?	?	?
Type XI: Collard, straight- sided, heavy sectioned vessel	?	?	?	?	?	?	?	?	?	?	?

Table-II: Proposed Relative Chronology of Musa Khel Based on Comparison with Carbon Dating at Adjacent and Associated Sites (Thomas & Allchin 1986; Kenoyer & Meadow 2000; Durrani 1988; Khan et al 2000; Mughal & Halim 1972).

Indus Tradition		Date	Gomal Vallley	Bannu Basin	Pothohar Plateau	Central Indus Valley	Kacchi Valley (Mianwali)	
Era	Phase	Years	Rehman Dheri	Tarakai Qila	Sarai Khola	Harappa	Musa Khel	
Localization Era (1900-1300 BCE)	Late Harappan	1500			?	V?		
		1600						
		1700						
	Harappan -Late Harappan Phase	1800				IV		
Integration Era (2600-1900 BCE)	Harappan Phase, Late Kot Diji Phase	1900	III			III	III	
		2000		II				
		2100			III			
		2200						
		2300						
		2400						
		2500	II	I	II			
Regionalization Era (5500-2600 BCE)	Kot Diji Phase	2600				II	II	
		2700						
		2800			I			
	Tochi-Gomal Phase, Ravi Phase, Hakra Phase	2850	I					I
		2900						
		3000						
		3100						
		3200						
		3300						
	Sheri Khan Tarakai Phase	3350						
		3400						
		3500						
		3600						
		3700						
		3800						
		3900						
		4000						
		4100						
		4200						
4300								
		4400						
		4500						
		4600						
		4700						

		4800					
		4900					
		5000					
		5100					
		5200					
		5300					
		5400					
		5500					
Early Food Producing Era		7000-					
		5500					
		BCE					

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Table-III: Radio Carbon Dates from Selective Comparable Sites

S.no.	Site	Phase	C-14 Dates (half-life of 5568 years) B.P.	Calibrated Range BCE
01	Sarai Khola, Pothohar Plateau	Hakra (SK-I)	4140 ± 230 4340 ± 120 4250 ± 110 4380 ± 170	2860 3010-3110 2970 3160 (Thomas & Allchin 1986:40).
		Early Kot Diji phase Levels (SK-IA, II)	3810 ± 60 3890 ± 230 4040 ± 200 3910 ± 70	2190-2300 2480 BC 2630-2680 2490-2540 (Thomas & Allchin 1986:40).
		Late Kot Diji phase levels (SK-II)	3700 ± 60 3700 ± 80 3790 ± 60	2160 2160 2190-2290 (Thomas & Allchin 1986:41).
02	Gumla, Gomal Valley	Tochi Gomal phase (GML-II)	4076 ± 72	2798 (Dani 1971:177)
03	Rehman Dheri, Gomal Valley	Tochi Gomal phase (RHD-IA/B)	4400 ± 110 4520 ± 110 4300 ± 70 4190 ± 70	3360-2910 3380-3040 3055-2885 2920-2775 (Durrani 1988:139).
		Early Kot Diji phase (RHD-II)	4180 ± 70 4070 ± 90 4000 ± 150	2910-2765 2880-2535 2865-2320 (Durrani 1988:139)
		Late Kot Diji phase (RHD-III)	3900 ± 130 3850 ± 70 3620 ± 80 3730 ± 50 3580 ± 110	2650-2170 2420-2190 2180-1870 2315-2010 2150-1770 (Durrani 1988:139)

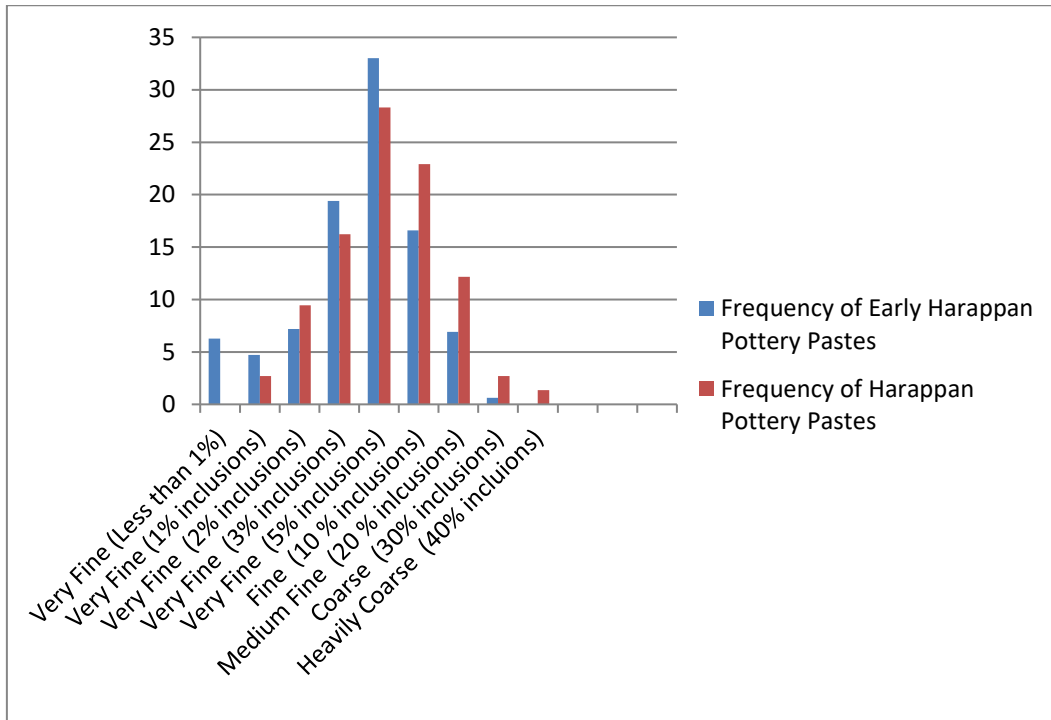
04	Tarakai Qila	Kot Diji phase (Early –Late)	3680 ± 50	2150
			3810 ± 60	2190-2300
			3640 ± 80	2120-2140
			3510 ± 60	2040
			4060 ± 120	2690-2800
			3770 ± 90	2180 (Thomas & Allchin 1986:39).
05	Harappa	Ravi phase (HARP IA)	4210 ± 50	2886-2696
			4320 ± 50	2924-2887
			4400 ± 70	3254-2915
			4260 ± 70	2915-2706 (Kenoyer & Meadow 2000:74).
		Ravi phase (HARP IB)	4980 ± 60	3899-3698 (Kenoyer & Meadow 2000:74).
		Kot Diji phase (HARP II)	4090 ± 50	2857- 2504 (Kenoyer & Meadow 2000:74).
		Harappan phase (HARP III)	3920 ± 210 3770 ± 70	2675-2155 2405-2020 (Possehl 1989:18)

Table-IV: Comparison chart of chronological patterns of main mound.

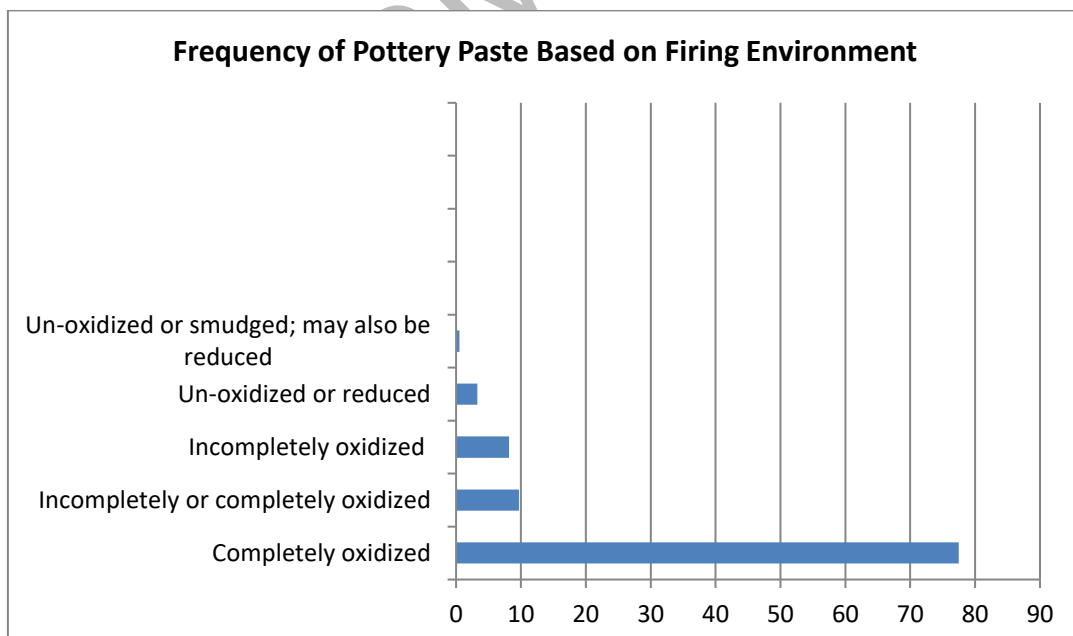
North Side of North-Western Section (Area-II)		
Correlation between Sub-Section I & Sub-Section II		
Sub-section I		Sub-section II
HARAPPAN	Pattern I	Pattern I
	Pattern II	
	Pattern III	
HARAPPA N?	Pattern IV?	
	Pattern V?	
EARLY HARAPPAN	Pattern VI	Pattern II
	Pattern VII	Pattern III
	Pattern VIII	Pattern IV

GRAPHS

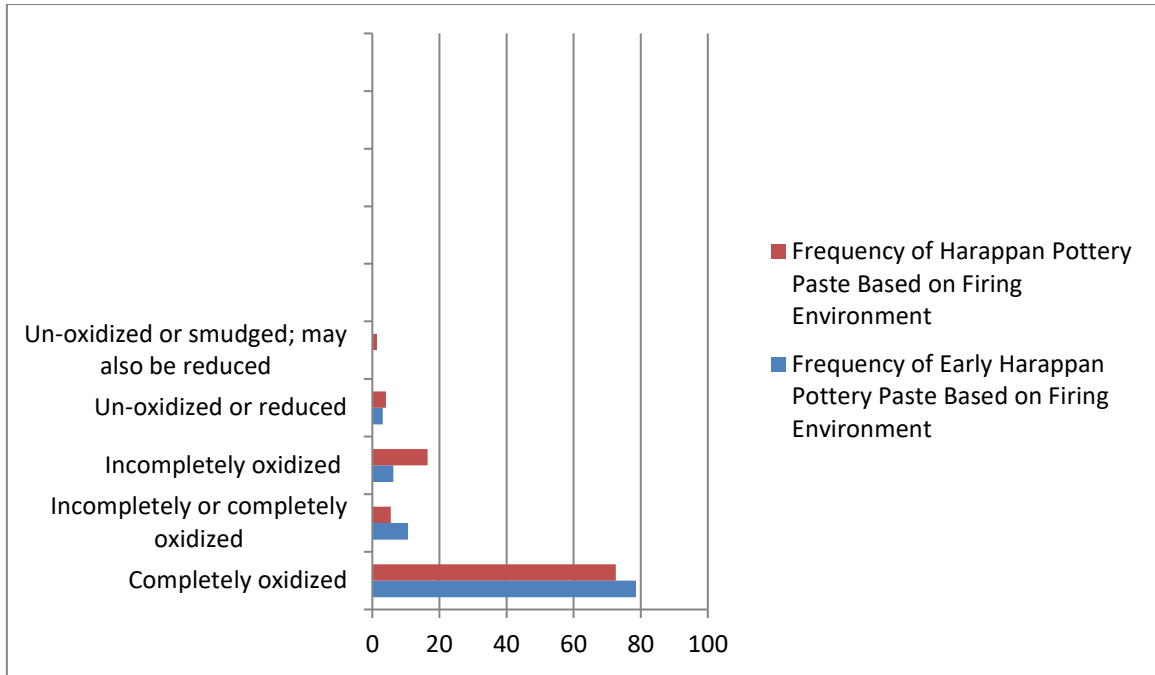
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Graph I: Showing frequency of Early Harappan and Harappan pottery pastes based on percentage of inclusions.



Graph II: Showing frequency of Musa Khel pottery paste based on firing condition.



Graph III: Showing phase wise pottery pastes based on firing conditions.

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PLATES



II. Map showing prominent Early & Harappan sites scattered in the Greater Indus Valley (Developed by the Author).



IIIA: A view of River Indus flowing at its width on western half of the Mianwali District
(Courtesy: Sajjawal Khan Niazi).



IIIB: The view of Salt Range from the Musa Khel Village.



IVA: Aerial view of Musa Khel and its environment.



IVB: Aerial view of Musa Khel site, its features and different areas.



VA: A general view of Musa Khel main mound from eastern side.



VB: A view of top surface of Musa Khel main mound, ploughed for cropping.



VIA: The signs of illegal digging at north-western slope of Musa Khel main mound, May-2017.



VIB: A general view of Musa Khel main mound from western side.



VIIA: The Indus Tradition material culture at the top of main mound (Courtesy: J. M. Kenoyer).



VIIB: The Harappan wedged bricks, used for the lining of wells, found at the top of Musa Khel main mound (Courtesy: J. M. Kenoyer).



VIII A: The Harappan wedged bricks lying at north-western slope of Musa Khel main mound.



VIII B: A circular pit, lined with wedged baked bricks at Musa Khel Mound-II.



IX A: Signs of further illegal digging at north-western slope of Musa Khel's main mound-2018.



IX B: The exposed section as a result of illegal digging at north and north-western slope of Musa Khel main mound.



X A: Upper levels of exposed section at northern slope of Musa Khel main mound, revealing baked brick walls, drain outlets and river stone floors.



X B: Baked brick wall damaged by the blades of excavator, the upper levels of exposed section at northern slope.



XI A: Remains of kiln structure? In the upper levels and charcoal-ashy layers in the lower levels of exposed section at northern slope of Musa Khel main mound.



XI B: A pile of artifacts left the illegal digger at the foot Musa Khel main mound towards northern side.



XII A: Virgin levels scrapped at northern limits of Musa Khel main mound.



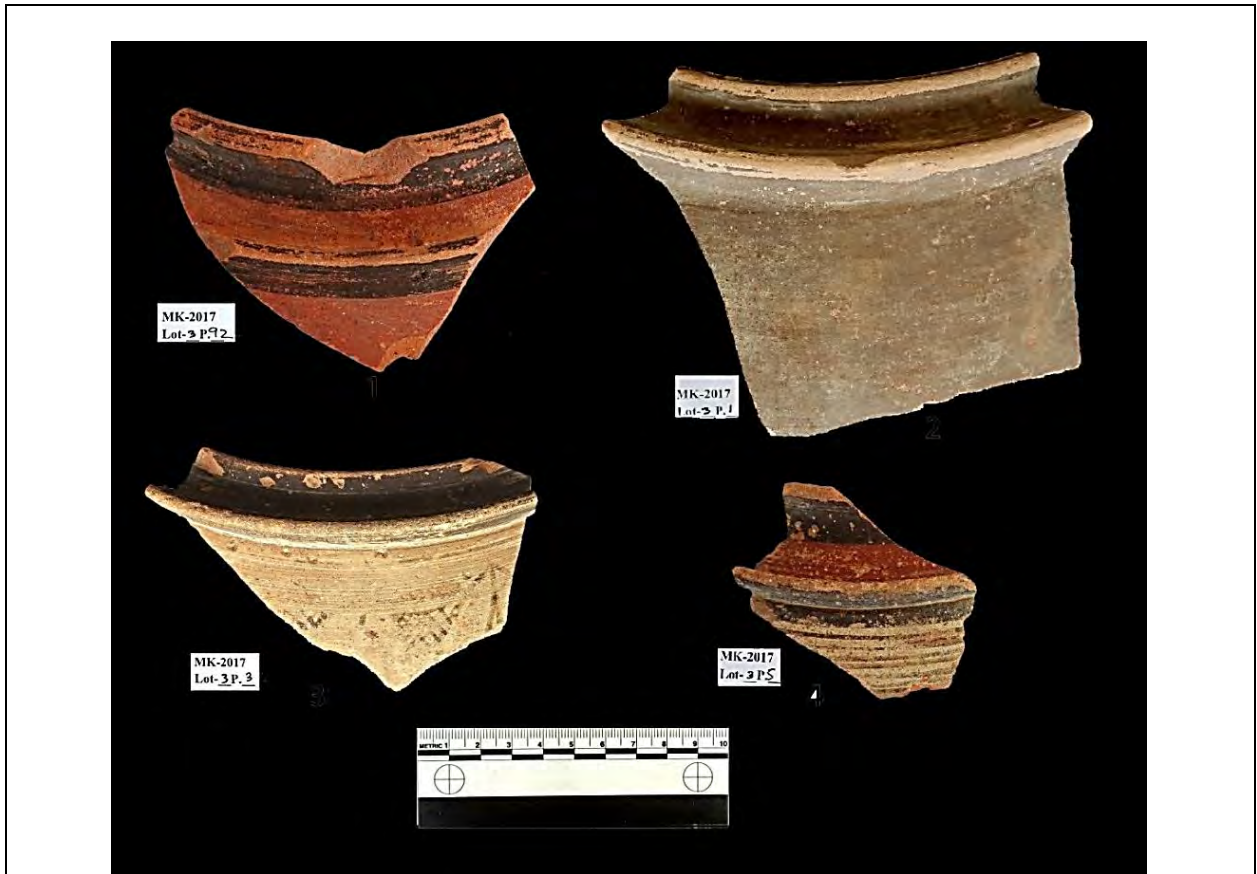
XII B: Main entrance of Muslim shrine “Noori Nag Sultan”, just beside main mound of Musa Khel.



XIII A: Muslim shrine “*Faqeer Hazrat Baba Muhammad Ghazi*” at Musa Khel mound-II.



XIII B: A modern Muslim graveyard within the extant of Musa Khel site.



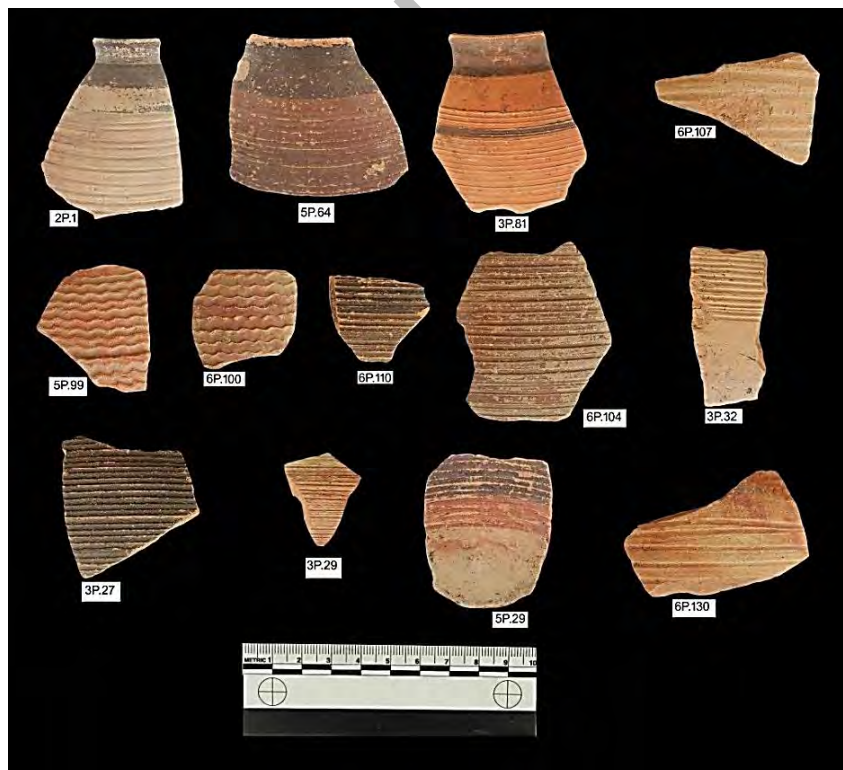
XIV A: Early Harappan-Type I, Musa Khel Flanged Pots.



XIV B: Early Harappan-Type II, Musa Khel Short necked globular Pots.



XV A: Early Harappan-Sub-Type II, Musa Khel Short necked globular and sandy slipped Pots.



XV B: Early Harappan-Type III, Musa Khel Short necked globular and grooved Pots.



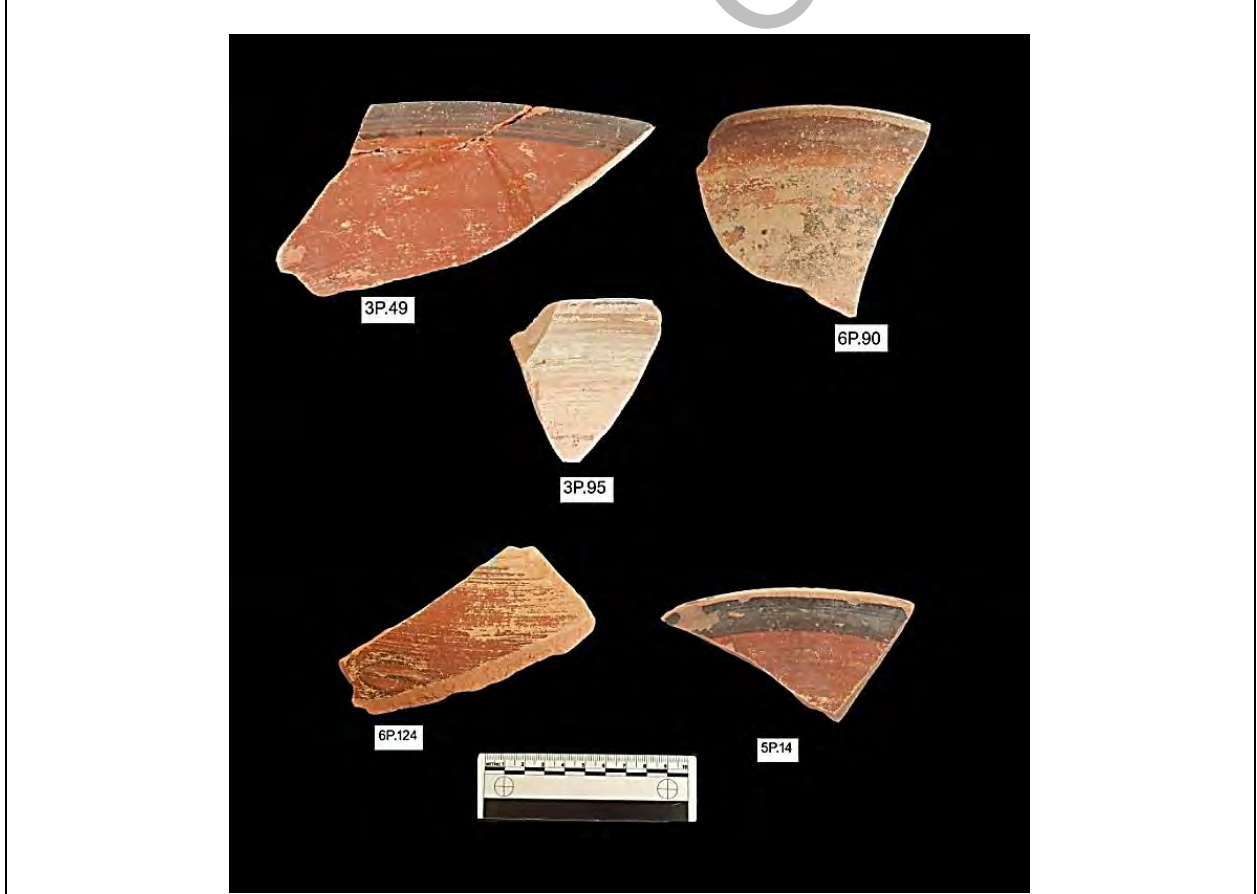
XVI A: Early Harappan-Type IV, Musa Khel carinated Pots.



XVI B: Early Harappan-Type V, Musa Khel carinated bowls.



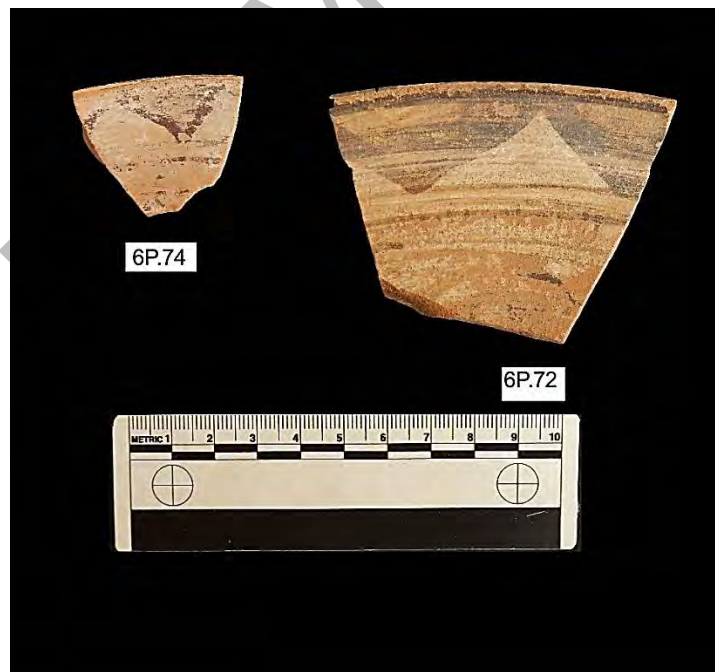
XVII A: Early Harappan-Type VI, Musa Khel rope impressed convex bowls.



XVII B: Early Harappan-Type VII, Musa Khel concave bowls.



XVIII A: Early Harappan-Type VIII, Musa Khel small convex bowls.



XVIII B: Early Harappan-Type IX, Musa Khel painted dish with convex base.



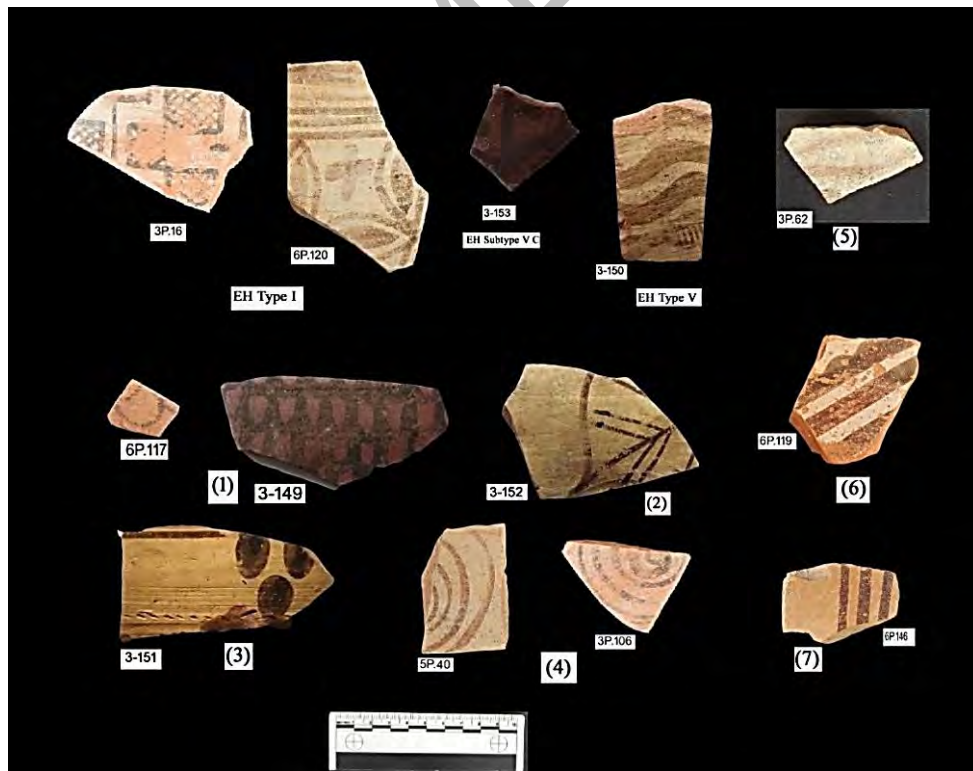
XIX A: Early Harappan-Type X, Musa Khel bowl and dish on stands.



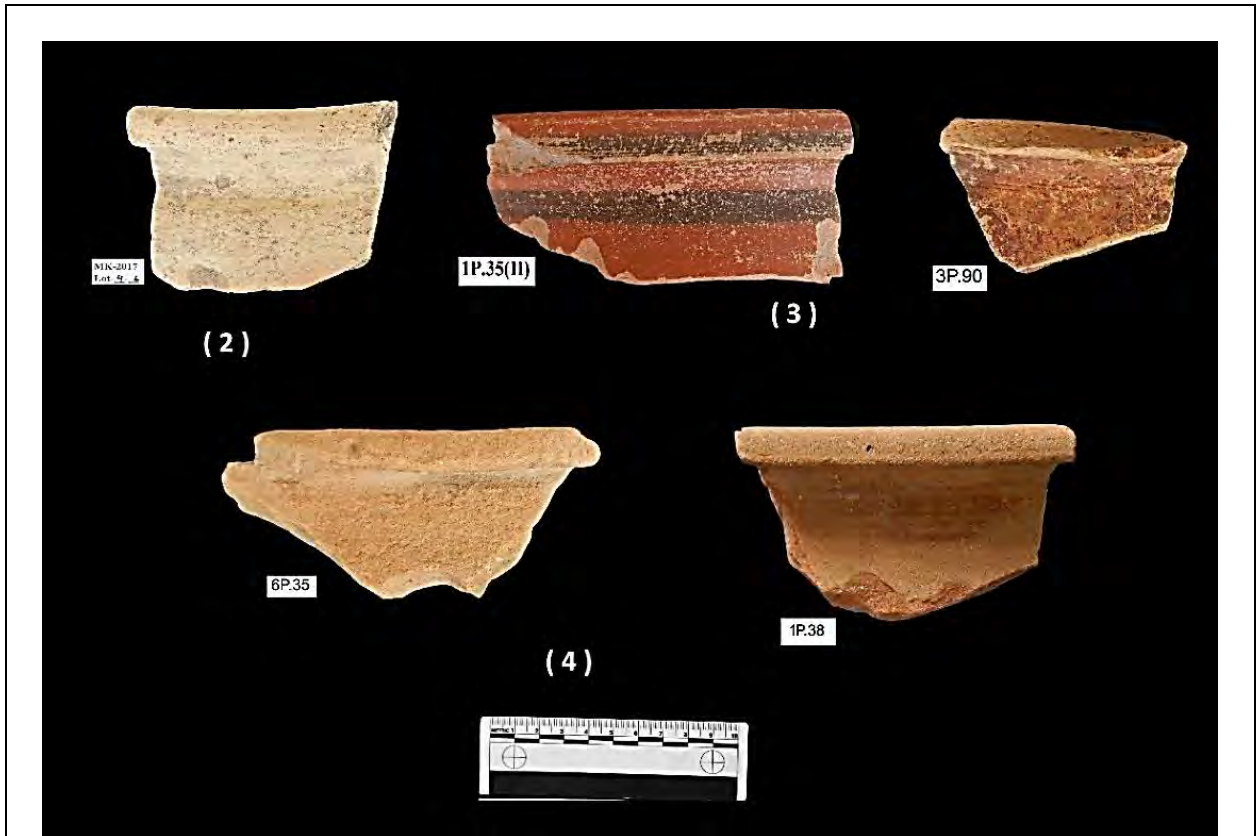
XIX B: Early Harappan-Misc. Type XI, Musa Khel long necked vessels.



XX A: Early Harappan- Lid Type I (flat) and II (conical).



XX B: Early Harappan-Misc. sherds with painted designs.



XXII A: Harappan-Type II (White slipped shouldered Jar/Pot), Type III (Parallel sided Jar/Pot) and Type IV (Plain and large globular Jar/Pot).



XXII B: Harappan-Type V, Ledged pots.



XXIII A: Harappan-Type VI, Plain convex bowls/basins.



XXIII B: Harappan-Type VII, Dish and bowl on stand



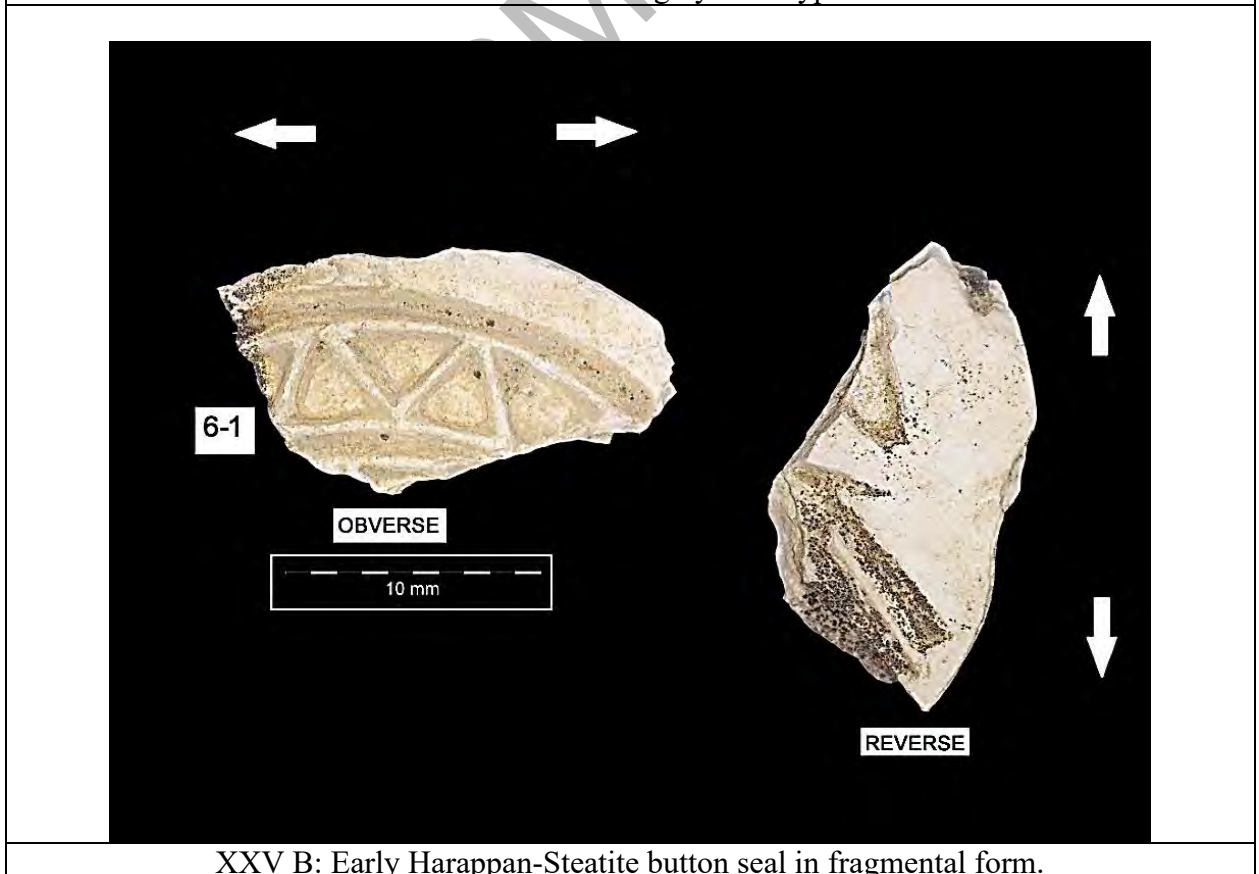
XXIV A: Harappan-Misc. Decorated body sherds.



XXIVB: Harappan-Misc. types of vessel bases.



XXVA: Musa Khel gray ware types.



XXV B: Early Harappan-Steatite button seal in fragmental form.



XXVI A: Misc. types of stone beads from different areas of Musa Khel.



XXVI B: A variety of chert microliths (Early Harappan-Harappan) from different areas of Musa Khel site.



XXVII A: A variety of chert blade cores from different areas of Musa Khel site.



XXVII B: Fragments of small chert blade nodules recovered from different areas of Musa Khel site.



XXVIII A: A variety of chert flakes from different areas of Musa Khel site.



XXVIII B: A fragment tan-gray chert nodule from Musa Khel site.



XXIX A: An Early Harappan small lime stone ball from Musa Khel site.



XXIX B: A variety of grinding stones from different areas of Musa Khel site.



XXX A: A nodule of alabaster from Musa Khel site.



XXX B: A fragment of banded chert from Musa Khel site.



XXXI A: A fragment of stone from Musa Khel site.



XXXI B: Various fragments of lime stone from different areas of Musa Khel site.



XXXII A: A nodule fragment of lime stone from Musa Khel site.



XXXII B: A nodule of Gabbro from Musa Khel site.



XXXII C: A chunk of Lapis Lazuli from Musa Khel site.



XXXIII A: A fragment of silt stone from Musa Khel site.



XXXIII B: A flake of serpentine stone from Musa Khel site.



XXXIII C: Fragments of shell bangles from Musa Khel site.



XXXIV A: Various kinds of terracotta figurines and a fragment of cart wheel from Musa Khel site.



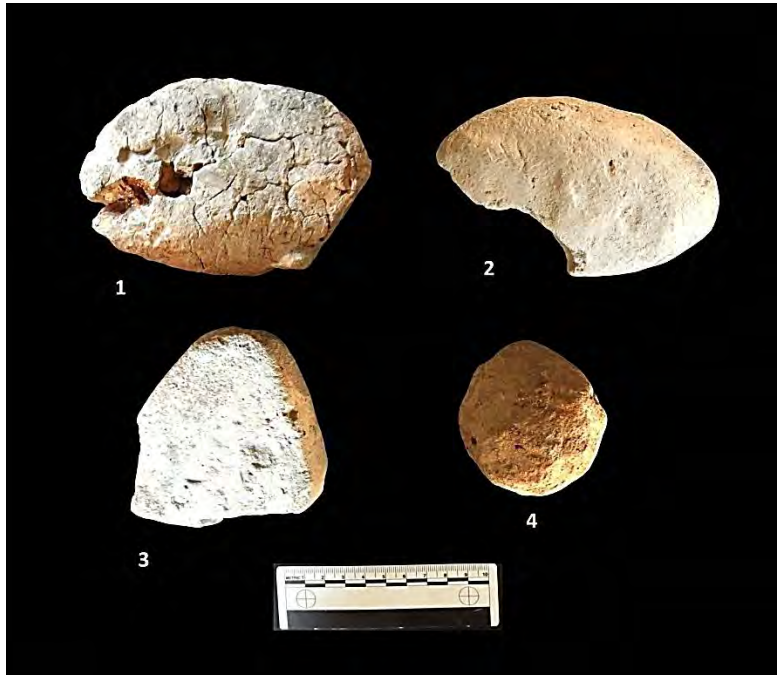
XXXIV B: Various kinds of Early Harappan gray ware terracotta bangles from Musa Khel site.



XXXV A: Early Harappan-Harappan red ware terracotta figurines from Musa Khel site.



XXXV B: A Harappan wedged and baked brick specimen from Musa Khel site.



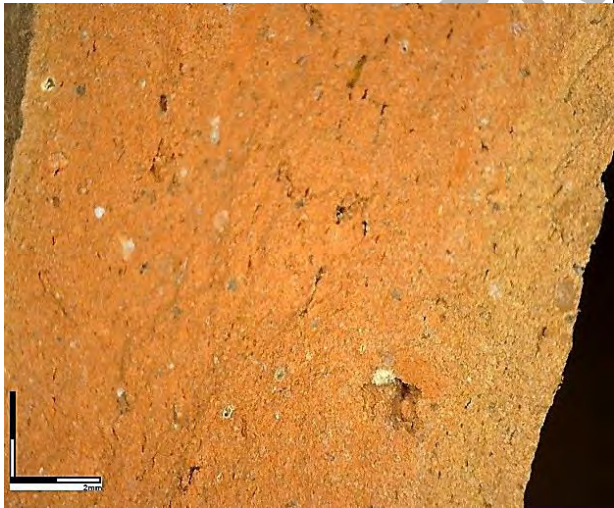
XXXVI A: Various kinds of Harappan terracotta cakes and a terracotta from Musa Khel site.



XXXVI B: Melted and dried terracotta nodules from Musa Khel site.



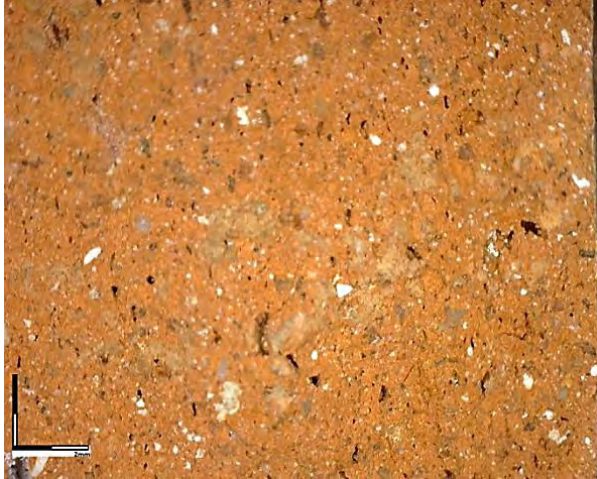
XXXVII A: A fragment of copper slag from Musa Khel site.



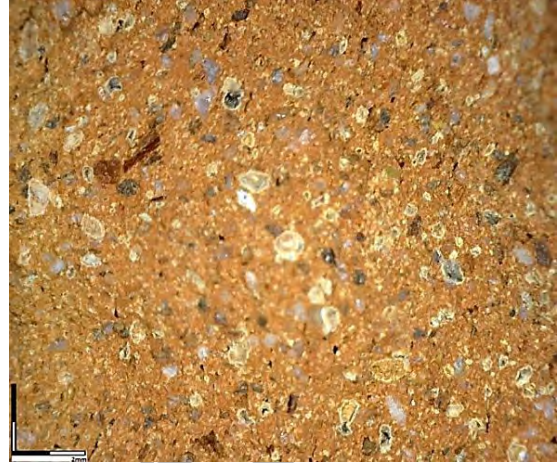
XXXVII B: An Early Harappan type paste with less than 1% of inclusions.



XXXVII C: An Early Harappan type paste with about 5% of inclusions.



XXXVIII A: An Early Harappan type paste with about 10% of inclusions.



XXXVIII B: An Early Harappan type paste with about 10% of inclusions.



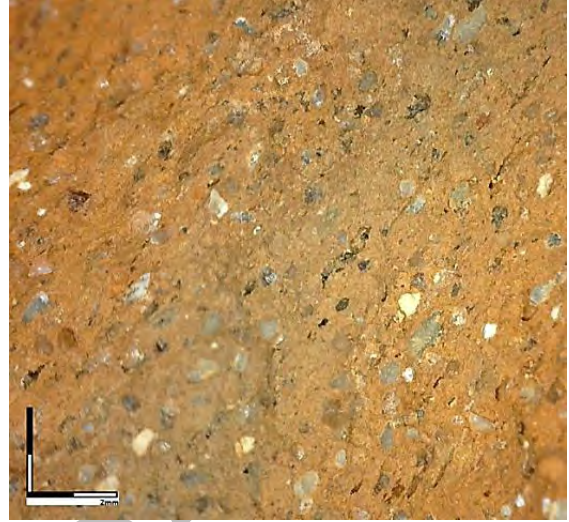
XXXVIII C: An Early Harappan type paste with about 30% of inclusions.



XXXVIII D: A Harappan paste type with about 1-2% of inclusions.



XXXIX A: A Harappan paste type with about 5% of inclusions.



XXXIX B: A Harappan paste type with about 10% of inclusions.



XXXIX C: A Harappan paste type with about 20% of inclusions.



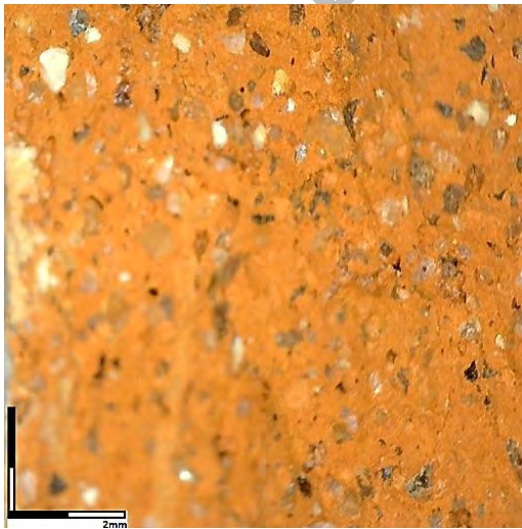
XXXIX D: A Harappan paste type with about 30-40% of inclusions.



XL A: A paste type with abundant calcareous inclusions.



XL B: A paste type with abundant micaceous inclusions.



XL C: A paste type with mixed (calcareous+micaceous) inclusions.



XL D: A paste type with visible micro size snail shell.



XLI A: A paste type with signs iron rust effects.



XLI B: A paste with visible gravel size inclusion.



XLI C: A partially reduced paste.



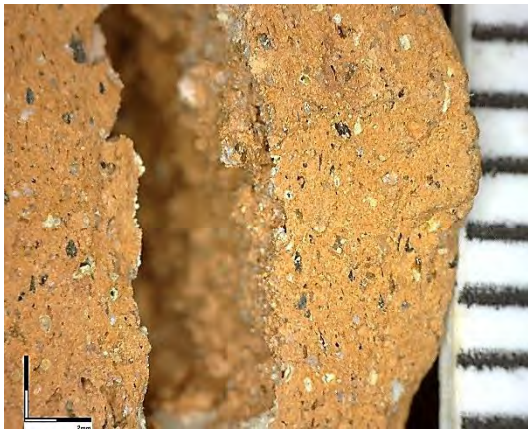
XLI D: A partially reduced paste with visible sand wached pattern.



XLII A: A partially oxidized paste.



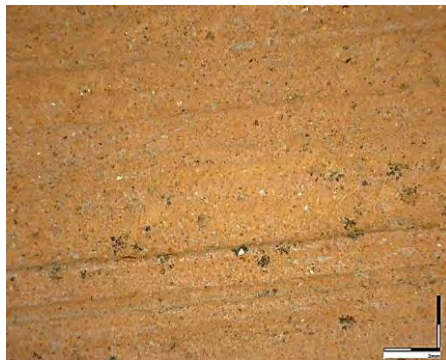
XL II B: A completely vitrified paste.



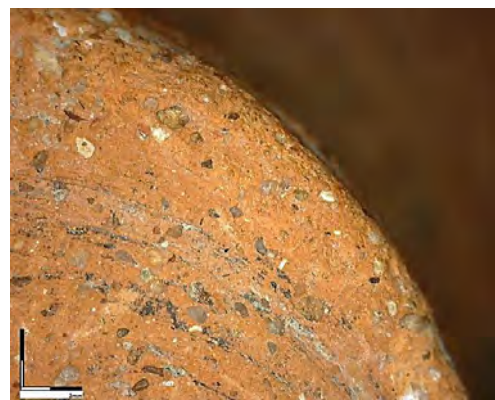
XLII C: A paste with visible vertical void.



XLII D: Signs of straw packet on the surface of vessel.



XLII E: Wheel marks on interior wall of a vessel.



XLII F: Wheel marks on the base of a vessel.



XLIII A: An open-air work shop for the experimental replication of Indus Tradition material culture (pottery) at TIAC-QAU Fall Semester-2013; Potter Nawaz (late) is teaching students about the decoration technique on Ravi phase handmade carinated pot.



XLIII B: Preparation and levigation of clay for the pottery production at TIAC.



XLIV A: Preparation of paints from red and black ochre; preparation sandy paste and its application on the exterior bottom of Ravi phase pot.



XLIV B: Crushing of stone temper on grinding slab.



XLV A: Decorating a small wheel made Harappan Jar (black on red decoration).



XLV B: Students busy in replicating handmade Ravi phase carinated pots-TIAC 2013.



XLVI A: Preparation of applique/sandy paste; and paints from *lal geru* and *kali giri*.



XLVI B: Students with final product, the fire vessels in their hands-TIAC 2013.



XLVII A: A potter's wheel at workshop lying close to Musa Khel site.



XLVII B: Cow dung cakes stalked in series over the updraft large kiln at Musa Khel modern pottery workshop.



XLVIII A: Versatile tools used for production of pottery at Musa Khel modern workshop.



XLVIII B: Stalk of prepared pottery products in a storage of Musa Khel modern workshop.



XLIX A: A mold with pre-fired potter's mark at Musa Khel modern pottery work shop.



XLIX B: A local pottery distributor near Musa Khel village.



L A: A wooden wheel if fixed in the pit at modern pottery work shop at Kotla Jam.



L B: A stalk of sand temper in the corner of Kotla Jam pottery workshop.



LI A: Heap of muddy sand for the open firing/bone fire of pottery vessels at Kotla Jam work shop.



LI B: Broken vessels are lying in the one corner of the Kotla Jam workshop and useful for the coverage of vessels during open firing system.



LII A: Stalk of prepared vessels and bran temper in the storage room of Kotla Jam workshop.



LII B: A potter is modeling a small pot on a fixed wheel in pit in Tarangranwala pottery workshop



LIII A: A large updraft kiln outside the workshop area at Tarangranwala pottery work shop.



LIII B: A view from inner side of vessel firing chamber of Tarangranwala pottery workshop.



LIV A: Vessels kept under the sun for the bone dry before firing at Tarangranwala pottery workshop.



LIV B: A prepared stalk of vessel lying outside the Tarangranwala workshop, ready for the distribution in the nearby villages via camel cart.



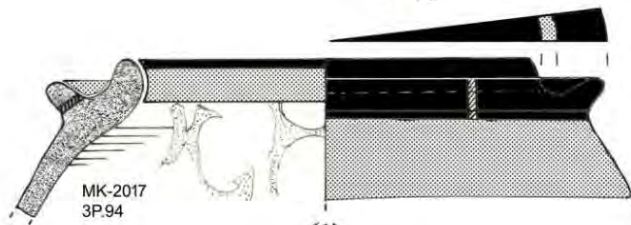
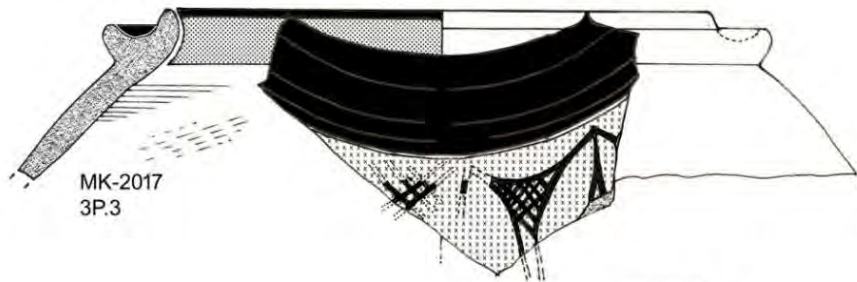
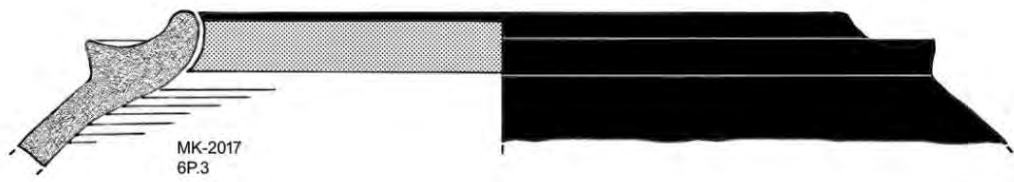
LV A: A variety of from different areas gathered at a stall in a local fare in Thal Desert.



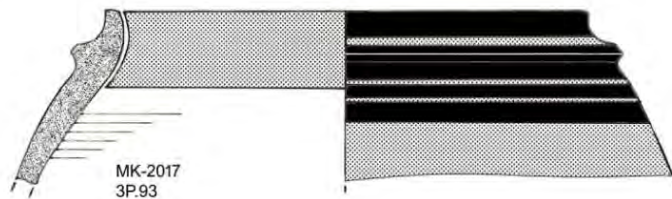
LV B: A large storage Jar is at display in a distributor's shop near Rehman Dheri, Gomal Valley.

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FIGURES



(1)



(2)



Fig. I: Early Harappan (Red Ware Group), Type I Painted, Globular and Flanged Pots.

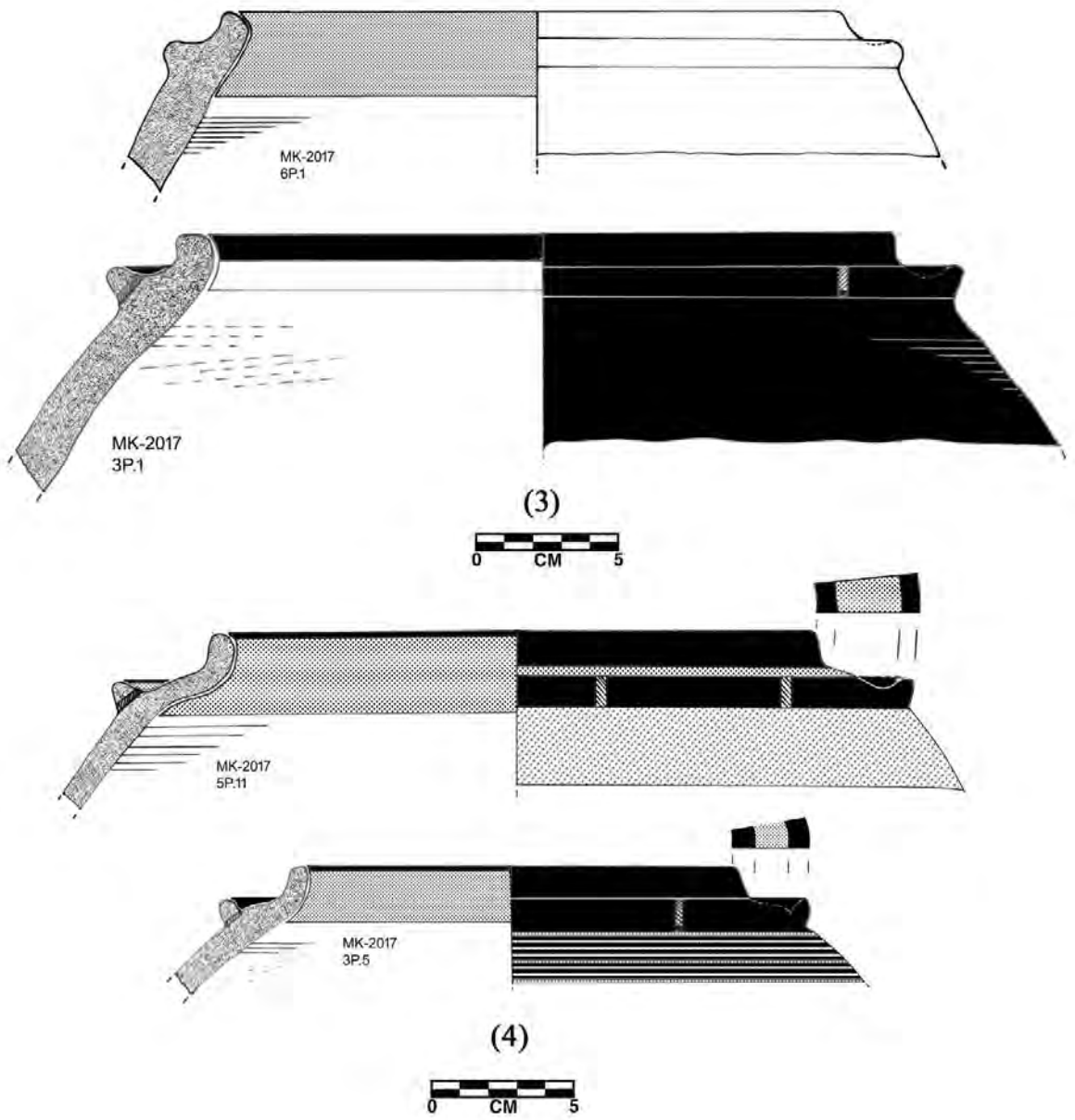
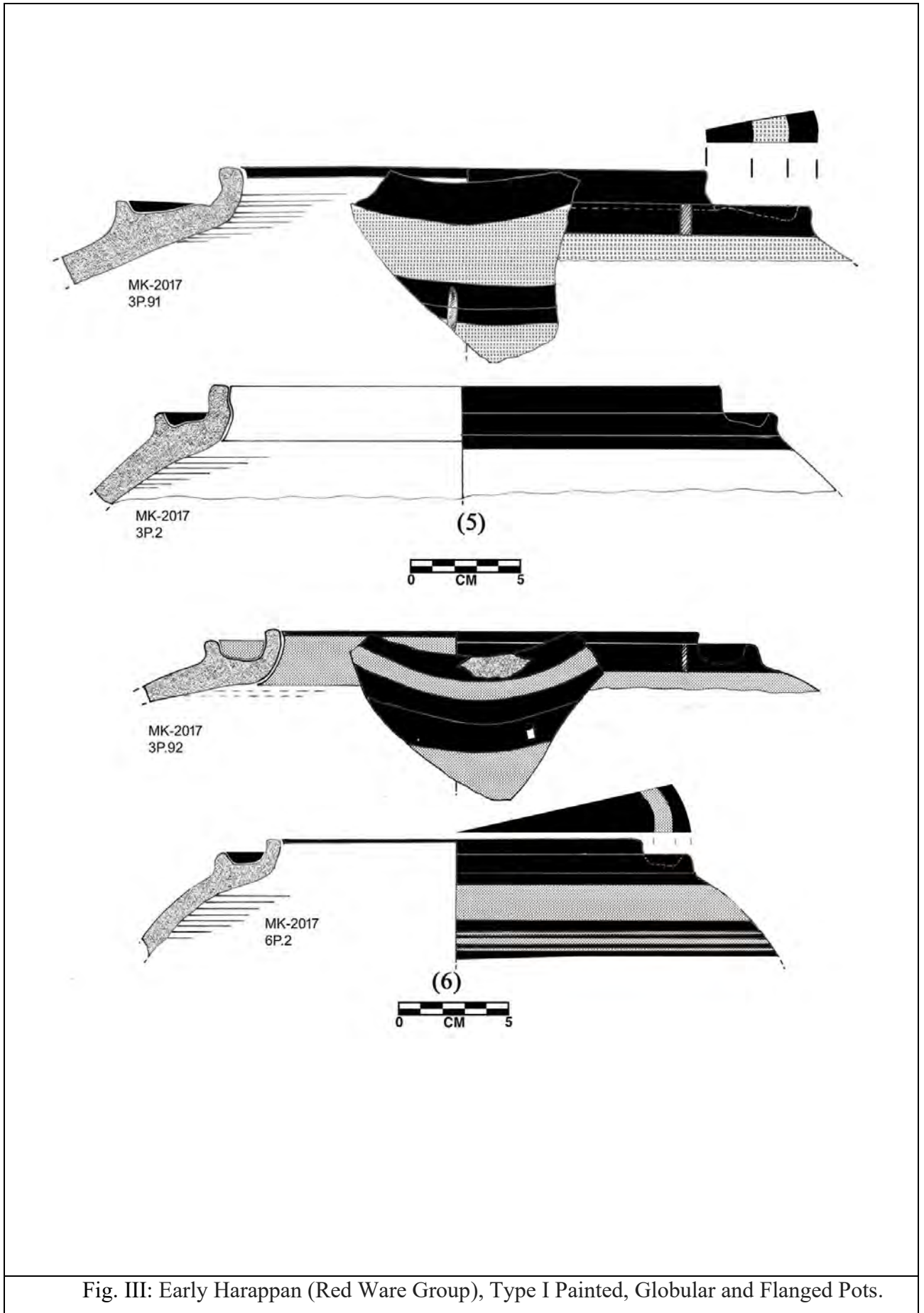


Fig. II: Early Harappan (Red Ware Group), Type I Painted, Globular and Flanged Pots.



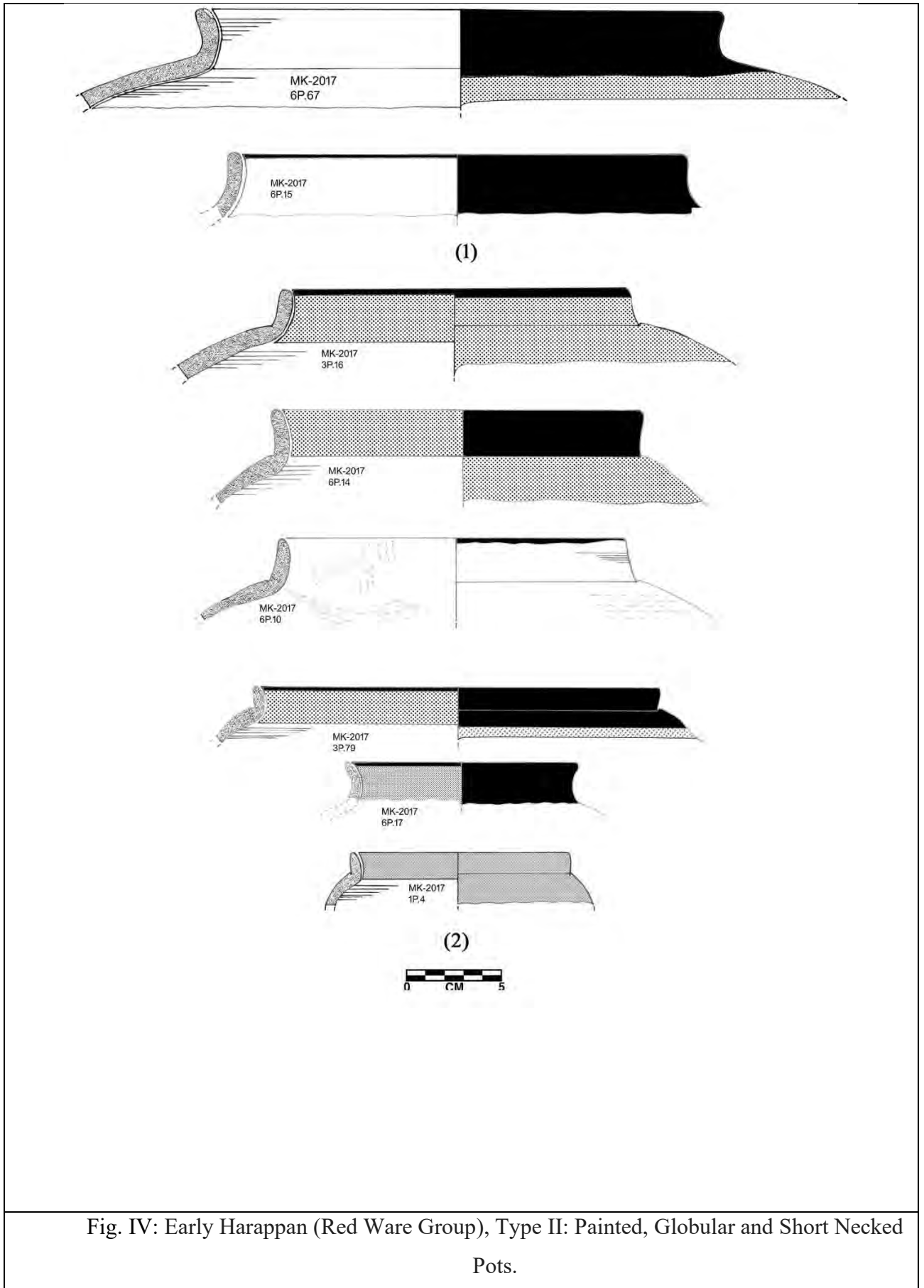


Fig. IV: Early Harappan (Red Ware Group), Type II: Painted, Globular and Short Necked Pots.

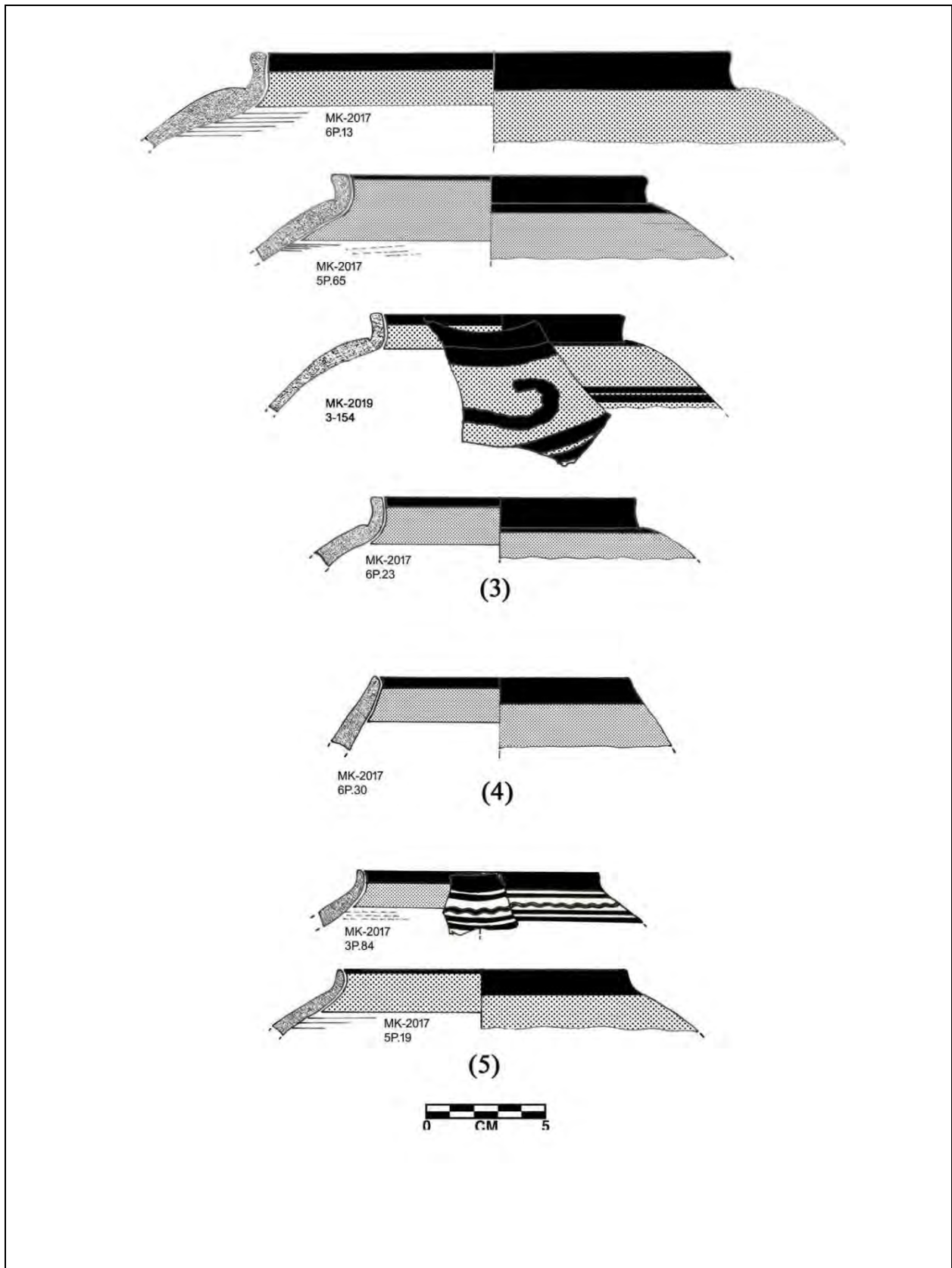
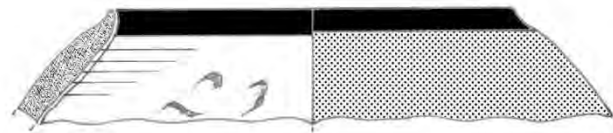
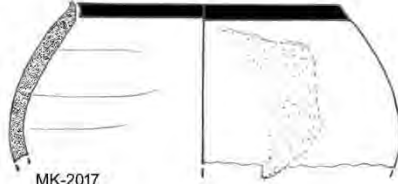


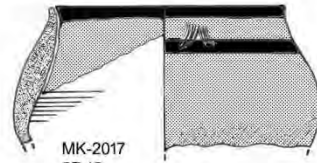
Fig. V: Early Harappan (Red Ware Group), Type II: Painted, Globular and Short Necked Pots.



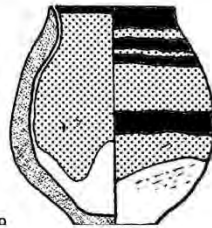
MK-2017
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MK-2017
3P.87



MK-2017
6P.40



MK-201^a
3-156

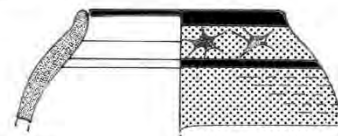
(6)



MK-2017
3P.83



MK-2017
6P.18



MK-2017
3P.80

(7)



Fig. VI: Early Harappan (Red Ware Group), Type II: Painted, Globular and Short Necked Pots.

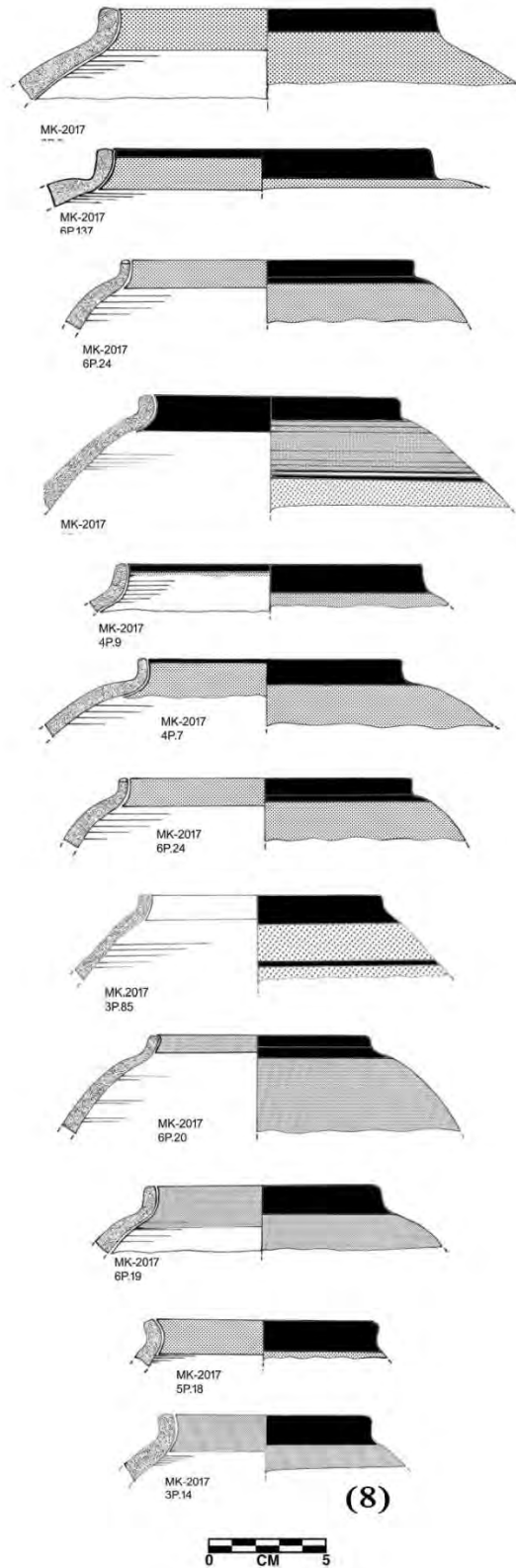


Fig. VII: Early Harappan (Red Ware Group), Type II: Painted, Globular and Short Necked Pots.

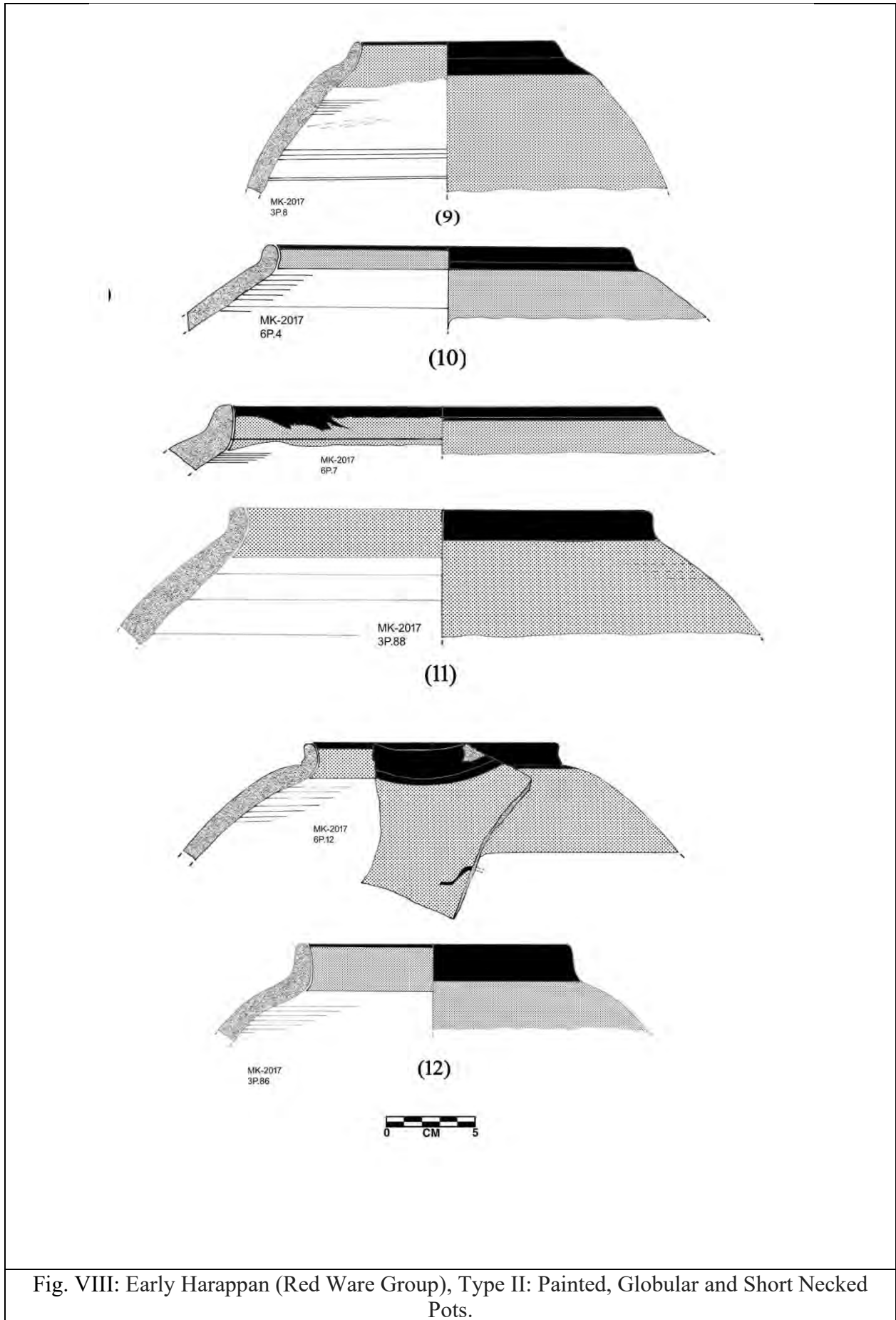


Fig. VIII: Early Harappan (Red Ware Group), Type II: Painted, Globular and Short Necked Pots.

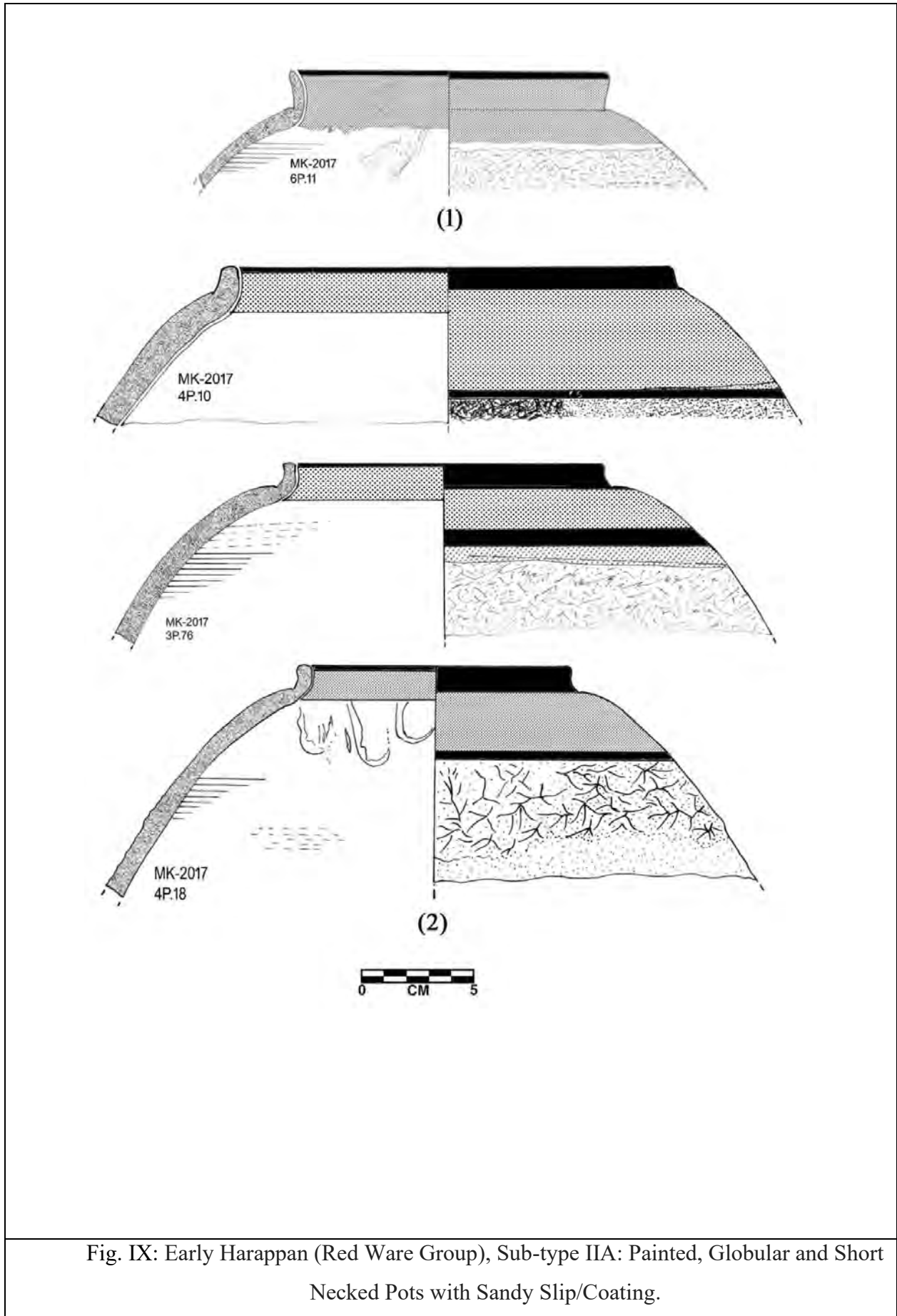


Fig. IX: Early Harappan (Red Ware Group), Sub-type IIA: Painted, Globular and Short Necked Pots with Sandy Slip/Coating.

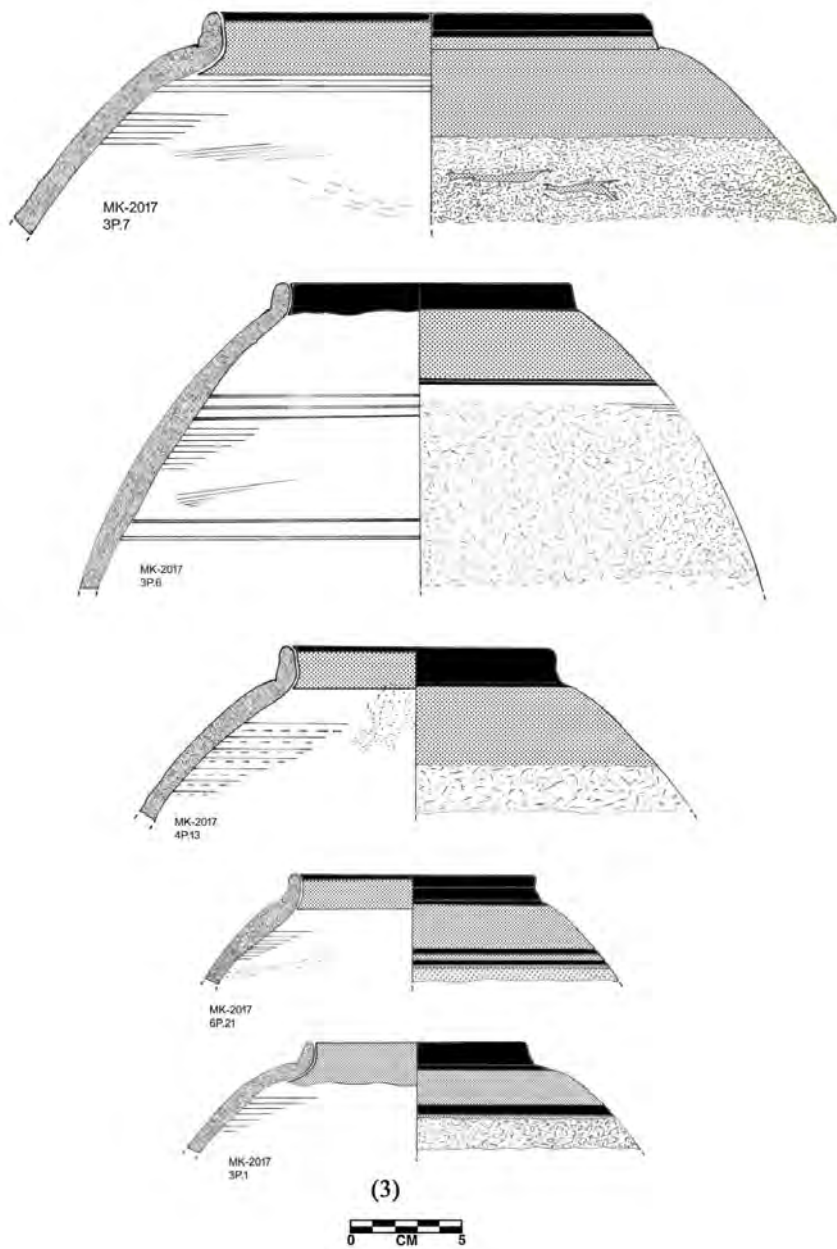


Fig. X: Early Harappan (Red Ware Group), Sub-type IIA: Painted, Globular and Short Necked Pots with Sandy Slip/Coating.

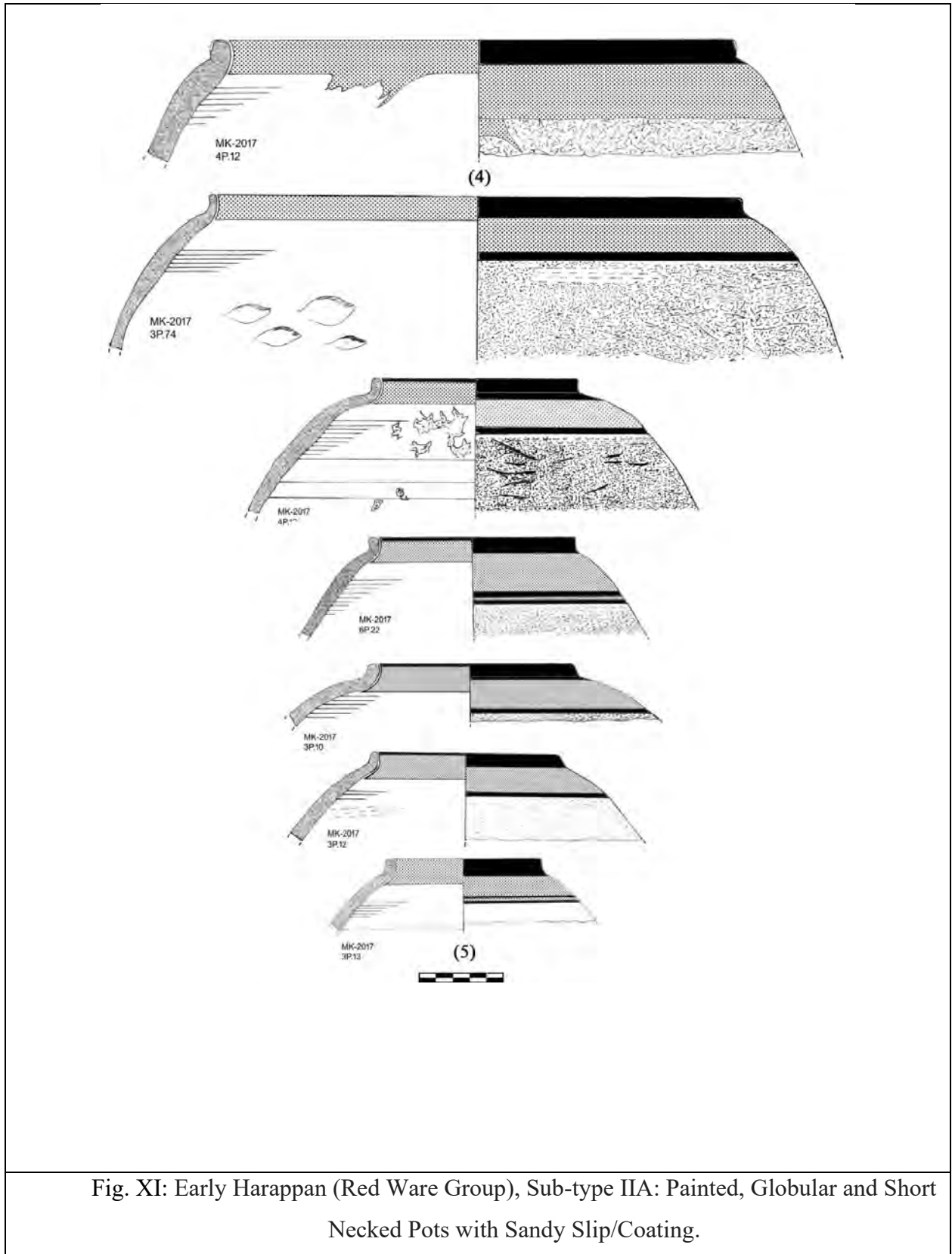


Fig. XI: Early Harappan (Red Ware Group), Sub-type IIA: Painted, Globular and Short Necked Pots with Sandy Slip/Coating.

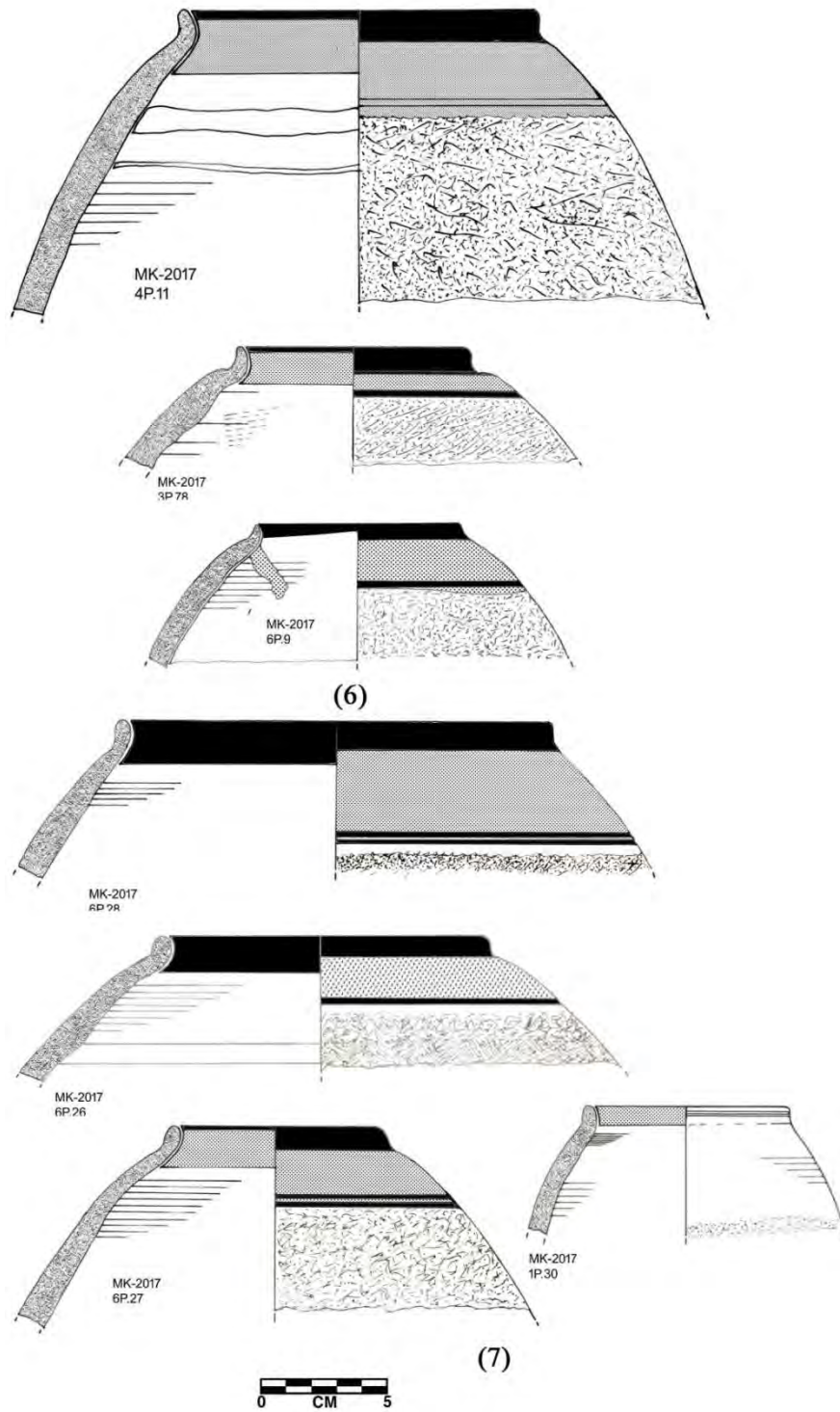
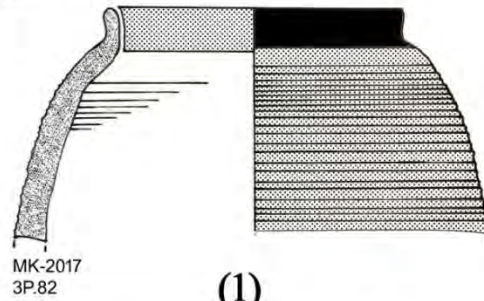
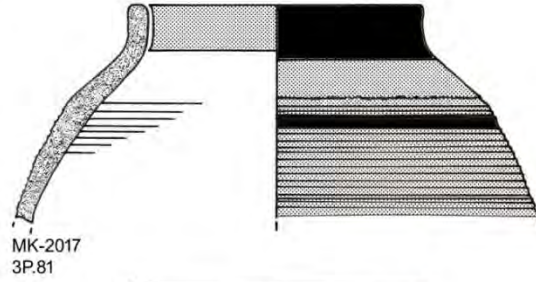
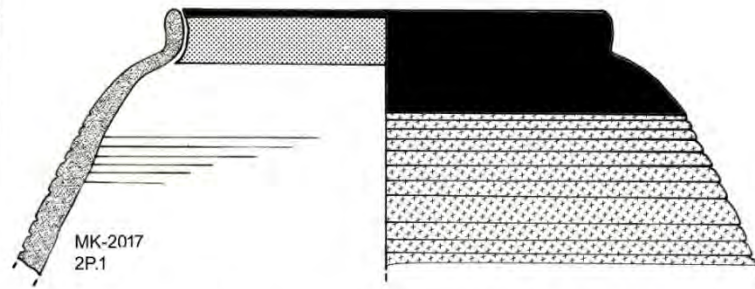
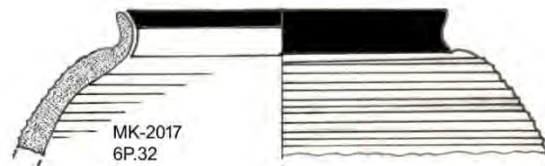
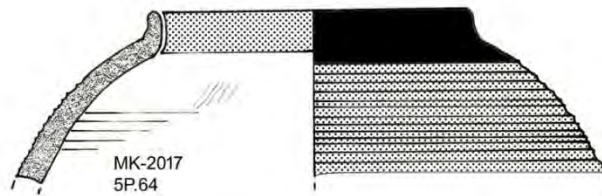


Fig. XII: Early Harappan (Red Ware Group), Sub-type IIA: Painted, Globular and Short Necked Pots with Sandy Slip/Coating.



(1)



(2)



Fig. XIII: Early Harappan (Red Ware Group), Type III: Painted, Globular and Grooved Pots.

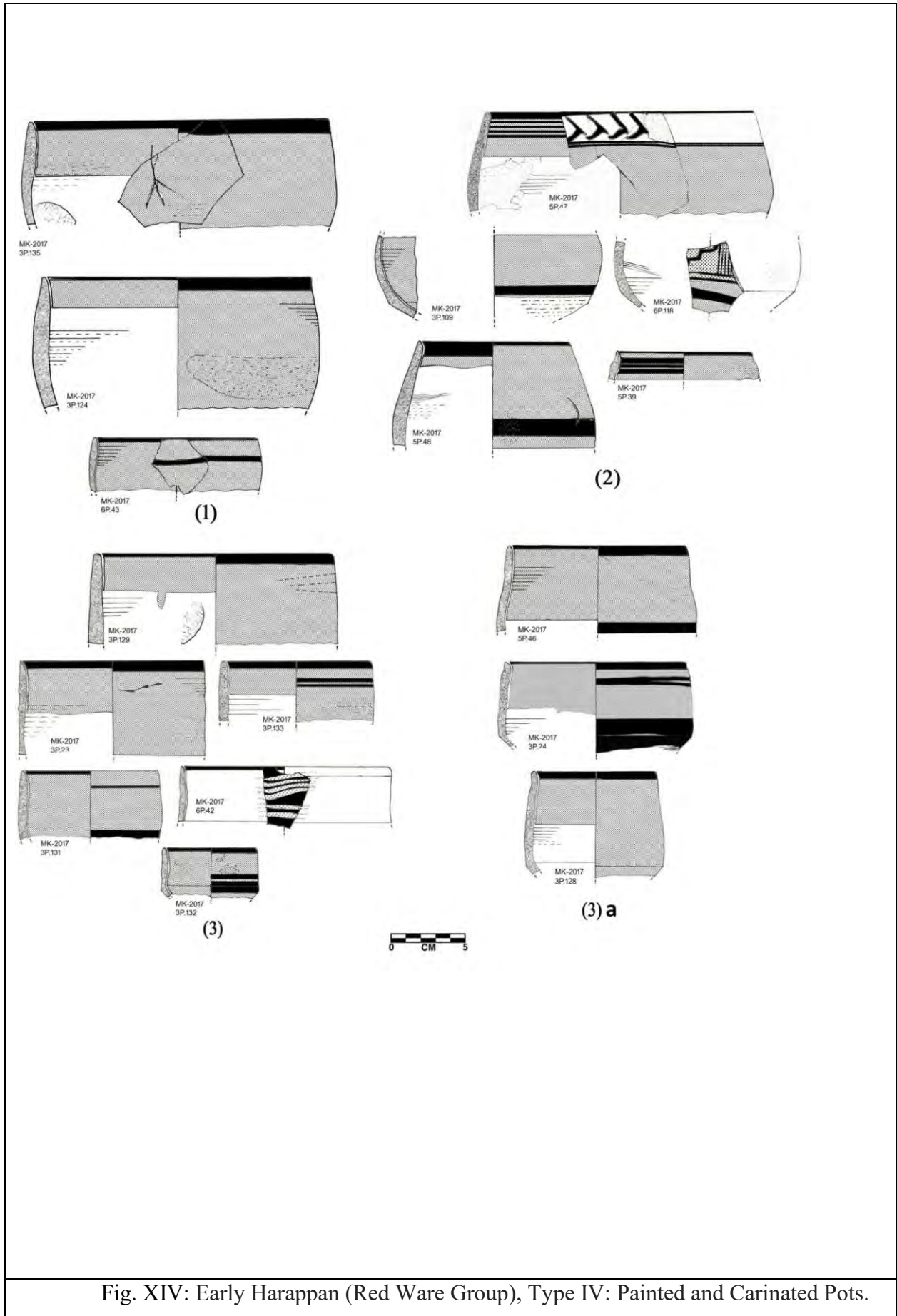


Fig. XIV: Early Harappan (Red Ware Group), Type IV: Painted and Carinated Pots.

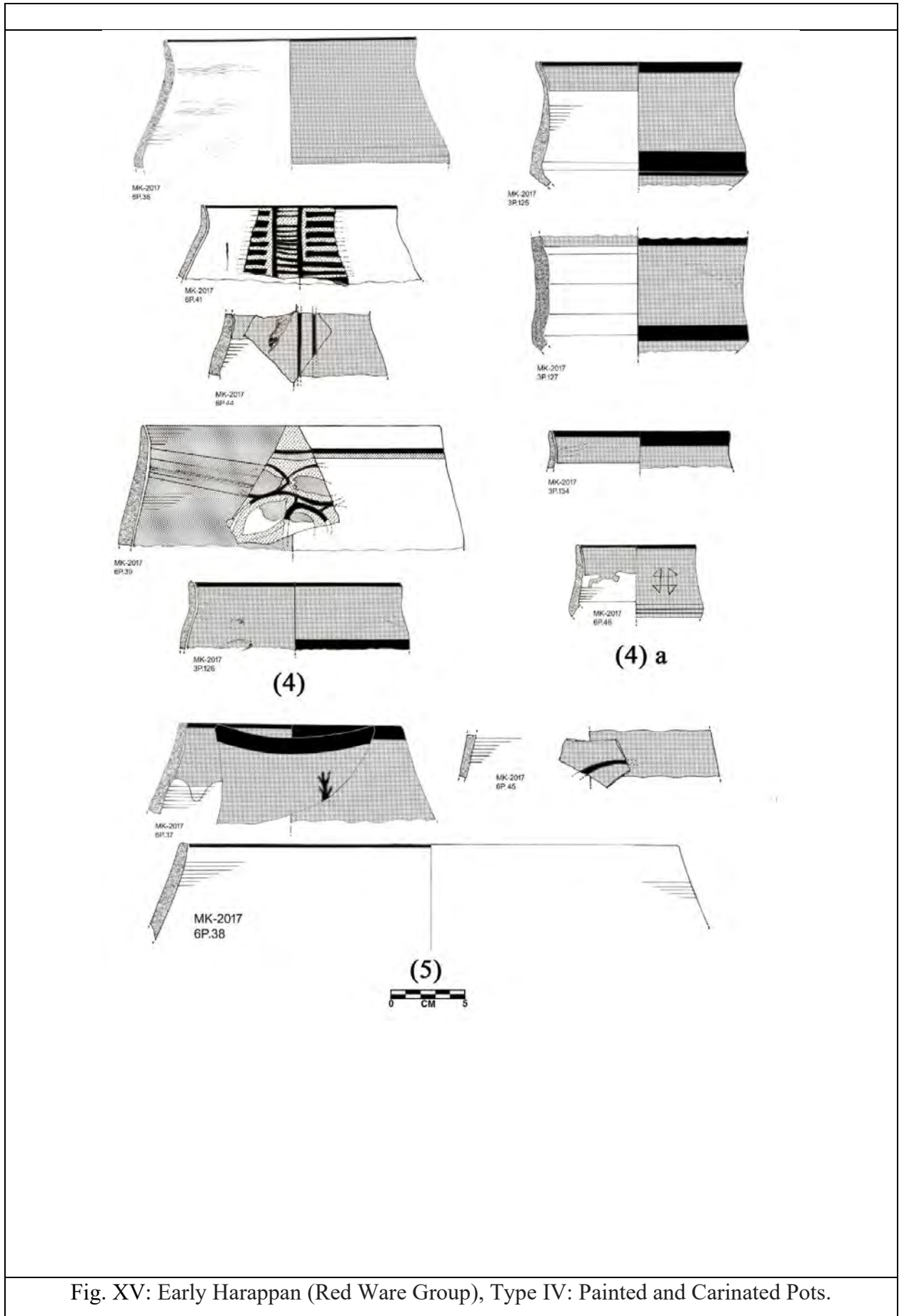


Fig. XV: Early Harappan (Red Ware Group), Type IV: Painted and Carinated Pots.

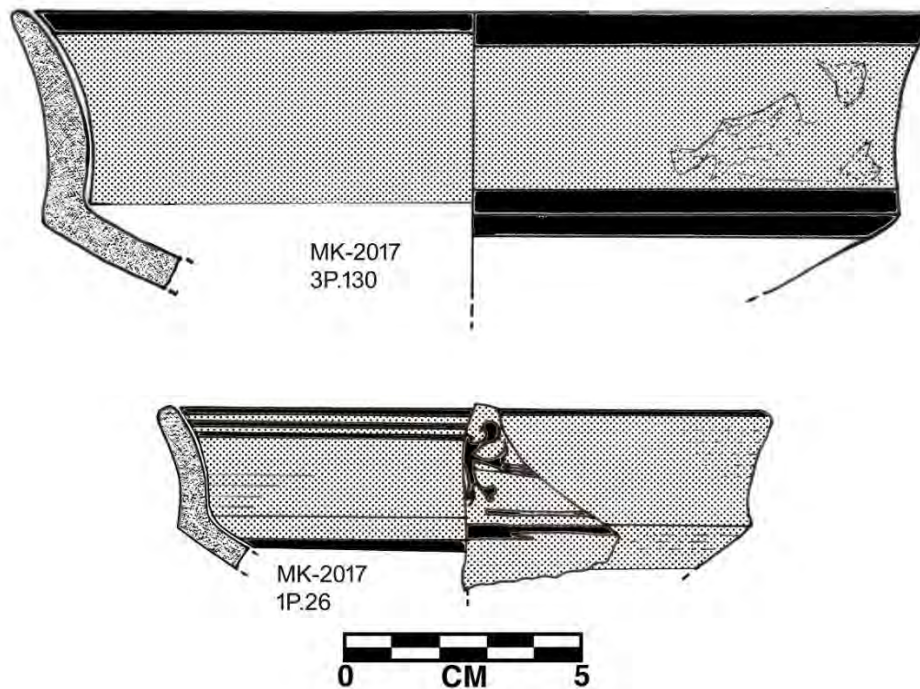


Fig. XVI: Early Harappan (Red Ware Group), Type V: Painted and Carinated Bowls with Flaring Rims

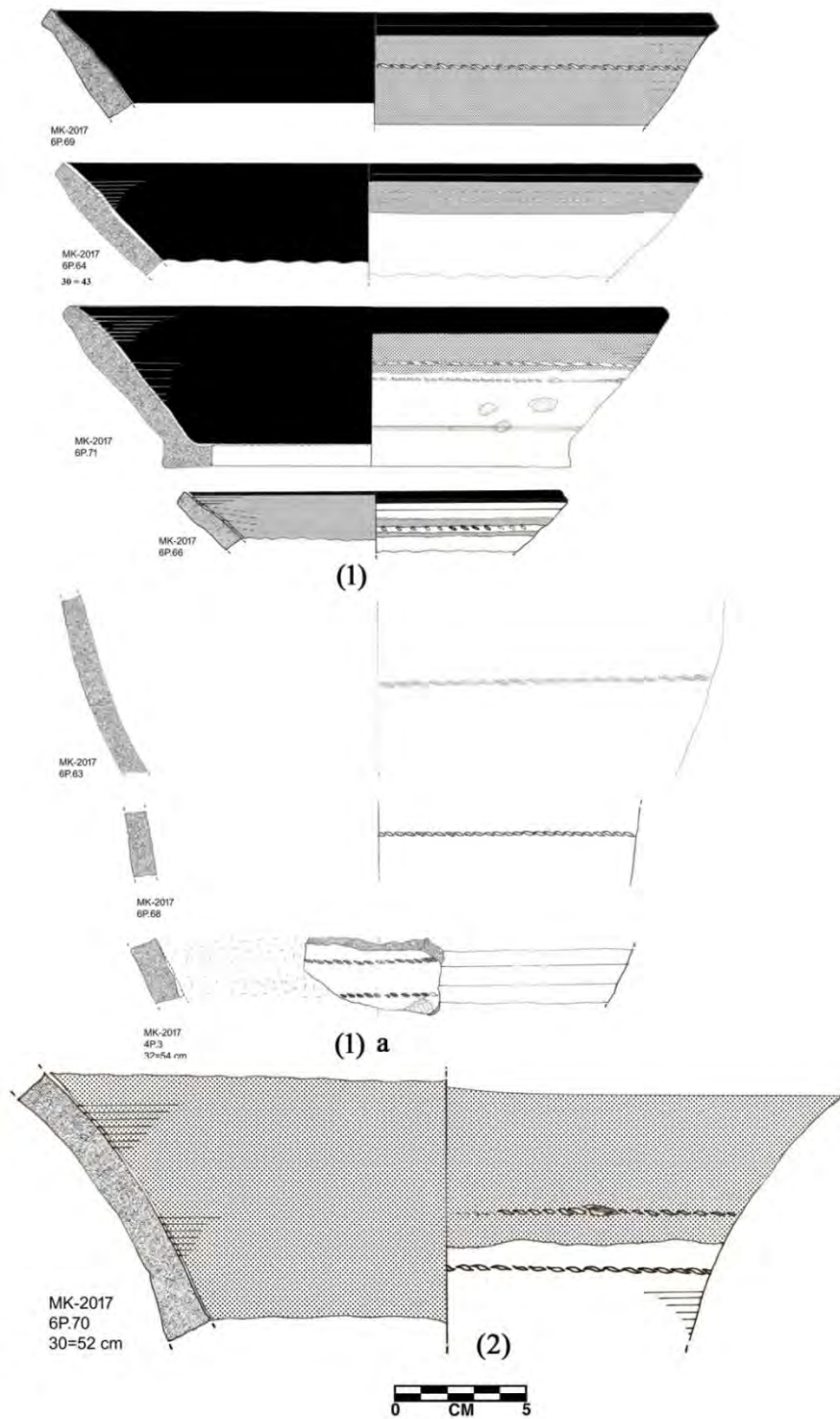


Fig. XVII: Early Harappan (Red Ware Group), Type VI: Painted, Cord Impressed and Convex Bowls; Sub-Type VIA: Painted, Cord Impressed and Concave Bowl.

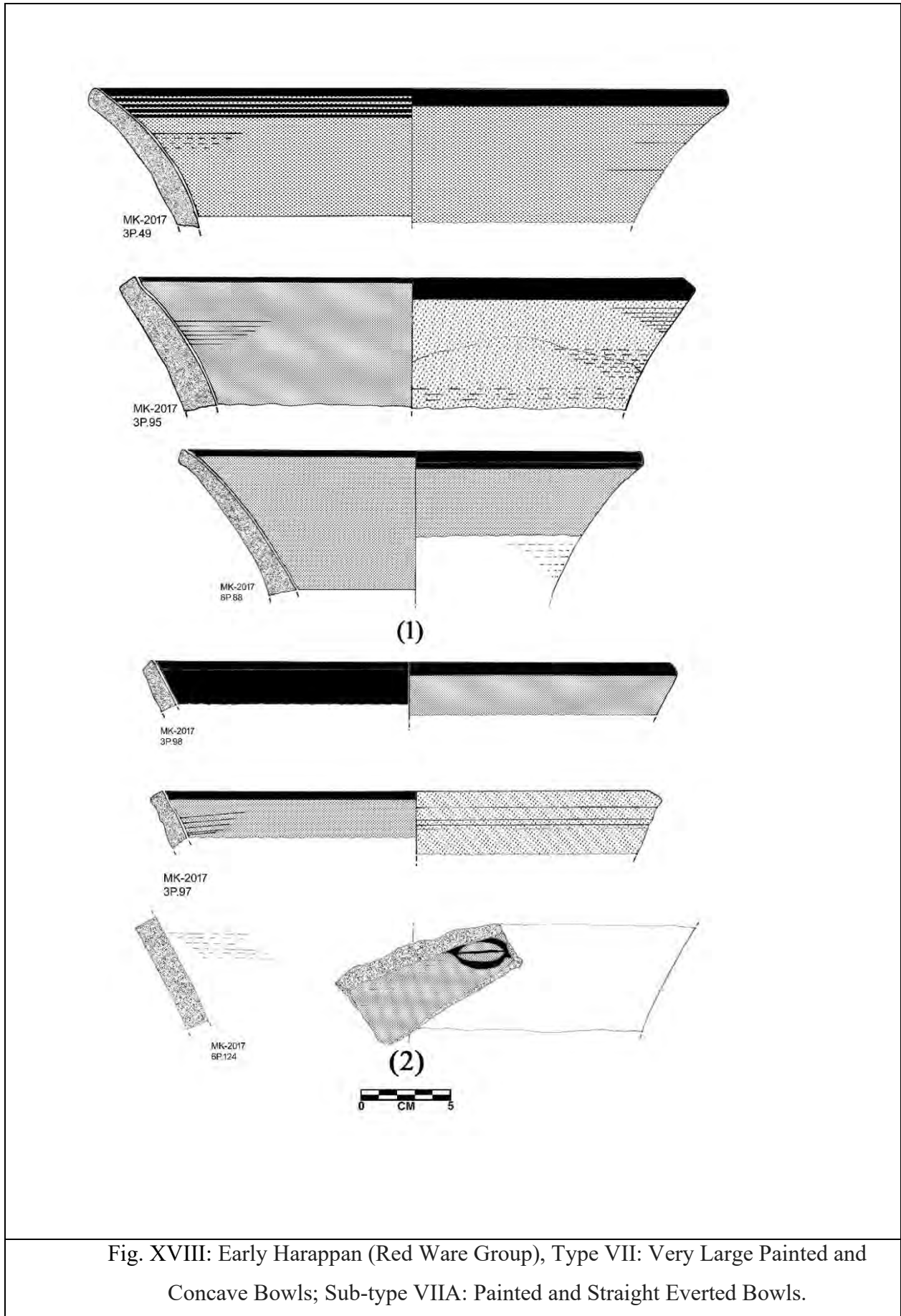


Fig. XVIII: Early Harappan (Red Ware Group), Type VII: Very Large Painted and Concave Bowls; Sub-type VIIA: Painted and Straight Everted Bowls.

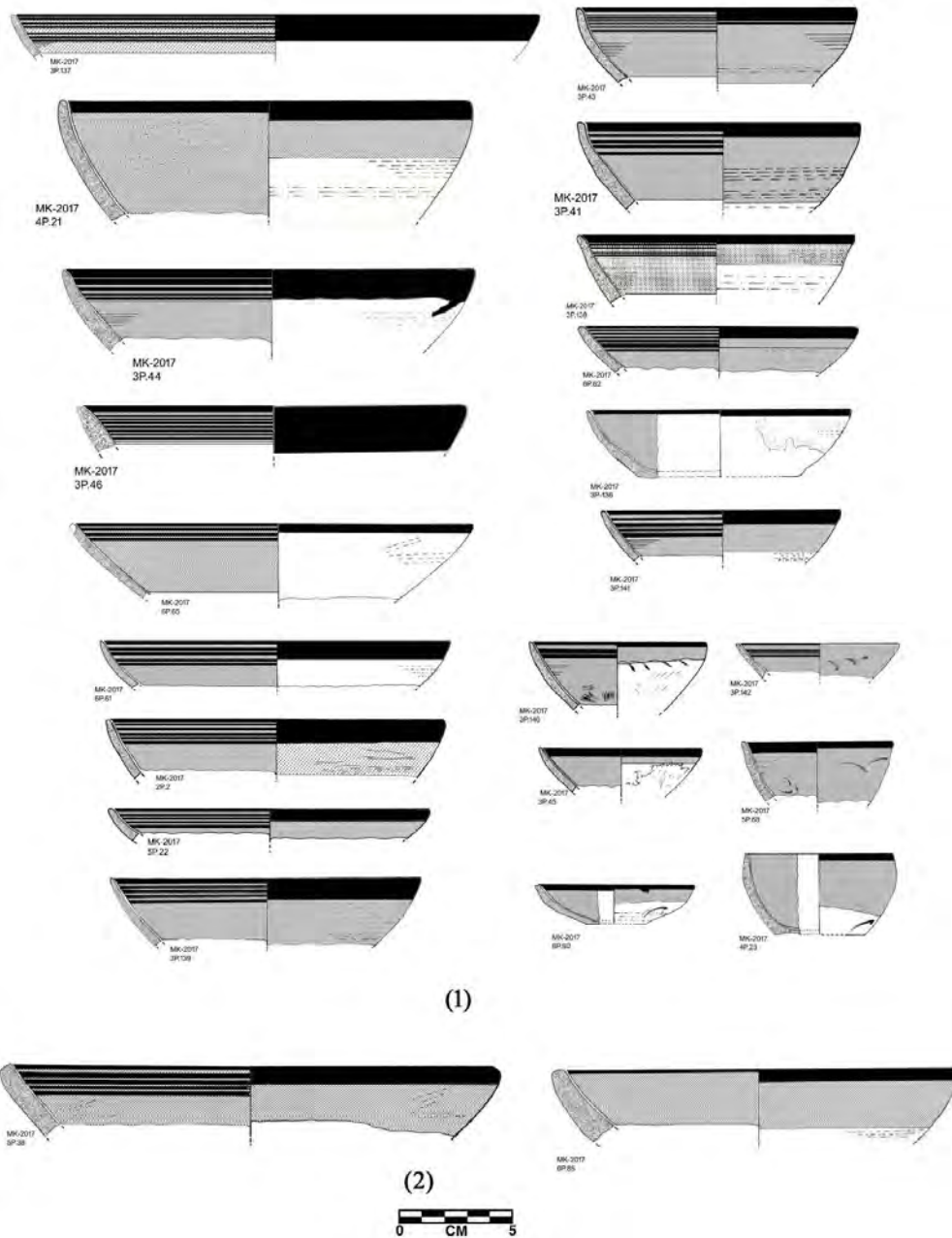


Fig. XIX: Early Harappan (Red Ware Group), Type VIII: Painted and Convex Bowls with Sharp rims.

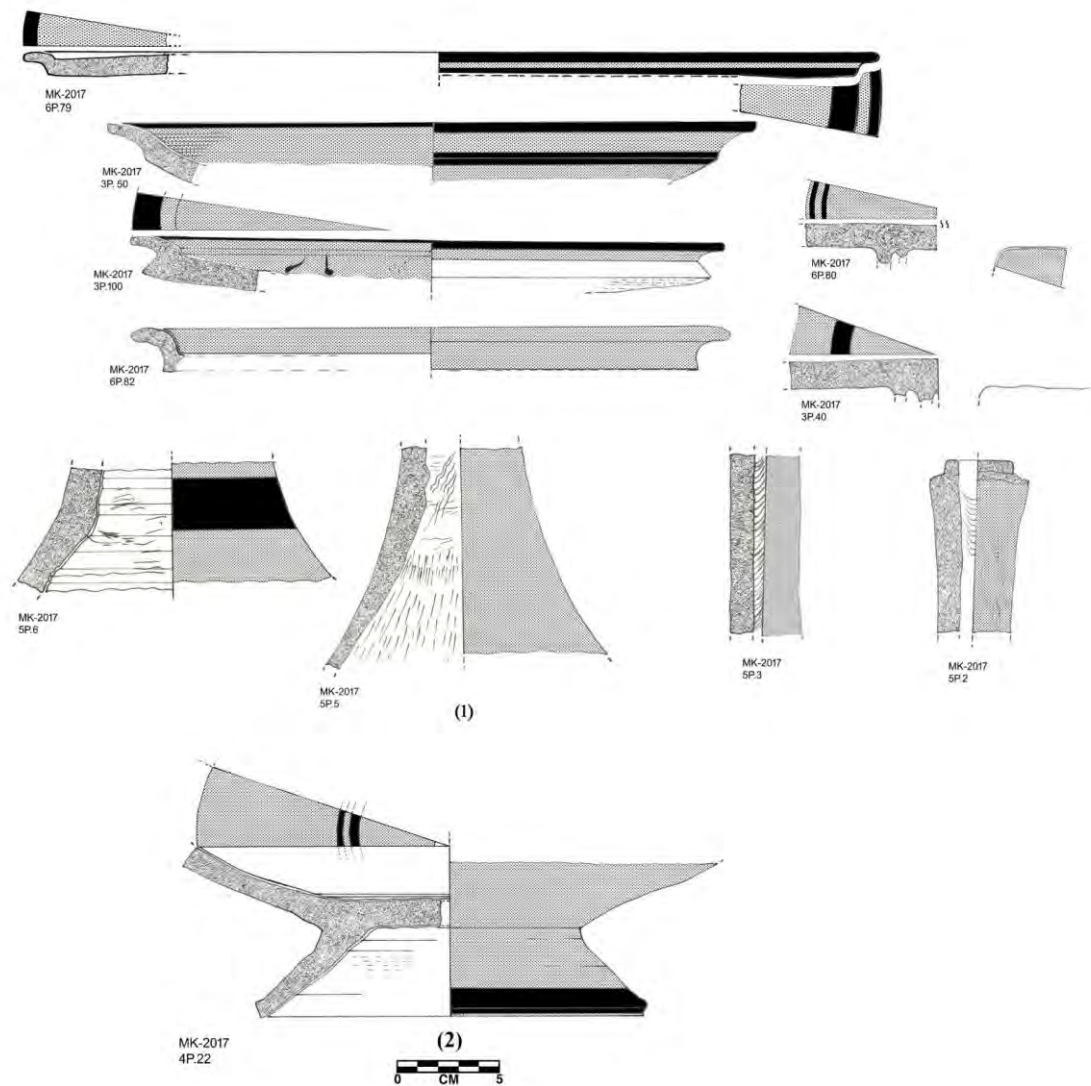


Fig. XX: Early Harappan (Red Ware Group), Type X: Painted Dish on High and Hollow Stand (Offering Stands); Sub-type XA: Painted Bowl on Low and Hollow Stand.

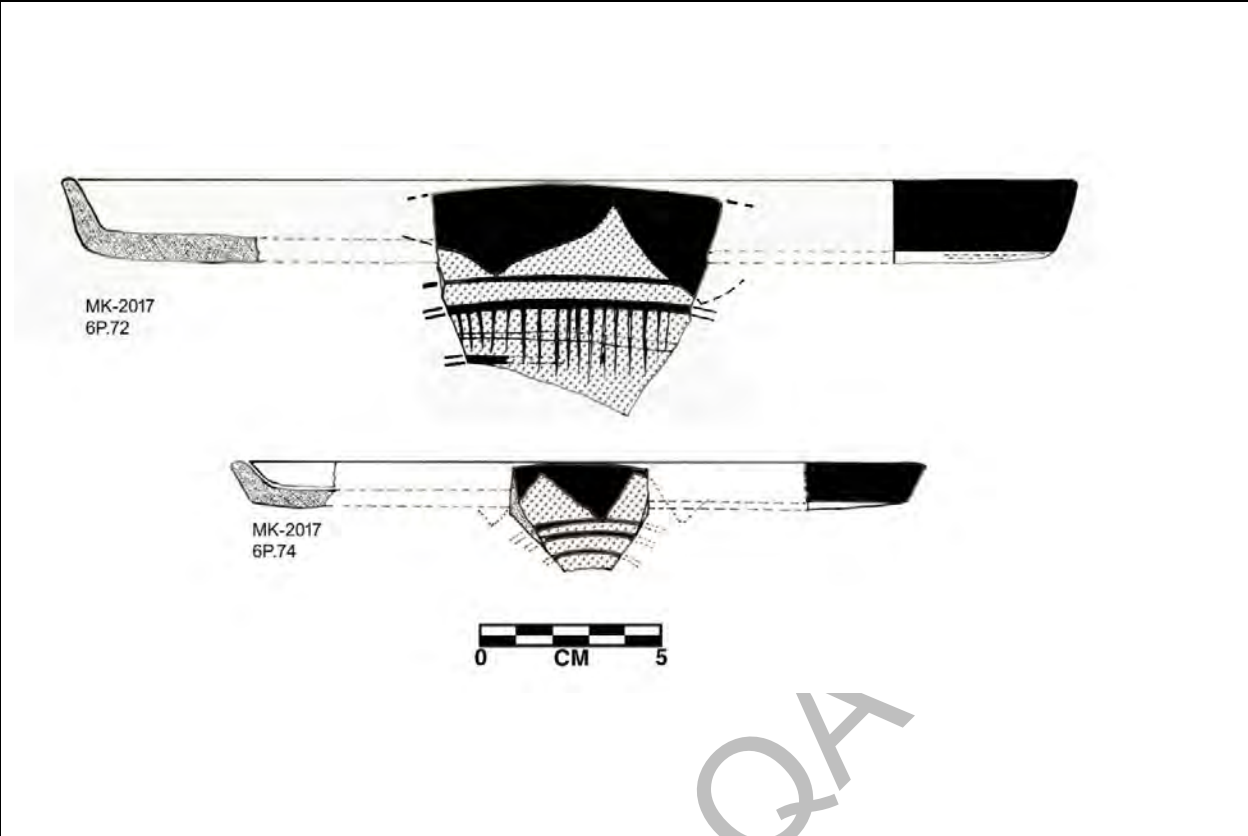


Fig. XXI: Early Harappan (Red Ware Group), Type IX: Painted Dish with Convex Base.

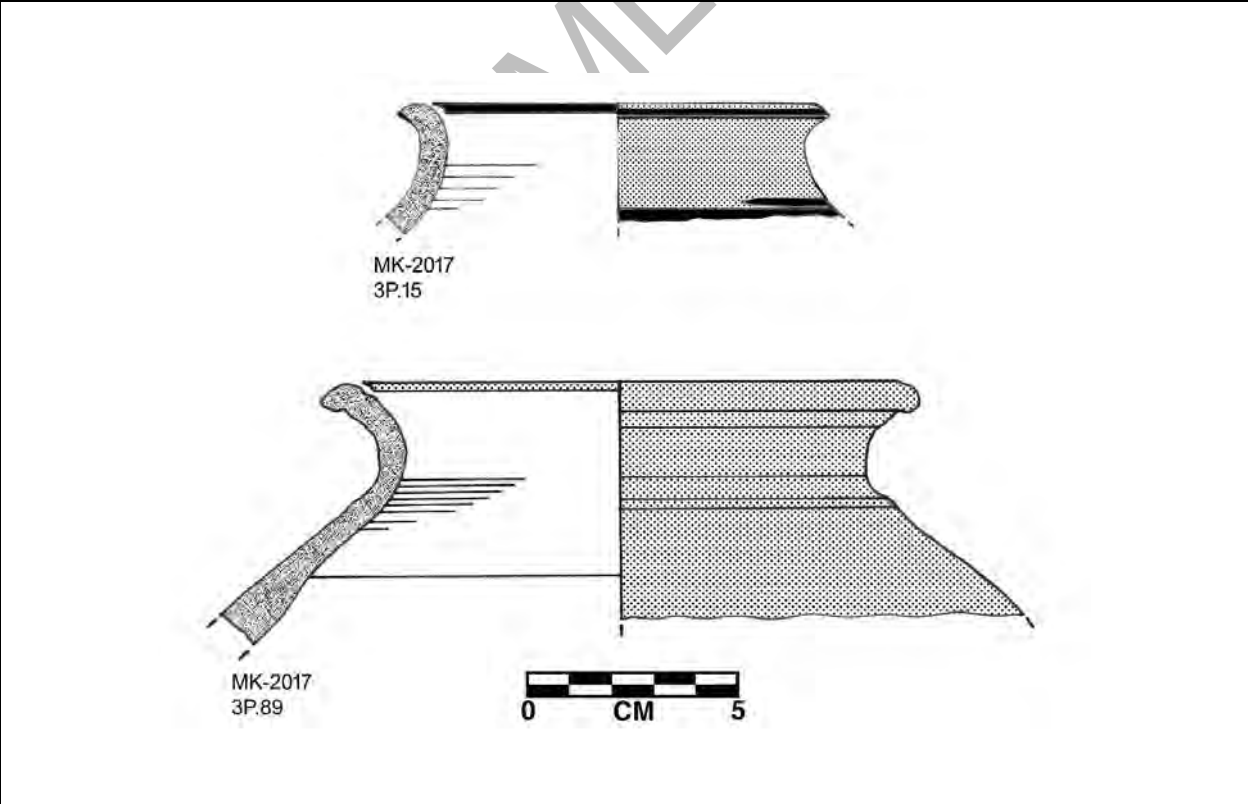


Fig. XXII: Early Harappan (Red Ware Group), Misc. Type XI: Vessels with Collard Necks.

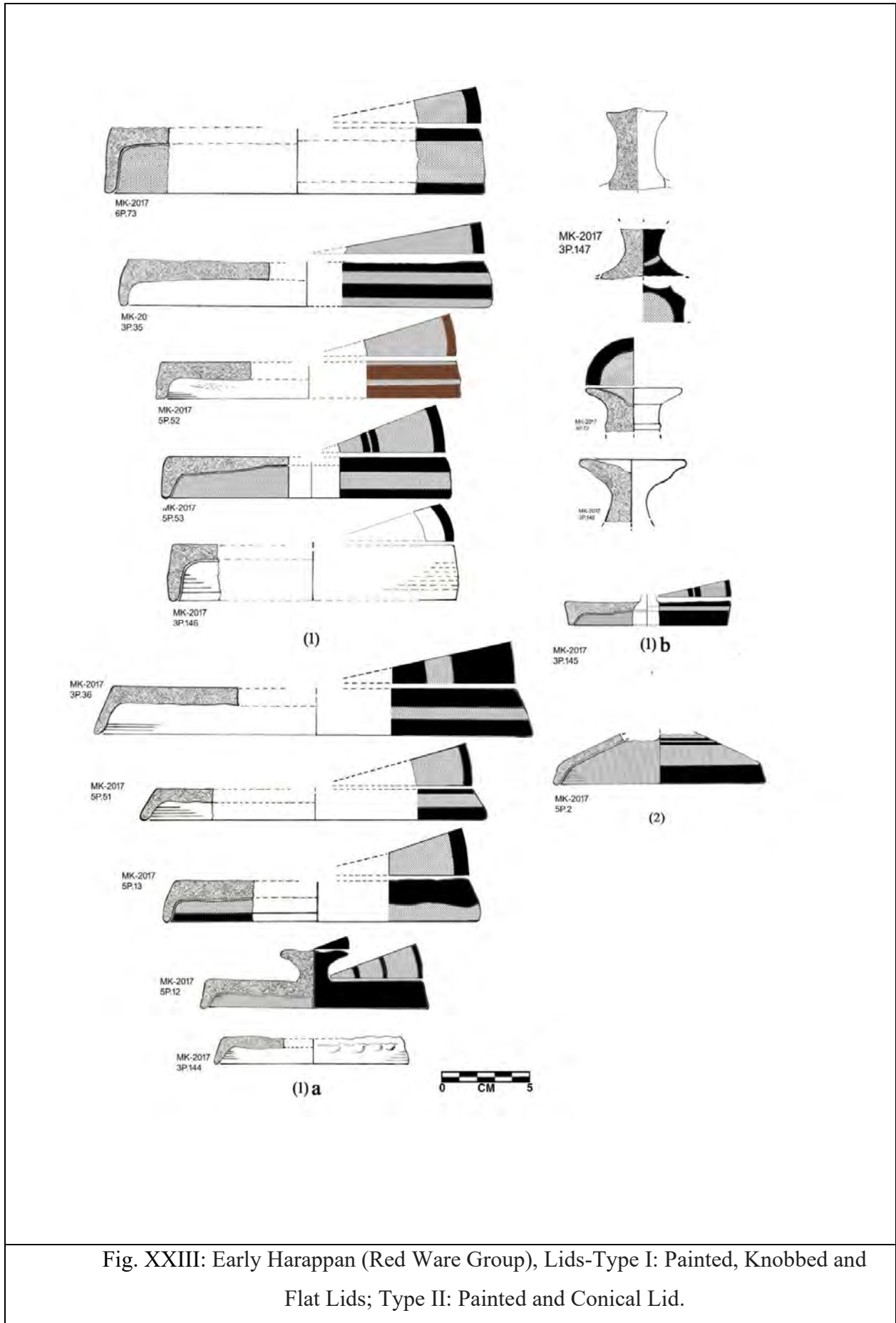


Fig. XXIII: Early Harappan (Red Ware Group), Lids-Type I: Painted, Knobbed and Flat Lids; Type II: Painted and Conical Lid.

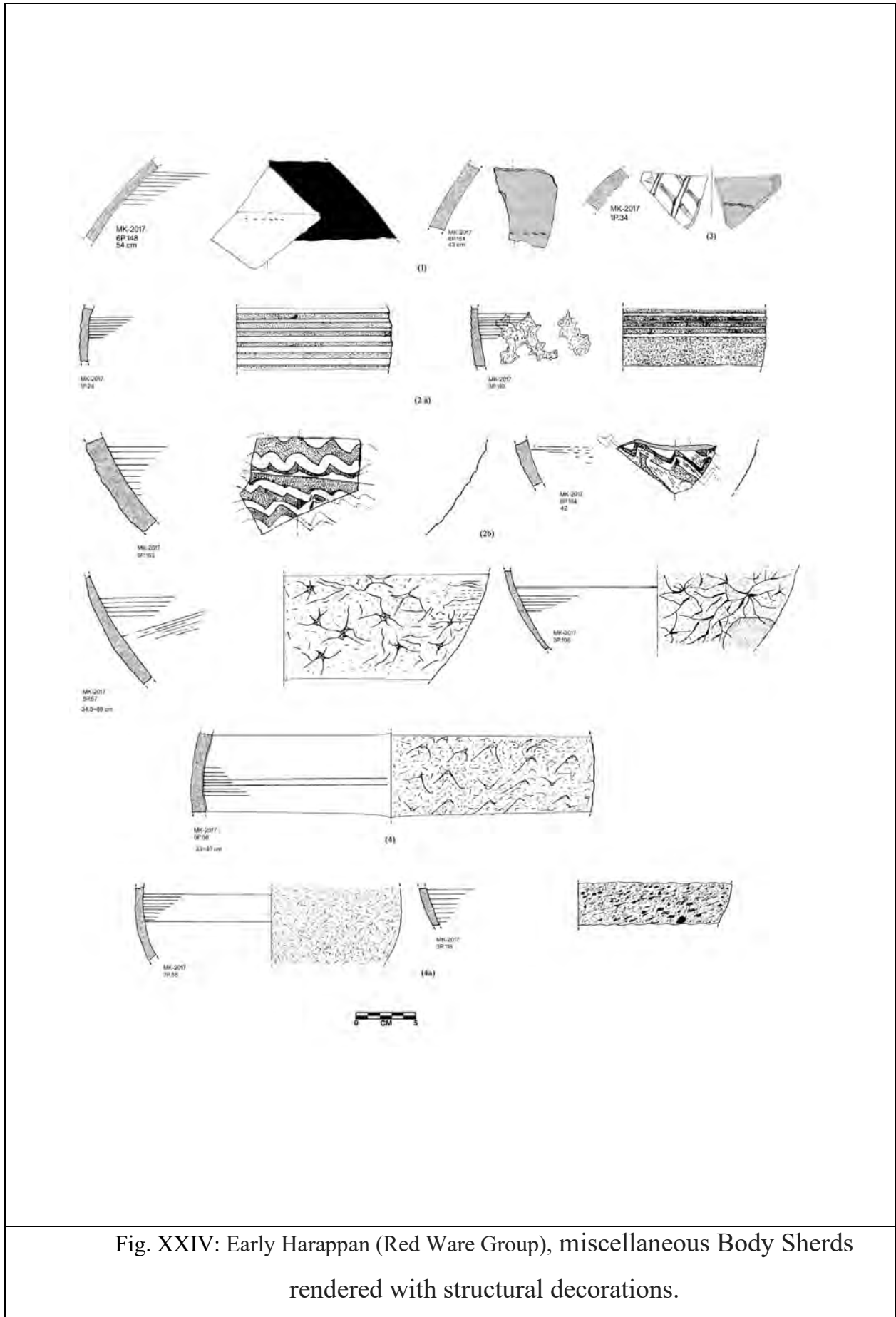


Fig. XXIV: Early Harappan (Red Ware Group), miscellaneous Body Sherds rendered with structural decorations.

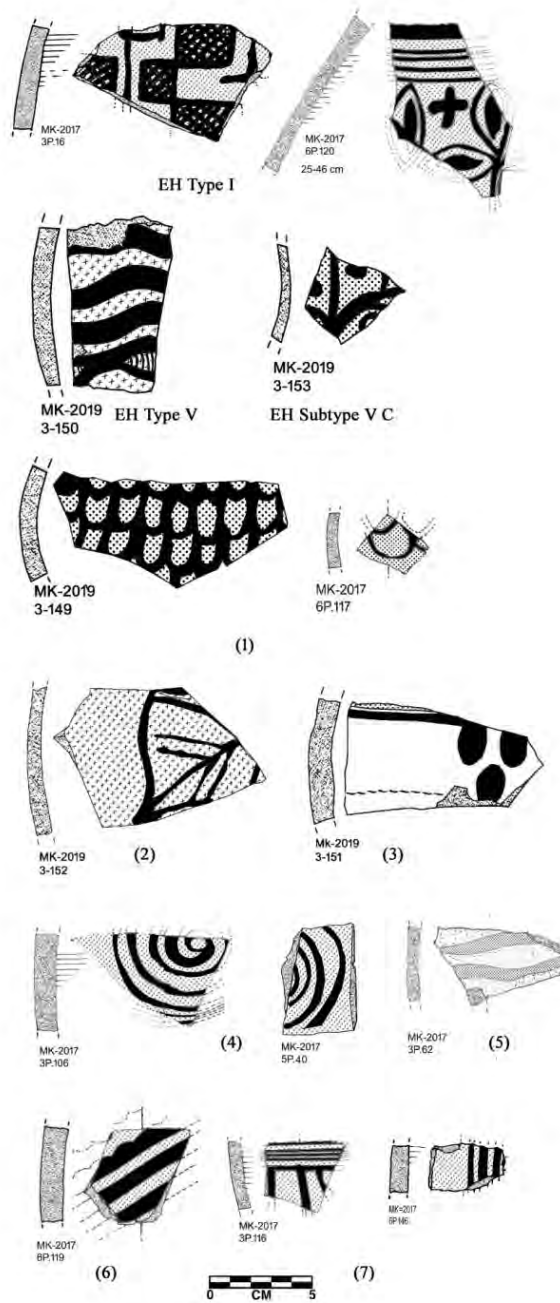


Fig. XXV: Early Harappan (Red Ware Group), miscellaneous body Sherds rendered with painted decorations.

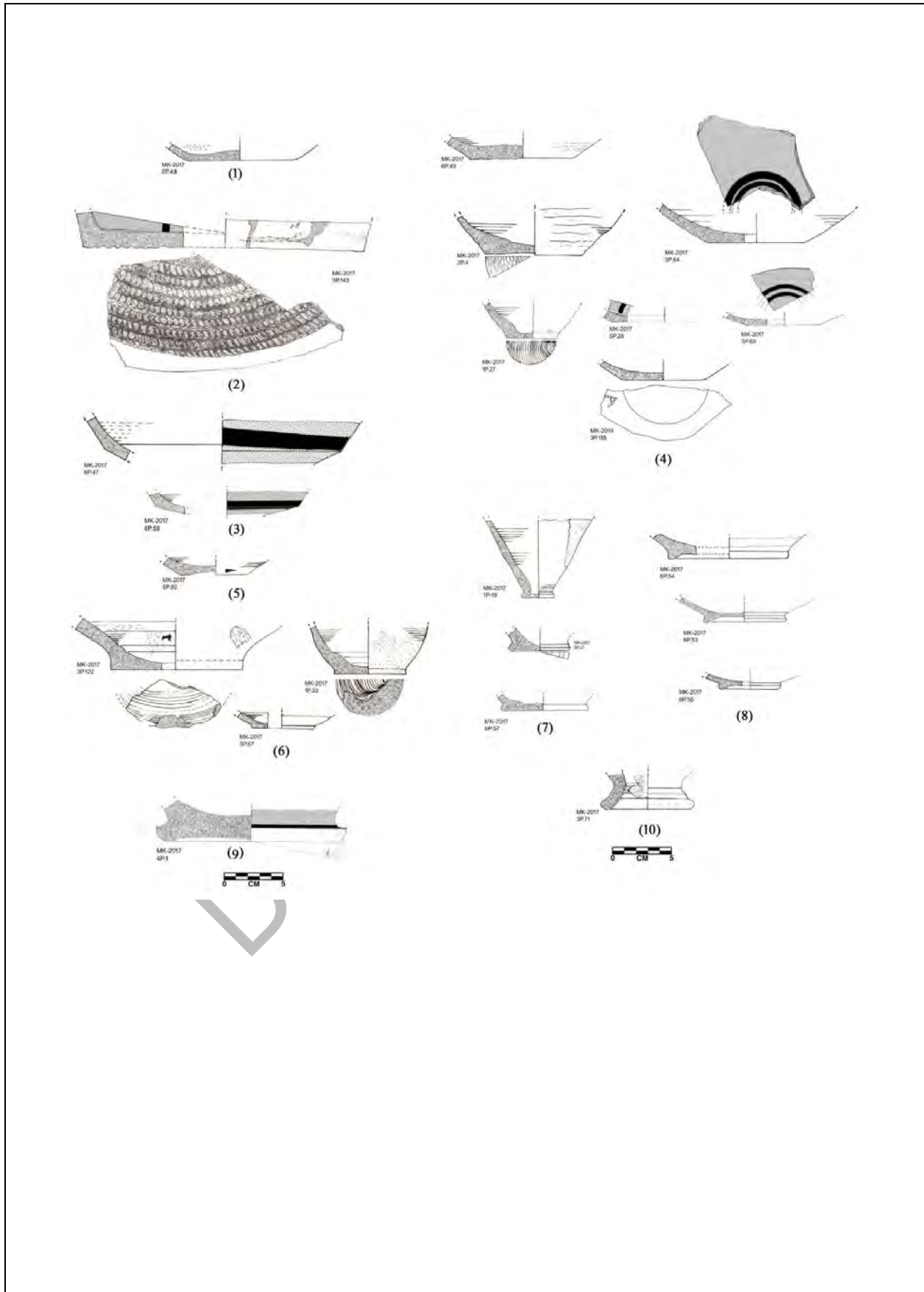
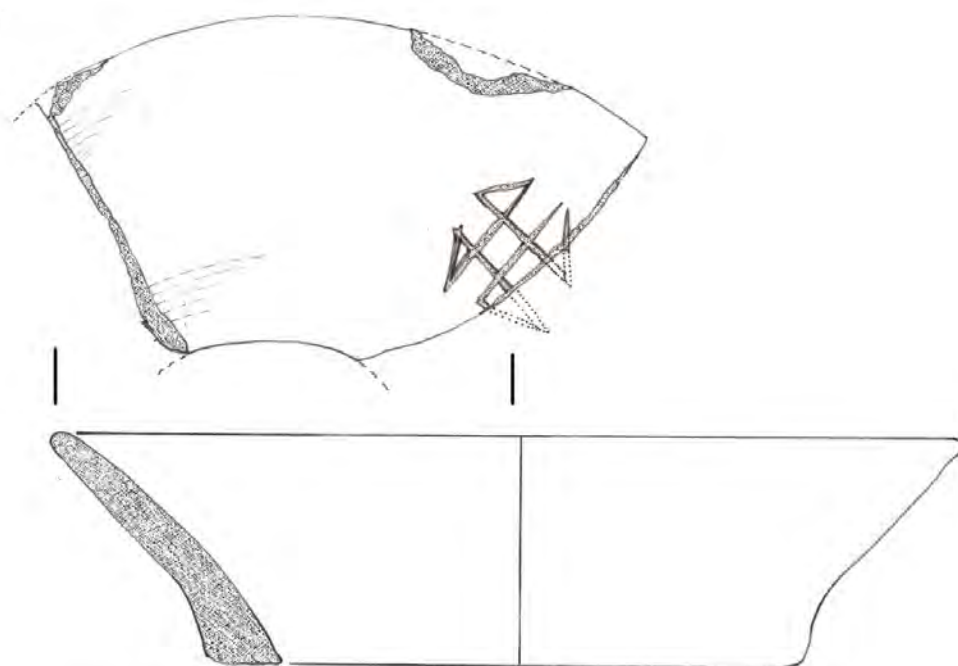


Fig. XXVI: Early Harappan (Red Ware Group), miscellaneous vessel bases.



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Fig. XXVII: Early Harappan (Red Ware Group), Base mold with pre-fired
“Maltese Cross” symbol.

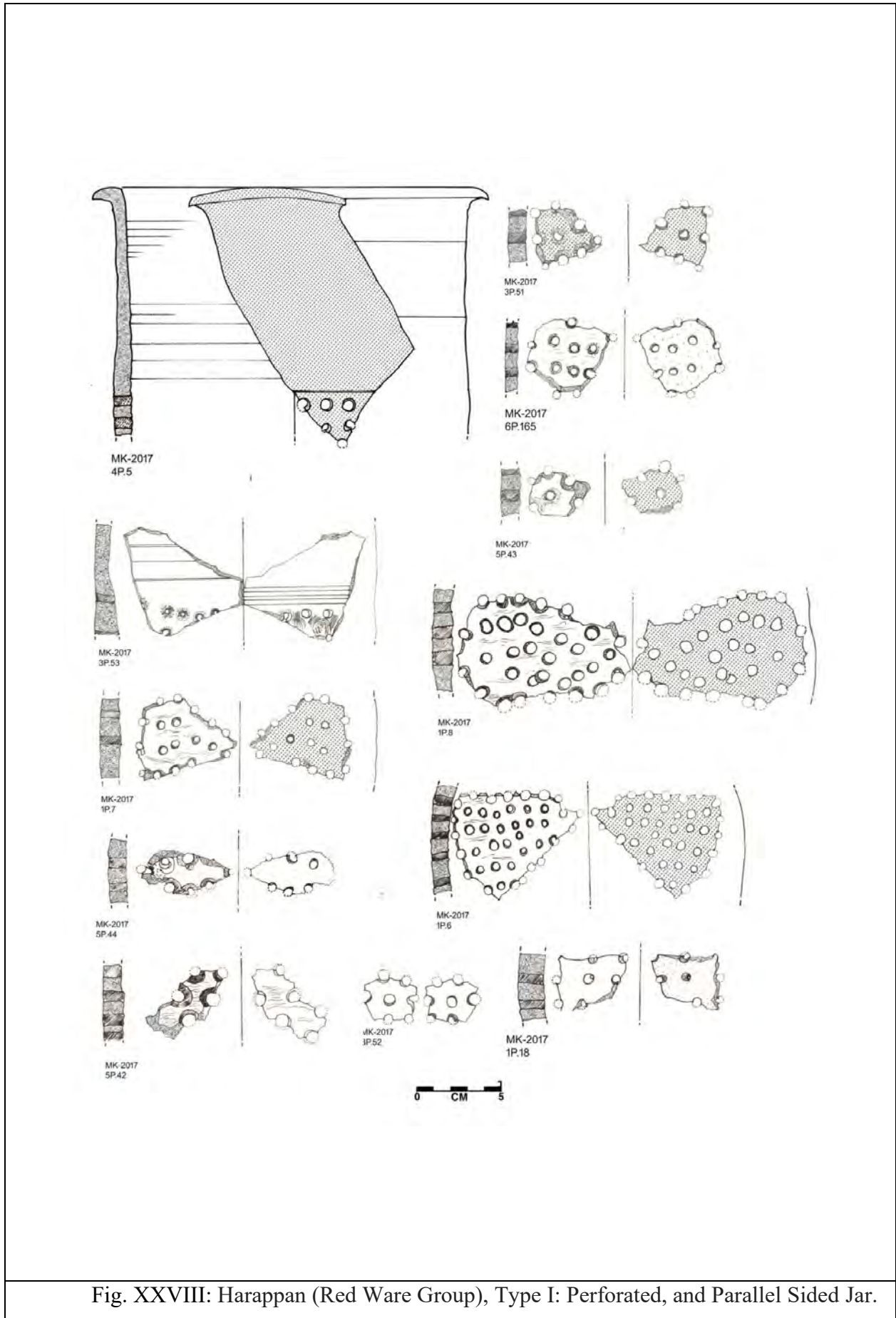


Fig. XXVIII: Harappan (Red Ware Group), Type I: Perforated, and Parallel Sided Jar.

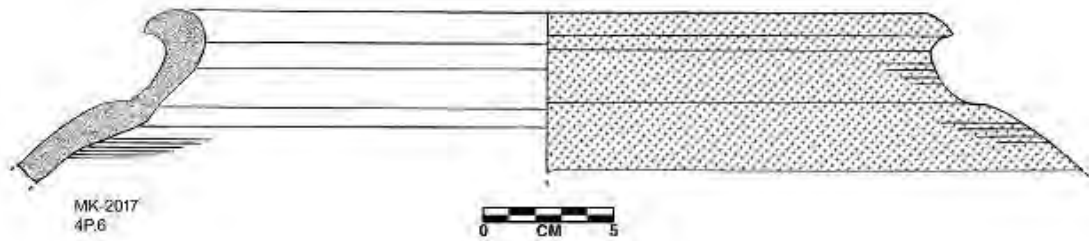


Fig. XXIX: Harappan (Red Ware Group), Type II: Very Large, Globular, White Slipped and Shouldered Jar.

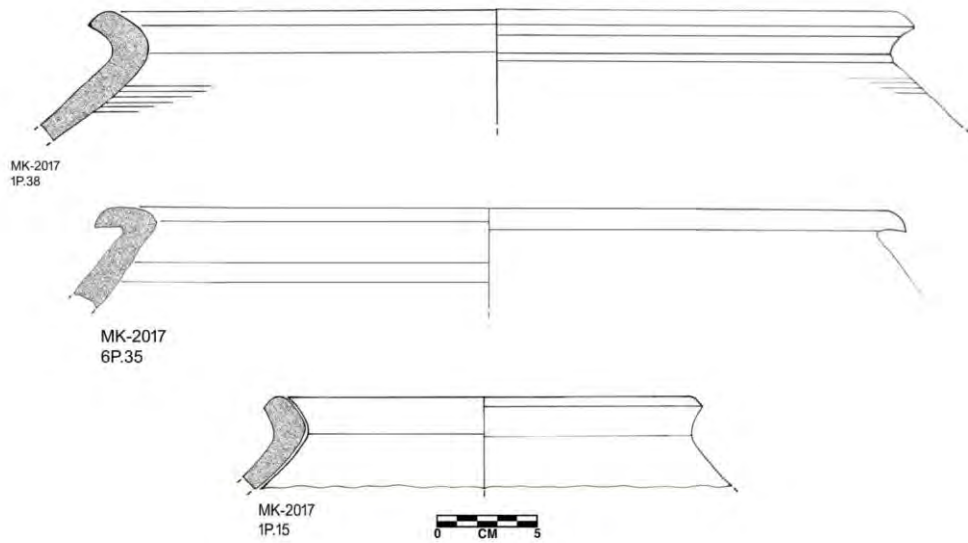


Fig. XXX: Harappan (Red Ware Group), Type III: Plain and Globular Jars.

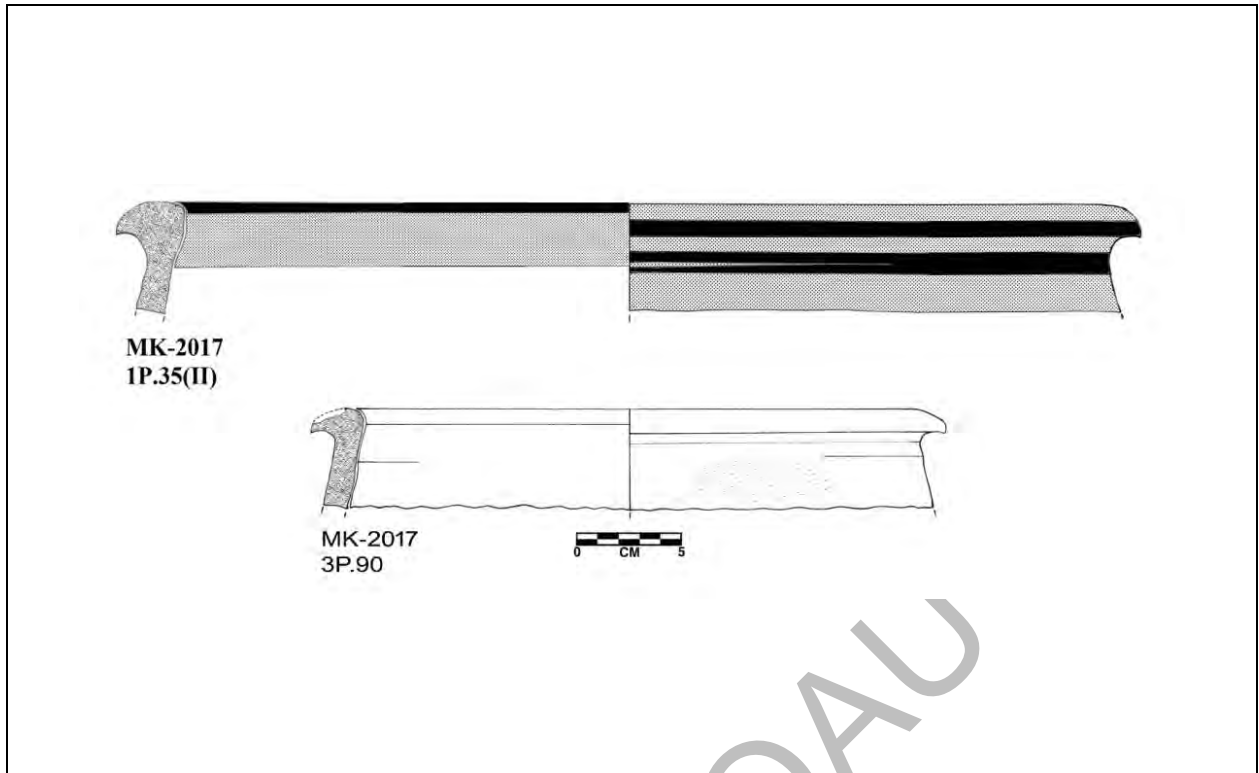


Fig. XXXI: Harappan (Red Ware Group), Type IV: Very Large Parallel Sided Pot.

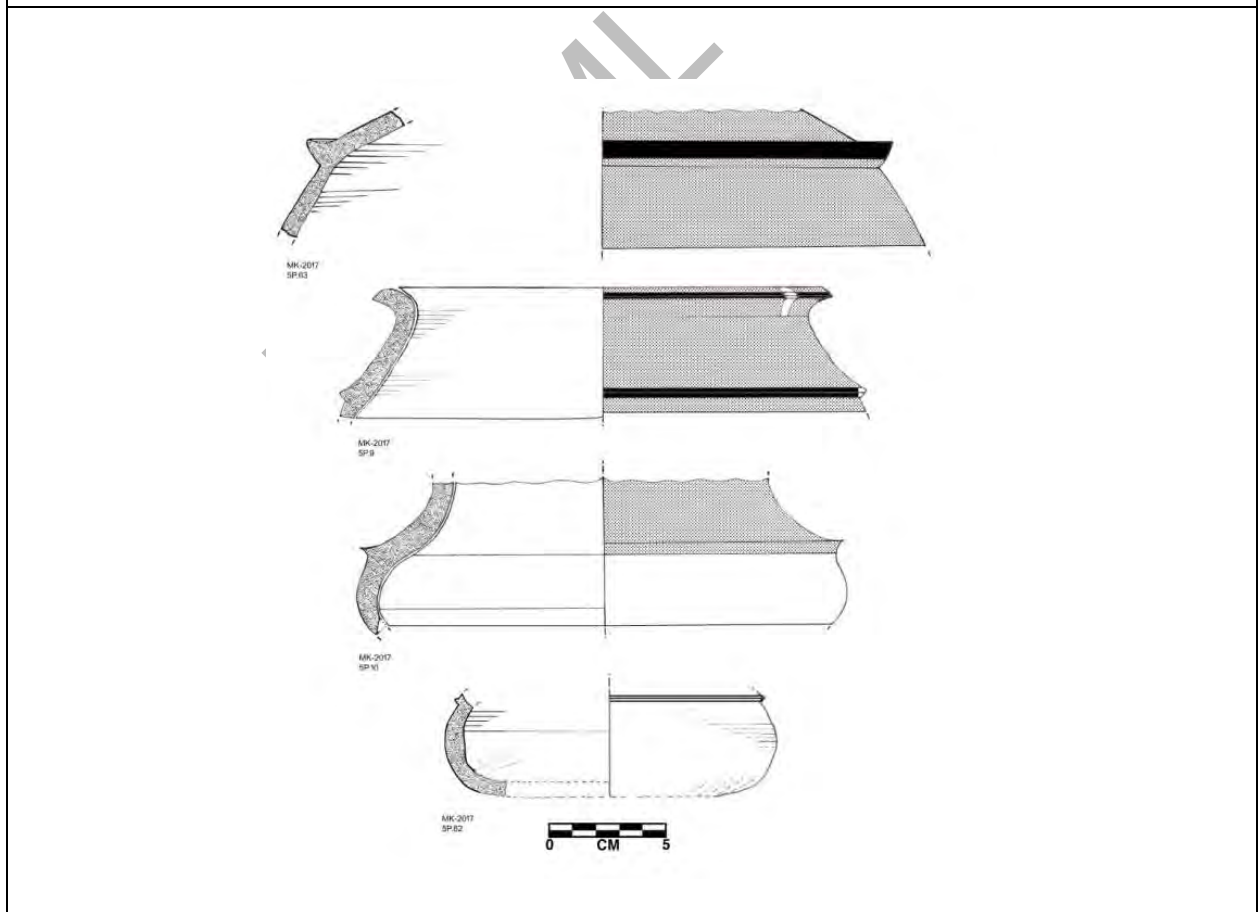


Fig. XXXII: Harappan (Red Ware Group), Type V: Lugged Pots with Round Base.

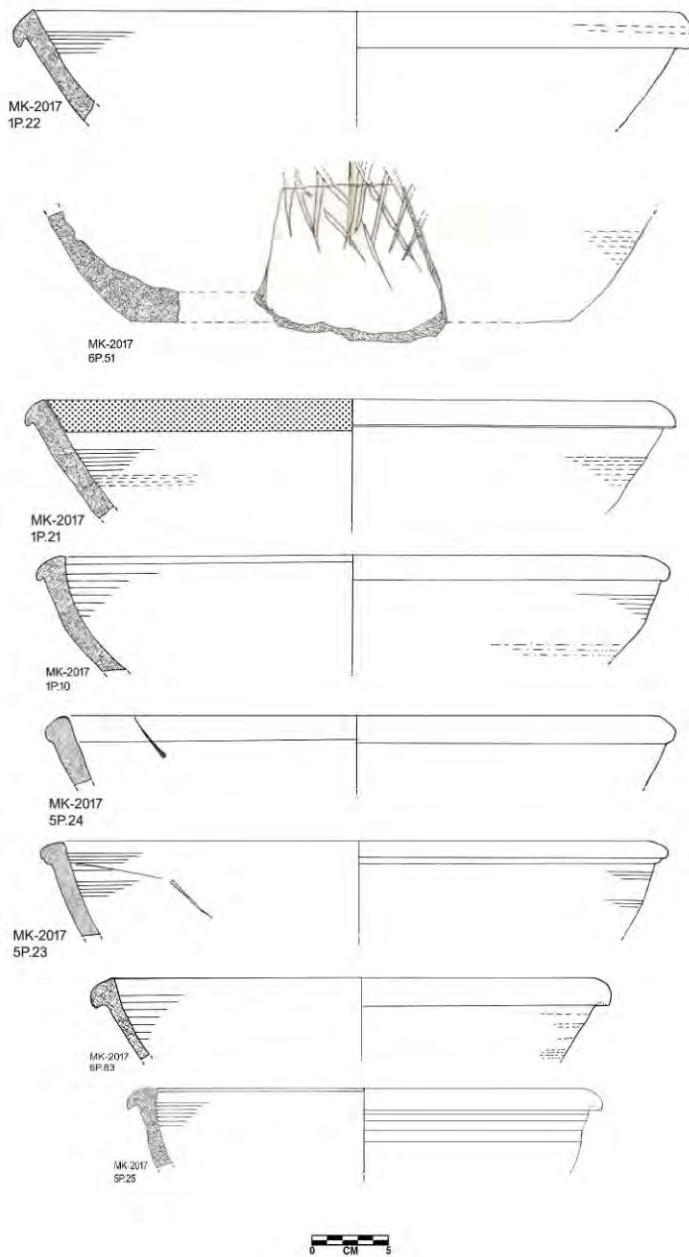


Fig. XXXIII: Harappan (Red Ware Group), Type VI: Very Large, Plain, and Convex Bowls.

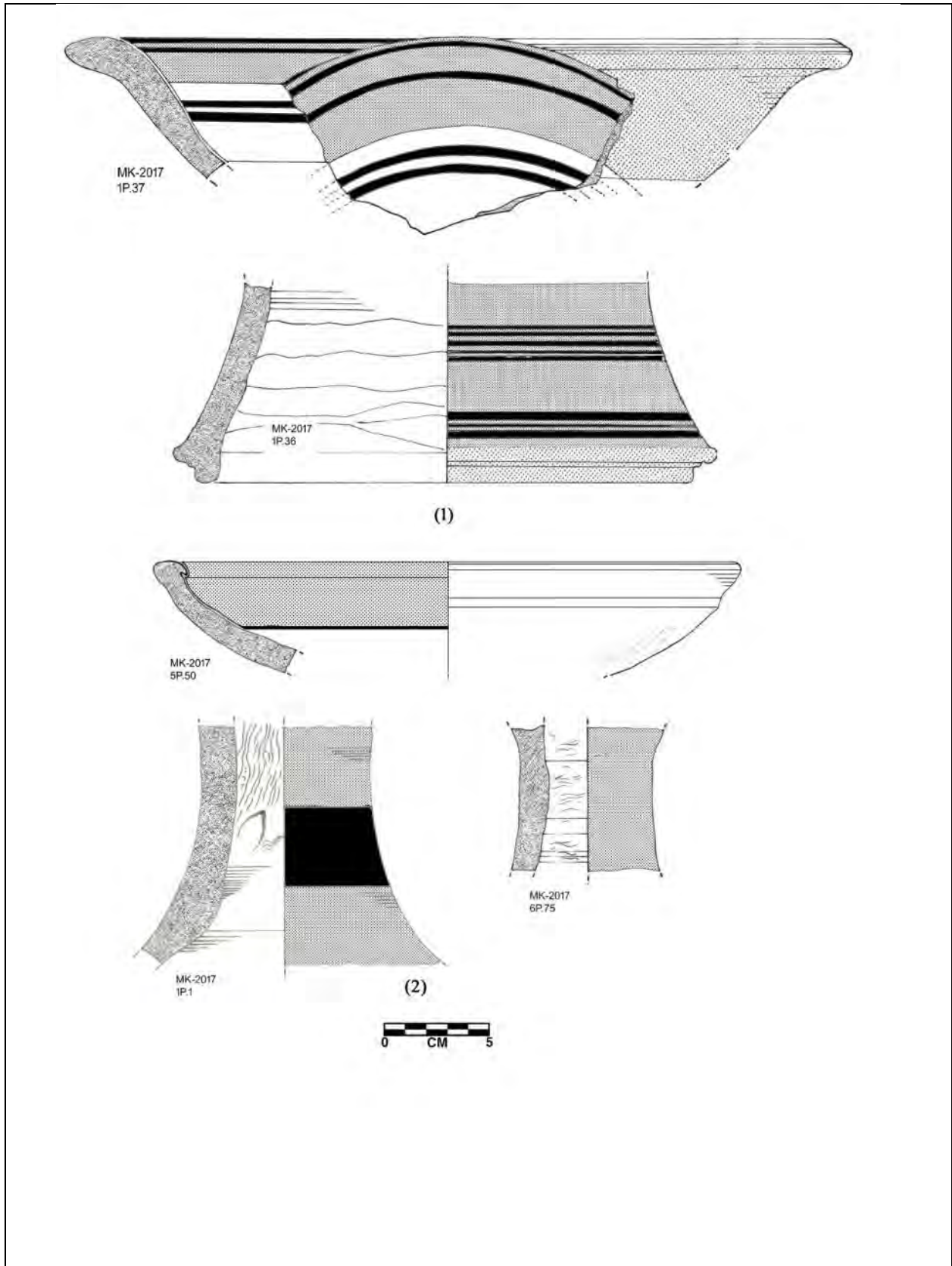


Fig. XXXIV: Harappan (Red Ware Group), Type VII: Very Large, Painted Bowl on Squat, Ledged and Hollow Pedestal; Sub-type VII A: Painted Bowl on High, and Hollow Stand.

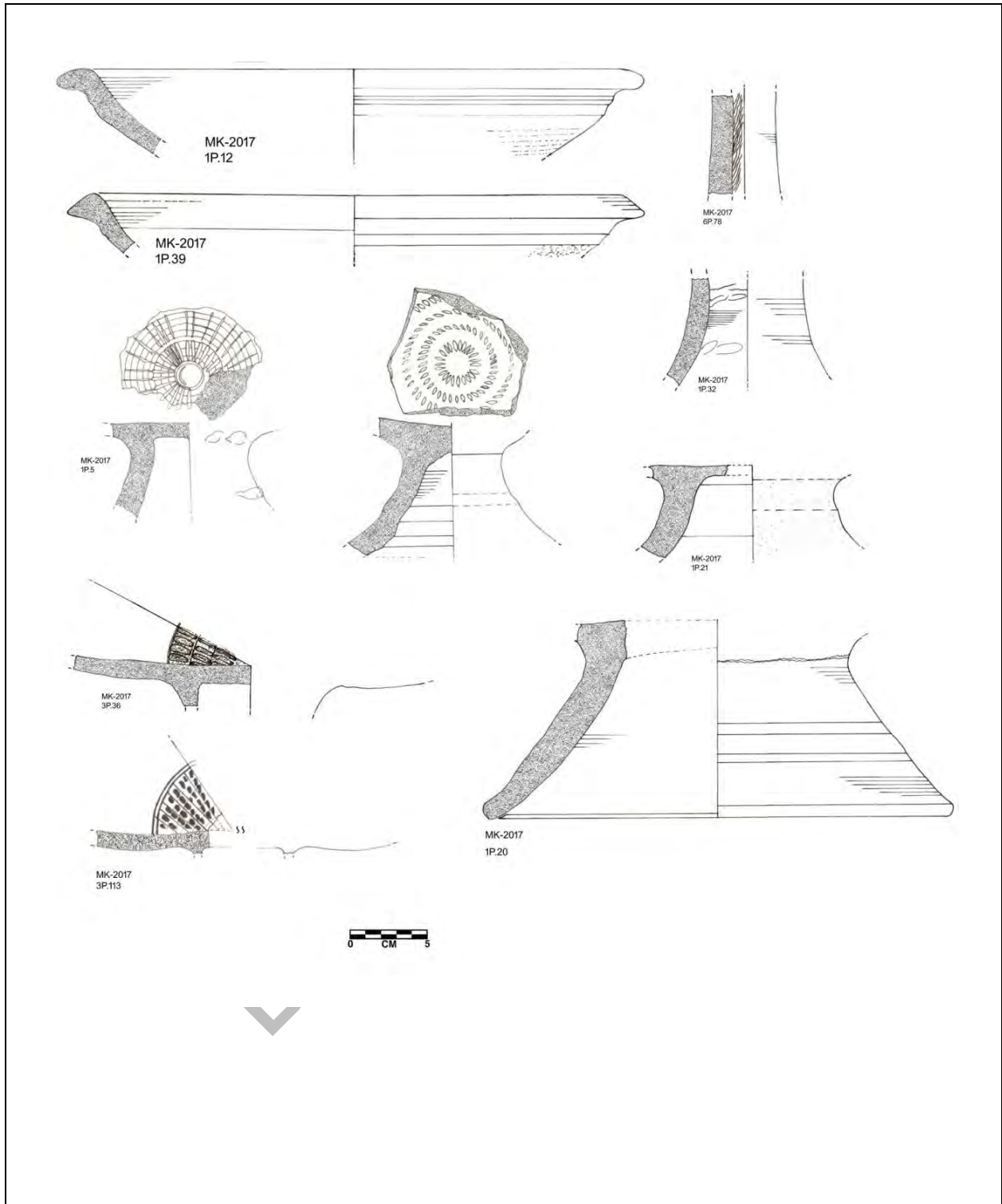


Fig. XXXV: Harappan (Red Ware Group), Sub-type VII-B: Plain Bowls/Dishes on Stands.

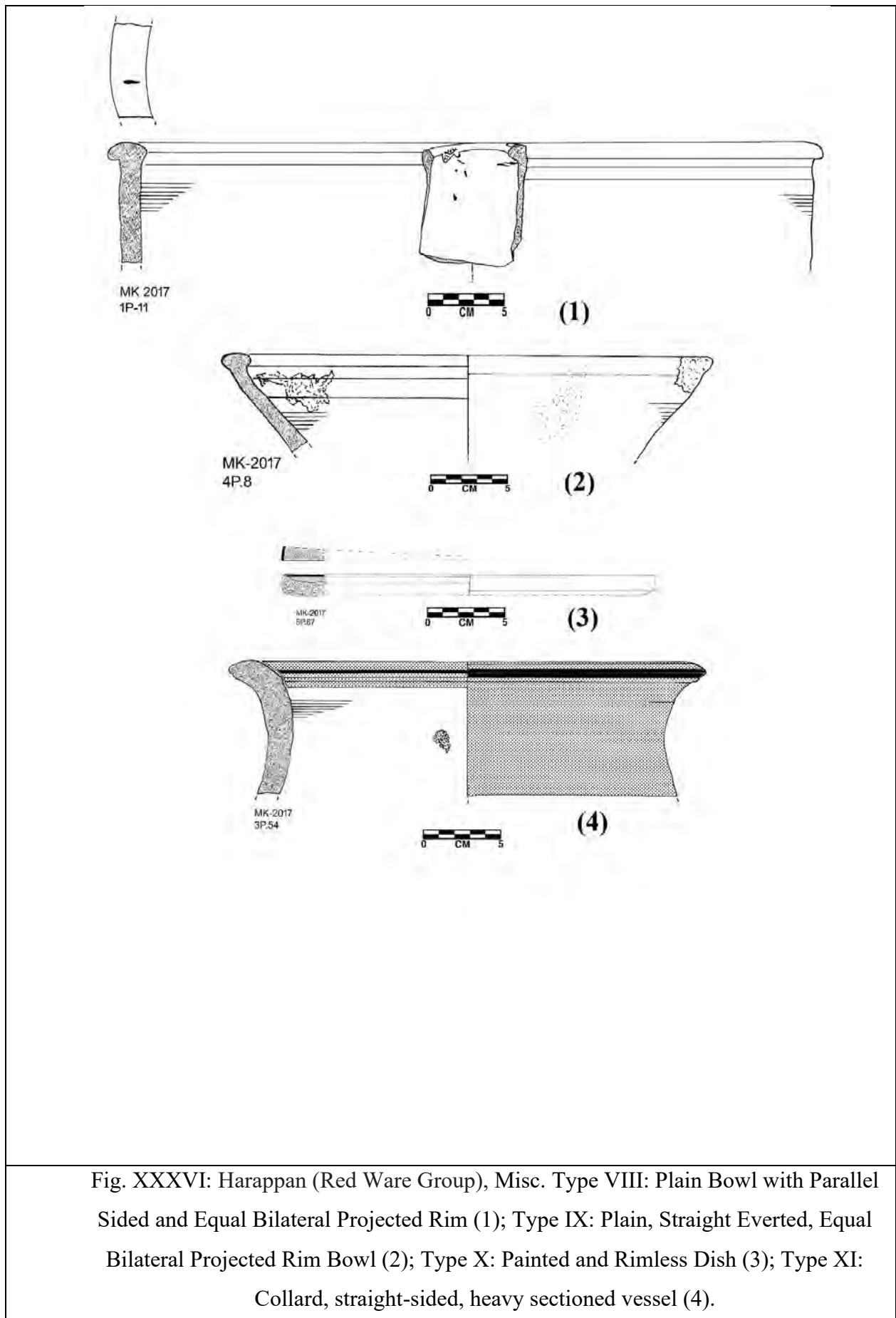


Fig. XXXVI: Harappan (Red Ware Group), Misc. Type VIII: Plain Bowl with Parallel Sided and Equal Bilateral Projected Rim (1); Type IX: Plain, Straight Everted, Equal Bilateral Projected Rim Bowl (2); Type X: Painted and Rimless Dish (3); Type XI: Collard, straight-sided, heavy sectioned vessel (4).

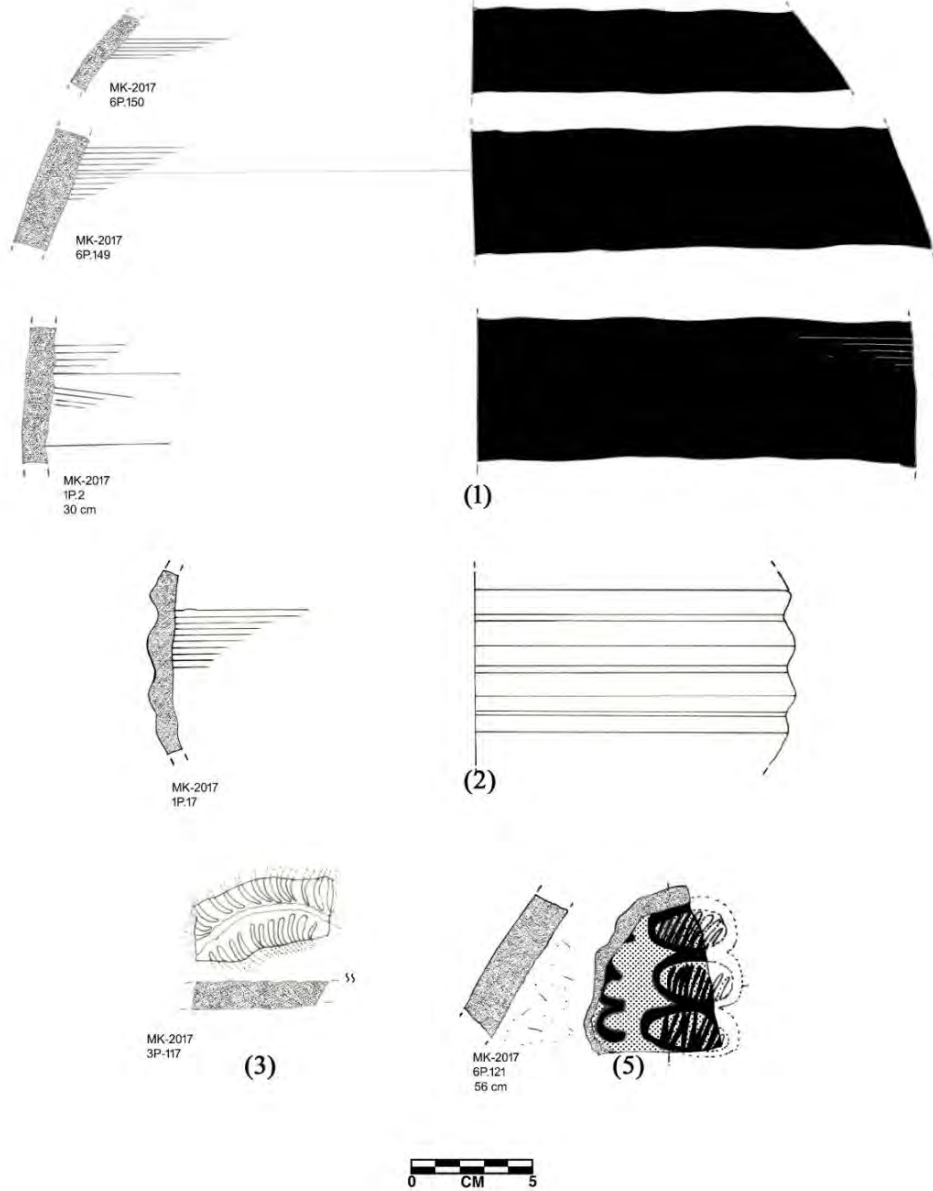


Fig. XXXVII: Harappan (Red Ware Group), Misc. body sherds rendered with painted and structural decoration.

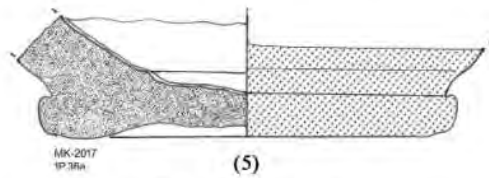
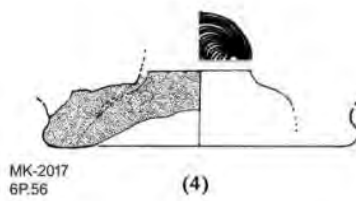
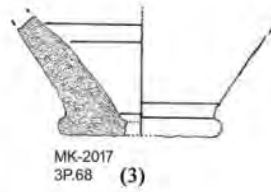
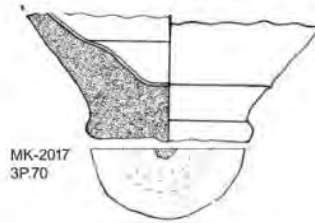
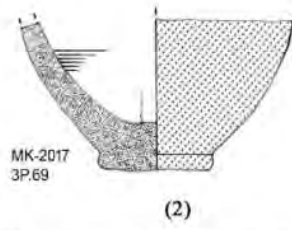
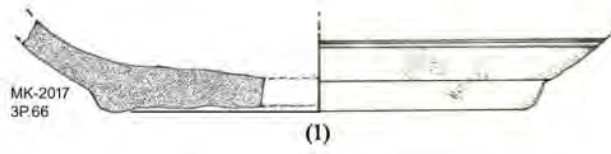


Fig. XXXVIII: Harappan (Red Ware Group), Misc. vessel bases.

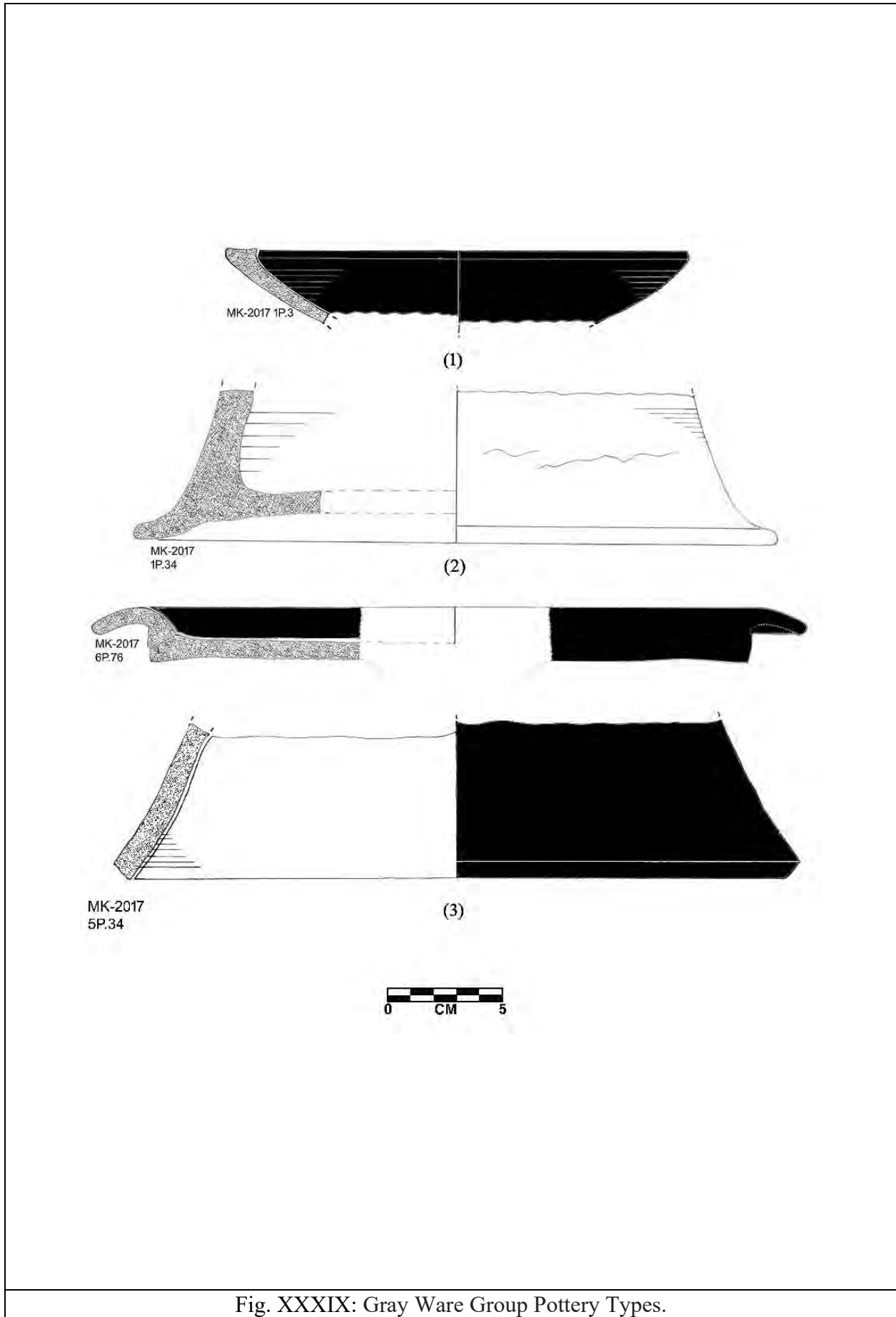


Fig. XXXIX: Gray Ware Group Pottery Types.

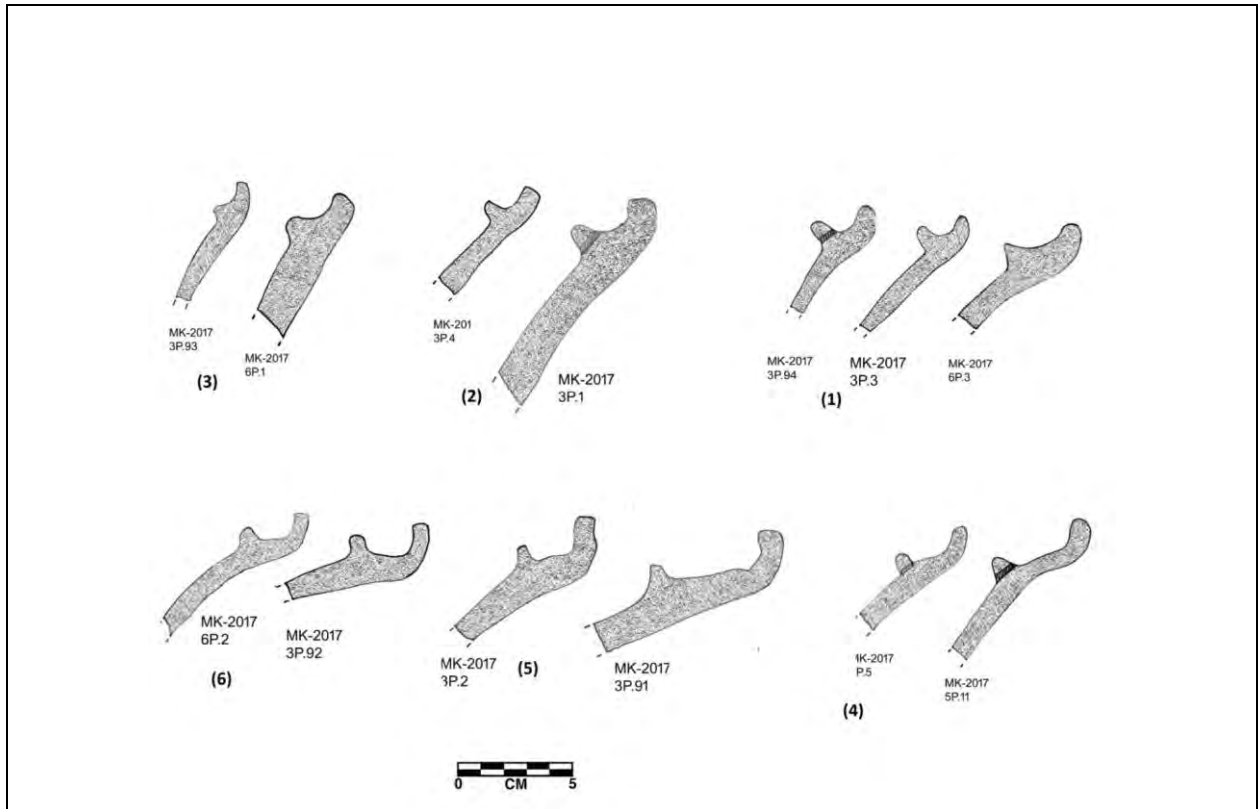


Fig. XL: Early Harappan (Red Ware Group), Morphological Variation Type I.

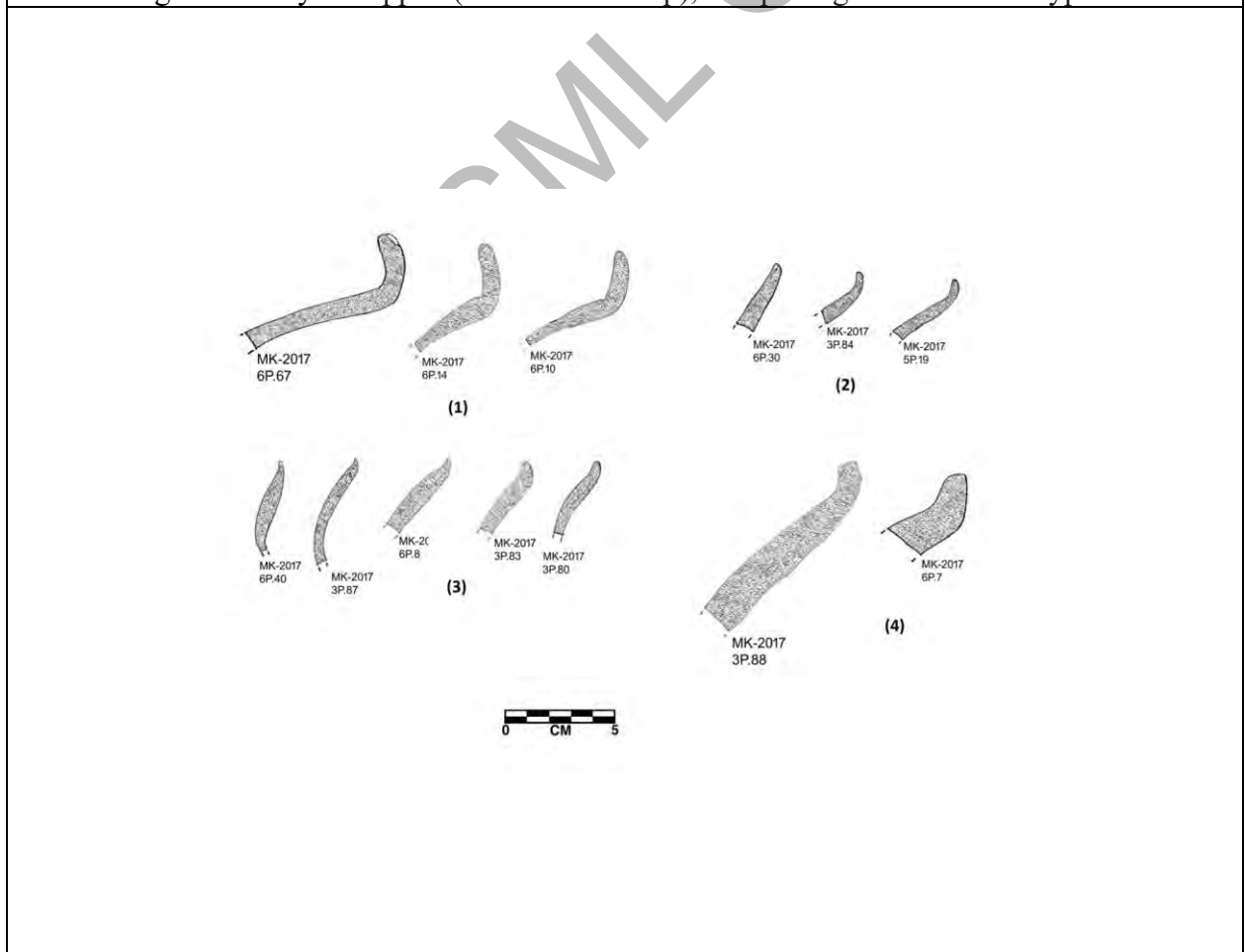


Fig. XLI: Early Harappan (Red Ware Group), Morphological Variation Type II.

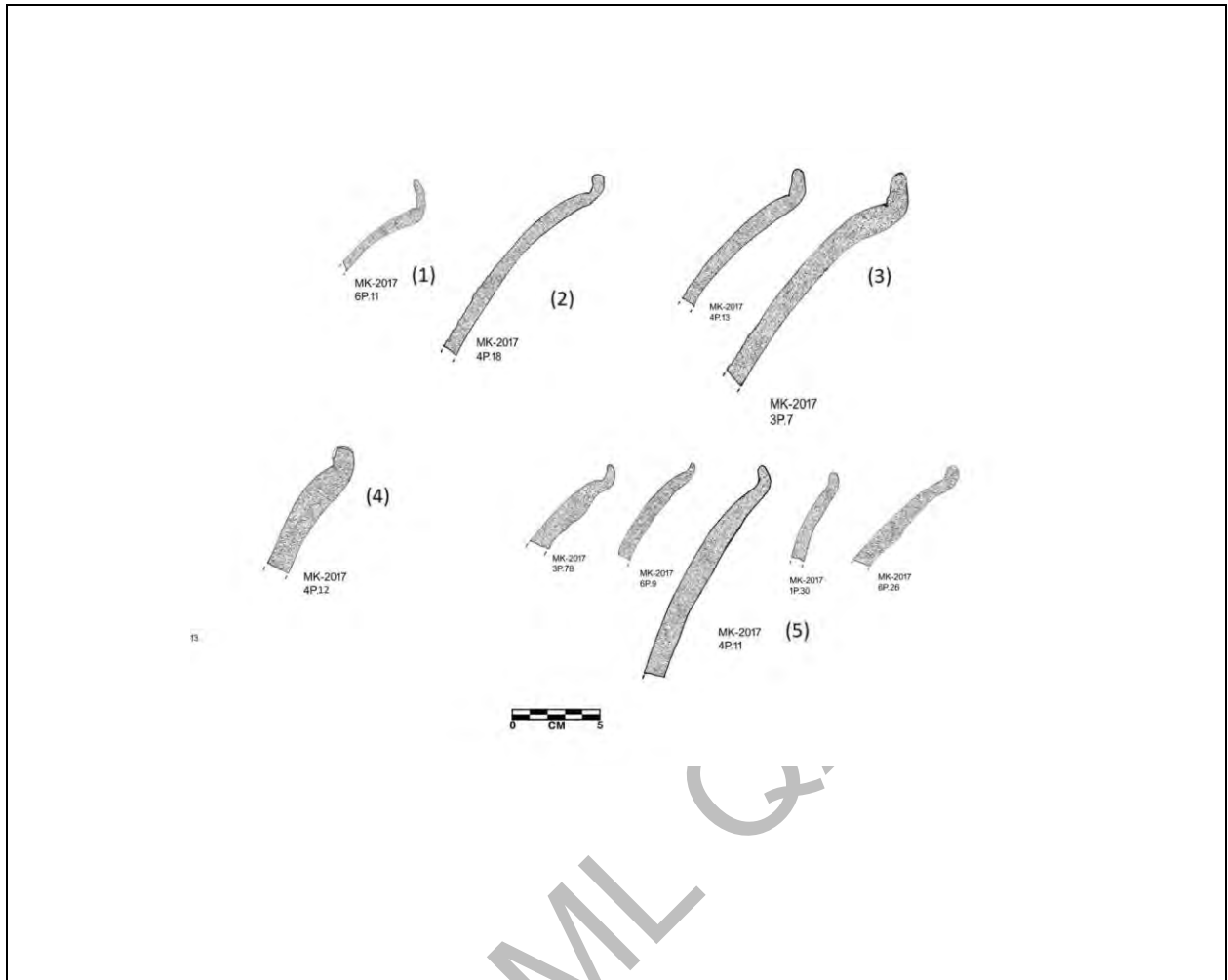


Fig. XLII: Early Harappan (Red Ware Group), Morphological Variation Sub-Type II A.

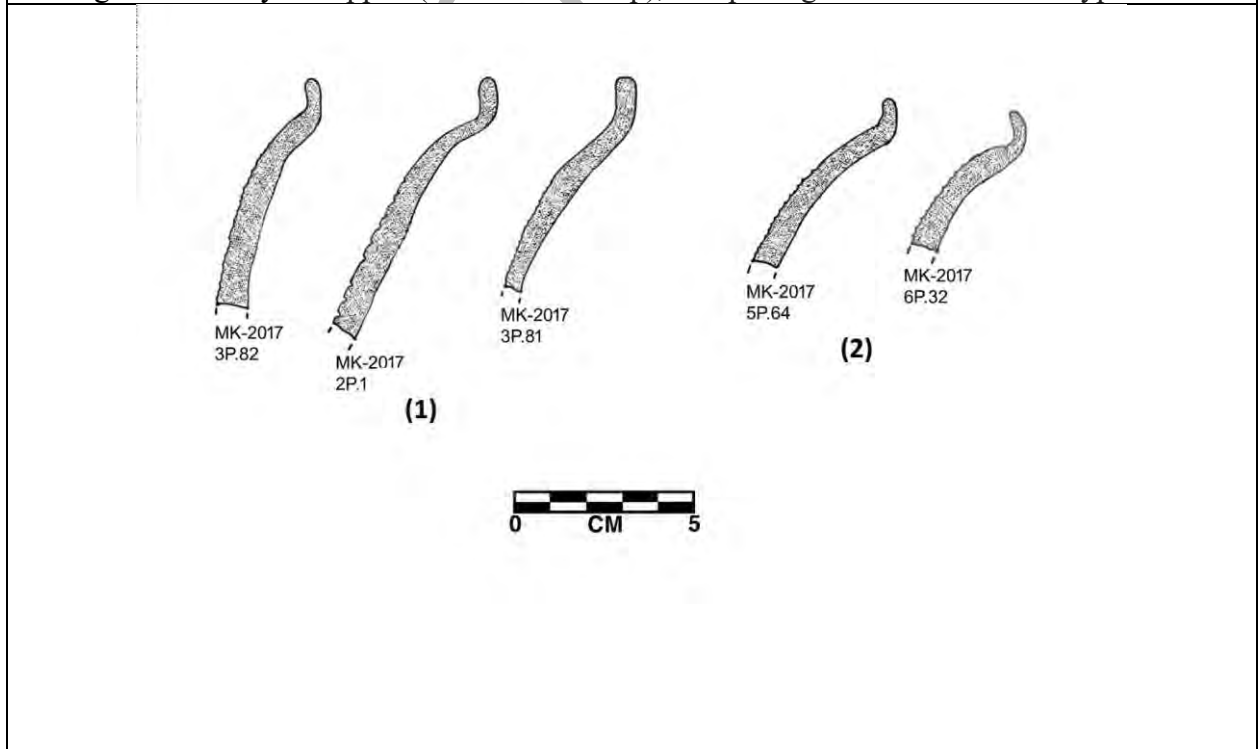


Fig. XLIII: Early Harappan (Red Ware Group), Morphological Variation Type III.

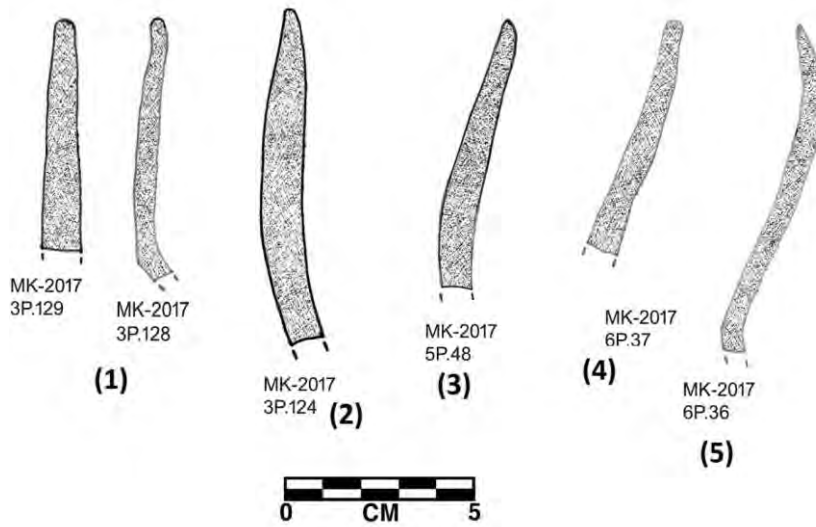


Fig. XLIV: Early Harappan (Red Ware Group), Morphological Variation Type IV.

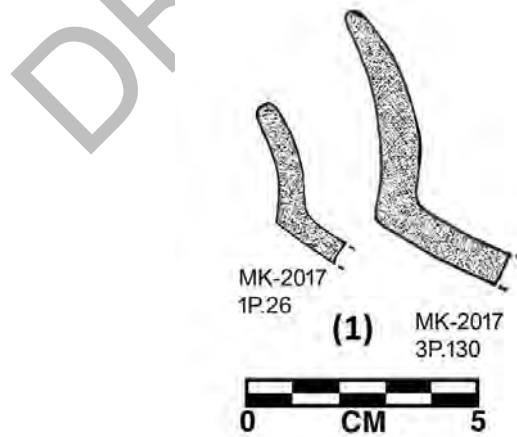


Fig. XLV: Early Harappan (Red Ware Group), Morphological Variation Type V.

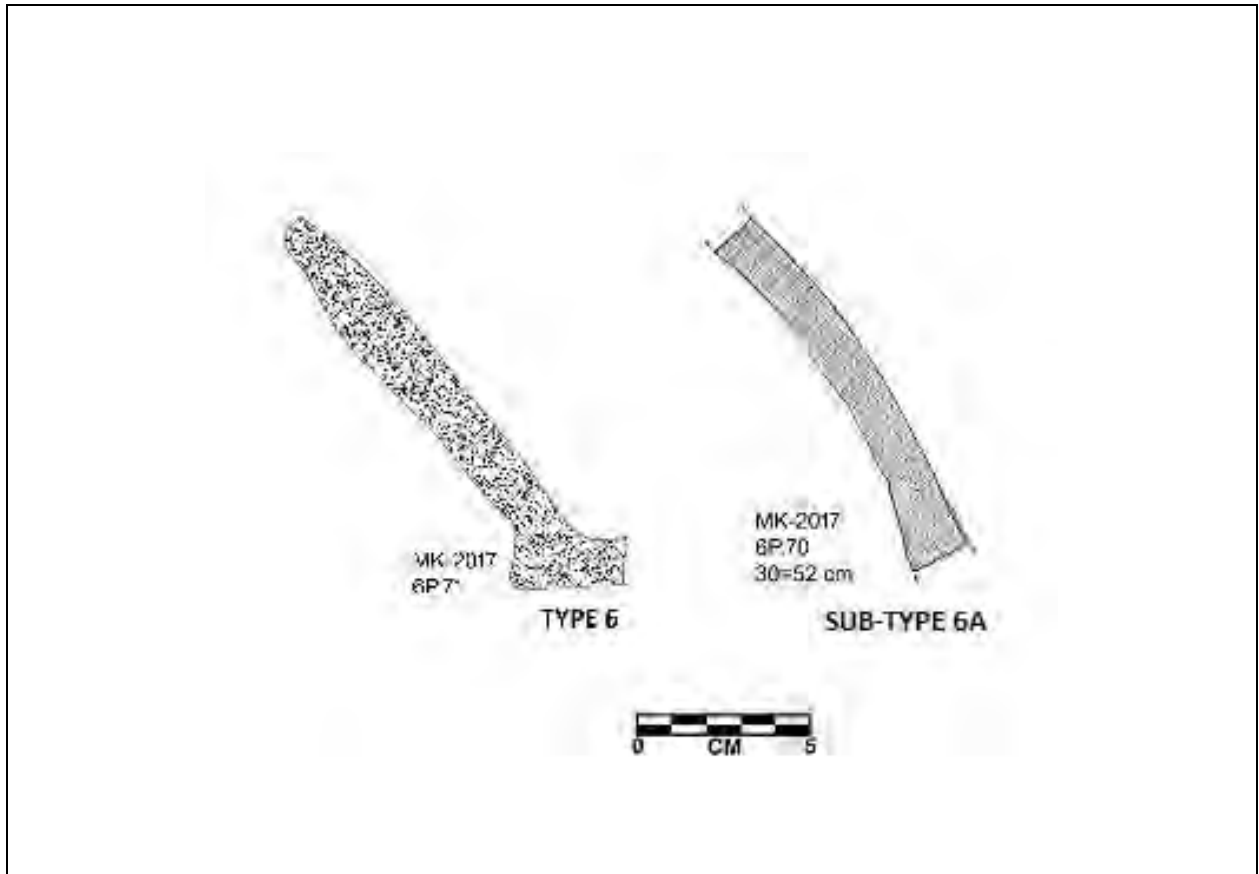


Fig. XLVI: Early Harappan (Red Ware Group), Morphological Variation Type VI and Sub-Type VI-A.

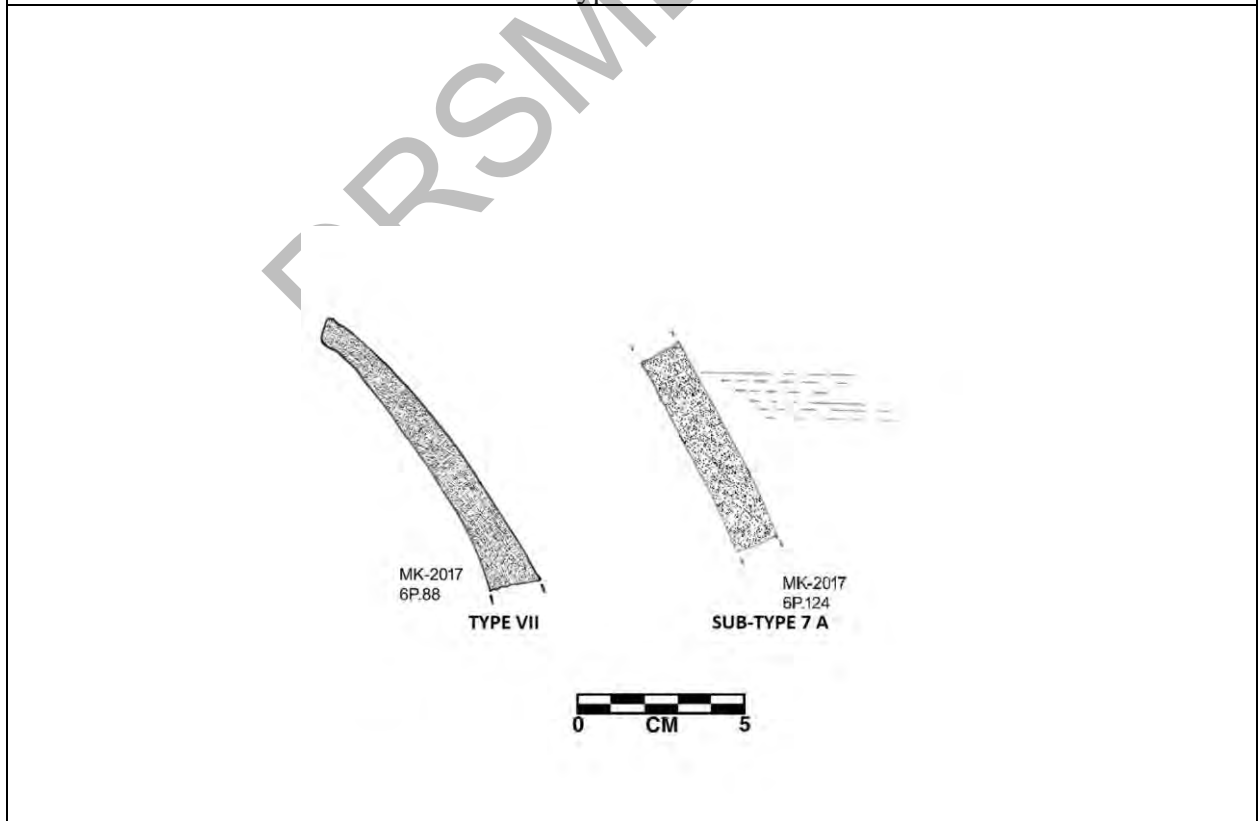


Fig. XLVII: Early Harappan (Red Ware Group), Morphological Variation Type VII and Sub-Type VII-A.

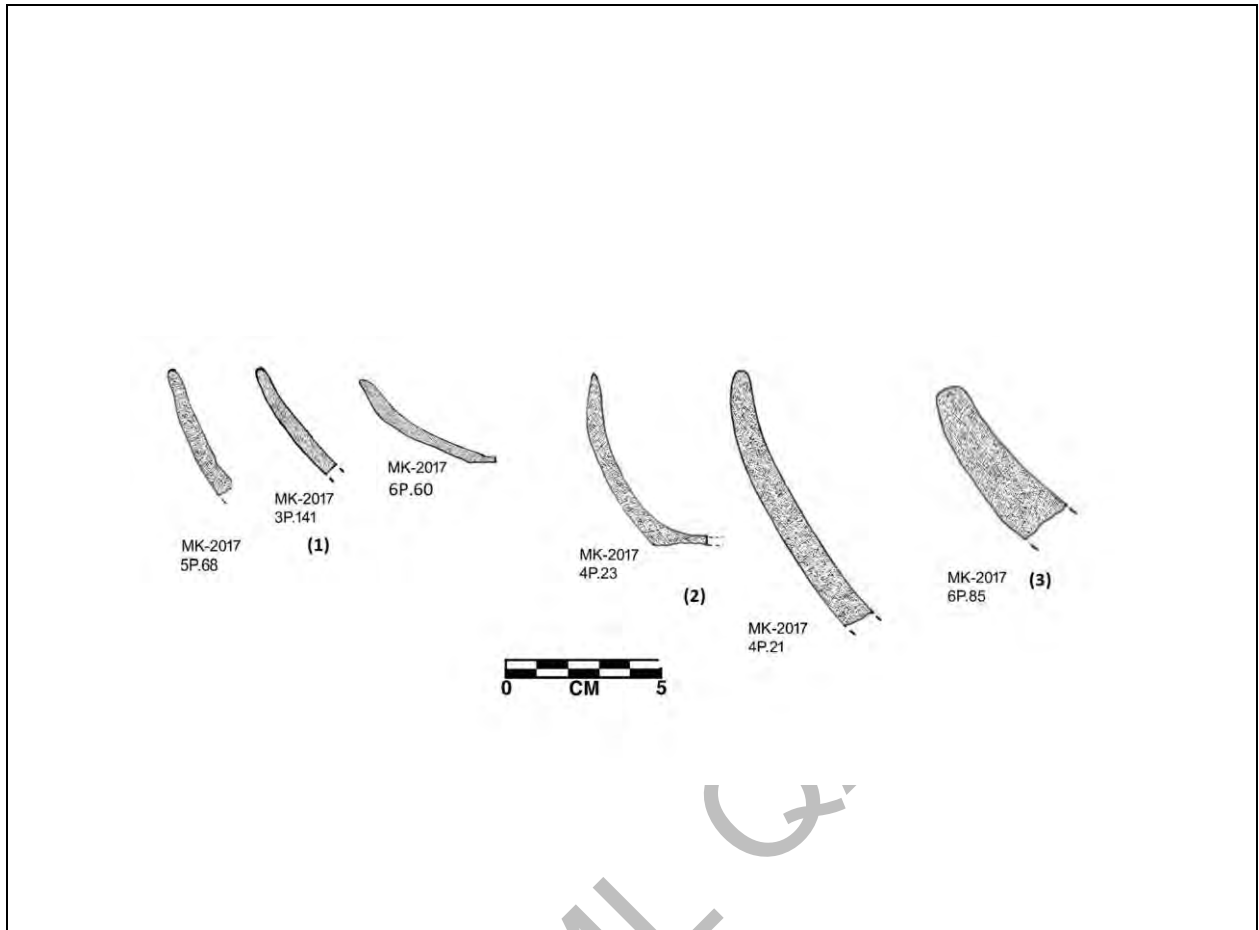


Fig. XLVIII: Early Harappan (Red Ware Group), Morphological Variation Type VIII.

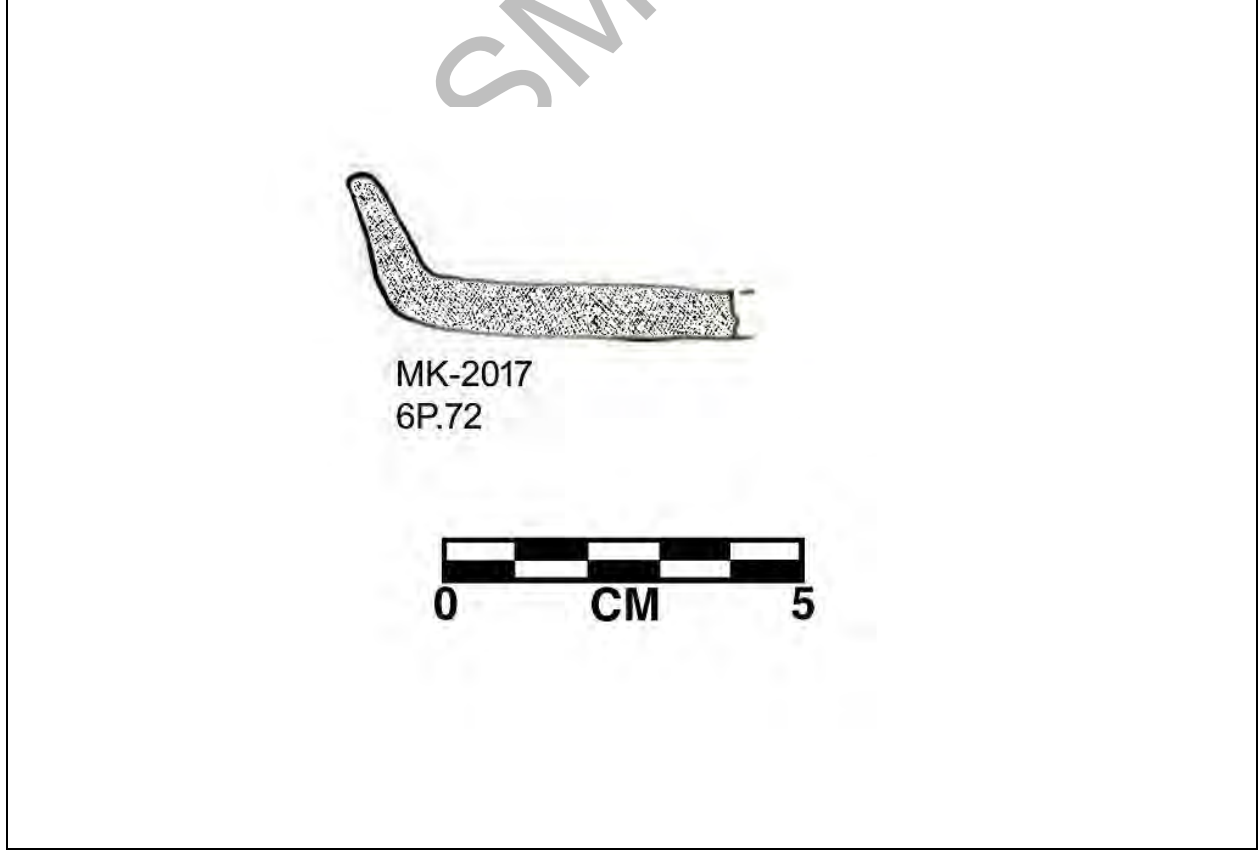


Fig. XLIX: Early Harappan (Red Ware Group), Morphological Variation Type IX.

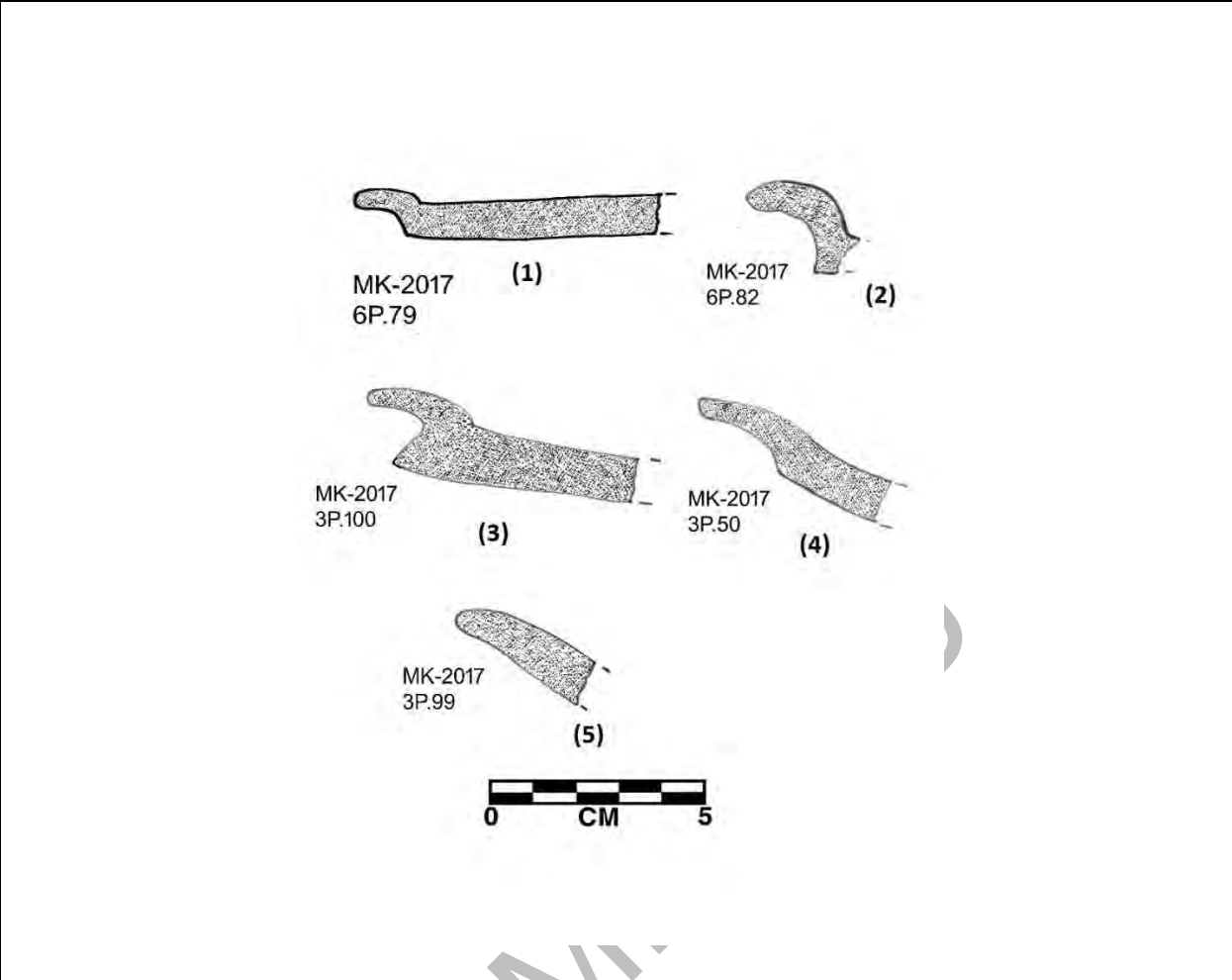


Fig. L: Early Harappan (Red Ware Group), Morphological Variation Type X.

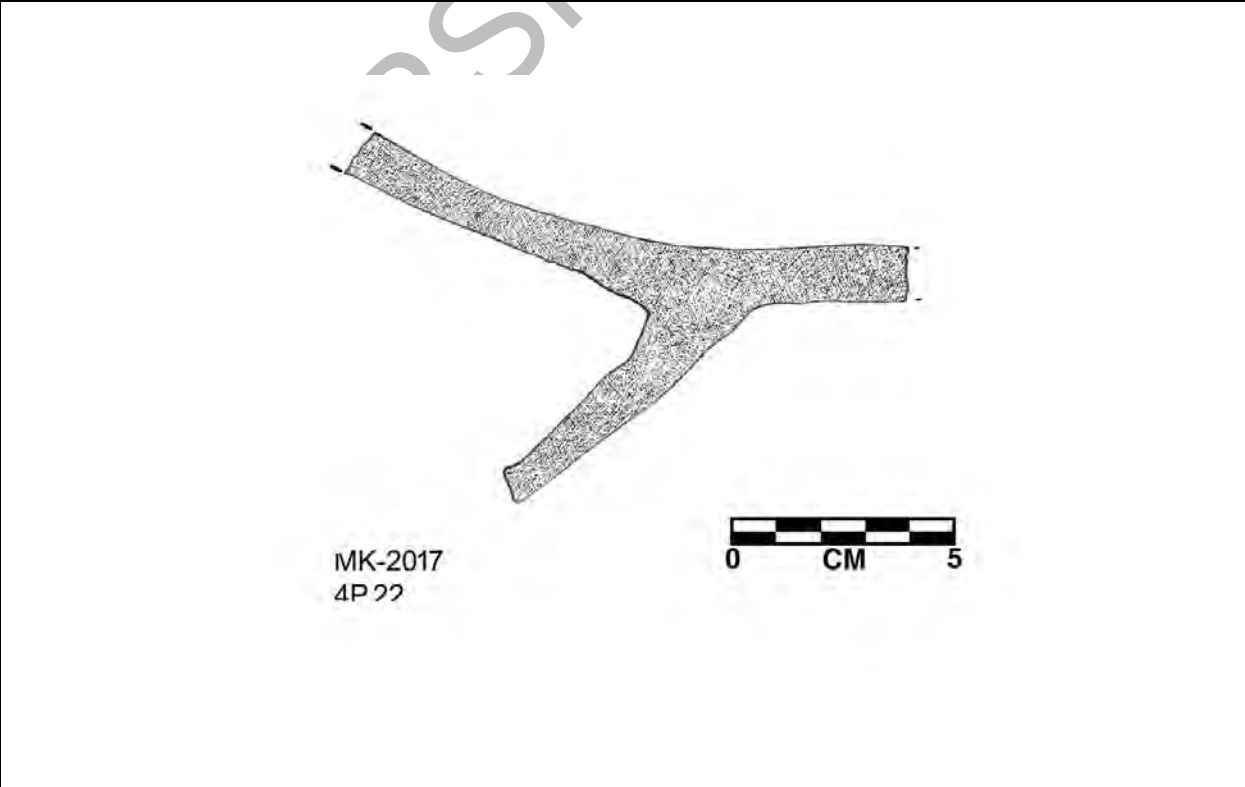


Fig. LI: Early Harappan (Red Ware Group), Morphological Variation Sub-Type X A.

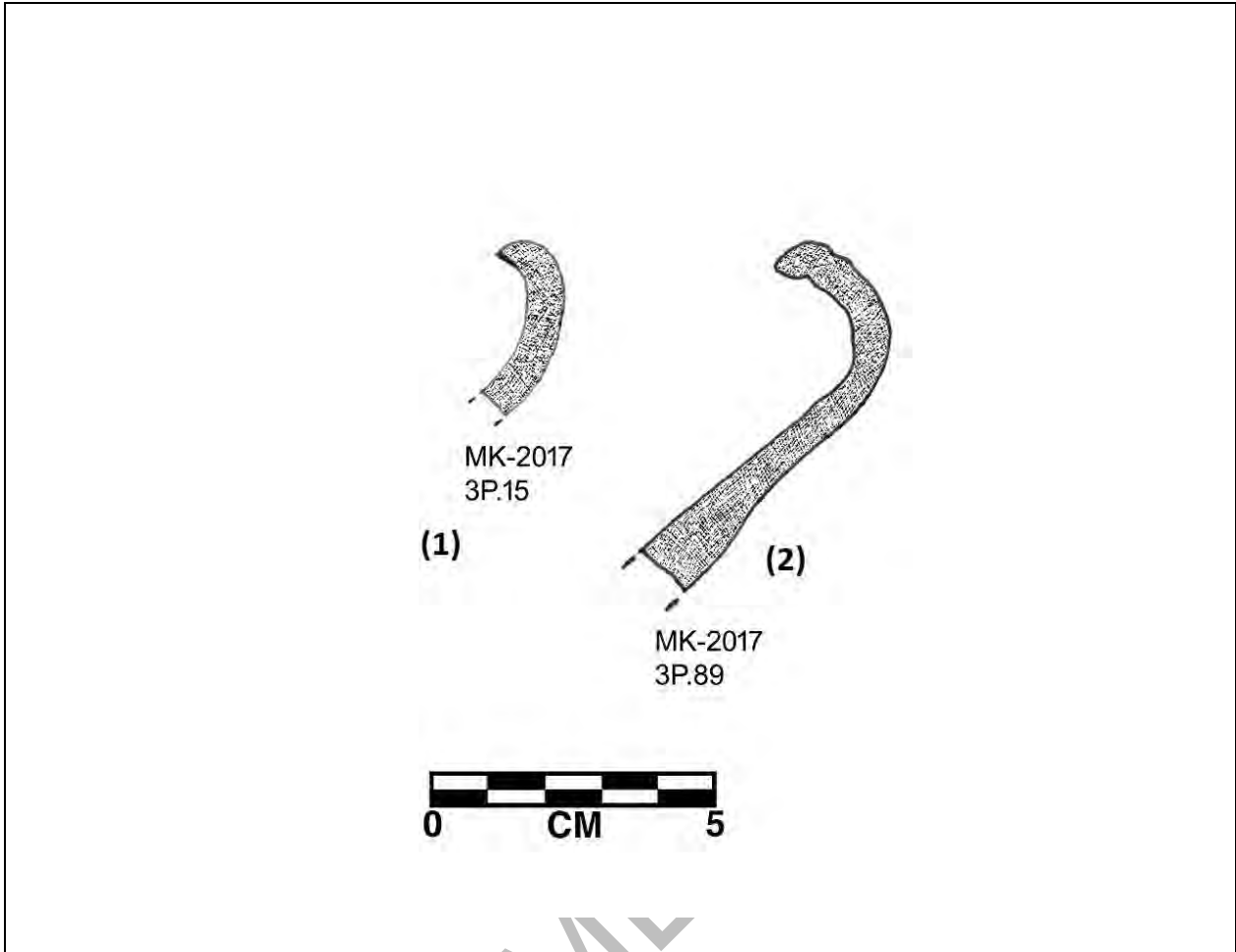


Fig. LII: Early Harappan (Red Ware Group), Morphological Variation M.sc. Type XI.

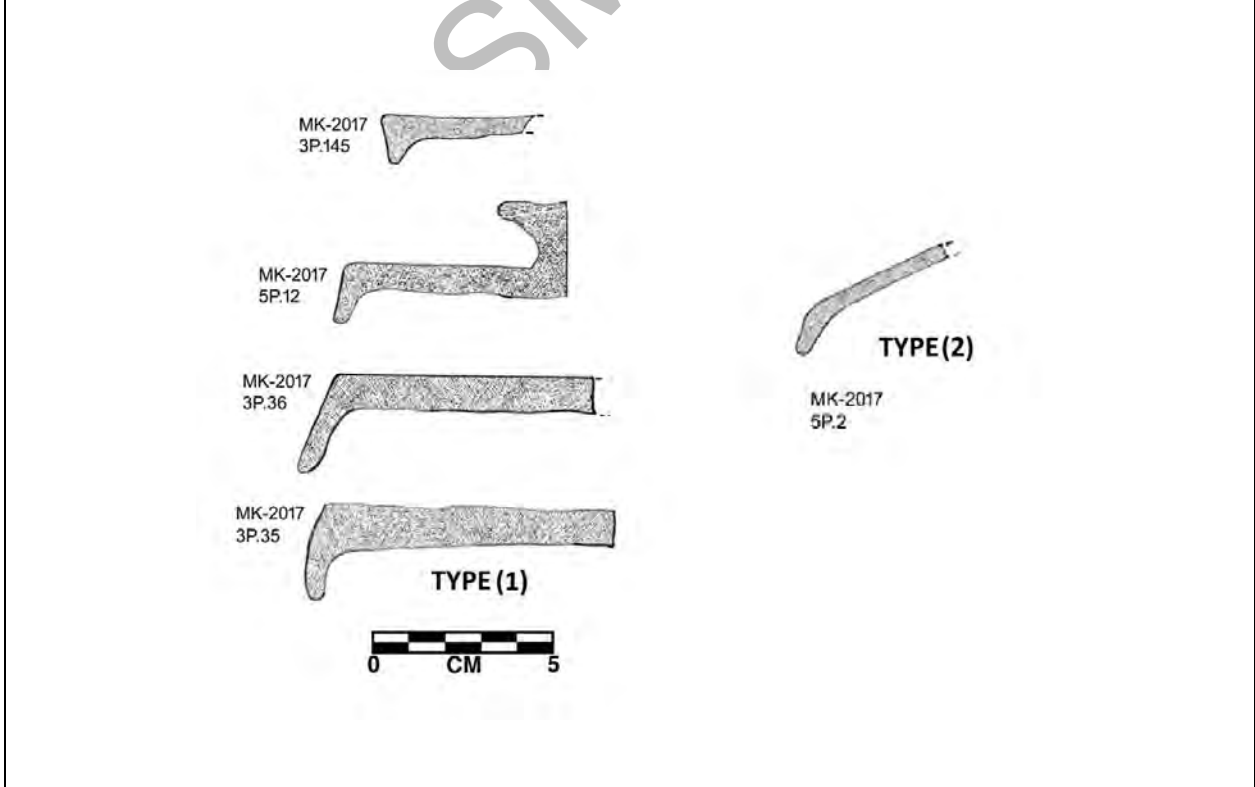


Fig. LIII: Early Harappan (Red Ware Group), Morphological Variation of lid types.

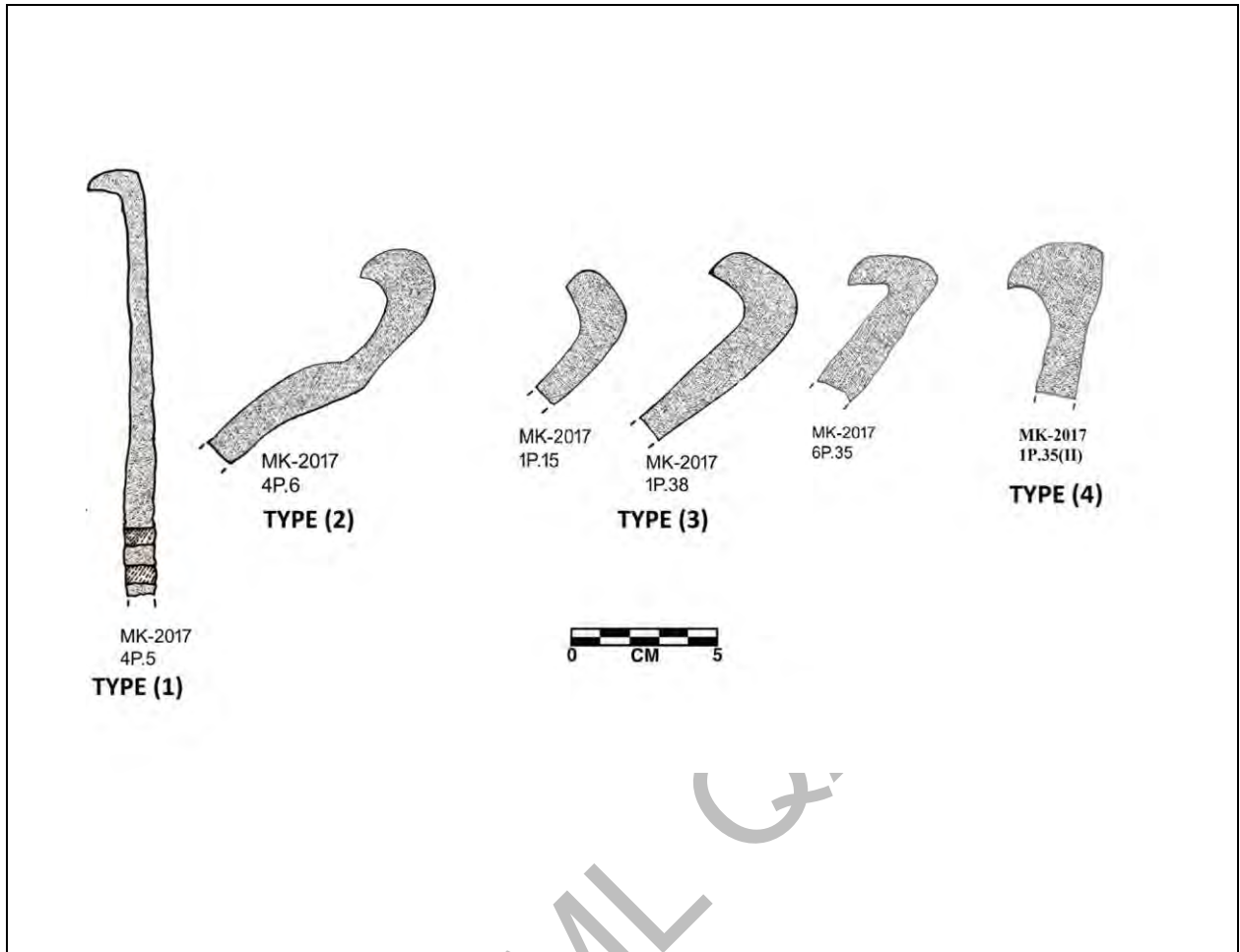


Fig. LIV: Harappan (Red Ware Group), Morphology of Type I,II, III, IV.

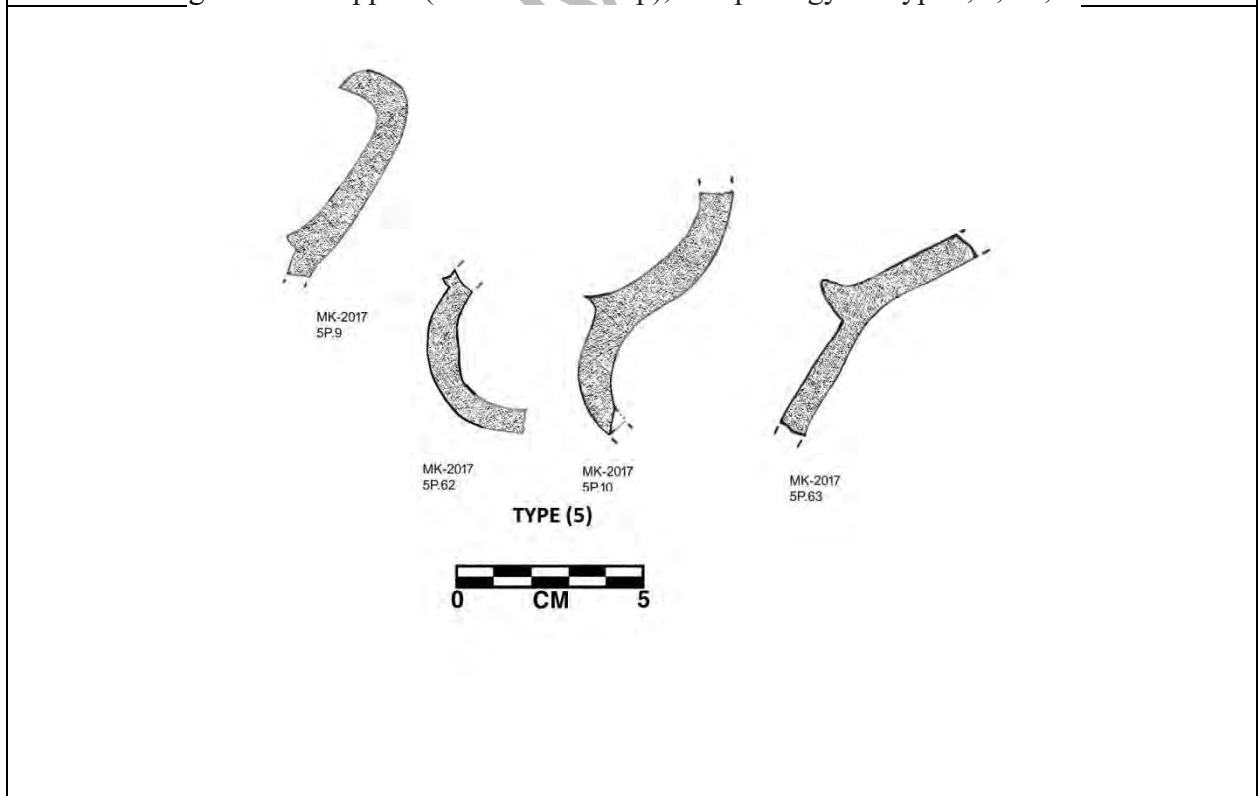


Fig. LV: Early Harappan (Red Ware Group), Morphological Variation Type V.

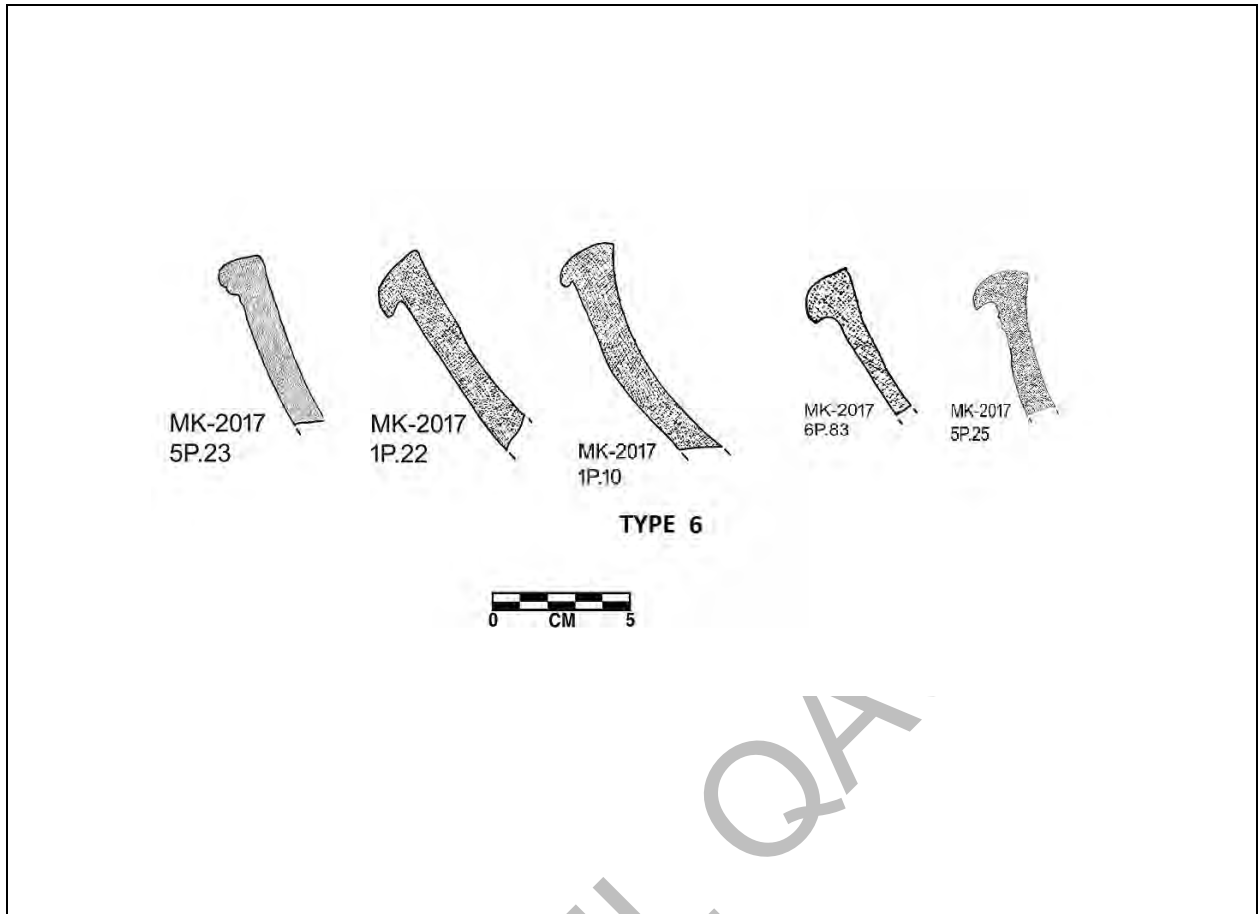


Fig. LVI: Early Harappan (Red Ware Group), Morphological Variation Type VI.

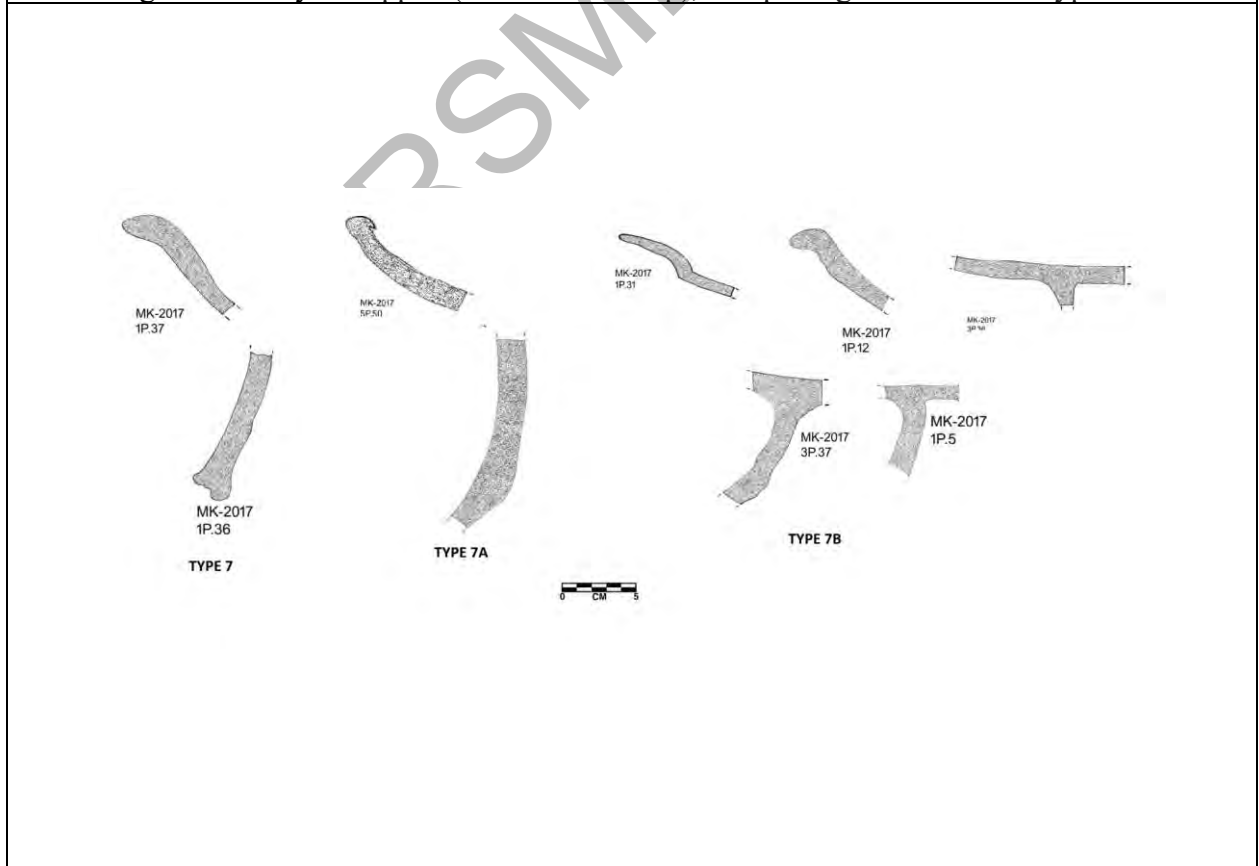


Fig. LVII: Early Harappan (Red Ware Group), Morphological Variation Type VII.

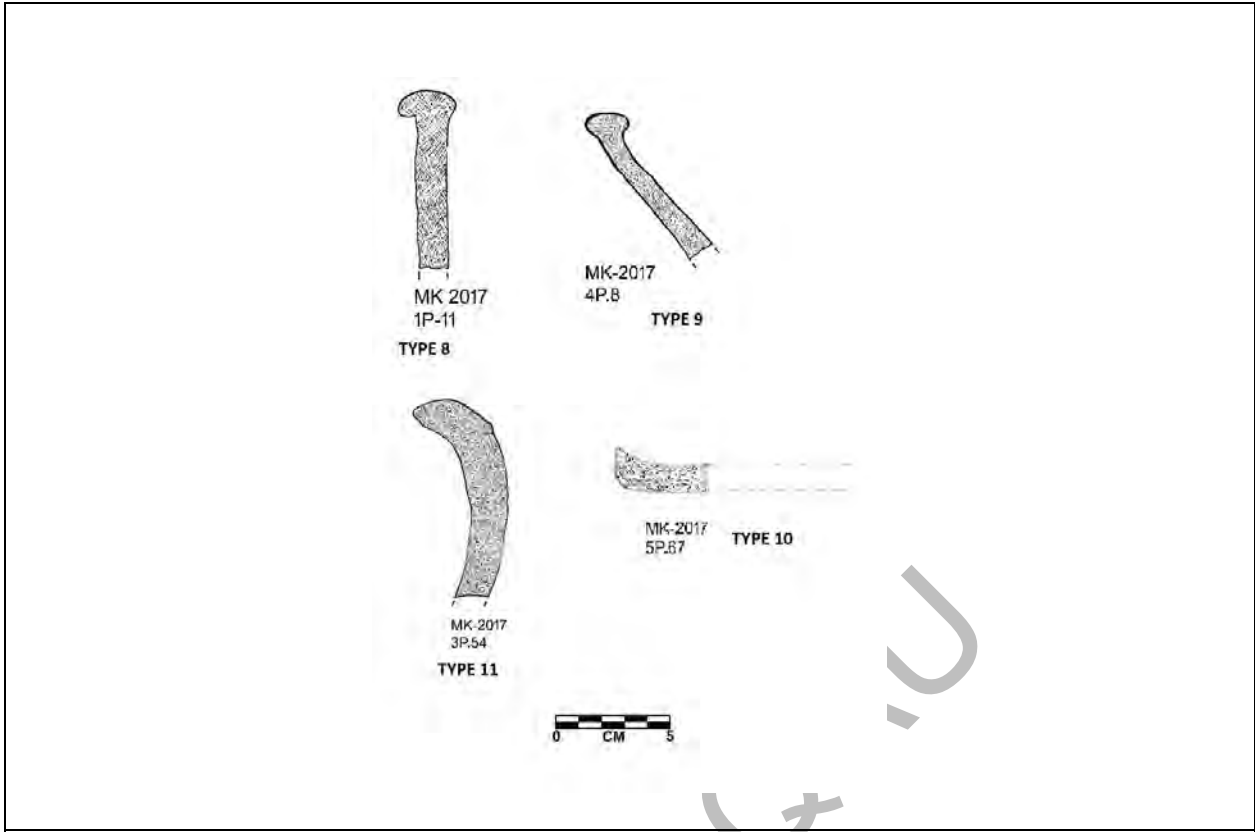


Fig. LVIII: Early Harappan (Red Ware Group), Morphology of Type VIII, IX, X, XI.

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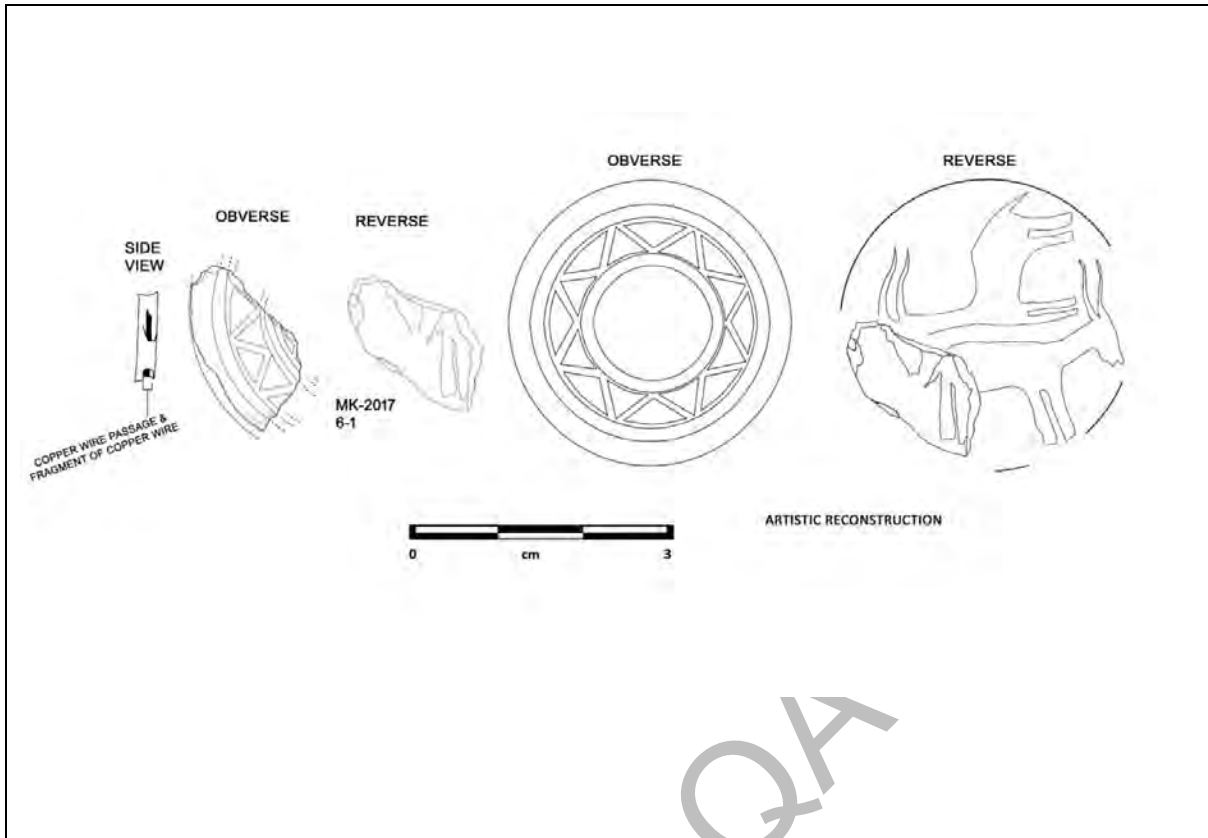


Fig. LIX: Fragment of steatite seal from Musa Khel site and its artistic reconstruction.

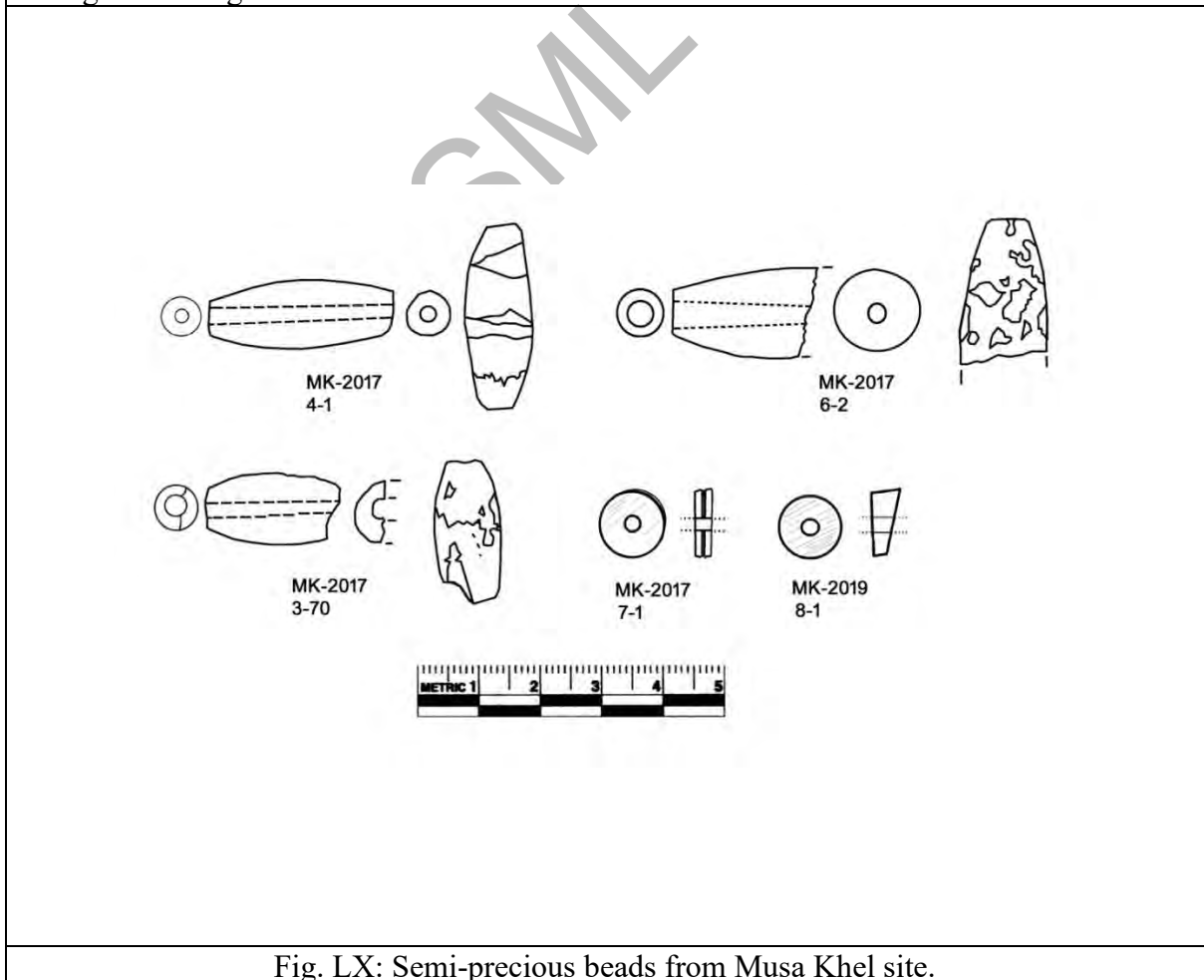


Fig. LX: Semi-precious beads from Musa Khel site.

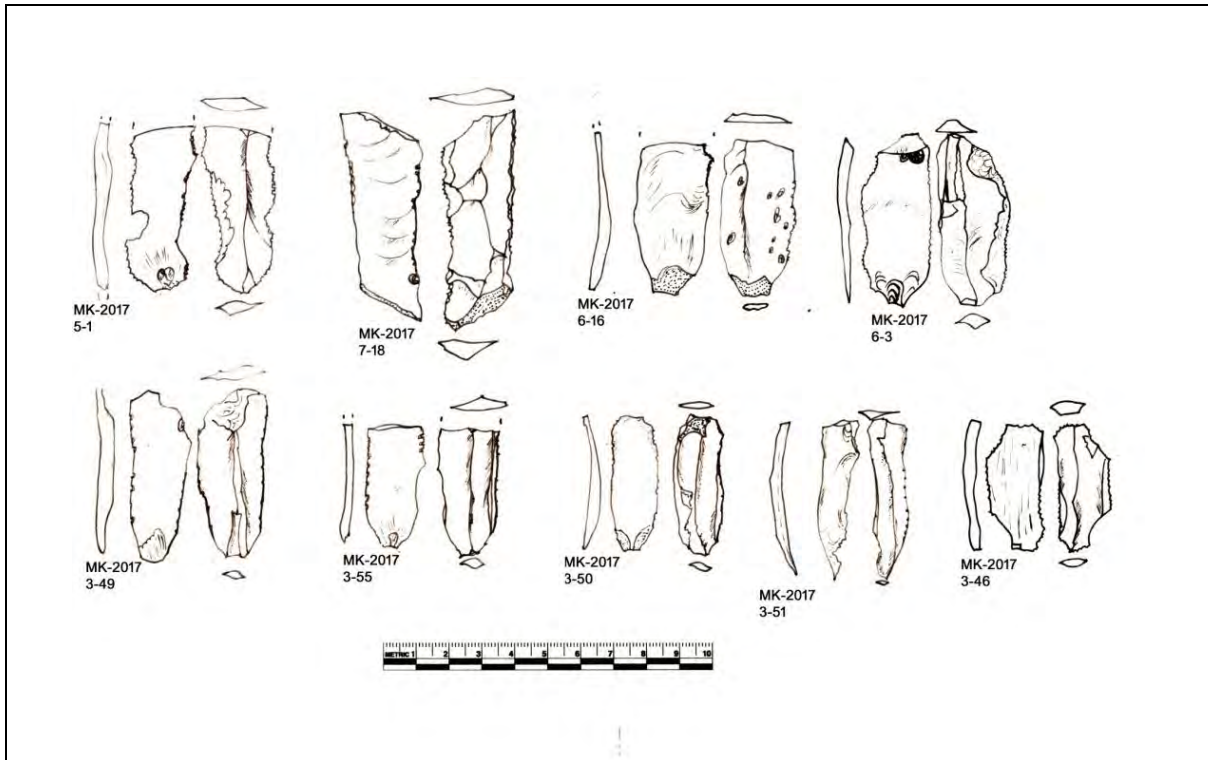


Fig. LXI: Variety of chert stone blades from different areas of Musa Khel site.

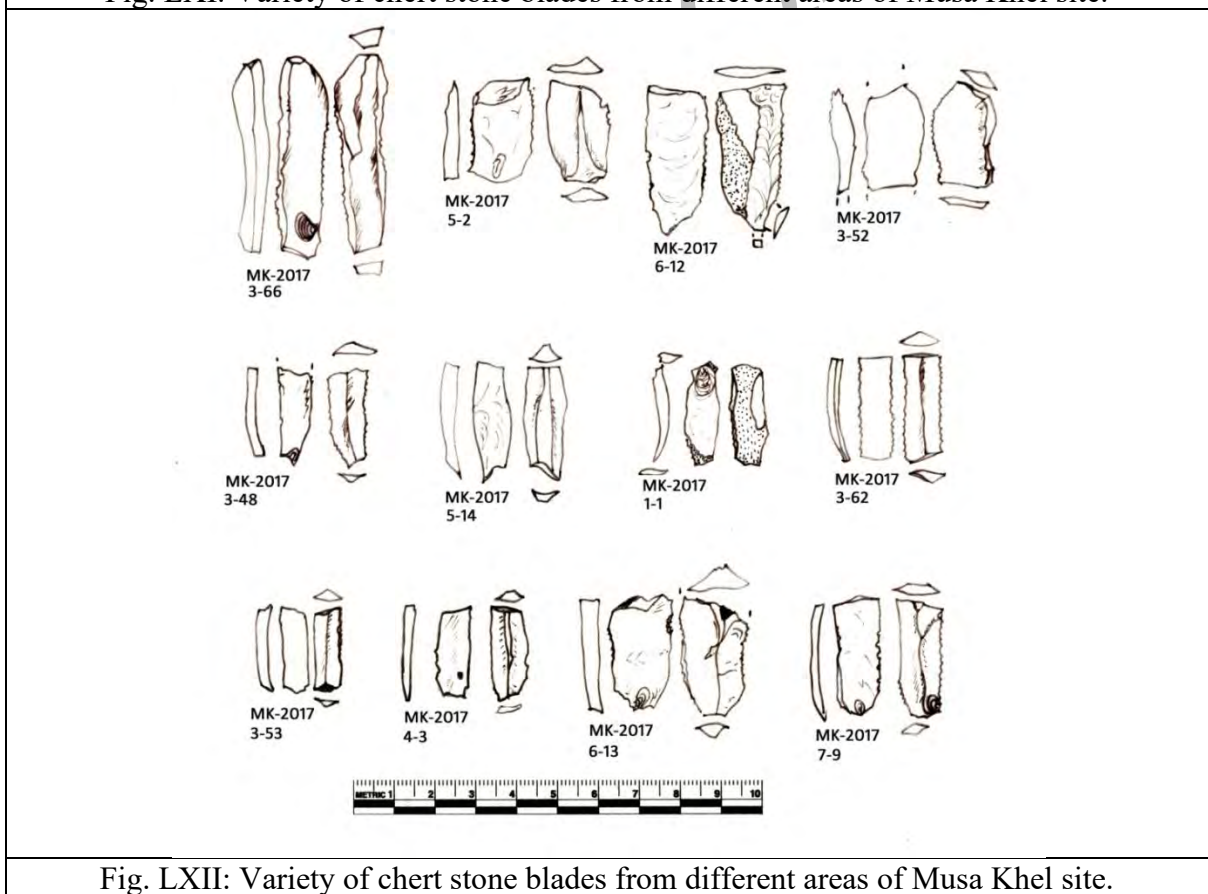


Fig. LXII: Variety of chert stone blades from different areas of Musa Khel site.

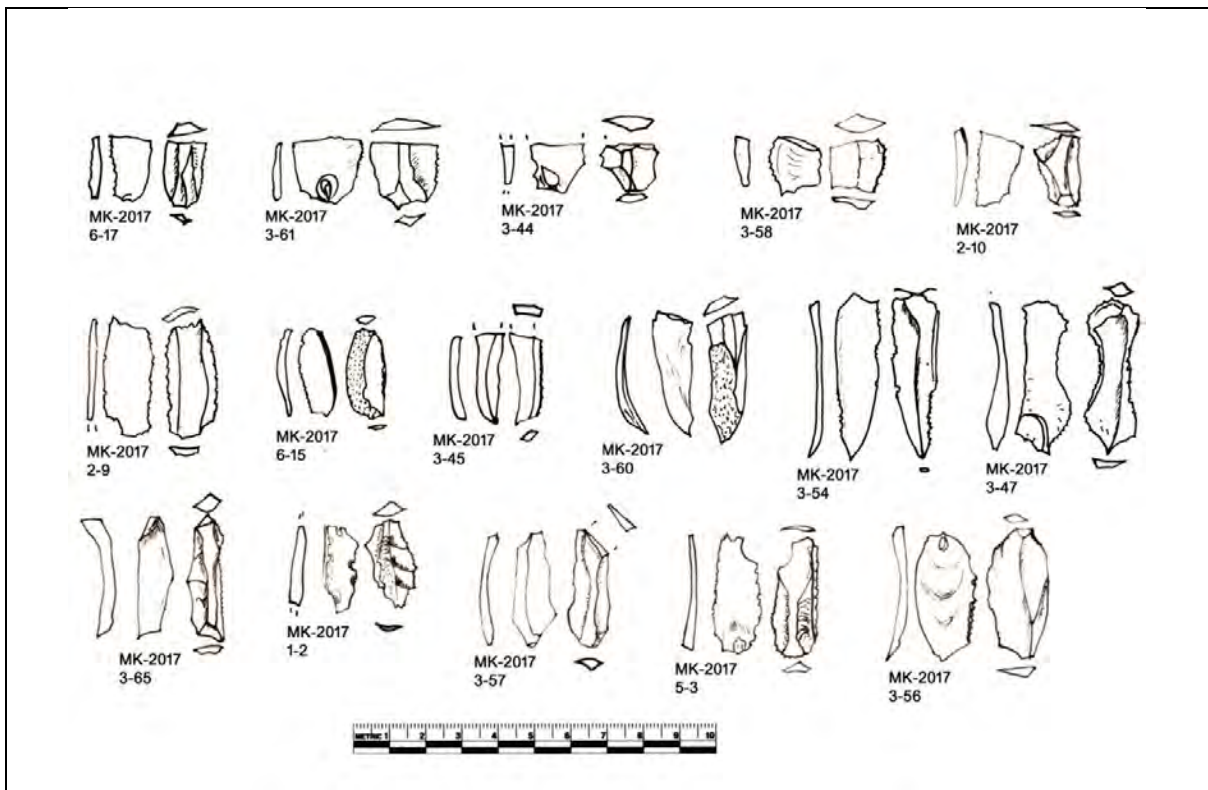


Fig. LXIII: Variety of chert stone blades from different areas of Musa Khel site.

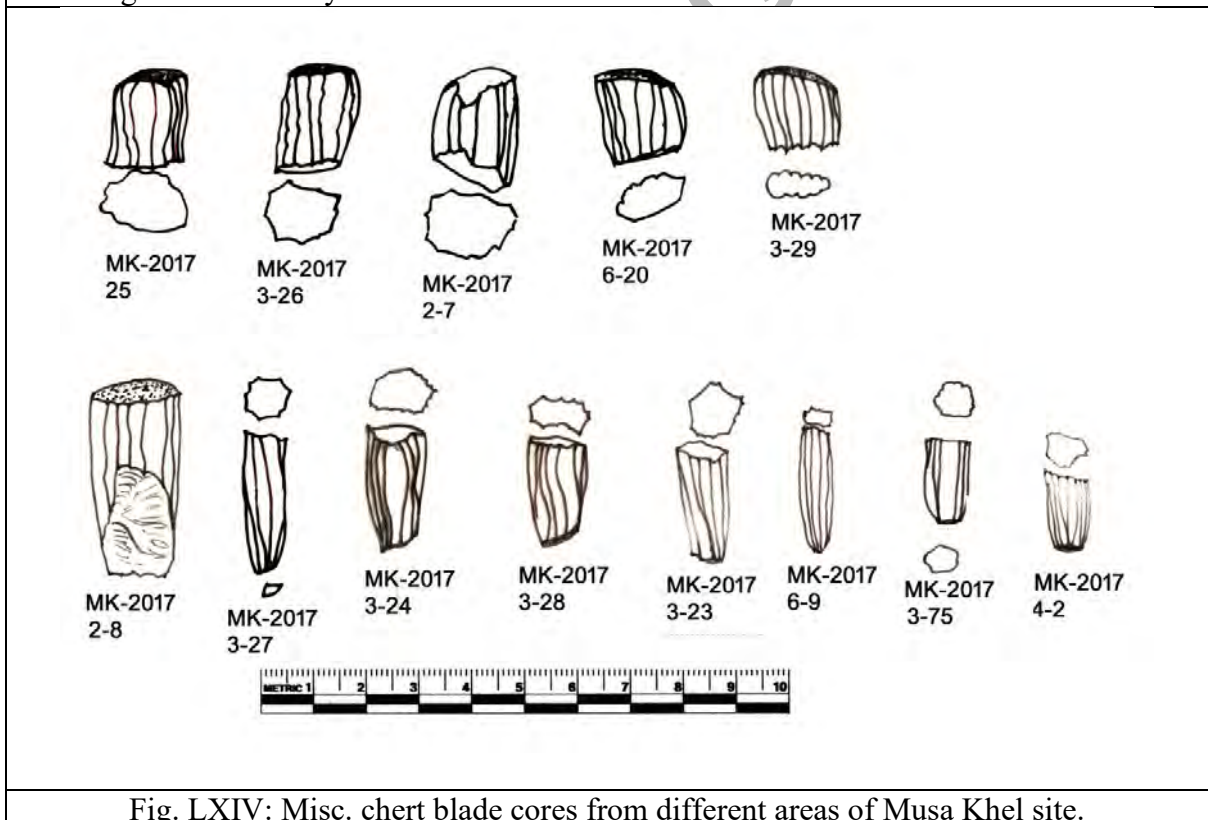


Fig. LXIV: Misc. chert blade cores from different areas of Musa Khel site.

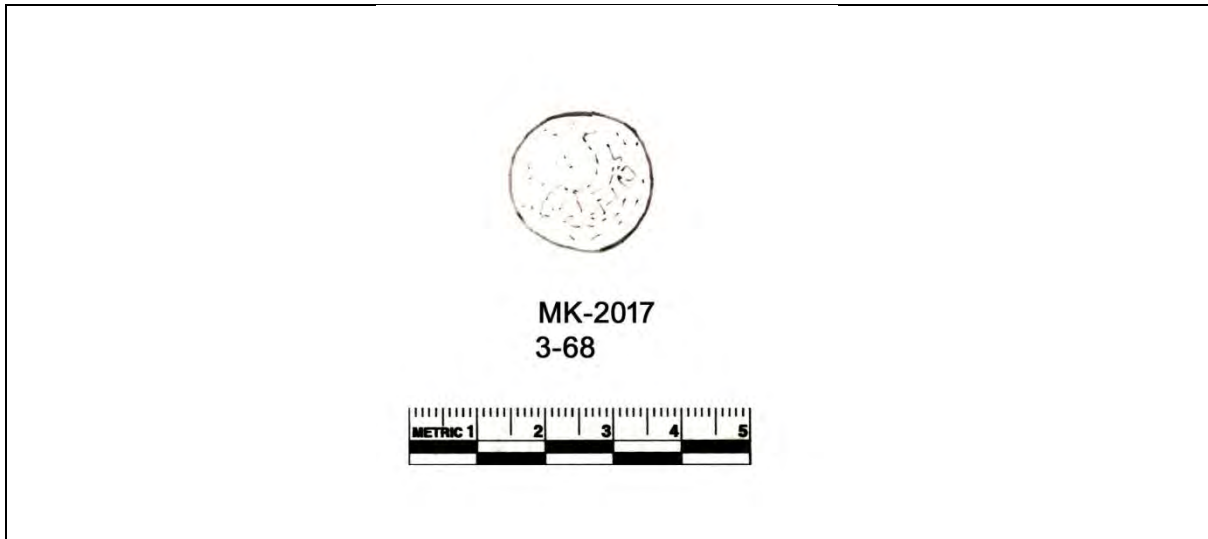


Fig.LXV: A small lime stone ball from Musa Khel site.

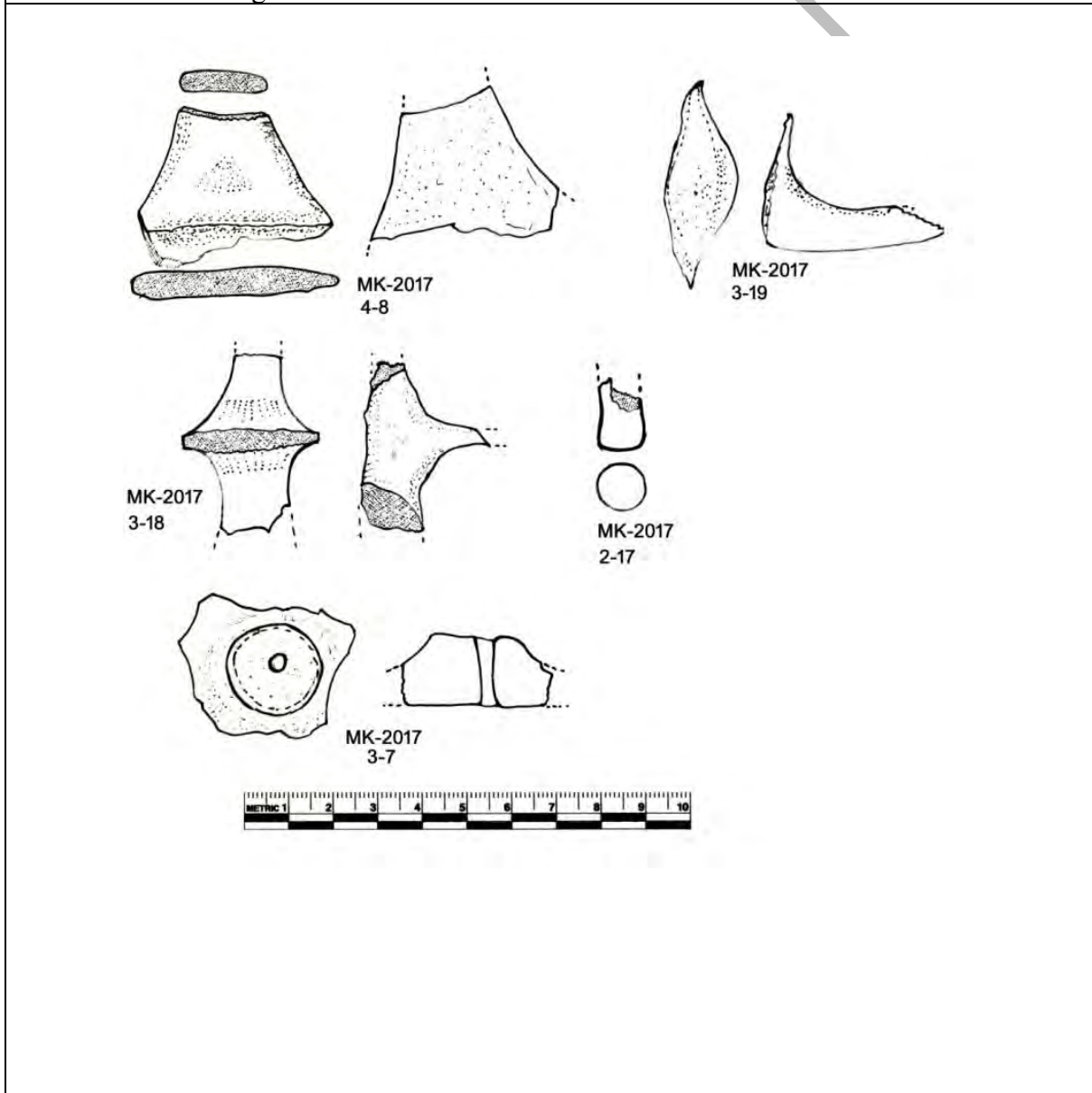


Fig. LXV: Variety of human and animal figurines from different areas and a terracotta cart wheel of Musa Khel site.

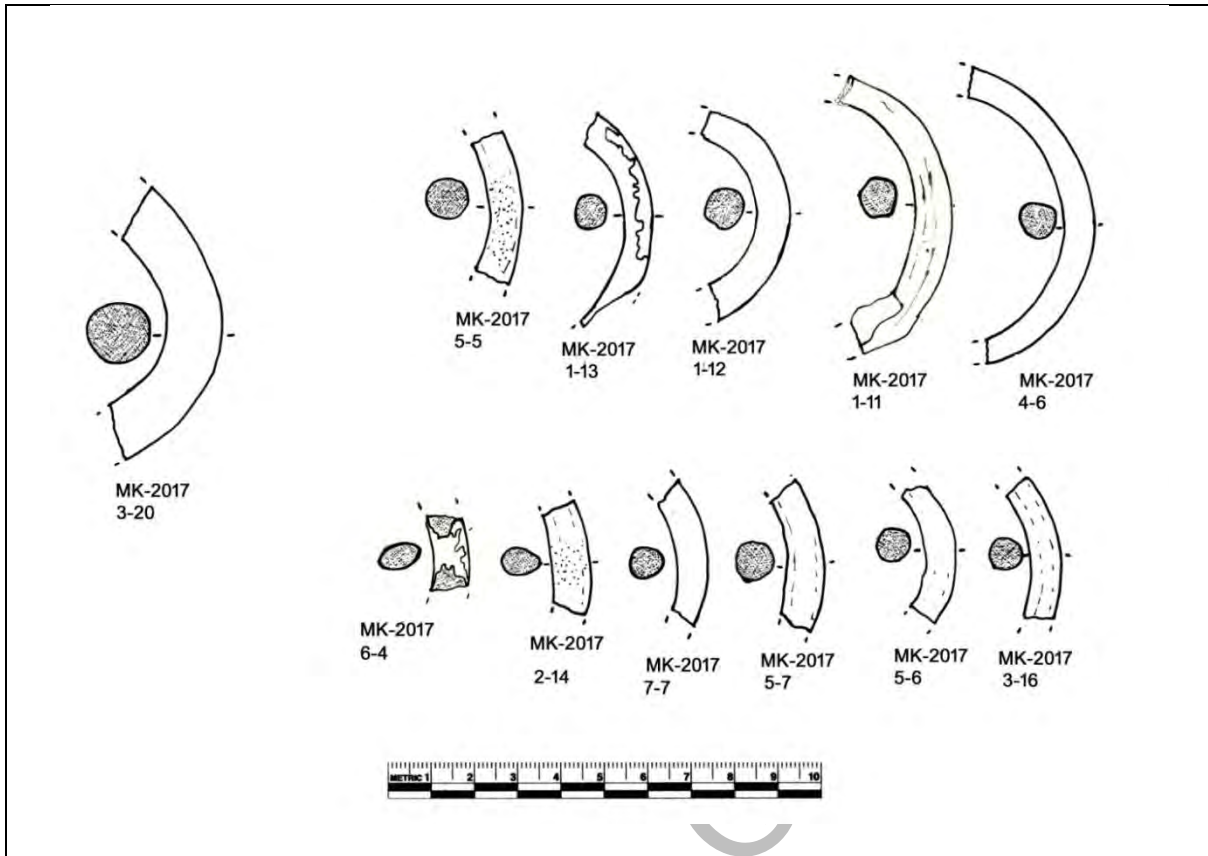


Fig. LXVI: Variety of red ware single-coiled terracotta bangles from different areas of Musa Khel site.

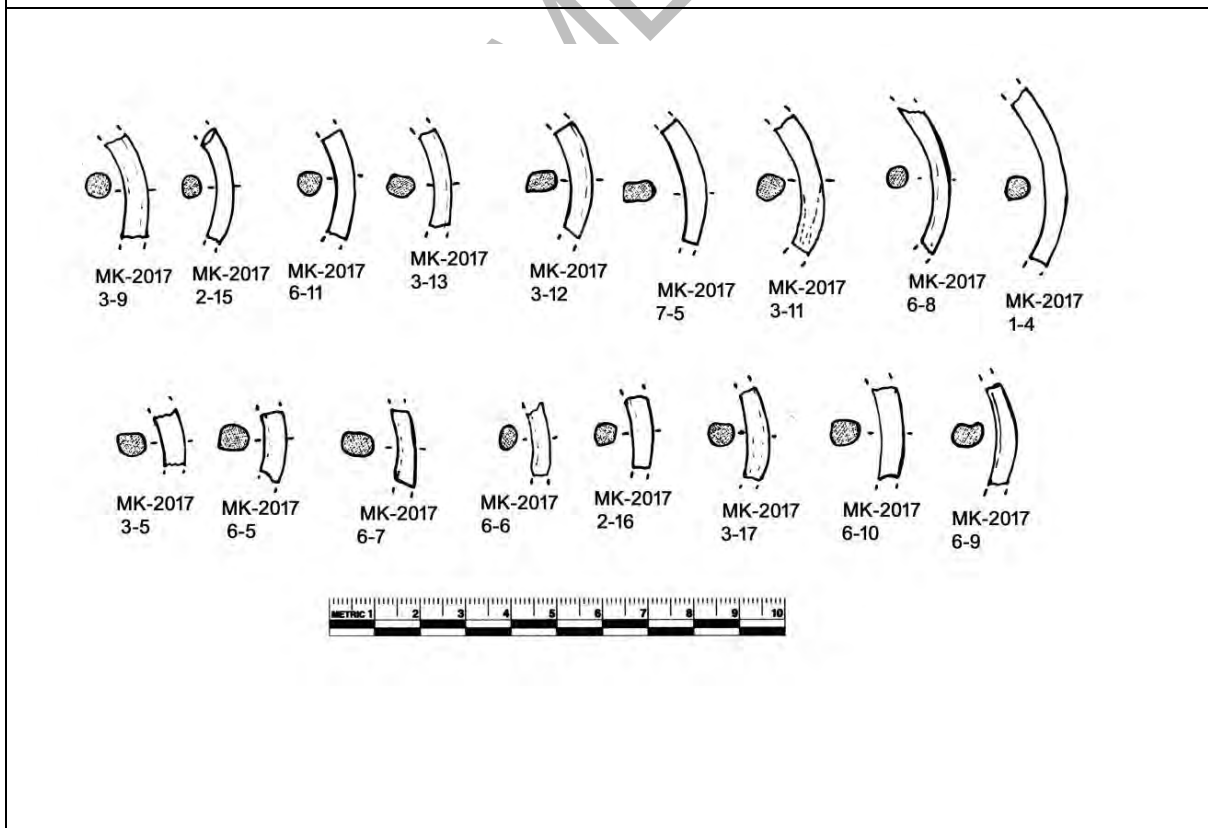


Fig. LXVII: Variety of red ware single-coiled terracotta bangles from different areas of Musa Khel site.

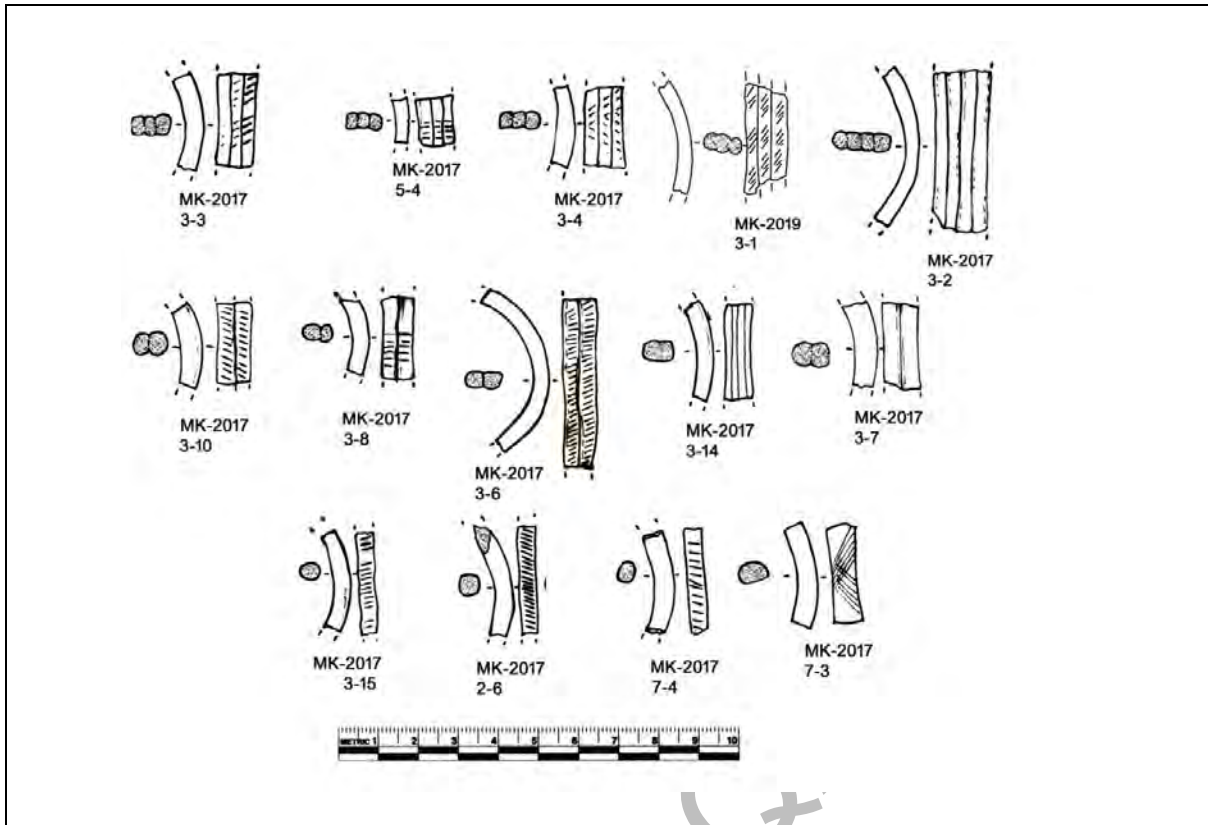


Fig. LXVIII: Variety of gray ware single to multiple-coiled terracotta bangles from different areas of Musa Khel site.

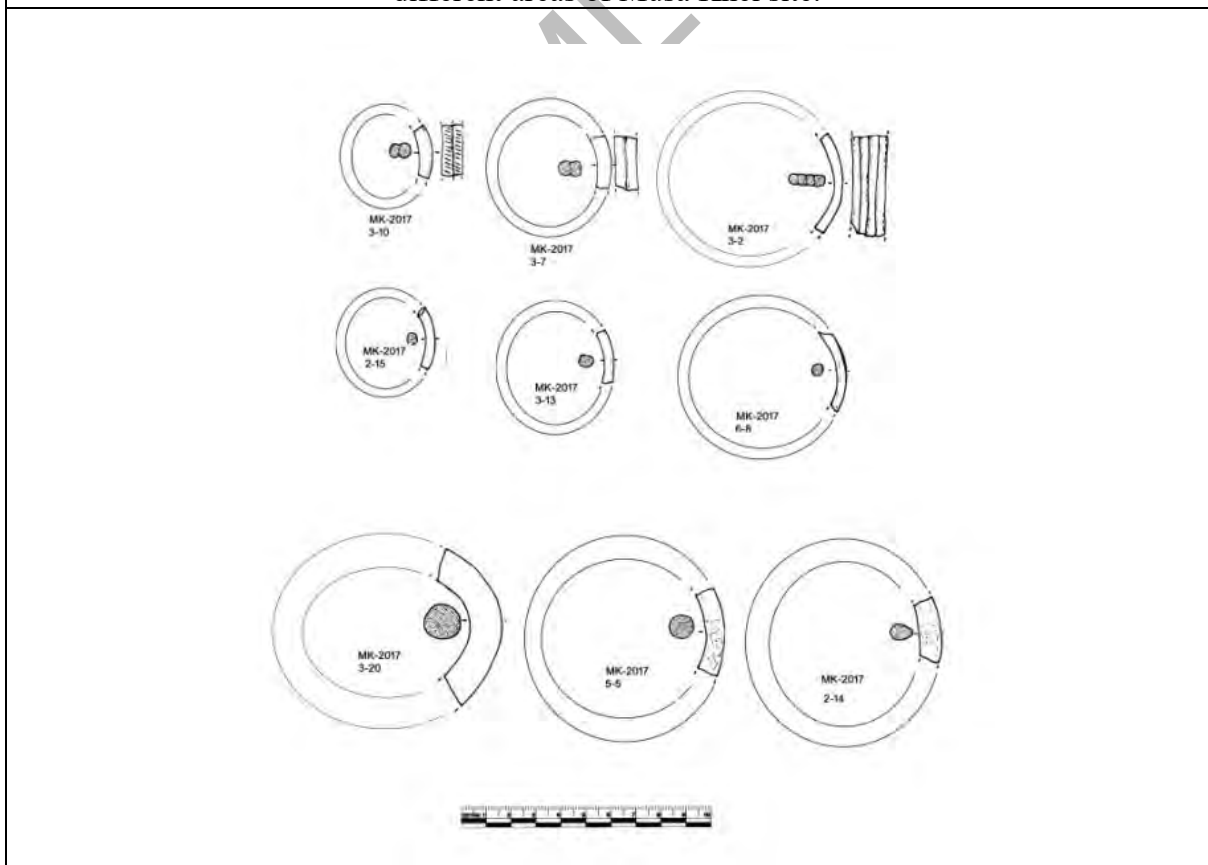


Fig. LXIX: Artistic reconstruction of selected red and ware single to multi-coiled terracotta bangles of Musa Khel site.

