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Painted Indus Script on Ceramics and Steatite:
New Insights on Indus Script Calligraphy and Function

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Abstract: Painted Indus script on ceramics and steatite tablets provide a unique perspective of the production and possible function of one form of ancient Indus writing. The use of a brush to execute writing requires a very different type of dexterity compared to incising or engraving. Indus potters and steatite bead makers were highly skilled at making and using brushes in their artistic decoration of pottery and beads and these artists may have had a direct role in the painting of Indus script on pottery or steatite tablets, though other specialists may also have been involved in this task. The processes for preparing pottery and steatite with painted script will be discussed and the ways in which brushes were used in writing script will be examined. The use of painted script will be compared with incised texts and the possible apotropaic functions of these texts examined. The implications of painted script on other perishable materials will also be discussed.

Keywords: Painted Indus Script, Inscribed Pottery, Seals, Inscribed Bangles

Introduction

One of the most important features of the Indus Tradition is the Indus script, which was inscribed on a wide variety of artifacts that have been found at both large and small settlements throughout the greater Indus region (Fig. 1) (Bisht 2015; Kenoyer 2014; Parpola 1994; Possehl 1996). Many scholars have developed complex approaches to the study of the Indus script and yet so far there are no convincing decipherments (Fuls 2020; Mahadevan 1977; Parpola 1994, 2000; Vahia *et al.* 2020; Wells 2011). Even though the script itself remains undeciphered, studies of how the writing was produced on seals and tablets or pottery have resulted in new models for the origins of the writing system itself and the ways in which Indus writing changed over time (Kenoyer 2020a, b; Kenoyer & Meadow 2010). Seals and tablets were made by highly specialized crafts people who were able to carve the soft steatite using carefully designed bronze engraving tools (Jamison 2016; Kenoyer 1997). Post-firing inscribed pottery was also incised with hard pointed tools, either bronze or stone that could cut into the hard fired surfaces of clay (Dales & Kenoyer 1986). The extremely high-fired stoneware bangles were most likely inscribed using chert burins in order to engrave the minute script into the hard vitrified silica of the bangle (Franke-Vogt 1989; Halim & Vidale 1984). All of these techniques are unique and each required special training to execute.

One technique that has not been the focus of much discussion is the painting of script on pottery. Painting script requires a specially prepared brush that could have been the same as that used for decorating pottery, but would have been selected to have the appropriate size and shape for the size of the script being painted. The black or red pigment used for the script appears to be identical to the pigment used for painting the designs on pottery, but it may have been prepared separately depending on when the writing was executed. The skill needed to paint script on pottery would mean that the artist knew both how to create the shapes and sizes of the script correctly as well as how to handle a brush filled with pigment. Based on the few examples of painted script that have been found, we can see that some examples show a relatively high degree of dexterity in the use of the brush (Fig. 6.1 and 12), while others appear to be a bit less regular (Fig. 6.20 and 22). Since most inscriptions are extremely short, having between one and three symbols, it is possible that an extensive knowledge of the Indus writing was

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not needed in order to correctly paint script on pottery.

In trying to understand the function of painted script it is important to review the nature of Indus writing as a whole. Although we cannot interpret what the Indus writing symbols mean, ongoing studies of Indus how the written symbols were grouped together have been able to determine that there are in fact some patterns to their order and placement in a text (Fuls 2020; Mahadevan 1977; Mahadevan 1982; Parpola 2008; Vahia *et al.* 2020; Wells 2015). There are also some variations in the ways in which signs were created and the patterns of associations, but it is not clear if these are intentional variations to reflect distinct meanings or if they are simply examples of variations in the ways in which words were spelled or ideas were expressed. This would reflect orthographic patterns of Indus writing. The word "orthography" is derived from the Greek *orthos* = correct and *graphein* = to write, and is commonly associated with correct spelling and grammar (*Merriam-Webster.com* 2021). In contrast, the term for beautiful writing is "calligraphy", which also comes from the Greek root word *kalli* = beautiful and *graphein* = to write (*Merriam-Webster.com* 2021). Calligraphy can involve incorrect orthography as long as the reader is able to understand the signs and interpret the meaning. The study of Indus calligraphy, the art of writing beautifully is one area that remains understudied. Since "beauty" is a highly subjective term, in the context of this paper it will be used to refer to writing that is regular in size and spacing, as

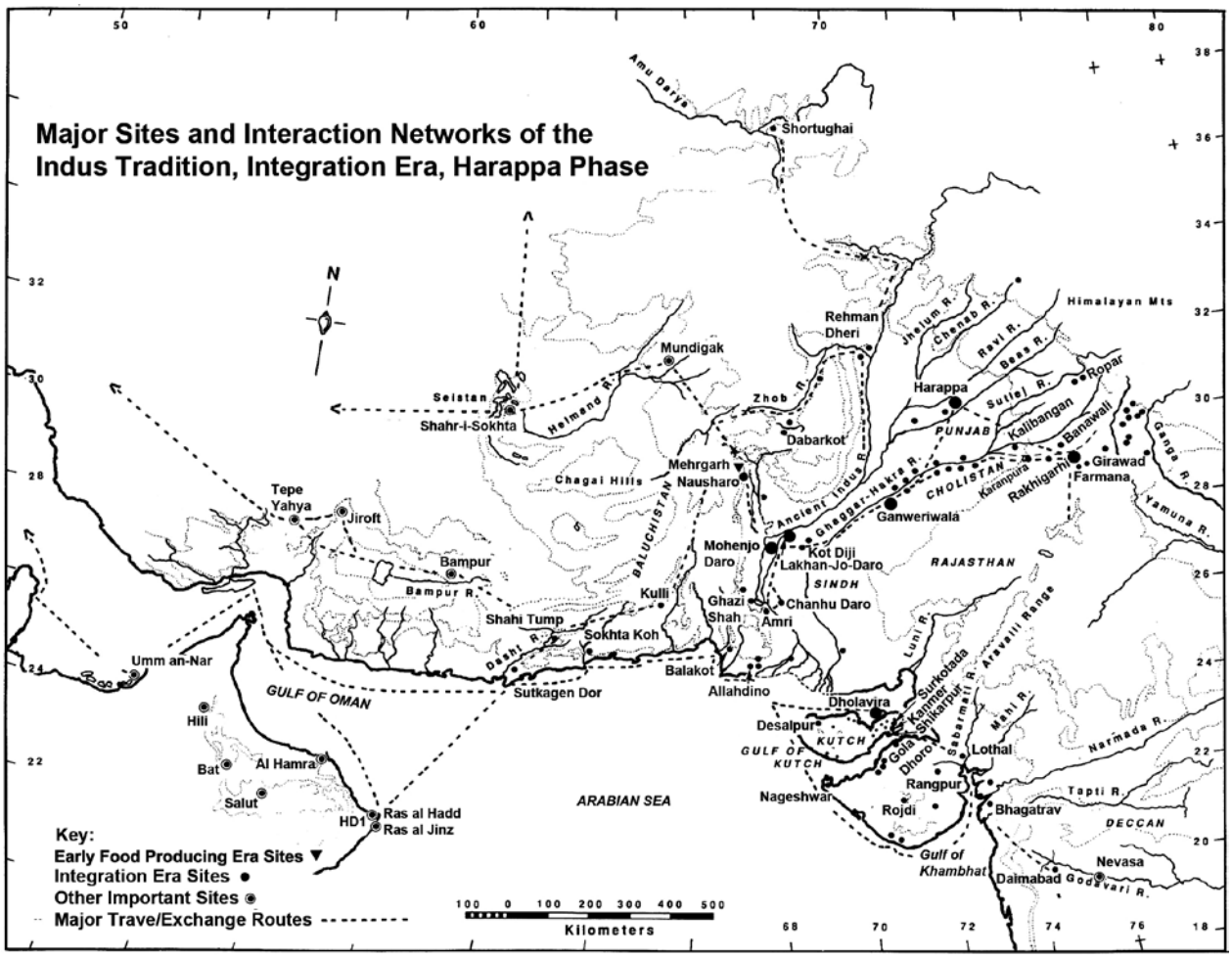

Figure 1. Major Sites of the Indus Tradition, Integration Era.

compared to writing that is irregular or apparently disorganized. In comparing the same sign that has been executed using different techniques or by different scribes or artists, the degree of similarity in proportion, angle and curvature of strokes can also be taken into account.

The chronology for the development and use of writing in the Indus used in this article is based on the excavations at Harappa (Kenoyer & Meadow 2010: Table 1) and discoveries of seals and inscribed sherds from numerous other Indus sites. In terms of the styles of writing on Indus seals it is clear that during the initial development of Indus seal engraving technology at the beginning of the Harappa Phase (2600-2450 BCE, Harappa Period 3a) (Kenoyer 2006; Konosukawa 2020) there was considerable variation in the positioning of script signs on the seals as well as their relative size (Fig. 2.1). This would suggest that there was no standard form of orthography and that the calligraphic aspects of Indus script were not standardized. During the subsequent period, Harappa 3B (2450-2200 BCE) inscriptions on seals became more uniform in terms of script size and spacing, though there are still some variations and adjustments in order to fit the text into the area available on the seal itself (Fig. 2.2 to 6) (Kenoyer 2006). This pattern suggests that there was more standard orthography and the gradual establishment of calligraphic styles that may have had some regional variation. Ongoing studies of seal carving using Scanning Electron Microscopy (SEM) are aimed at determining if specific workshop styles or regional styles of carving the script can be identified (Jamison 2013, 2020; Kenoyer 2020a). During the third period, Harappa 3C, most seals have very precisely shaped and sized carving of the script (Fig. 2.7 to 11) that is particularly apparent in long rectangular seals that only have script and no other motifs (Fig. 2.9, 10) (Kenoyer 2006). This final phase of seal script engraving may still have orthographic variation but the calligraphy of the script on seals appears to be quite standardized for some types of seals, though again there may have been some variation based on workshop styles and possible regional styles.

Figure 2. Indus Seals

1. Steatite seal, Period 3A, (H90-1600/3166-01)
2. Steatite seal, Period 3B, (H95-2491/4690-01)
3. Steatite seal, Period 3B, (H95-2410 / 5145-55)
4. Steatite tablet, unfired, Period 3B, (H2001-5084 / 2913-07)
5. Steatite tablet, unfired, Period 3B, (H2001-5068 / 2913-01)
6. Steatite seal, Period 3B/3C, (H93-2170 / 4114-09)
7. Steatite seal, Period 3C. H2001-5139/11756-01
8. Steatite seal, Period 3C, (H2000-4500 / 10007-01)
9. Steatite seal, Period 3C, (H2000-4487 / 9438-01)
10. Steatite seal, Period 3C, (H98-3491/8322-21)
11. Steatite seal, Period 3C, (H99-4064/8796-01)

Table 1. Harappa Phase Painted Script on Ceramics
* Signs are listed as read from right to left and the first number refers to the Mahadevan (1977) sign number, while the second number refers to the Wells (2011) sign number. The "?" means that it is not clear if the signs are the same or if there is no known Indus sign.

Fig.6	Site	Vessel Shape	location of sign	Surface	Sign color	Signs	Sign 1*	Sign 2*	Sign 3*	Period
1	Balakot	bangle	interior of bangle	plain	black	2	216/ 550	342+347/ 750		Harappan
2	Karanpura	bowl	interior base	plain	brown	1	214/ 540			Harappan
3	Surkotada	dish	interior dish	red slip	black	2	343/ 741	261/ 850?		Harappan
4	Surkotada	dish	interior dish	plain	black	1	343/ 741			Harappan
5	Harappa	dish	interior dish	plain	black	2	?	59/ 220		Harappan
6	Shikarpur	dish	interior dish	red slip	black	3	153/ 515	267/ 861	99/ 02	Harappan
7	Balakot	dish	interior dish	red slip	black	2	102/ 03	391/ 820		Harappan
8	Kalibangan	small jar	exterior	plain	black	3	102/ 03	375/ 832	86/ 31	Harappan
9	Harappa	globular jar	exterior	plain	black	1	137/ 645?			Harappan
10	Dholavira	globular jar	exterior	red slip	black	1	233/ 455			ND
11	Dholavira	globular jar	exterior	plain	pink?	2	?	328/ 700?		ND
12	HD1 Oman	small jar	exterior	red slip	black	2	153/ 515	267/ 861?		Umm an Nar
13	Karanpura	globular jar	exterior	plain	black	1	?			Harappan
14	Mohjenjo daro	globular jar	exterior	ND	black	1+	343/ 741?			Harappan
15	Gumla	globular jar	exterior	plain and bands	black	1	403/ 840?			Harappan (IVB)
16	Gumla	globular jar	exterior	red slip black bands sandy slip	black	1	?			Harappan (IVD)
17	Surkotada	globular jar	exterior	plain	red	1	391/ 820			Harappan
18	Surkotada	globular jar	exterior	plain	black	1	391/ 820			Harappan
19	Mohjenjo daro	globular jar	exterior	red slip	black	1	279/ 867?			Harappan
20	Harappa	globular jar	exterior	plain	black	2	216/ 550	59/ 220?		Harappan
21	Daimabad	globular jar	exterior	plain	black	1	129/ 66?			??
22	Bagasra	globular jar	exterior	plain	black	1	344/ 742			Harappan
23	Bagasra	globular jar	exterior	plain	black	1	?			Harappan
24	Shikarpur	globular jar	exterior	plain	black	1	391/ 820			Harappan
25	Shikarpur	globular jar	exterior	plain	black	1	391/ 820			Harappan
26	Shikarpur	globular jar	exterior	plain	black	2	293/ 920	99/02		Harappan
27a	Mohenjo-daro	painted fired steatite	exterior, side 1	red slip	white	3	267/ 861	112?	86/ 31?	Harappan
27b	Mohenjo-daro	painted steatite	exterior, side 2	red slip	white	2?	86/31?	?		Harappan

In term of Indus writing on other media, preliminary studies of pre-firing and post-firing inscriptions on pottery have been undertaken for the site of Harappa and are in the final stages of analysis (Kenoyer 2020b; Kenoyer & Meadow 2010). Based on these studies, it appears that there is a wide range of variation in the shapes and sizes of different Indus script signs that were inscribed onto pottery (Fig. 3). While the pre-firing inscriptions are thought to have been incised by the potters themselves, the inscribing of pottery after firing was probably not done by the potter. Many fully preserved inscription consist of only one to three symbols, but there are numerous examples of longer texts that would have required full knowledge of proper orthography of the Indus script. Some inscriptions appear to be executed with less calligraphic standardization, where there are different sizes of symbols and no linear orientation (Fig. 3.2, 4, 6, and 8). This may be due to the individual writing style of the person inscribing the pottery or their lack of training. It is possible that anyone who knew how to write a word was allowed to write on pottery, or that people who did have the ability to write were not all equally trained or careful about how they wrote on pottery. In contrast to these less uniform inscriptions, other post-firing inscriptions appear to have slightly more calligraphic standardization and are more or less uniform in terms of size and spacing, with carefully proportioned script signs (Fig. 3.1, 3, 6, 7). Until we can decipher the script we will never know the meaning of these carefully executed inscriptions, but it is possible that they had different purposes and meanings than ones that appear less regular.

Minute inscriptions were also engraved into hard stoneware bangles (Fig. 4) (Franke-Vogt 1989). Since hard fired ceramics are difficult to incise, just the act of inscribing them with a sharp stone burin or possibly a sharp bronze tool would itself require considerable dexterity. The fact that the inscriptions are extremely small is also another factor making their execution quite difficult. While there appears to be some attempt at making the signs the same size and orienting them in a specific linear pattern there is considerable variation in the calligraphic execution of the signs. In contrast to the less regular inscriptions on stoneware, one of the rare inscriptions on a gold ornament shows remarkable uniformity (Fig. 5). The inscription on a hollow gold pendant from Mohenjo-daro was not noticed by the earlier excavators, but was discovered by the author during conservation and preparation for display in an exhibition. The fact that the signs are relatively standardized in terms of absolute size even though they were inscribed around the circumference of a very small cylindrical form suggests that whoever inscribed them was very conscious of calligraphic standards. In both examples, it is likely that the incising of the script was done by a specialized craftsperson, but the calligraphic aspects of the inscriptions could have been affected by the shape of the object, the nature of the material being inscribed as well as the tools being used.

In comparing these different examples of Indus script on seals, pottery, stoneware bangles and jewelry, it is clear that there is some degree of standardization in terms of sign sizes and proportions, even though there is some variation in the execution of the inscriptions themselves. It appears that the shapes of the writing and the general proportions of the signs remain almost identical regardless of the medium or the method of inscription. With this background on other types of inscriptions it is now possible to examine the rare execution of painted script on ceramics (terracotta bangles and pottery) and a single fired steatite tablet.

Indus Painted Script on Terracotta Bangles, Pottery and Steatite
(Table 1 and Fig. 6)

Indus script painted on pottery has been found from sites throughout the Indus region and is a pattern that actually began during the Early Harappan period and continued long after the end of the Indus Tradition in surrounding regions. Painted motifs that might have been a form of writing have been documented from the site of Balakot (Dales 1974; Franke-Vogt 2001, 2005), as well as at the site of Gumla (Dani 1970-71). The tradition of painting what have been called 'potter's marks' is also well documented in the local Savalda, Malwa and Jorwe pottery traditions

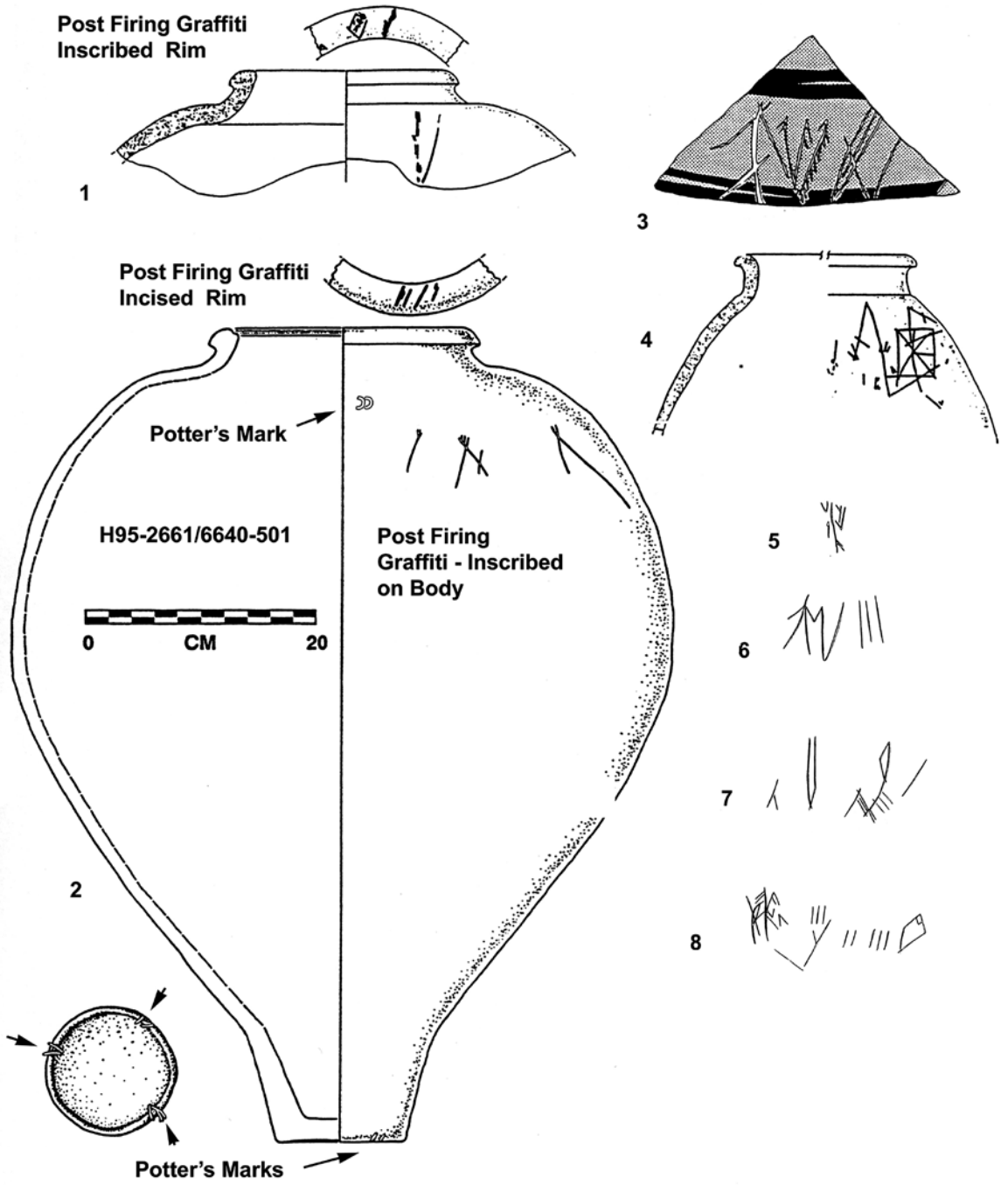

Figure 3. Harappan Phase Post Firing Inscribed Pottery.

1. Black Slipped Jar, post-firing graffiti on rim and body (H95 / 5684-02)
2. Black Slipped Jar, post-firing graffiti on rim and body, pre-firing potter's marks on base and body (H95-2662 / 6640-501)
3. Large Red Slipped Black Band Jar, post-firing graffiti on body (H94 / 4290-14)
4. Plain globular jar, post-firing graffiti on body (H95 / 5630-15)
5. Black Slipped Jar, post-firing graffiti on body (H93 / 4305-500)
6. Black Slipped Jar, post-firing graffiti on body (H93 / 4159-500)
7. Black Slipped Jar, post-firing graffiti on body (H93 / 4043-503)
8. Black Slipped Jar, post-firing graffiti on body (H93 / 4304-500)

at Daimabad (Sali 1986: 212ff). While some of the earlier and later painted symbols might have been linked to the Indus script this is a topic that will not be examined in this paper.

During the Harappa Phase (2600-1900 BCE) there are two very different contexts in which painted script has been found and both are extremely rare. Script painted on pottery has been found on several different types of pottery vessels, including small dishes or bowls, large flat dishes, small globular jars and larger globular jars. In most cases the painted script is executed in black pigment on a plain surface but in other examples the black painted script is on red slip that is identical to the most common styles used to decorate Harappa phase pottery. One unique example of red paint on a plain surface is seen on a finely made bangle from Balakot (Shah & Parpola 1991: 392, Blk 6). Only one example of painted script has been found on a painted steatite tablet that will be discussed in more detail below (Shah & Parpola 1991: 252, M 1658).

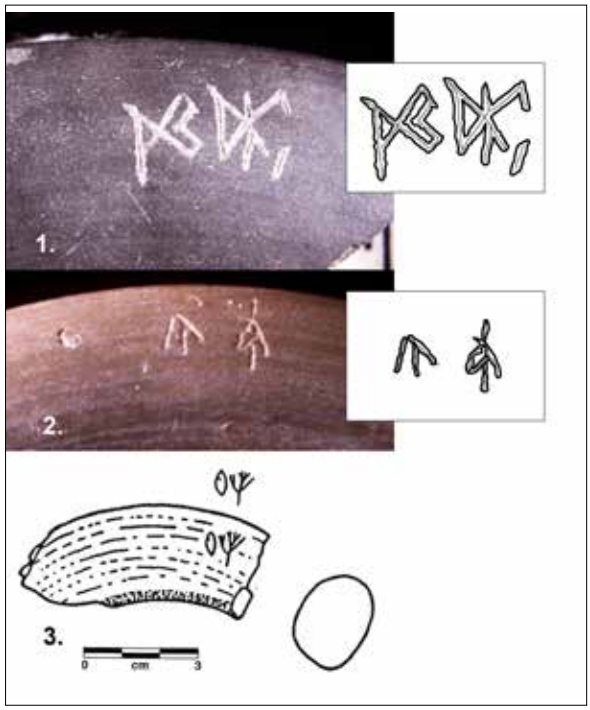

Figure 4. Harappa Phase, Inscribed Stoneware Bangles
1. Inscribed stoneware bangle, Mohenjo-daro (not to scale)
2. Inscribed stoneware bangle, Mohenjo-daro (not to scale)
3. Inscribed stoneware bangle, Harappa

The painting of script on unfired terracotta or unfired steatite requires considerable advance planning and also careful storage of the painted object prior to firing to avoid damaging the unfired surfaces. For pottery, the vessel surface would first need to be dry and then covered with a slip that was sometimes smoothed to create a glossy surface. The painting would have been executed using a brush made with animal hair. Today in Pakistan, most potters use donkey tail hair to prepare brushes, but during the Harappa Period they may have used goat hair or the tail hair from young cattle. The pigment used for black was ground hematite and red was made from red ocher (Dales & Kenoyer 1986: 63-64). During firing, the painted surface would also need to be positioned in a way to avoid direct flame and smoke so that the final product would have a clear design.

The one example of a painted steatite tablet with script was produced with a technique that was more commonly used to create red and white painted steatite beads (Kenoyer 2005a: 164). In this process, the steatite body was first shaped and smoothed and then covered with red slip and a resist white pigment. In the case of the tablet, the script portion appears to have been made using a resist pigment that probably contained some calcium carbonate solution that would glaze and whiten the underlying steatite. The tablet was then painted with the red slip that covered the unpainted portion but was not fused to the steatite where the white resist pigment was painted. Experimental replications of decorated steatite beads are

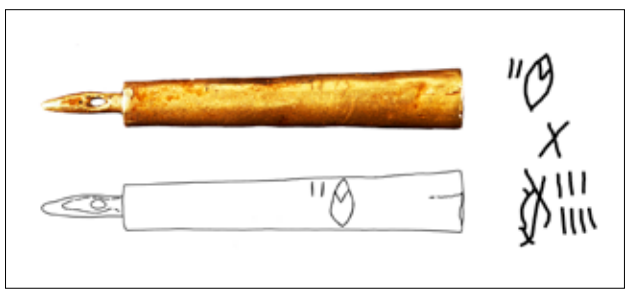

Figure 5. Harappa Phase, Inscribed Gold Pendant, Mohenjo-daro.

ongoing to better understand this process. The firing of the steatite tablet would have been done at high temperatures (900° to 1000° C) in a closed container to avoid discoloration from smoke, a technique that has been documented at the steatite and faience tablet workshop at Harappa (Kenoyer 2005b).

Painted Indus script has been reported from 11 different sites within the Indus region and one site (HD1) in Oman (Fig. 1). Five of the Indus sites are located in the southernmost territories; one in Baluchistan (Balakot) and four sites are located in Gujarat (Dholavira, Surkotada, Shikarpur, Bagasra), and one in Maharashtra (Daimabad). Four sites are distributed along the length of the Indus River Valley in Sindh (Mohenjo-daro), Punjab (Harappa) and Khyber Pakhtunkhwa (Gumla). One site is located in Rajasthan (Karanpura), along the Chautang (Drishadvati) River that would have flowed into the Ghaggar-Hakra-Saraswati River Valley. The one example of painted script outside the Indus region is found at the seasonal coastal settlement of HD1, Ras al Hadd, Oman, where large quantities of Indus pottery have been discovered along with locally produced pottery (Cattani *et al.* 2019). Although there are very few examples of painted script at each site, the fact that the practice is represented over this vast region suggests that painting of the script on pottery and possibly on other media was a tradition that was practiced in all parts of the Indus Tradition.

Painted Bangle

The only example of painting on a bangle is reported from the site of Balakot, Pakistan. The bangle is one of the finely made and finished terracotta bangles with a black band on the exterior circumference. The two painted script signs (Mahadevan 216 and 342+347) are located on the interior of the bangle (Dales 1979; Shah & Parpola 1991:392, Blk 6) (Fig. 6.1). The sizes of the script signs in red paint are very large and overlap the circumference of the bangle without distorting the proportions of the signs. Both signs are approximately the same size and the brush strokes are relatively similar though the small strokes at the top of the right side of the second sign appear to have been smudged together. The interior surfaces of the bangle are slightly worn and portions of the red paint are worn away where the bangle would have rubbed against the arm of the wearer. The location of the script on the interior of the bangle rather than on the exterior means that no one but the wearer would have been aware of the writing. One possible explanation is that the writing was actually intended to be touching the skin of the person wearing the bangle and therefore may have had some apotropaic function in addition to its written meaning. This is the only example of writing found on the interior of a bangle but it is possible that there are other unpublished examples. Writing has been found incised on stoneware (Halim & Vidale 1984) and shell bangles (Kenoyer 1985: Fig. 10.1), but it is always on the exterior surface where it could be visible to someone other than the wearer. However, many of the stoneware bangle inscriptions are extremely small and are not easily visible.

Bowls and Dishes with Interior Painted Script

There is one example of a bowl with painted script from the Harappan levels of the site of Karanpura, Rajasthan (Fig. 6.2) (Prabhakar & Majid 2014: Fig. 35, KRP 806). The single script sign was painted in black paint on a plain surface at the center on the interior side at the deepest point of the bowl.

Two small unslipped or plain shallow bowls or dishes with simple rims and black painted signs have been reported from Surkotada, Gujarat (Joshi & Parpola 1987: 363, Sktd-3, 4) (Fig. 6.3, 4). At the site of Harappa, a plain un-slipped dish with complex rim has two signs painted in black on the interior near the edge of the vessel (Fig 6.5) (Shah & Parpola 1991: 348, H 1007). A similar vessel with three signs painted in black on the unslipped surface was found at the site of Shikarpur, Gujarat (Fig. 6.6) (K. K. Bhan, pers. comm.). At the site of Balakot a large dish with red slip has two signs painted in black on the interior near the center of the dish (Fig. 6.7) (unpublished).

If these vessels with painted symbols on the interior were used for holding and serving food or liquid then the script would not have been visible

until the contents had been removed. This means that no one would have been able to see the script when the dish was in use. However, it is possible that the script was for ritual or magical purposes and any food or other materials put onto the dish would have touched the script and thereby gained power from the writing itself. In later historical times in Mesopotamia and Iran, the use of writing on the interior of bowls was used for magical purposes (Hunter 2000). Although bowls with long inscriptions only appear in the Sasanian (CE 224-651) and later Islamic periods, the tradition has its roots in earlier Babylonian and Neo-Assyrian practices (Hunter 1996: 226). Since many of the deities or spirits mentioned in the Aramaic texts have a long history in the region, it is possible that this practice had its roots in even earlier time period (Yamauchi 1996).

Although there are only a few examples of painted Indus script on the interior of dishes and bowls, there are more examples of post-firing Indus inscriptions found on the interior of bowls and dishes. At present no comprehensive study has been carried out to compare these post-firing inscriptions with those on painted dishes. Some post firing inscriptions are longer than three symbols, so it is possible that they may represent more complex communications (Fig. 3). It is possible that both the painted and the post-firing Indus inscriptions on the inside of bowls and dishes may have had similar functions.

Vessels with Exterior Painted Script

The painting of Indus script on the exterior of small to large globular jars would have been openly visible to anyone as the vessel was displayed or carried. In this context the purpose of the writing may have been very different from that on the interior of dishes. Since the script was openly visible to any observer, it could have conveyed information about the content of the vessel, the owner of the vessel or the destination that the vessel was being sent to. In addition, it is also possible that the exterior script was linked to some ritual. Even though the contents of the vessel did not physically touch the script writing on the exterior of a vessel could still function as a form of apotropaic magic.

A small narrow based jar from the site of Kalibangan has three signs painted in black on red slip (Fig. 6.8) (Joshi & Parpola 1987: 324, K-120). The orientation of the signs suggests that the vessel would be inverted to read them correctly. While it is possible that the inverted vessel was used as a lid, the unique orientation and the preplanned preparation of this painted script could also have been part of a complex ritual. No other vessel with upside down script on the lower body has been reported from any Indus site.

Other examples of painted script on the exterior of small and large globular vessels include fragmentary script signs as well as complete inscriptions. A sherd of a plain globular jar from Harappa (Fig. 6.9) has a partial sign that might have been part of a longer inscription painted on the exterior. A red slipped globular jar from Dholavira has one sign painted in black on the exterior (Fig. 6.10) (Bisht 2015: 232, Fig. 8.10). A second example of painted script from Dholavira has two partially visible signs painted with what appears to be a light pink pigment on a plain surface (Fig. 6.11) (Bisht 2015: 232: Fig. 8.10). A small jar with red slip from the site of HD1, Oman, has two signs painted in black (Fig. 6.12) (Cattani & Kenoyer 2021). The site of Karanpura, Rajasthan also has a possible example of painted script that is on a painted globular vessel (Fig. 6.13), but also includes post-firing script or graffiti (Prabhakar & Majid 2014: Fig. 35, KRP 815). However, the painted script on the Karanpura sherd does not match any known Indus sign. Another example of what might be Indus script has been reported from the site of Mohenjo-daro (Fig. 6.14) (Parpola *et al.* 2010: 119, M-2077). This example is somewhat questionable as it is not clear what the actual script sign is and the fact that it is in a panel with other decorative geometric lines suggests that this might not be actual script. Two examples of painted script are reported from the site of Gumla (Figure 6.15, 16) (Shah & Parpola 1991: 393-394, G-8, G-10) and though they are attributed to the Harappan period, the pottery on which they are shown looks like Kot Dijian Period pottery and it is possible that they are from the Early Harappan levels of the site. There are however good examples of Harappan Period

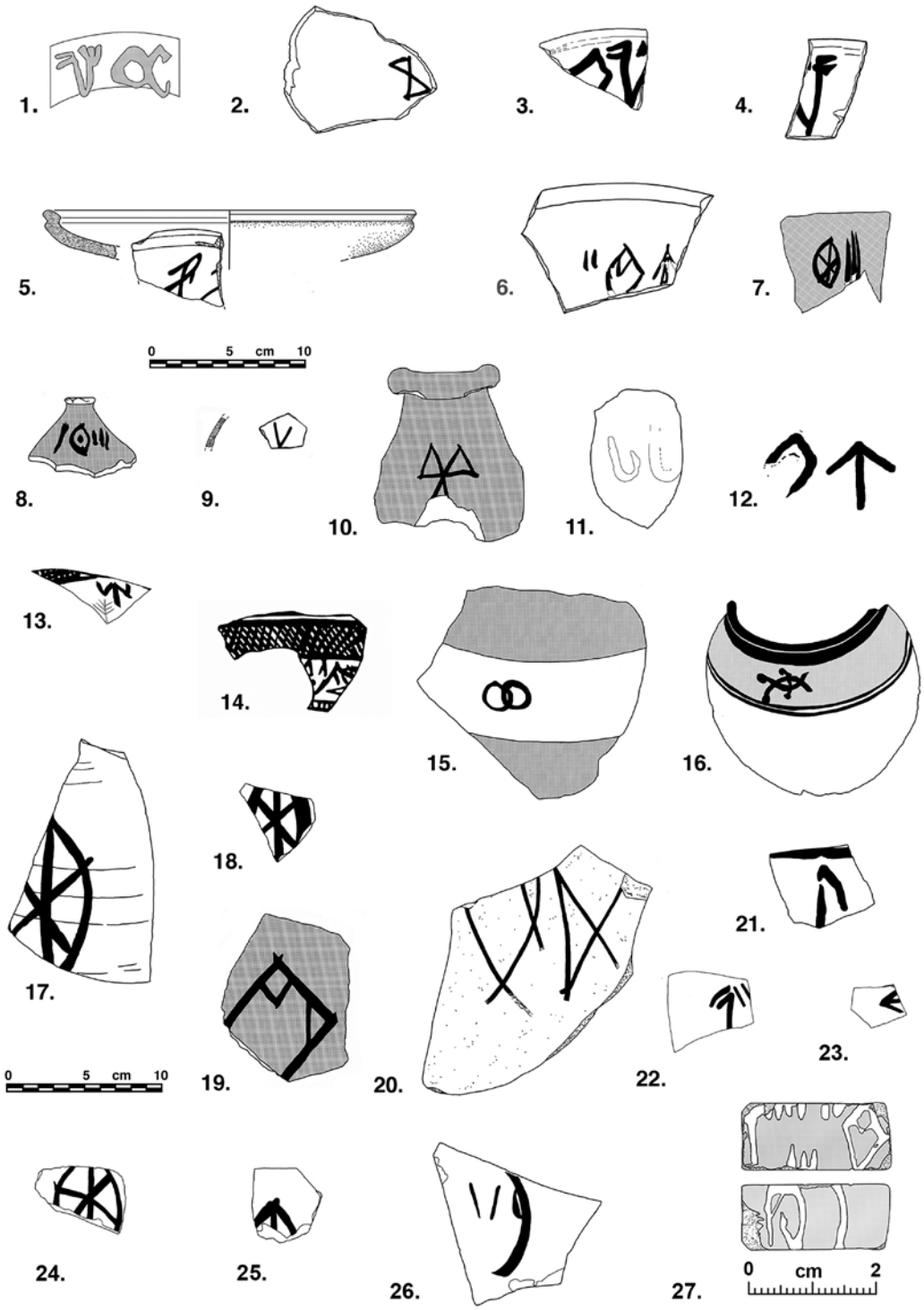

Figure 6. Painted Indus Script (see Table 1 for details)
1. Painted terracotta bangle, Balakot, 2. Karanpura, 3. Surkotada, 4. Surkotada, 5. Harappa, 6. Shikarpur, 7. Balakot, 8. Kalibangan, 9. Harappa, 10. Dholavira, 11. Dholavira, 12. HD1 Oman, 13. Karanpura, 14. Mohjenjo-daro, 15. Gumla, 16. Gumla, 17. Surkotada, 18. Surkotada, 19. Mohjenjo-daro, 20. Harappa, 21. Daimabad, 22-23. Bagasra, 24-26. Shikarpur, 27. Painted steatite tablet, Mohenjo-daro.

script painted in black on plain surface vessels from the site of Surkotada (Figure 6.17, 18) (Joshi & Parpola 1987: 363, Sktd 5, 6) and on red slip at Mohenjo-daro (Fig. 6.19) (Dales & Kenoyer 1986: 416, Fig. 90.6). More examples of painted signs are found at the sites of Bagasra (Fig. 6.22 and 23) and Shikarpur (Fig. 6.24, 25, 26) (Ajithprasad K. Pers. Comm.). It is interesting that two of the sherds from Shikarpur are identical to the script sign on two sherds from Surkotada. Both of these sites are in Kutch and not that distant from each other. At the site of Harappa there is one example of two signs painted in black on a plain surface of a large globular jar (Fig. 6.20). One example of what might be Indus painted script is reported from the site of Daimabad, Maharashtra (Fig. 6.21) (Joshi & Parpola 1987: 354, Dmd-9). This sherd is not published in the Daimabad excavation report so there is no additional information about its context or period, but it has been published by Joshi and Parpola (1987) along with other examples of post-firing Indus inscriptions from the site.

Although the sample size is very small, the shapes of the script symbols and the proportions of the signs created with brush strokes are generally similar to the style of carving seen on seals. This suggests that the individuals involved in painting script on pottery were fully aware of the calligraphic standards writing. In contrast with painted script, there are numerous examples of post firing inscriptions that show considerable variation in the calligraphic execution of the writing (Fig. 3). In terms of the numbers of signs being used, initial comparisons between the painted script and those made with post-firing inscriptions reveal some general parallels in the many examples of one to three signs. However, it is evident that post-firing inscriptions that are more than three signs are not uncommon. One important difference is that in the post firing inscriptions many of the signs are not made uniformly and another difference is the location of the inscription itself. Except for the example from Kalibangan mentioned above, painted Indus script examples are generally on the upper body of the vessel, while post-firing inscriptions can be located on any part of the vessel: the body, the rim, the lower body and even under the base (Kenoyer 2006: 19-20). It is also important to note that there are some rare examples of pre-firing inscriptions found on the exterior or the interior vessel molds used to make large storage jars, and molded script has been found on the interior of dish on stand bases (Dales & Kenoyer 1986: 570). Further studies are needed to compare the range of script signs used in painting vs. those used in pre-firing and post-firing inscriptions.

Indus Painted Script on Steatite

There is only one example of painted script on a steatite table found at the site of Mohenjo-daro. This tablet was discovered in the DK area by Mackay but was not specifically reported in the excavation report, so we do not know precisely where it was discovered. The painted script is in white on both sides of the tablet (Table 1, Fig. 6.22) and the background is red slip (Shah & Parpola 1991). There are three signs painted on one side and two signs on the opposite side. Some of the signs can be correlated to known Indus script signs (Table 1) but other signs are fragmentary or incomplete and are not found in the lists of signs created by Mahadevan (Mahadevan 1977) or Wells (Wells 2011). The tablet is very small (4.3 mm in length, 2.1 mm wide, 0.45 mm thick) with a hole drilled partly from one end. The hole may have been used to hold a metal loop so that it could be hung as a pendant or it could have been mounted on a wooden dowel. The small size would have required very delicate painting skills, which are well attested for the production of red and white painted steatite beads as well as tiny bleached carnelian beads. The fact that there is only one example of this type of painted script on a tablet suggests that it was a rare experiment in writing created for a very specific function or ceremony. Here again, there is the possible link between painted script and ritual.

Conclusion

In both painting script on ceramics and painting on steatite, the skilled craftspeople involved in the primary production of pottery containers and bangles or steatite beads and tablets were

most likely the ones who did the actual painted inscriptions. These individuals would have the necessary training in the use of the brush and pigments to execute the inscriptions without making mistakes. Once the brush touches the surface of an unfired ceramic or steatite seal the pigment cannot be erased. These artists also would have had direct access to the objects during the key stages of production when the painting needed to be done. On the basis of numerous experimental replications of pottery and working with the potter Muhammad Nawaz and his son Allah Ditta in Pakistan, I have observed that the detailed control of brush strokes used to paint Harappan motifs on pottery is a skill that takes years of practice. It is highly unlikely that someone who was not familiar with the use of the brush and the viscosity of the pigments would be able to execute clean and precise lines of Indus script on pottery. Furthermore it is also unlikely that they would be able to make the script sizes uniform and proportional to conform to the calligraphic style Indus writing that is seen on the pottery examples to be discussed below. This situation would also apply to the painting on a tiny steatite tablet.

In terms of the function of painted script compared with post-firing inscriptions it is highly likely that the planning that was necessary to have painted script on an object reflects the overall significance of the writing itself. In the case of bowls and dishes, the use of writing for ritual purposes is highly likely and this may also be the case for the few examples of painted script on the exterior of pottery vessels and the steatite tablet. The similarities or differences between the signs used in painted and post-firing inscriptions may provide some insight into the relationship of these examples of writing and the inscriptions found on seals and tablets. The possibility that the Indus script was painted on perishable materials such as leather, parchment, cloth, wood, birch bark or palm leaf manuscripts is also something that needs to be considered. Although these perishable materials are rarely recovered from Indus period sites, they have been recovered from Kushana period sites in the Indus region later and excavators need to be ready to preserve and document any fragile artifacts that might contain some traces of writing.

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