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The Indus Script: Origins, Use and Disappearance

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Introduction

The oldest known writing system of South Asia is commonly referred to as the Indus script because of its association with the early urban centres of the Indus Civilisation, dating between 2600 – 1900 BCE (Kenoyer 2014; Kenoyer 2014 [in Chinese]). When the Indus cities were first excavated in the 1920s and 30s, the main focus in the study of Indus writing was on short texts found on carved steatite seals and moulded tablets made of faience and terracotta. However, many other types of objects with writing were also discovered, but due to their fragmentary nature, they received much less attention. For example, writing was on pottery, personal ornaments, copper tools and ingots, as well as on a wide variety of other objects (Parpola 1994a). After almost 100 years of research, scholars have still not been able to decipher this writing system because there are no bi-lingual tablets that allow it to be linked to a known language system. Nevertheless, the continued excavations by scholars in Pakistan, India and other adjacent regions has resulted in a large body of archaeological and epigraphic data that make it possible to discuss the origins of the writing system around 3300 BCE (Joshi and Parpola 1987; Shah and Parpola 1991; Parpola et al. 2010). It is also possible to define how the writing was used in urban, rural and trading settlements of the Indus Civilisation. In addition, comparisons of script on seals and pottery in different chronological periods of the Indus cities provides evidence for changes in the writing system over 700 years (Kenoyer 2006b; Kenoyer and Meadow 2010). The lack of long texts suggests that the once it was developed and widely used, the Indus script was not used in the same way that writing was used in other early civilisations. The evidence presented below will show that writing played an important role in the development and functioning of certain aspects of Indus society, economics and religion. Writing was not however, an indispensable part of Indus

culture. During the Late Harappan Phase, from 1900 – 1300 BCE, many aspects of Indus urbanism, technology and ideology continued even though writing and seals were no longer used by the elites.

Context and Chronology of Indus Writing

The geographic context for the emergence of writing in South Asia is the broad alluvial plains of two major river systems, the Indus and the Saraswati-Ghaggar-Hakra Rivers (Kenoyer 1998; Possehl 2002; Gupta 1999). The Indus River and its tributaries form a vast region that encompasses modern Pakistan and parts of northwestern India. The Saraswati-Ghaggar-Hakra River is now dry, but flowed on the east and parallel to the Indus River. This second river had its source in the Himalayas and may have emptied into the Greater Rann of Kutch (Figure 1). Trade networks connecting these two parallel river systems allowed agro-pastoral and fishing communities to interact across the vast region, exchanging ideas and technologies as well as ideologies.

Most earlier studies of the Indus script focused only on the period when the fully developed script was in use, from around 2600 – 1900 BCE (Mahadevan 1977; Parpola 1994a; Wells 2011; Rao 1982). The Indus script must be studied in the context of long-term cultural tradition development, rather than simply during the urban phase of the Indus civilisation. A "tradition" refers to "persistent configurations of basic technologies and cultural systems within the context of temporal and geographical continuity" (Shaffer 1992: 442; Kenoyer 2015; Kenoyer 1998) (Table 1). The foundations of Indus writing can be traced to graphic symbols and painted designs associated with the Early Food Producing Era (Neolithic) at sites such as Mehrgarh (Jarrige et al. 1995; Jarrige and Quivron 2013). While many of the early graphic symbols are quite simple and may not directly link to later writing systems, some of the signs continued to be used in later periods and eventually became part of the later Indus script. During the subsequent Regionalisation Era (Chalcolithic/Bronze Age) there is more widespread use of graphic symbols and various types of graffiti on pottery and clay objects such as figurines and terracotta cakes. The use of multiple symbols together in varied sequences suggests that they were used to encode language or ideology. During this time period there is evidence for the emergence of an Early Indus Script (Kenoyer and Meadow 2008) that has been defined at the site of Harappa. It is also possible that there are regional variations in the Early Indus Script, for example in the upper Ghaggar-Hakra River Valley sites such as Kalibangan, Kunal, and Bhirrana (Lal 1992; Lal et al. 2003; Khatri and Acharya 2005;

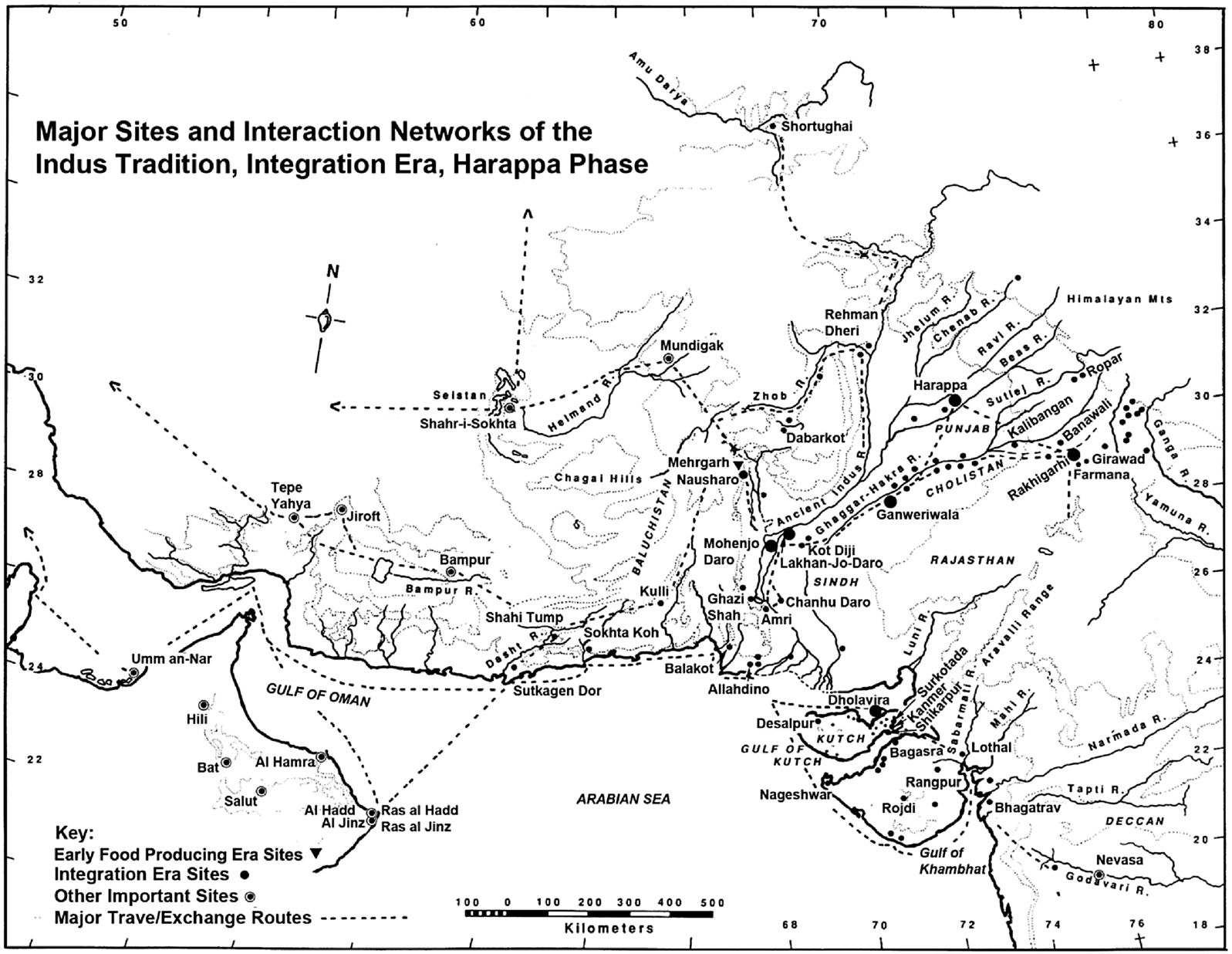

Figure 1. Map of the Indus Civilisation.

Table 1 Chronology of the Indus Tradition (Kenoyer, 2015: Tables 2, 3, 4, 5, 6)

Early Food Producing Era (Neolithic)	ca. 7000 to 5500 BCE
Mehrgarh, Period IIa — Ceramic	*6000 – 5500 BCE*
Mehrgarh, Period 1, Aceramic	*7000 – 6000 BCE*
Regionalisation Era (Chalcolithic/Bronze Age)	
Early Harappan	ca. 5500 to 2600 BCE
Harappa: Period 2, Kot Diji Phase	*2800 – 2600 BCE*
Harappa: Period 1,A & B, Ravi Phase	*>3300 – 2800 BCE*
=Mehrgarh, Period IV to V	*3500 – 3000 BCE*
Mehrgarh, Period III	*4400 – 3500 BCE*
Mehrgarh, Period IIb	*5500 – 4400 BCE*
Integration Era (Indus Civilisation) (Bronze Age)	
Harappan Phase	2600 to 1900 BCE
Harappa: Period 3C, Final	*2200 – 1900 BCE*
=Nausharo, Period IV	*2100 – 2000 BCE*
Harappa: Period 3B, Middle	*2450 – 2200 BCE*
=Nausharo, Period III	
Harappa: Period 3A, Initial	*2600 – 2450 BCE*
=Nausharo, Period II	
Localisation Era (Bronze Age)	
Late Harappan Phase	ca. 1900 to 1300 BCE
Harappa: Periods 4 and 5	*1900 – 1700 BCE*
=Mehrgarh Period VIII	*2000 – 1700 BCE*
Jhukar, Rangpur, Cemetery H Phases	

Rao et al. 2005). Other regional forms of Early Indus writing may have been developing in Baluchistan (Dales 1979: 256; Quivron 1997; Jarrige et al. 2011) and the Gomal and Bannu Plains of Khyber Pakhtunkhwa (Dani 1970 – 1971; Durrani 1988; Durrani et al. 1991; Durrani et al. 1995), as well as in Gujarat (Ajithprasad 2002). As more sites are excavated in each of these regions, the sample size of inscribed objects will increase and eventually it may be possible to trace the development of specific aspects of writing to one or more regions.

The development of what is thought to be a single widespread form of Indus Script is seen during the Integration Era (Bronze Age) from around 2600 – 1900 BCE, with the rise of major urban centres that had relatively similar economic, political and ideological systems (Parpola 1994a). It is still not confirmed if this is in fact a single unified writing system, though that is what most scholars assume. Based on the stratigraphic excavations of inscribed objects from the site of Harappa, it is clear that the Indus Script changed over time, and that some new signs and new ways of using the script were introduced in the

later part of this period (Kenoyer and Meadow 2010). Given the chronological variation seen at Harappa, it is possible that there are regional variations of the Indus Script and that some areas may have used writing in unique ways. We do have evidence that the Indus script was used to write a different language based on seals found in Bahrain and other regions of the Persian/Arabian Gulf, Iran and Mesopotamia (Brunswig et al. 1983; Parpola 1994b; Laursen 2010: 115 – 119). The Indus Script was used for around 700 years and gradually disappears during the Localisation Era (1900 – 1300 BCE), when trade networks were disrupted and the integrated urban centres become isolated and eventually reorganized along different cultural and economic patterns.

Table 2: Chronology of Indus Script and Seal types from Harappa and other major Indus Sites (modified from Kenoyer 2006b)

Harappa — Period 1— 3700 – 2800 BCE
Seals:
Button seal with geometric design, no clear evidence for script

Positive script
Inscribed pottery — post-firing graffiti, one to three signs, pre-firing potter's marks

Period 2—2800 – 2600 BCE
Seals: inverse script
Square steatite seal — animal motif facing left, irregular carving, irregular script placement
Steatite button seal — symbol, no script
Sealing — square seal with script, plant motif and ladder motif

Positive script
Inscribed pottery — post-firing graffiti, pre-firing script? one to three signs

Period 3A—2600 – 2450 BCE
Seals: inverse script
Square steatite seal — angular carving of animal predominantly facing right, linear script placement, curved script above animal motif, one script sometimes below animal head, seal boss is square
Positive script
Inscribed pottery — post-firing graffiti, pre-firing script

Period 3B—2450 – 2200 BCE
Seals: inverse script
Square steatite seal — animal motif predominantly facing left, linear but irregular script above animal motif, seal boss is circular, domed with single or double groove
Square steatite seal — only with script, linear regular script size
Steatite button seal — symbol, no script

Positive script
Incised steatite tablets — regular and irregular script, motifs and symbols
Moulded faience tablet — script, motifs and symbols
Moulded terracotta tablet — seal impression with animal motif and script

continued

Inscribed pottery — post-firing graffiti, pre-firing script

Period 3C—2200 – 1900 BCE

Seals — inverse script

Square steatite, copper and silver seals — animal motif facing left, bold, rigid, regular script, seal boss is circular, domed with single, double or triple groove

Long rectangular steatite seal — no animal motif, bold, rigid, regular script

Terracotta seal — regular script

Faience button seal — symbols, no script

Positive script

Trade and Accounting devices

Incised steatite tablets — script, motifs and symbols

Incised terracotta tablets/shaped sherds — incised irregular script

Molded copper tablets — regular script, raised in positive

Molded faience tablet — narrative scenes, script, motifs and symbols

Molded terracotta tablet — narrative scenes, seal impression with animal motif and script

Molded terracotta token — circular with script on one or both sides, low fired

Terracotta flat sealing — molded script from various types of seals

Inscribed terracotta conical sealing — irregular script

Pottery

Pointed-base goblets — impressed with script seal

Inscribed pottery — large and small, generally irregular post-firing graffiti, large and small refined and regular pre-firing script

Inscribed stone vessel — bold regular script

Architecture

Inscribed ringstone — regular script

Tools/weapons

Inscribed copper tools/weapons — bold, rigid, regular script

Inscribed bone point — irregular script

Ornaments

Inscribed gold jewellery — miniature irregular script

Inscribed stoneware bangles — miniature irregular script

Inscribed shell bangle — irregular script

Inscribed terracotta bangle

Molded terracotta bead — irregular script

Molded faience bead (or perforated tablet) — regular script

Domestic, ritual and other

Inscribed bone and ivory dice — irregular script

Inscribed terracotta conical object/gaming piece — irregular script

Inscribed terracotta top, wheel, figurine

Inscribed terracotta triangular cake

Inscribed pebble — irregular script

Early Graphic Symbols on clay and pottery

The earliest evidence for settled agriculture in this region dates to between 7000 – 6000 BCE at the site of Mehrgarh, Balochistan (Jarrige et al. 2005). In Period I at Mehrgarh there is no evidence for the use of pottery, and basketry was the main form of container that has been preserved. However, traces of painted linear and dotted decorations using red ochre, brown, black and white pigments have been found on clay plastered walls of the early houses (Jarrige and Quivron 2013: 28 – 30). Abstract designs have also been found carved on a bone pendant (Jarrige and Quivron 2013: Fig.352), as well as on a wide range of animal and human figurines made from stone and clay. During Period IIa (6000 – 5500 BCE), low-fired pottery and also terracotta figurines of humans and animals were produced. Some of the pottery was decorated with a plum red slip, and red designs were also painted on some of the figurines. A terracotta bead with incised designs was found from Period IIB (5500 – 4400 BCE) and the excavators suggest that it may have been used like a cylinder seal to create a design that may indicate vegetation (Jarrige et al. 1995: 319). By Period III (4400 – 3500 BCE) a wide range of hand formed and some wheel thrown pottery vessels were being produced at the site and there is evidence for pre-firing potter's marks on some of the pottery (Quivron 1980: 276). After around 3500 BCE during Periods IV – VII the incidence of potter's marks increases significantly but the excavators do not feel that any of these early forms of graphic art can be directly related to the later Indus script (Quivron 1980: 279). However, many of the simple signs found at Mehrgarh do in fact appear at many other early sites within the Indus region and some of the signs that are found as post-firing graffiti were used in both the Early Indus Script and the later Indus Script (Kenoyer 2006b).

Potter's Marks and Graffiti

One of the major problems in the study of the origins of Indus writing has been a conflation of terms and the lack of precise documentation of graphic symbols on pottery and other types of objects. The extensive surveys and trial excavations carried out by Walter Fairservis in Balochistan recovered large amounts of pottery with evidence for graphic symbols (Fairservis 1961; Fairservis 1959; Fairservis 1956). Unfortunately, it is not clear if the symbols were inscribed on the pottery prior to firing or after firing. This is also the situation with graphic symbols reported from sites such as Rangpur (Rao 1963), Lothal (Rao 1985; Rao 1979), Kunal (Khatri and Acharya 2005), Rakhigarhi (Nath

2015）and Kalibangan（Lal et al. 2003；Lal et al. 2015；Joshi 2007；Lal 2015）. Graphic symbols incised on pottery prior to firing usually consists of one to six strokes, carved as an "X" or "V", or some geometric shape, incised on bottom of the base, or just above the base on the exterior of the vessel（Figure 2：5 to 11）. These pre-firing marks are usually identified as "potter's marks", indicating the person who made the pot or perhaps the person who would eventually receive the pot. Many different pots may have been fired in a communal kiln and this would allow individuals to differentiate their handiwork from that of other potters who were making similar shapes and designs of vessels. In contrast, post-firing marks or "graffiti" are signs that are carved onto a vessel after it was fired and could indicate the person who acquired the vessel or perhaps the contents of the vessel. Post-firing "graffiti" are usually incised on the vessel rim or upper body and can also be

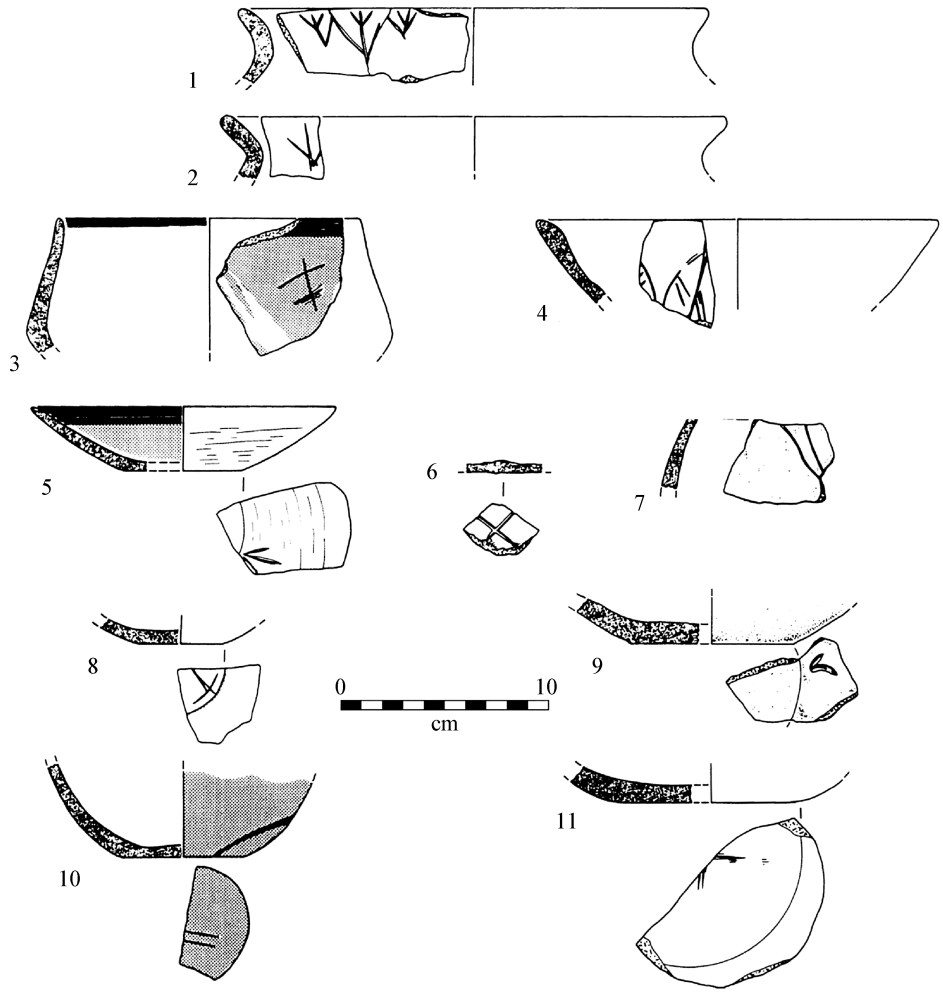

Figure 2. Harappa, Ravi Phase potter's marks and graffiti.

simple signs (Figure 2: 1 to 4). At the site of Harappa, during Ravi Phase (3700 – 2800 BCE) and the Kot Diji Phase (2800 – 2600 BCE) some graffiti included one complex sign that was similar to signs found in the later Indus script (Figure 2: 4). Sometimes two or more distinct signs were arranged in a sequence that was identical to sequences found in the later Indus script (Figure 3). These examples suggest that some of the early graffiti was probably being used as a form of writing and that the later Indus script evolved out of

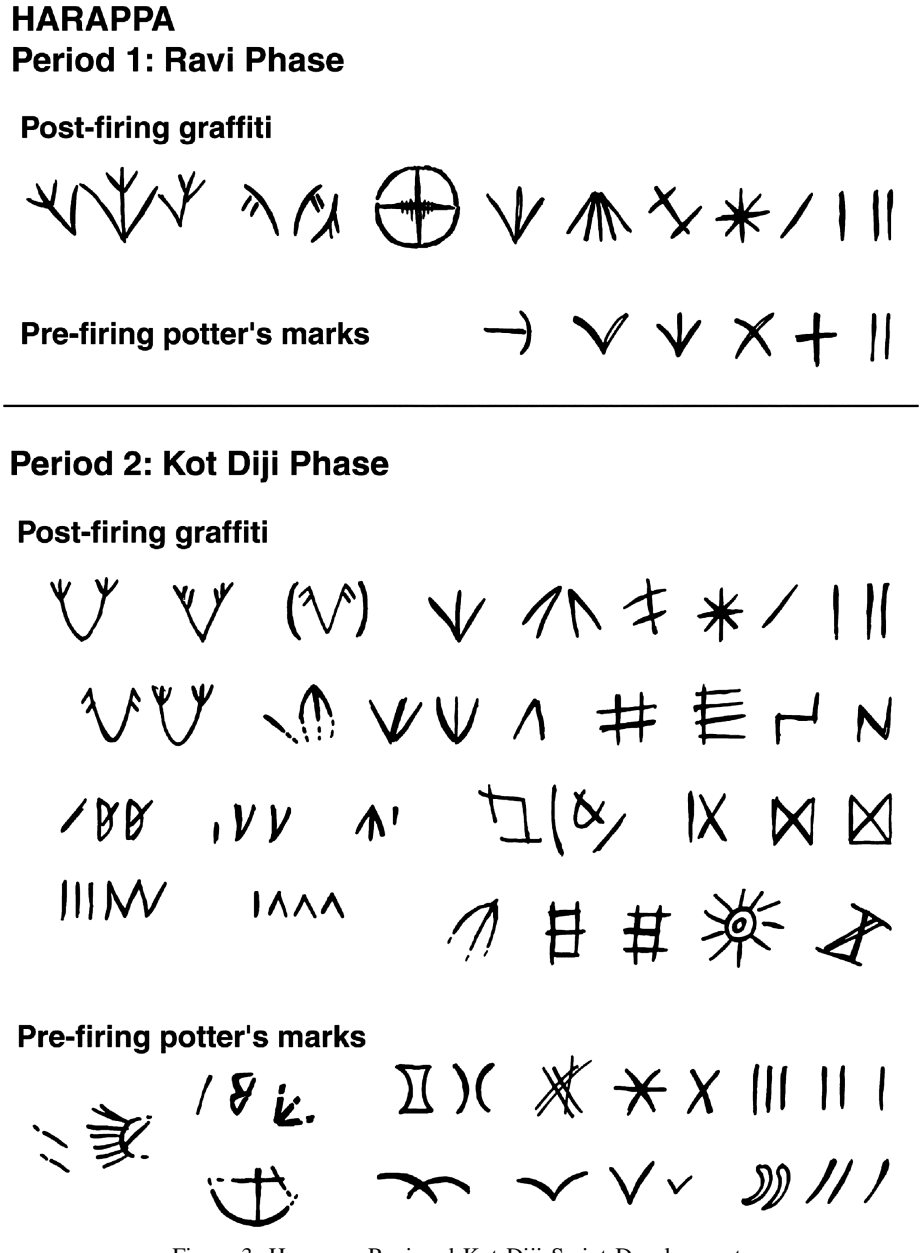

Figure 3. Harappa, Ravi and Kot Diji Script Development.

the early graffiti being used on pottery during the Regionalisation Era (Kenoyer 2006b: 14 – 16). Due to the limited area of total excavations, the sample size of Early Indus script from Harappa is quite small, but the discovery of similar signs at other sites in the northern Indus and Ghaggar-Hakra River Valleys suggests that the process of script development was taking place over a broad region.

The use of potter's marks continues from the Regionalisation Era through the Integration Era and may reflect a separate though possibly overlapping form of personal identification. Some potter's marks may actually represent words or names, but there is no way to decipher them. Post firing graffiti also continues through from the Regionalisation Era to the Integration Era.

In some cases, the post-firing graffiti may simply reflect notations or non-semantic symbols, but others may reflect words or ideological concepts. During the Integration Era, when the Indus Script is well established there are longer sequences of signs that are clearly examples of the use of Indus script on pottery. Large storage jars that were used for shipping goods within the Indus region as well as for external trade often were inscribed with one or more examples of Indus script (Figure 4). After the goods were removed from the large storage jars many of them reused as sump pits for waste water or as latrines. On one such complete jar found at Harappa, there were multiple examples of pre-firing potter's marks and script, as well as post firing graffiti (Kenoyer 2006b). On the base of the vessel were three pre-firing incised potter's marks and on the upper body were two script signs similar to ones seen on some large copper tools. These were all made prior to firing and presumably by the potter or workshop master. A large post-firing graffiti was made across the upper body and a sequence of single strokes was incised on the rim. It is possible that the writing on the body of the vessel was used to indicate the contents or the person to whom the goods were being sent. The strokes on the rim could possibly represent measures of goods or commodities put into or taken out of the vessel. Sometimes the writing on the exterior of a vessel was re-inscribed by overlapping signs, done at different times. Unfortunately, due to the fact that many vessels were broken after they were used for shipping, there are relatively few complete inscriptions found on pottery.

It should be noted that unlike Mediterranean and Egyptian cultures, the Indus people did not write on pottery sherds as "scrap paper." From the recent excavations at Harappa there are only two examples of shaped sherds with writing that was executed on the sherd itself (Figure 5). Although it is difficult to determine why Harappans did not write on broken sherds, this pattern may relate to concepts of purity that are still an important part of ritual

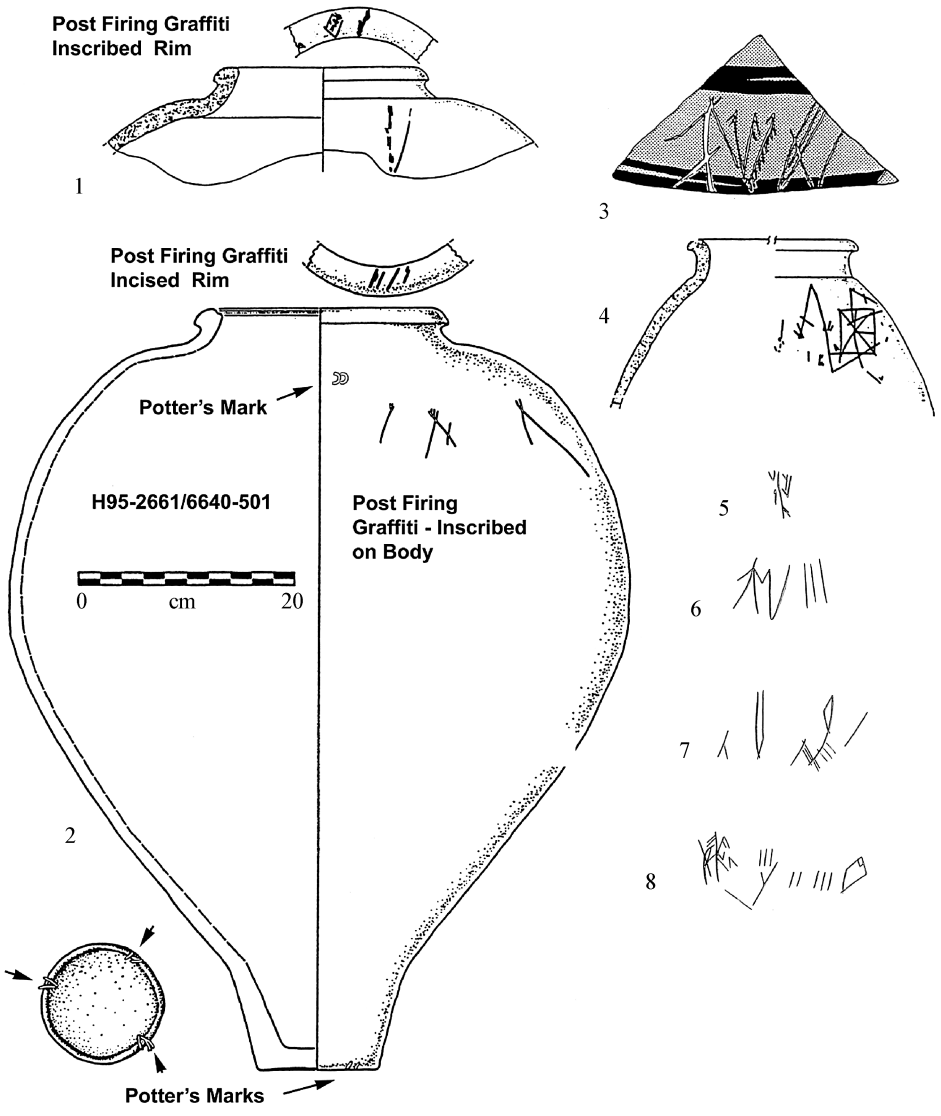

Figure 4. Harappa, Period 3, Inscribed Storage Vessels.

traditions of purity and pollution in South Asia. In most regions of India or Pakistan, terracotta vessels are considered to be polluted and impure after they have been eaten out of (Miller 2007: 96), and are usually discarded and broken after use. Pottery fragments lying in the street or in a dump are considered extremely polluting today and perhaps the Harappans also had a similar belief system.

The practice of writing on pottery with Indus script ends around 1900 BCE. However, there are some rare examples of graffiti that does not appear to be Indus script on Late Harappan pottery at the site of Harappa and graffiti on pottery is occasionally reported

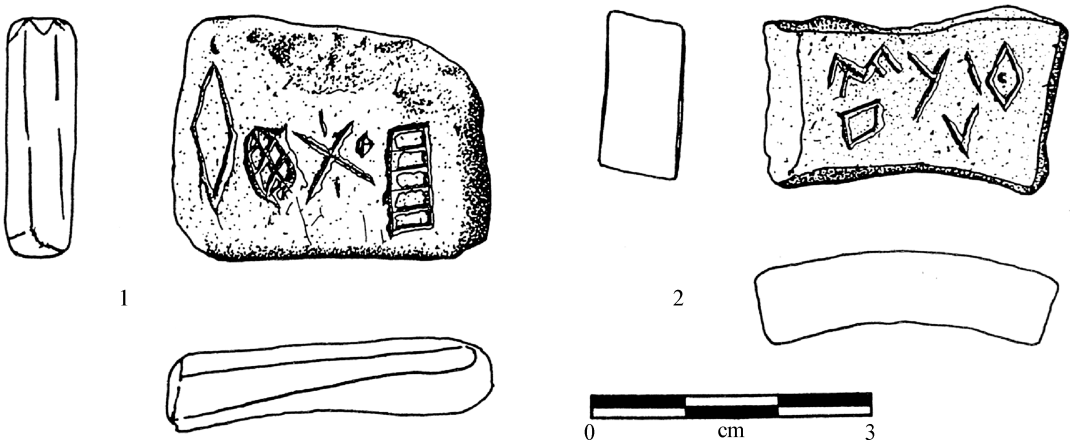

Figure 5. Harappa, Inscribed Sherds.

from other Late Harappan sites in the regions of Gujarat and Haryana. Whatever these signs may have represented, they do not appear to reflect a Late Harappan writing system, and well-dated sites with Late Harappan graffiti are not well documented. One example of graffiti on pottery has been reported from the site of Loebanr in the upland valley of Swat, Pakistan, which is actually outside of the known expanse of the Late Harappan cultural tradition (Shah and Parpola 1991: Loebanr III). The general consensus is that writing on pottery was not common during the Late Harappan period and that the role of writing as a whole was discontinued. The reasons for this will be discussed in more detail below, but it is also linked to the disappearance of Indus styles seals, cubical chert weights used for trade and taxation, as well as many other ideological symbols and diagnostic aspects of the Harappa culture (Mughal 1990; Possehl 1997; Kenoyer 2005; Ratnagar 2000).

Early Harappan Seals with Graphic Symbols and Script

Even though pottery is by far the most common medium for graphic symbols such as potter's marks and graffiti, the use of symbols and writing on seals has gained the most attention. Various objects that have been called seals were used in the Indus region, including stamp seals, button seals and beads with incised designs that could have been used as stamp or cylinder seals. Button seals were made from various types of raw of materials, including copper, faience, ceramic, bone/ivory and soft stone and there is considerable variation in seal shapes and sizes.

The earliest evidence for carving abstract designs on a bone pendant comes from Period 1 (7000 – 6000 BCE) at the site of Mehrgarh (Jarrige and Quivron 2013: Fig. 352),

although it is not thought that this pendant was used as a seal. In Period IIB (5500 – 4400 BCE) at the same site a terracotta bead had a zigzag design that could have been used as a form of cylinder seal (Jarrige et al. 1995: 319). During the Regionalisation Era, almost all sites in the Indus region show the use of decorated circular, square or rectangular shaped ornaments with perforations that are commonly referred to as "button seals." The discovery of a sealing made by impressing one of these seals into wet clay found from the Early Harappan site of Lewan Dheri (Shah and Parpola 1991L Lwn – 1) confirms that some were actually used as seals to close containers or store rooms. Some of the button seals have one or two perforations through the body of the seal (Figure 6: 1, 3), while others have a perforated knob or boss on the back (Figure 6: 2, 4, 5). The most dominant form of seal during the Regionalisation Era is the square shaped stamp seal with a perforated cylindrical knob on the back (Figure 6: 5). Most of these seals were made

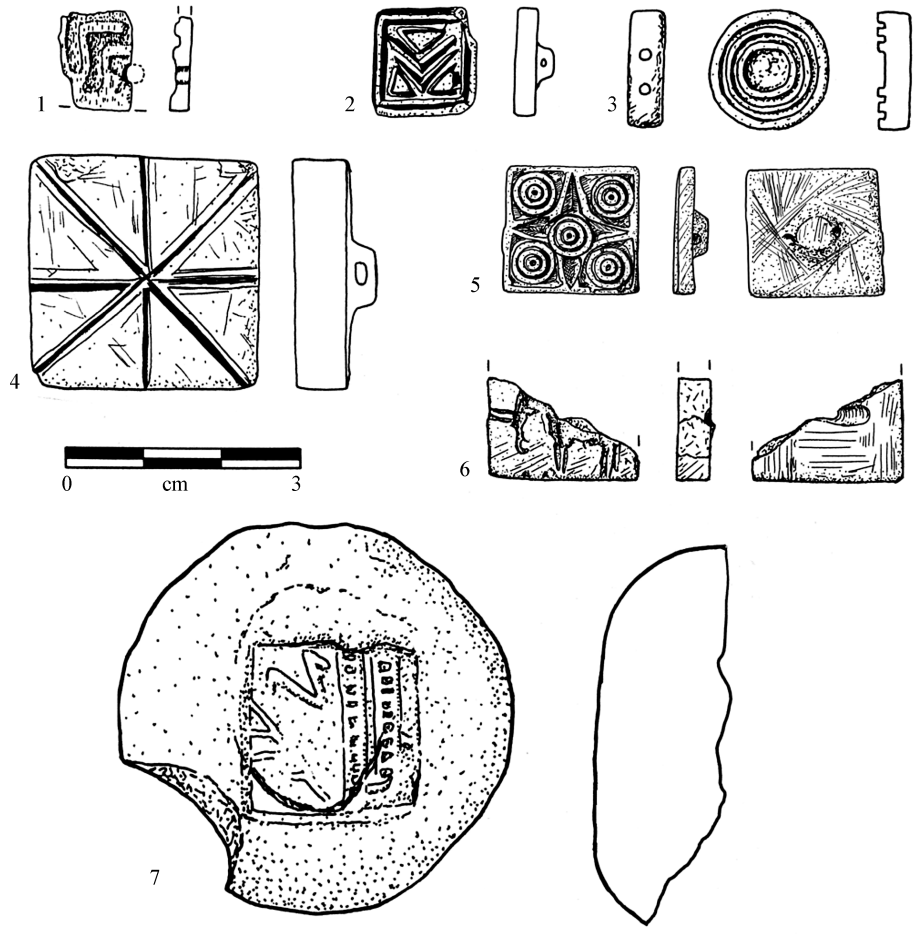

Figure 6. Harappa, Ravi and Kot Diji seals and sealing.

from soft steatite that was carved and then fired to turn it white. This type of steatite can be found from any major Dolomitic steatite source area, but during the Indus craftspeople seem to have preferred the whitest firing varieties that come from the region of Hazara in Northern Pakistan (Law 2011: 260 – 261). Systematic studies of the Early Harappan seals have not been carried out, but it is not unlikely that this was also the source of the Early Harappan steatite used in seals at sites such as Rehman Dheri and Harappa. Before firing, the seals were coated with a glaze made of silica with a copper-based colorant so that when fired they would have a blue-green silica glaze.

Experimental replications of this glaze have been prepared using crushed rock quartz, copper oxide and using a plant ash flux called *sajji khar* (Urdu) that is generally made by burning the desert plant *Haloxylon recurvum* (Tite 2006). The experimental firing was done at around 940°C to 960°C and this resulted in both whitening the steatite and creating a blue green glaze. This type of glaze does not adhere well to steatite and though some traces do remain in the deep grooves, most seals do not have any remaining glaze on the surface. Most button seals only have geometric designs, but these designs themselves may have had some specific iconic meaning and some of the geometric shapes eventually were incorporated in to Early Indus or Indus script. Some of the button seals also have animal motifs, often pairs of antelopes, wild sheep or goat, or even scorpions. A bone seal or possibly a pendant from Rehman Dheri is decorated on both faces and combines antelope and scorpions with possible forms of Early Indus script (Durrani 1988) (Figure 7).

Figure 7. Rehman Dheri, Ivory Pendant/Seal with script.

At the site of Harappa, there is evidence for the production of new forms of seals during the final period of the Kot Diji Phase (2800 – 2600 BCE). One broken seal has an elephant carved roughly on the lower part of the square facing to the left, and it is possible that script was carved above it, but this part of the seal is missing (Figure 6: 6). When

impressed into clay the elephant would have faced to the right, which is the direction most animal motifs on the later Harappan seals face. A second type of seal is represented by a terracotta sealing. This sealing was made using a square seal that had two script symbols along with a geometric ladder shaped motif (Figure 6: 7). These two types of seals suggest a period of experimentation in seal design that eventually led to the form of seal that became common during the first part of the Harappa Phase, Integration Era, circa 2600 – 2450 BCE (Period 3A at Harappa).

Harappan Seals with Script

The Harappan Period is divided into three phases based on the excavations at Harappa and other sites (see Table 1 and 2) and square steatite seals were usually carved with an animal motif in the lower register and a line of script above the back and head of the animal (Figure 8). During Harappa 3A (2600 – 2450 BCE) the animal motif was carved with deep, bold angular lines and on the one broken seal from Harappa that comes from a well dated strata, only one script sign was preserved above the rump (Figure 8: 1). At the other sites, such as Farmana (Shinde et al. 2008), Bhirrana (Kumar and Dangi 2007; Uesugi et al. 2016) and Watuwal (Farzand Masih Personal Communication 2011), the seals are not from well dated contexts, but stylistically are identical to the one from Harappa, and there are up to three signs carved above the animal and in some cases a sign or ritual stand was placed below the head (Shinde et al. 2008 – 2009). The earliest example of a unicorn motif is seen on a seal from the site of Farmana (Shinde et al. 2008 – 2009). Other animal motifs common on the Period 3A seals include the water buffalo, antelope with front or back arching horns, as well as Markhor goat with spreading horns and sheep with back arching horns. The perforated boss on the back of the seals is generally square with a flat or slightly convex surface. However, some seals have a circular rounded boss with a central groove and this eventually becomes the dominant form of boss in Period 3A, 3B and 3C. The precise dating of seals with specific types of boss designs is not possible, but will hopefully be sorted out when the sample size is increased during future well-dated stratigraphic excavations.

The orientation of the animal on the seals is an important indicator of cultural style and ideology. The orientation of the animal motifs is not highly standardized during the Kot Dijian and initial Harappan Period 3A. When impressed into clay the right facing animals on the Period 3A seals would be facing to the left in the seal impression. This is opposite to the direction of the elephant seal found at Harappa in the Kot Diji levels (see above).

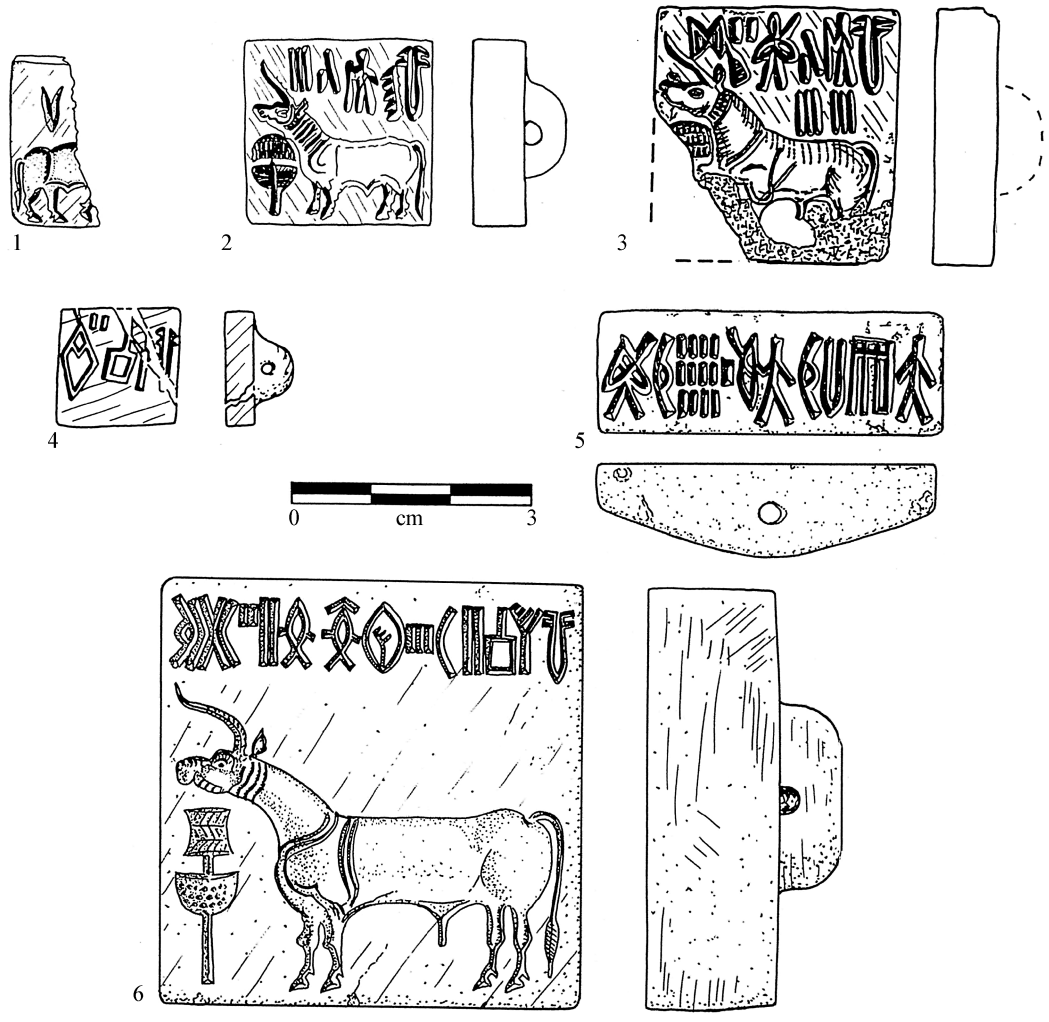

Figure 8. Harappa, Period 3 Seals.

The change in direction appears to indicate a period of fluctuation in seal design during the initial Harappa Phase 3A. Other sites with seals that stylistically correspond to the seal from Harappa 3A and have animals facing to the right include Mohenjo-daro (Shah and Parpola 1991: M－977, M－1170; Joshi and Parpola 1987: M－223, M－269, M－270, M－272, M－273, M－298), Balakot (Shah and Parpola 1991: Blk-5), Kalibangan (Joshi and Parpola 1987: K－34, K－41, K－43) and Banawali (Bisht 1982; Bisht 1987). Although the seals from these sites have been broadly dated to the Harappa Period 3 (2600－1900 BCE), the stylistic elements and the direction that the animals are facing suggest that they belong to the earliest period 3A (2600－2450 BCE). There are some examples of the animals facing to the left at both Banawali (Konosukawa 2013: 6) and at

Kalibangan (Joshi and Parpola 1987: K－35, K－37, K－39), indicating that there may have been specific cultural or ideological choices relating to the direction the animal was facing. Konosukawa's research (Konosukawa 2013) indicates that there are a larger number of right facing animal motifs on seals in the Ghaggar-Hakra region, but this pattern needs to be checked at more sites with seals from well-dated and stratigraphically secure contexts.

Carved steatite button seals continued to be produced during the Harappa Period, and were used along with the stamp seals to impress sealings. Some of these had blue-green glaze but others were only fired white. The geometric designs are generally different from those of the Early Harappan button seals, and consist primarily of circle and dot motifs, stepped cross, endless knot or swastika motifs. In addition to steatite, many button seals were made from glazed faience. During the Harappa phase button seals were generally not made from terra-cotta, copper/bronze or bone/ivory, which were common earlier.

During Harappa Period 3B (2450－2200 BCE) the predominant orientation of the animal is facing left (Figure 8: 2, 3), and the impressions of the seals would have the animal facing to the right. This is the opposite of the pattern that appears to have been dominant during Period 3A. The boss shape also changed and instead of a square boss, the boss was made with a circular domed shape with a single groove in the middle. Some seals had a double groove and rarely there was a triple groove. The perforation oriented horizontally matching the alignment of the animal motif and script. The script was carved on the upper register above the rump and back of the animal motif. If the inscription were long, it would extend to the area above the head of the animal, where the script signs were slightly smaller in order to fit into the reduced space above the animal's head and horns (Figure 8: 2, 3). In some rare examples there is evidence of script on the edges of the seal and occasionally even on the boss. The first well-dated example of the use of script on a seal without any accompanying animal motif is seen at Harappa during Period 3B (Figure 8: 4) (Parpola et al. 2010: H－1692). The seal with script only is slightly rectangular with a grooved boss as is common with other seals that have animal motifs. There are other examples of seals with only script from the site of Mohenjo-daro (Joshi and Parpola 1987: M－313, M－316, M－315) and Lothal (Joshi and Parpola 1987: L－56, L－58, L－59), but the stratigraphic position of the seals and their dating is not certain.

During Harappa Period 3C (2200－1900 BCE) the trend of left facing animal motifs on seals continues along with the use of a circular domed boss with single, double or in rare cases a triple groove. The writing above the animal becomes more standardized and is

usually arranged in a straight line that stretches along the entire width of the upper register of the seal (Figure 8：6). All of the script symbols were carved with lines that are approximately the same width with angular edges and script shapes that are generally the same height and relative width. This type of script carving is also seen on a new type of long rectangular seal that has no animal motif and has no separate perforated boss on the back (Figure 8：5). The body of the long rectangular seals were thicker in the middle and had a convex back with the perforation made in the middle of the seal.

Late Harappan Button Seals

During the Late Harappan Period (Period 4 and 5 at Harappa, 1900－1300 BCE) the use of script disappears but seals with geometric designs continued to be used (Figure 9). At sites such as Chanhudaro (Mackay 1943), Mohenjo-daro (Marshall 1925－1926; Mackay 1938), Harappa (Vats 1940; Kenoyer and Meadow 2010), and other non-Indus sites such as Gilund and Ahar (Shinde and Possehl 2005; Ameri 2016) button seals continued to be made and used. Many of these seals were made in clay, but some were made from carved and fired steatite. The continuation in seal production and used indicates that many of the craftspeople and traders continued to function in the Indus and adjacent regions, but the elites who used script were no longer in power.

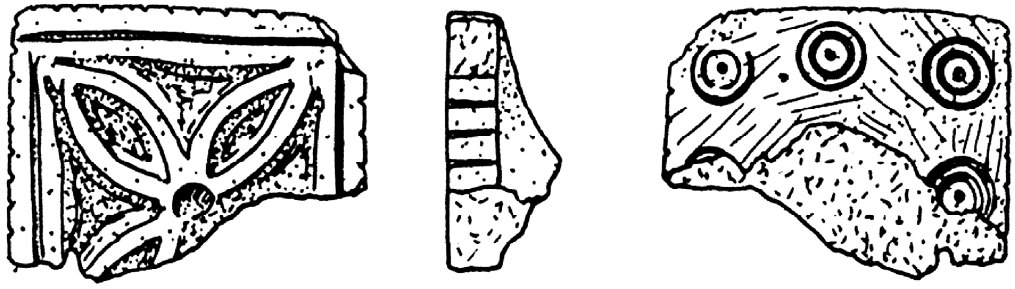

Figure 9. Harappa, Period 4/5 Button seal.

Nature of the Indus Script

Current discussions of the nature of the Indus script are based primarily on the study of seals from the major sites such as Mohenjo-daro, Harappa, Kalibangan and Lothal. This approach however is inherently flawed since the seals from these excavations range in date between 2600－1900 BCE, a 700－year period of time. The recent excavations at Harappa indicate that the Indus writing actually begins much earlier than 2600 BCE and that it also

appears to evolve during the 700 years of the Harappan period. In the past, most scholars assumed that there were between 400 and 450 discrete symbols from the Harappan period (Parpola 1994a), but it is possible that there are considerably less during each of the sub periods. It is also possible that there are regional variations of symbols used in different parts of the very large geographical region encompassed by the Indus civilisation.

It is generally agreed that the signs found on seals and pottery represent a logo-syllabic (morphemic) system, where a single sign can mean a word, a syllable or a sound (Parpola 1994a). However, it is also clear that many signs are pictographic in form, depicting tools, animals, plants or even people holding different types of objects. Such signs could be read in different ways by people who might speak different languages and still be understood. Other signs, such as the stepped cross, circle or swastika, could be ideograms that again could be read in different languages without compromising the meaning of the sign. Due to the fact that the Indus writing disappeared around 1900 BCE and was never recorded along with any other known writing system, it is not possible to decipher any of the signs or determine the affiliation of the language or languages spoken in the Indus region. Based on the study of place names and the names of rivers and geographical regions of the Indus, it is most likely that several major language families were present during the period of the Indus cities. The major language families defined by linguists include Dravidian, Mundari (Austro-Asiatic), Indo-Aryan, Sino-Tibetan and language "X" of the Neolithic Period (Fairservis and Southworth 1989; Southworth 2005). The ancestral forms of these languages may have been spoken in different parts of the greater Indus Valley region and if the Indus script was used to write names of people or deities, it is not unlikely that some if not all of these languages are represented in the inscriptions found on seals and pottery. Although we cannot read the Indus seal texts, the translation of Akkadian inscriptions found on Indus style seals found in Mesopotamia suggest that some of the seals included names of individuals and their affiliations with specific deities, but the names themselves are not Sumerian or Akkadian and therefore may represent some form of Indus name (Frenez et al. In Press). As noted above, we also have evidence that the Indus script was used on circular Gulf seals in very different patterns, which may indicate a non-Indus language (Brunswig et al. 1983; Parpola 1994b; Laursen 2010: 115 – 119).

The Indus script was primarily written from right to left, but there are some examples of writing that is executed from left to right, and in rare instances the direction alternates on each line, in a pattern called "boustrophedon" or "turning like an ox" when it plows a field (Parpola 1994a). The most convincing evidence for the direction of the writing is

seen in the sequence of strokes on pottery and clay objects, where it is possible to see overlapping lines proceeding from right to left.

Inscribed Indus Seals and their Use

Unlike Mesopotamia, where seals were used by many different levels of the society (Michalowski 1990; Bertman 2003), the Indus seals appear to have been used by a relative limited segment of the society. Based on the fact that seals were used to seal containers for trade and storerooms, we can assume that seal owners would have included individuals who had power over considerable material wealth, such as merchants, landowners and political administrators (Parpola 2005; Vidale 2005; Kenoyer 2009; Jamison 2016). Since some seals also include ritual scenes and narrative scenes we can also suggest that some seals may have been used by ritual specialists (Kenoyer, 2010). Seals that were discarded were often broken intentionally to keep others from using them, and old seals were often buried in the house floors to keep them from being used by others (Kenoyer 1996). Based on the excavations at Mohenjo-daro (Marshall 1931; Mackay 1938; Franke-Vogt 1991), Harappa (Vats 1940; Dales and Kenoyer 1991) and Dholavira (Bisht 2015), it is clear that seals were scattered in many parts of the site through post-depositional processes of erosion and moving of fill from one area of the site to the other. However, higher concentrations of seals were found in areas near to the gateways and in some specific houses that may have been locations for workshops or storerooms (Kenoyer 1993; Dales and Kenoyer 1990).

Seals that have a combination of writing and pictographic motifs were important for trade, where not everyone would be able to read the text. A literate trader would be able to recognize the name or office of the seal owner, but a labourer or apprentice could recognize the animal motif on a seal and still make sure that the commodities reached the correct storeroom or shipping vehicle.

The most common motif associated with Indus script on stamp seals is the unicorn, a mythical animal with one horn arching forward from the back of the head. The animal had the body of an antelope or deer and the tail of an ox, with various decorative elements such as collars and often a form of coverlet that was hung over the forward quarters. Other animal motifs included the humped and non-humped bull, the elephant, various sheep, goat and antelopes as well as the rhino, the tiger and fantastic animals with three heads or combinations of many different animal motifs. Each of these animals may have reflected a specific hereditary community or different classes of administrative officials. Numerous

studies have been undertaken to try and figure out what these animals mean, but without a better understanding of the writing, all of these identifications are still largely speculative. The largest variety of seal motifs is found at only the largest sites, such as Mohenjo-daro, Harappa and Dholavira. This suggests that the largest urban centres included a diverse group of people who used seals and script, while smaller sites may have had less diverse groups of elites. Seals with the unicorn motif however are found at almost all Indus settlements. The unicorn seals may have been used by middle to low level merchants or officials who were responsible to reinforce the economic, political and ideological aspects of the Indus ruling elite. The unicorn symbol clearly represented one of the most widespread communities and when they no longer had power, the symbol was no longer used. This total obliteration suggests that the unicorn symbol was not something that most people wanted to remember. Other animal figures did continue to be used in painted pottery and terracotta figurines, but the unicorn motif disappears totally from the artistic repertoire of the Late Harappan and subsequent cultural traditions in South Asia. However, the concept of the unicorn did continue in Iran and Mesopotamia, and also spread to the steppes of Central Asia and Tibet, and eventually to China (Kenoyer 2013).

Indus Script on other Objects

In addition to the use of script on pottery and seals, the Indus elites used writing on a wide variety of other objects that were listed above (Table 2). Among these the use of writing on small, incised steatite tablets (Figure 10: 1, 2), or moulded faience (Figure 10: 3, 4) and terracotta tablets is extremely important. These tablets were not used as seals but were rather a form of token that encoded some words and, in some cases, what appear to be numbers or calendrical notations (Figure 11: 1). Such tokens could have been used for basic economic accounting and trade, or possibly for some form of ritual accounting. Some tablets were flat rectangular with writing on two sides, while others had three or four sides that were used for inscriptions. Some tablets were in other geometric or animal shapes, suggesting that they had specific functions associated with these motifs. Carved ivory and bone rods or plaques were also occasionally inscribed. Another form of tablet are seals or molded faience (Figure 11: 3, 5) or terracotta tablets (Figure 11: 1, 2, 4) that depict rituals or narrative scenes. Such objects may have been made for special events or used to commemorate annual rituals.

Writing has also been found on large stone rings that were used to construct columns or other architectural structures. The writing on such objects would have been covered up

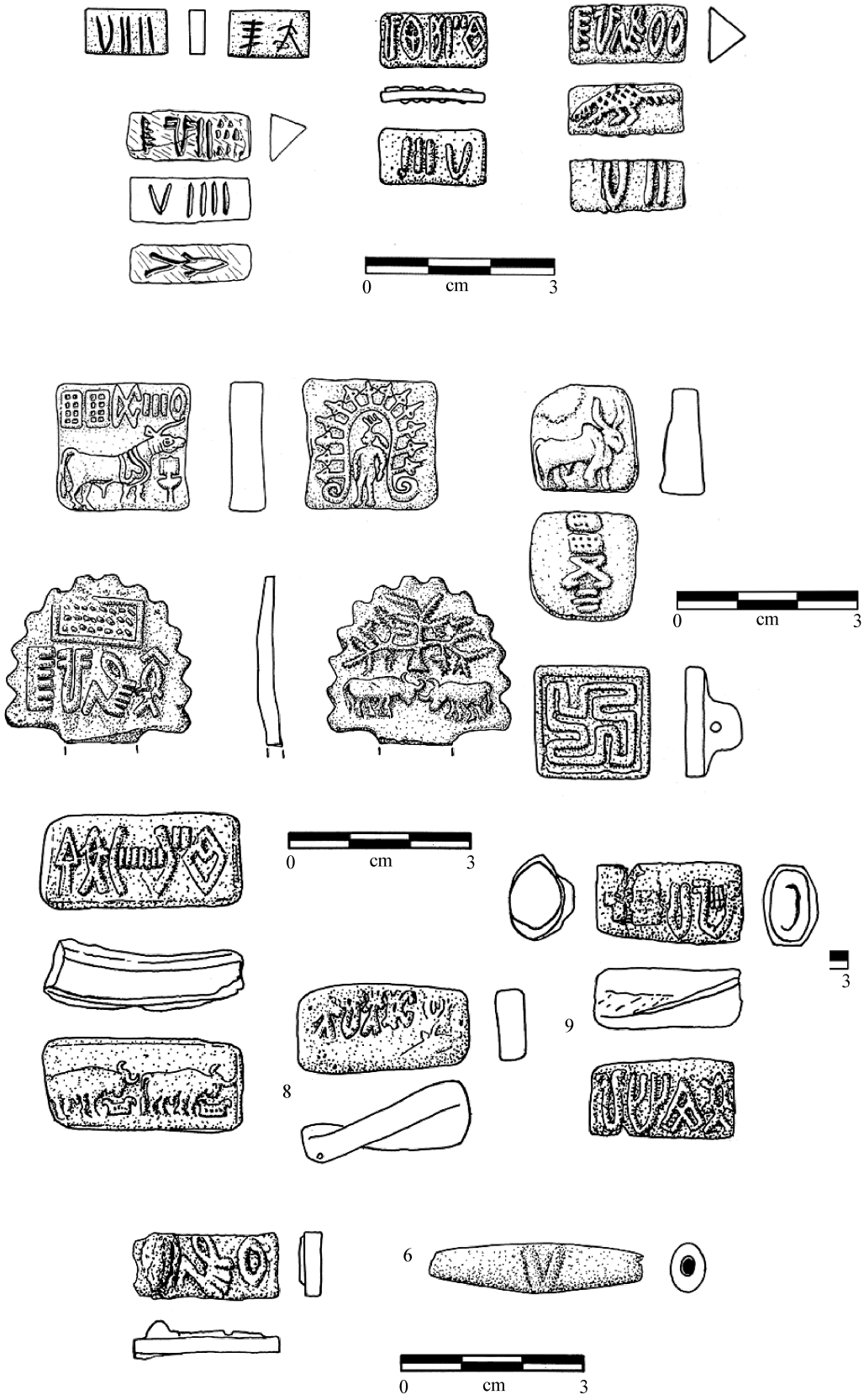

Figure 10. Harappa, Incised and Molded Tablets.

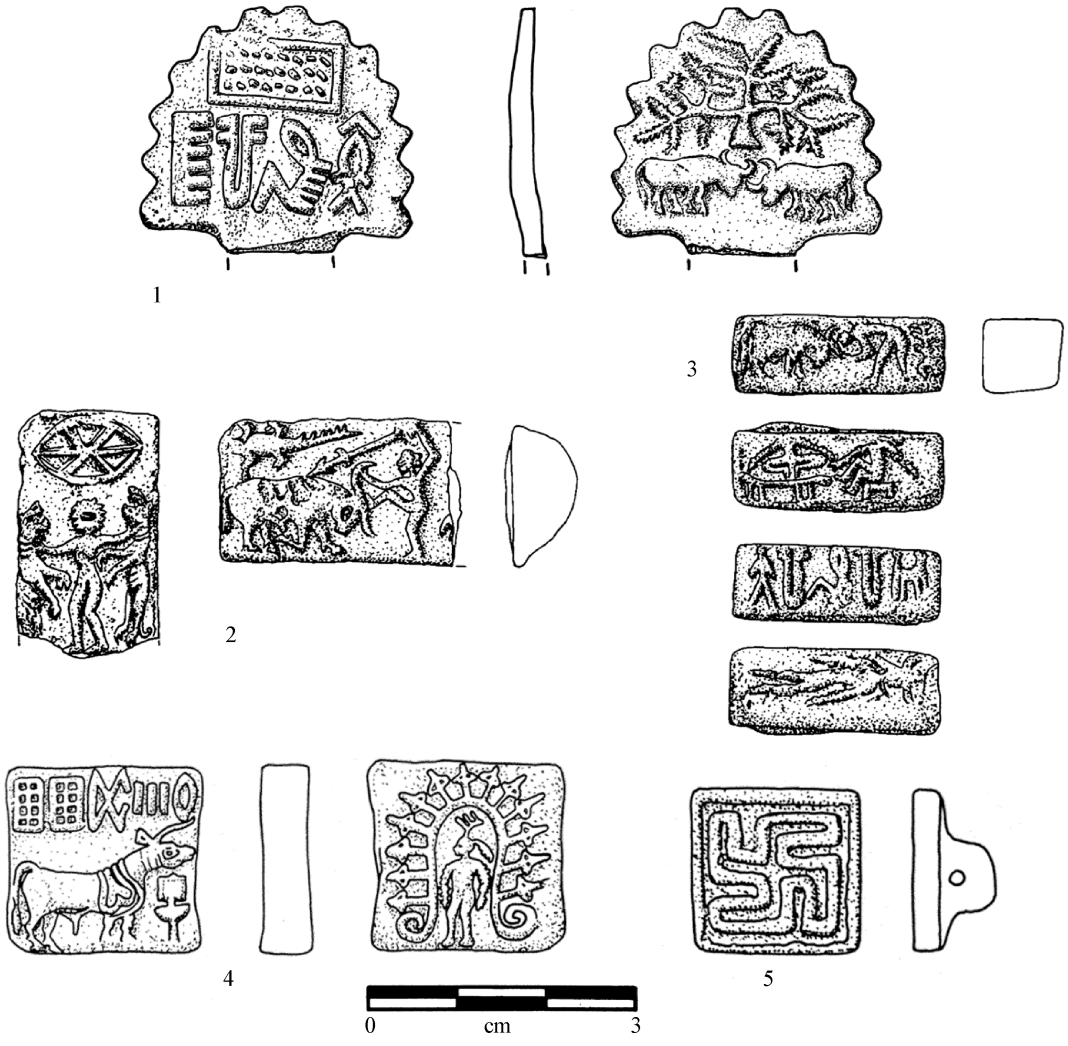

Figure 11. Harappa, Molded Tablets with Ritual and Narrative Scenes.

during construction so they may be notations about the maker or the construction that they were associated with though the signs may have had some ritual significance as well. Inscriptions also are found on tools, weapons, ornaments and various domestic items.

Without the decipherment of the Indus writing system is it impossible to determine the meaning of seals or their links to specific individuals or political authority. However the presence of seal users in settlements throughout the Indus region and even in surrounding territories can be interpreted as representing the administrative power of the elites and traders, some of whom probably represent rulers (Kenoyer 2000). The association of seals and writing with trade can be confirmed through the use of seals to stamp clay

sealings that were used on bundles of goods or locks on storerooms. Furthermore, the association of the script with various mythical animals, as well as narrative scenes on seals and other inscribed objects also suggests that writing was associated with rituals and possibly was even sacred (Parpola 1994a; Kenoyer 2001). The visual impact of a seal worn openly, or the impression of a seal on a clay sealing would have served to reinforce both the economic and social aspects of Indus society as well as the ideology that supported the society as a whole. The specific ritual symbolism of each animal or geometric design would also have served to legitimize the text on the seals and reinforce the overall impact of writing.

The actual contexts where these objects were used and eventually discarded is also important to consider. As is common in most archaeological sites, Indus inscribed objects such as seals, tablets, inscribed tools and jewellery have been found scattered throughout the debris of the ancient city and in the debris used to fill up empty areas. Most inscribed objects are broken and appear to have been discarded after they were no longer of use. In fact, many seals that have been recovered appear to have been intentionally broken and discarded with the trash. Unbroken and used seals have been found buried intentionally in house floors, often near a hearth or in a household pit. Some complete seals have been found in drains or on the streets, but these could represent seals that were accidently lost or ones that were redeposited on the street when fill inside a house was removed for reconstruction or simply eroded. Occasionally there have been discoveries of small caches of inscribed tablets that may have been in a container or bag, hidden in a room or buried in a floor. One of the largest inscriptions of the Indus appears to have been part of a wooden signboard that was placed in a room near a major gateway at the site of Dholavira (Bisht 2015).

The absence of specific types of script is also important to note, since many other contemporaneous cultures were using script to write long texts and in mortuary context. Most Indus script examples are relatively short and so far, there are no examples of Indus writing on perishable materials such as cloth, birch bark, or wood. Consequently, there are no libraries with large accumulations of texts in any of the Indus settlements excavated so far. Finally, it is important to note that no Indus burials contain seals or inscribed objects (Kenoyer 2006b).

Disappearance of Indus Script

The last point that needs to be addressed is why did the Indus writing system disappear?

The study of the disappearance of writing systems is not well developed, but some scholars have begun to address this issue in other regions of the world (Baines 2008; Baines et al. 2008; Houston et al. 2003). In Egypt and Mesopotamia, the dominant writing system gradually disappeared and was replaced by other writing systems with a period of coexistence when both the older and the newer writing systems were being used. In Egypt, the final extinction of hieroglyphics, which were still being used in ritual contacts in temples, coincided with the introduction of Christianity to Egypt in 359 CE (Houston et al. 2003: 444). In Mesopotamia, later versions of cuneiform continued to be used by the Achaemenid rulers and was used in ritual contexts of the Zoroastrian religion in Iran up until the introduction of Islam in the 7th century CE (Boyce 1979).

In the context of the Indus Civilisation, the Late Harappan Period has no evidence for the use of script from 1900 – 1300 BCE or in some regions even as late as 1000 BCE (Mughal 1990; Shinde 1991; Magee 2004; Kenoyer 2005; Deshpande and Shinde 2005; Bhan 1989; Possehl 1997). It is during this time period that the Indus script disappeared along with many other aspects of Indus ideology and political organization. These other objects included seals, the unicorn symbol, the use of standardized cubical weights, and the diagnostic decorated pottery, as well as many exquisite technologies used to produce ornaments such as stoneware and shell bangles, terracotta figurines and other ritual objects for the elites (Kenoyer 2005). Although there are many different opinions about the nature of the process, this is the time period when Vedic communities were emerging as the dominant cultural tradition in northern South Asia, gradually expanding throughout Indus region and eventually into the Ganga-Yamuna River Valley and even into Peninsular India. These communities spoke various Indo-Aryan languages and dialects, and used the sacred language of Sanskrit for composing ritual hymns that have been preserved orally, but were never written down until much later in time (Thapar 2000; Bryant 2001; Erdosy 1995; Ghurye 1979; Witzel 2001).

The fact that the Vedic tradition did not use a writing system and specifically proscribed the use of writing may help explain why there was no other writing system in existence when the Indus script was no longer used. The lack of a writing system during the Late Harappan period however does not mean that the Indus culture disappeared totally. Many aspects of Indus subsistence and material culture technology as well as some aspect of their ideology did continue into later time periods (Kenoyer 2006a). Excavations of sites that provide an overlap between the Late Harappan and subsequent time periods are needed to help better understand these continuities as well as the changes that were occurring. At present however, there is no evidence that the Indus script is linked to the Brahmi script,

which is the next major writing system that emerged in South Asia, during the middle of the 1st millennium BCE. The Brahmi writing system was first documented as graffiti on pottery dating between 450 – 350 BCE in Sri Lanka (Coningham and Young 2015) and was later used for the major and minor rock edicts of the Mauryan ruler Ashoka between 269 – 232 BCE (Coningham and Young 2015; Dhammika 1997).

Conclusion

As more excavations unearth new examples of Indus writing, it is possible that eventually some form of bi-lingual tablet will be discovered to help decipher this unknown writing system. However, until that time we can still continue to unravel the complex uses and contexts in which Indus elites used their writing system. The origins of the Indus writing system can be traced to multiple regions throughout the greater Indus valley during the period prior to the rise of major cities. This suggests that the writing system may have been quite diverse in its early stages and also may have been used to write more than one language. Although some scholars have suggested that the Indus script does not encode a language (Farmer et al. 2004), most scholars feel that the evidence presented above clearly demonstrates that it evolved over time and was used in diverse ways that are similar to what is seen in other early civilisations (Parpola 2008; Vidale 2007; Kenoyer and Meadow 2010). As noted above, the development of Indus writing can be divided into the Early Indus script of the Kot Diji phase, and the fully developed Indus script of the Harappa phase. During the Harappa Phase there is also at least three phases of development associated with writing on seals and some indication of the evolution of the script itself (Kenoyer and Meadow 2010). The recent and ongoing research at sites such as Harappa, Dholavira, Rakhigarhi, Farmana and many other smaller settlements has revealed new types of inscribed objects and more precise chronologies are available for the contextual and spatial analysis of the use of writing. At present, many younger scholars are joining the effort to understand the Indus script by re-examining the seals and inscribed objects from earlier excavations in order to begin sorting these out chronologically. These new approaches will undoubtedly provide new perspectives on the writing system, how it was used by the Indus people and how it changed over time.

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Abstract

The oldest known writing system of South Asia is commonly referred to as the Indus script because of its association with the early urban centres of the Indus Civilisation, dating between 2600 – 1900 BCE. The Indus script was used in the cities and towns over a vast geographical region of the Indus and Ghaggar-Hakra River Valleys in what is now Pakistan and northwestern India.

Origins of Early Indus Script

The evidence for the origins of the Indus script is found during the earlier Regionalisation Era in the form of post firing graffiti as well as painted on pottery. An Early Indus Script can be identified between 2800 – 2600 BCE. At the site of Harappa, there is evidence for the production of new forms of seals during the final period of the Kot Diji Phase (2800 – 2600 BCE). One broken seal has an elephant carved roughly on the lower part of the square facing to the left, and it is possible that script was carved above it, but this part of the seal is missing. When impressed into clay the elephant would have faced to the right, which is the direction most animal motifs on the later Harappan seals face. A second type of seal is represented by a terracotta sealing. This sealing was made using a square seal that had two script symbols along with a geometric ladder shaped motif.

Indus Script

The Indus script is thought to be a single widespread form of writing that corresponded with the rise of major urban centres that had relatively similar economic, political and ideological systems. The script was used on seals as well as a wide range of artefacts, such as weapons, ornaments, trade pottery and ritual objects. Based on the stratigraphic excavations of inscribed objects from the site of Harappa it is clear that the Indus Script changed over time, and that some new signs and new ways of using the script were introduced in the later part of this period.

The Harappan Period is divided into three phases based on the excavations at Harappa and other sites. During Harappa 3A (2600 – 2450 BCE) the animal motif was carved with deep, bold angular lines and on the one broken seal from Harappa that comes from a well dated strata, only one script sign was preserved above the rump. Carved steatite button

seals continued to be produced during the Harappa Period, and were used along with the stamp seals to impress sealings.

During Harappa Period 3B (2450 – 2200 BCE) the predominant orientation of the animal is facing left, and the impressions of the seals would have the animal facing to the right. The boss shape also changed and instead of a square boss, the boss was made with a circular domed shape with a single groove in the middle. The script was carved on the upper register above the rump and back of the animal motif. If the inscription were long, it would extend to the area above the head of the animal, where the script signs were slightly smaller in order to fit into the reduced space above the animal's head and horns.

During Harappa Period 3C (2200 – 1900 BCE) the trend of left facing animal motifs on seals continues along with the use of a circular domed boss with single, double or in rare cases a triple groove. The writing above the animal becomes more standardized and is usually arranged in a straight line that stretches along the entire width of the upper register of the seal. All of the script symbols were carved with lines that are approximately the same width with angular edges and script shapes that are generally the same height and relative width. This type of script carving is also seen on a new type of long rectangular seal that has no animal motif and has no separate perforated boss on the back.

During the Late Harappan Period (Period 4 and 5 at Harappa, 1900 – 1300 BCE) the use of script disappears but seals with geometric designs continued to be used. Many of these seals were made in clay, but some were made from carved and fired steatite. The continuation in seal production and used indicates that many of the craftspeople and traders continued to function in the Indus and adjacent regions, but the elites who used script were no longer in power.

The contexts of script and changes in the writing over time indicate that the Indus script was versatile and that it was probably used to communicate complex ideas as well as multiple languages. The disappearance of the Indus script can be associated with the transformation and decline of Indus urban centres.

Nature of Indus Script

Current discussions of the nature of the Indus script are based primarily on the study of seals from the major sites such as Mohenjo-daro, Harappa, Kalibangan and Lothal. This approach however is inherently flawed since the seals from these excavations range in date between 2600 – 1900 BCE, a 700 – year period of time. In the past, most scholars assumed that there were between 400 and 450 discrete symbols from the Harappan period,

but it is possible that there are considerably less during each of the sub periods. It is also possible that there are regional variations of symbols used in different parts of the very large geographical region encompassed by the Indus civilization.

It is generally agreed that the signs found on seals and pottery represent a logosyllabic (morphemic) system, where a single sign can mean a word, a syllable or a sound. However, it is also clear that many signs are pictographic in form, depicting tools, animals, plants or even people holding different types of objects. Such signs could be read in different ways by people who might speak different languages and still be understood. Other signs, such as the stepped cross, circle or swastika, could be ideograms that again could be read in different languages without compromising the meaning of the sign. Due to the fact that the Indus writing disappeared around 1900 BCE and was never recorded along with any other known writing system, it is not possible to decipher any of the signs or determine the affiliation of the language or languages spoken in the Indus region. Based on the study of place names and the names of rivers and geographical regions of the Indus, it is most likely that several major language families were present during the period of the Indus cities. The major language families defined by linguists include Dravidian, Mundari (Austro-Asiatic), Indo-Aryan, Sino-Tibetan and language "X" of the Neolithic Period.

The Indus script was primarily written from right to left, but there are some examples of writing that is executed from left to right, and in rare instances the direction alternates on each line, in a pattern called "boustrophedon" or "turning like an ox" when it plows a field.

Seal Use

The Indus seals appear to have been used by a relative limited segment of the society. Based on the fact that seals were used to seal containers for trade and storerooms, we can assume that seal owners would have included individuals who had power over considerable material wealth, such as merchants, landowners and political administrators. Since some seals also include ritual scenes and narrative scenes, we can also suggest that some seals may have been used by ritual specialists. In addition to seals writing is also found on incised steatite tablets or moulded faience and terracotta tablets. These tablets were not used as seals but were rather a form of token that encoded some words and, in some cases, what appear to be numbers or calendrical notations. Such tokens could have been used for basic economic accounting and trade, or possibly for some form of ritual accounting.

Without the decipherment of the Indus writing system is it impossible to determine the meaning of seals or their links to specific individuals or political authority. However, the

presence of seal users in settlements throughout the Indus region and even in surrounding territories can be interpreted as representing the administrative power of the elites and traders, some of whom probably represent rulers. The association of seals and writing with trade can be confirmed through the use of seals to stamp clay sealings that were used on bundles of goods or locks on storerooms. Furthermore, the association of the script with various mythical animals, as well as narrative scenes on seals and other inscribed objects also suggests that writing was associated with rituals and possibly was even sacred.

Disappearance

It is during the Late Harappan Period 1900 – 1300 BCE that the Indus script disappeared along with many other aspects of Indus ideology and political organization. These other objects included seals, the unicorn symbol, the use of standardized cubical weights, and the diagnostic decorated pottery, as well as many exquisite technologies used to produce ornaments such as stoneware and shell bangles, terracotta figurines and other ritual objects for the elites. Although there are many different opinions about the nature of the process, this is the time period when Vedic communities were emerging as the dominant cultural tradition in northern South Asia, gradually expanding throughout Indus region and eventually into the Ganga-Yamuna River Valley and even into Peninsular India. These communities spoke various Indo-Aryan languages and dialects, and used the sacred language of Sanskrit for composing ritual hymns that have been preserved orally, but were never written down until much later in time. The fact that the Vedic tradition did not use a writing system and specifically proscribed the use of writing may help explain why there was no other writing system in existence when the Indus script was no longer used. The lack of a writing system during the Late Harappan period however does not mean that the Indus culture disappeared totally. Many aspects of Indus subsistence and material culture technology as well as some aspect of their ideology did continue into later time periods.

Conclusion

The recent and ongoing research at sites such as Harappa, Dholavira, Rakhigarhi, Farmana and many other smaller settlements has revealed new types of inscribed objects and more precise chronologies are available for the contextual and spatial analysis of the use of writing. At present, many younger scholars are joining the effort to understand the Indus script by re-examining the seals and inscribed objects from earlier excavations in order to begin sorting these out chronologically. These new approaches will undoubtedly provide new perspectives on the writing system, how it was used by the Indus people and how it changed over time.

中 文 摘 要

现知最古老的南亚书写系统与公元前约 2600 -前 1900 年印度河文明的早期城市中心息息相关,因此通常被称作“印度河文字”。它曾使用于今巴基斯坦与印度西北部的恒河谷与克格尔河谷(Ghaggar-Hakra River Valleys)这一广袤区域内的大城小镇中。

早期印度河文字的起源

与印度河文字起源相关的资料可以追溯到区域化时期(Regionalisation Era)早期,有的是烧成后施加的涂鸦,有的是直接用颜料画在陶器上的文字。早期印度河文字的雏形可追溯到公元前 2800 -前 2600 年。在哈拉帕遗址果德迪吉(Kot Diji Phase)晚期(公元前 2800 -前 2600 年)的遗存中,有生产新型印章的证据。一枚残章的正方形印面下方刻有头朝左的大象,其上方可能曾刻有文字,但这部分现已残失。将印章印压在黏土上,则大象头朝右方,方向与后期的哈拉帕动物纹印章吻合。第二种的代表则是硬陶封印,所使用的正方形印章上有两个文字符号以及一个梯形几何纹样。

印度河文字

学术界普遍认为,印度河文字是一种形式统一、使用广泛的文字,与各大主要都市中心的兴起有密切的关系,这些城市的经济、政治以及观念系统都十分相似。印度河文字不仅使用于印章上,也见于武器、饰品、用于贸易的陶器、礼器等多种器物上。根据地层学来看,哈拉帕遗址出土器物上所刻的文字明显随着时间的推移而改变,在这段时期的后期出现了崭新的符号以及新的文字使用方式。

根据哈拉帕遗址以及其他遗址的发掘情况,哈拉帕时期可分为三个阶段。哈拉帕 3A 阶段(公元前 2600 -前 2450 年),动物纹样用深邃、大胆、棱角分明的线条刻成。一枚出土层位明晰的哈拉帕残章上,仅有一个文字符号残存于动物臀部上方。除了一般的压印印章,刻有纹样的冻石纽状印章(button seal)亦用于印制印泥,在此后的哈拉帕时期持续可见。

哈拉帕 3B 阶段(公元前 2450 -前 2200 年),印章上的动物形象大多数朝左,而印痕(seal impression)则朝右。印纽(boss)从正方体改成圆顶状,中间有一道槽。文字

刻在动物臀部及背部上方的空白处,若刻文篇幅特别长,则会延伸到动物头部上方,字符稍微缩小,以适合于被动物的头和角占去大部分位置的空间。

哈拉帕 3C 阶段(公元前 2200 -前 1900 年),延续了动物朝左的样式以及圆顶状的印纽,印纽中间有一道或两道槽,也有十分罕见的有三道槽的实物。动物上方的文字变得更为规范化,一般排成直线占满印面上方的宽度。字符皆用等宽线条刻成,边缘棱角分明,整体形状则长宽基本相等。这种刻文也见于一种新式的长方形印章。它不带动物纹样,背部亦无穿孔的印纽。

哈拉帕晚期(即哈拉帕遗址的第 4、第 5 阶段,公元前 1900 -前 1300 年),文字消失了,但仍有人使用几何纹印章,其中多数印章用黏土制成,也有的用冻石雕刻后烧制而成。印章的制作和使用的延续,说明印度河以及附近区域的工匠和商人持续运作,但曾经使用文字的贵族阶层则没落了。

印度河文字的使用背景以及随着时间产生的变化反映出它的灵活性,并且指出它可能曾用于传达复杂的思想以及多种语言。文字的消失,则与印度河都市中心的转型和衰落息息相关。

印度河文字的本质

目前对于印度河文字本质的探讨,大多围绕着从摩亨佐—达罗(Mohenjo-Daro)、哈拉帕、卡里邦甘(Kalibangan)、洛塔尔(Lothal)等主要遗址出土的印章展开。然而,这种研究方式从本质上来说是有缺陷的,这些遗址出土的印章年代上至公元前 2600 年,下至公元前 1900 年,年代跨度长达七百多年。从前,大部分学者认为哈拉帕时期有 400 到 450 个不同的字符。然而,若按时期区分,属于每个阶段的字符可能要少许多。此外,印度河文明所涵盖的地域十分广袤,不同的区域可能曾使用过不同的地方性异体字。

人们普遍认为印章和陶器上的字符应该属于某种语素音节文字或意音文字系统(logosyllabic or morphemic system),即每个字符可表达一个词语、一个音节或一种声音。但是,明显有许多字符是象形文字(pictograph),描绘着工具、动物、植物,甚至人的形象手执着各种物件。使用不同语言的人虽然可以用不同的方式来诵读这种符号,但却无碍于对它们的含义的理解。另外一种字符,比如阶梯形边缘的十字(stepped cross)、圆圈、卐字(swastika)等,则是表意文字(ideogram),也可以用不同的语言阅读而不影响字符的含义。印度河文字在公元前 1900 年就消失了,并且从没有与其他已知的文字书写在一起,所以不能破译它的字符或确定它所表达的是哪种或

哪些口头语言。根据地名、河流和地区名称的研究，城市化时期的印度河流域很可能使用过多种语系，语言学家能确认的语种包括达罗毗荼语（Dravidian）、属于南亚语系（Austro-Asiatic）的蒙达里语（Mundari）、印度—雅利安语（Indo-Aryan）、汉藏语（Sino-Tibetan）以及新石器时代的 X 语种（language “X”）。

印度河文字一般从右到左书写，偶尔也有从左到右书写的例子。也有十分罕见的隔行左右交替的书写方式，犹如耕牛犁田时的拐弯方式，因此叫做“牛耕式书法”（boustrophedon）。

印章的使用

在印度河文明里，似乎只有少数社会阶层能使用印章。根据印章使用于封印商品容器或贮存容器这一点，我们可以断定印章的主人应该拥有大量物质财富的支配权，比如商人、地主、官员等。有些印章上刻有宗教仪式场面或故事性的场景，表明一部分印章的使用者可能是某种神职人员。除了印章之外，刻字冻石板、模塑彩陶板和硬陶板上也有文字。这些板状物件的用途并非封印物品，而是作为信物使用，上面写着一些字符，有时甚至写有类似数字或日期的符号。这种信物的用途，应该包括基本的会计盘点和交易活动，也可能用于某种仪式性的清点活动中。

在不能破译印度河文字的前提下，我们无法确定印章的含义以及它们与具体个人或者政治权威的关系。然而，印章的使用者遍布印度河两岸与附近地区的聚落，我们可以认为这一现象反映了当时的贵族、商人，甚至统治者的管理范围。用压了印的黏土来封印货物包裹和仓库锁这一做法，说明印章及文字与商贸有密切的关系。此外，文字有时与多种神兽搭配出现，某些印章和刻有文字的物件上还有故事性画面，这些都说明文字亦与宗教仪式息息相关，甚至或许文字本身便是神圣的。

消亡

在公元前 1900 –前 1300 年的哈拉帕晚期，文字与印度河文明意识形态和政治组织的许多其他部分一同消失了，具体包括印章、独角兽符号、代表性的纹饰陶器等，正方体的标准砝码不再被使用，多种用于生产石器、贝壳镯、硬陶塑像、礼器等贵族装饰品的精巧工艺亦销声匿迹。关于这个衰亡过程的性质，大家众说纷纭，但这正是吠陀经中所描述的族群在印度次大陆北部出现的时期，他们从印度河两岸扩张到恒河谷和亚穆纳河谷（Ganga-Yamuna River Valley），甚至深入印度半岛，逐渐成为了当时的主流文化。这些族群使用多种印度—雅利安语言和方言交流，用梵文创作神曲，并口

耳相传地将它们保留下来,但用文字记载下来则是很久之后的事情。吠陀传统并没有书写系统,甚至明确禁止使用文字,这很可能说明了为何印度河文字消失之后,便没有其他文字系统了。不过,哈拉帕晚期文字的消亡,并不代表印度河文明也完全消失,印度河文明的农业经济、物质文化、科技和意识形态的方方面面一直延续到往后的时期。

结语

哈拉帕、朵拉维拉(Dholavira)、拉吉加希(Rakhigarhi)、法玛纳(Farmana)等遗址及其他小型聚落的研究工作还在持续展开,最新研究发现了新的刻有文字的物件种类,并且为文字使用的背景和空间分析提供了更加准确的年代数据。目前,许多年轻学者正在重新研究早期考古项目中发掘出的印章和刻文物件,并且将它们按年代分类排列,共同努力加深对印度河文字的理解。相信这些新的研究方式将会对文字系统、文字使用及其变迁做出新的阐释。