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The Indus Tradition: The Integration and Diversity of Indus Cities

JONATHAN MARK KENOYER*

Origin and Chronology of Indus Urbanism

One of the major questions that still needs to be addressed in the study of the Indus civilisation is how the rulers of the urban centres were able to integrate communities from diverse backgrounds and geographical regions. What was the attraction of Indus cities that compelled people to give up relatively independent rural lifestyles and walk through the imposing gateways of an Indus urban centre? These walled cities were highly ordered, with a complex hierarchical system that appears to have impacted all aspects of life, including economic, political and ideological spheres (Kenoyer 2008). The Indus Civilisation was not isolated from events and developments in surrounding regions such as Central Asia, Peninsular India, Baluchistan and Iran (Tosi 2001). Indus traders were connected by sea to Arabia and the Persian/Arabian Gulf region and possibly even more distant regions (Ratnagar 2001). Since, there are no written texts that can be deciphered to tell us about their motivations, we are limited to studying the patterning of archaeological materials to better understand the character of Indus cities and the ways

in which people lived their lives in this ancient urban society. In the following presentation, I will begin with a brief chronological outline and discussion of the origins of Indus urban centres. The main discussion will be on specific sets of data from excavations of Indus cities and other sites that help to elucidate the ways in which many different groups of people and communities were integrated into the overall Indus cultural tradition and at the same time able to maintain diverse local traditions and unique identities.

Some of the topics discussed below have already been published in my previous papers, but I will be including new data, based on recent research on excavated materials from Harappa, as well as new discoveries from other sites that are the result of collaborative research that I am involved in.

Chronology and Context

The geographic context for the emergence of Indus urbanism lies in both the rugged hills of Baluchistan as well as the broad alluvial plains of two major river

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Fig. 1: Integration Era Sites

systems, the Indus and the Saraswati-Ghaggar-Hakra Rivers (Gupta 1999; Kenoyer 1998; Possehl 2002b). The Indus River and its tributaries form a vast region that encompasses modern Pakistan and parts of northwestern India. The Saraswati-Ghaggar-Hakra-Nara River is now dry, but flowed on the east and parallel to the Indus River. There have been numerous studies trying to identify this river and its flow patterns (Chatterjee and Ray 2017; Courty 1986; Durcan *et al.* 2019), the fact that cities and towns existed all along its length from the Early Harappan through the Harappan and Late Harappan Periods, >3300 to 1900 BCE is evidence that water was flowing along its length (Mallah 2007; Masih 2018). This second river had its source in the Himalayas and may have emptied into the Greater Rann of Kutch (Fig. 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. In the past, the main focus for Indus urbanism was in the subcontinent itself, but ongoing research in Oman and the UAE indicates that there may have been important interactions between the Indus region and Gujarat with Arabia during the Regionalisation era (Frenez *et al.* 2014) (Table 1). This interaction would include exchange of ideas, technologies and ideologies that may have been critical to the eventual emergence of specific cultural patterns in the later Harappa Phase.

Indus	UAE/Oman	Mesopotamia
Localisation Era	Wadi Suq Period	Isin-Larsa Dynasties
Late Harappa Phase	2000 to 1300 BCE	2000-1800 BCE
1900 to 1300 BCE		
Integration Era	Umm an-Nar Period	Ur III- 2113-2000 BCE
Harappa Phase	2700 to 2000 BCE	Akkadian Period: 2350 - 2200 BC
2600 to 1900 BCE		Early Dynastic Period: 2900-2350 (2371) BCE
Regionalisation Era Early Harappan Kot Diji, Ravi, Hakra Phases	Hafit Period	Jemdet Nasr Period: 3100-2900 BCE
5000 to 2600 BCE	3200-2700 BCE	Uruk Period: 3900-3100 BCE
Early Food Producing Era	Foraging-Agro/ Pastoral	Ubaid and Chalcolithic, Neolithic periods
<i>circa</i> + 7000 to 5000 BCE	6000 to 3200 BCE	>4000 BCE

Table 1: Indus, Oman, Mesopotamia Chronology

Indus Tradition

The Indus Tradition, which in the past I have referred to as the Indus Valley Tradition or Indus Civilisation (also called the Harappan Civilisation or Harappan Culture), represents the long term pattern of cultural and technological development that includes the emergence of distinctive features of site organisation, subsistence strategies, essential technologies and ideological expressions that are linked chronologically and geographically (Kenoyer 1991, 2015). Within the Indus Tradition, there are Eras and Phases that help to organise the complex sets of data that are found in archaeological sites. While the main focus of this presentation will be on the phases directly linked to urbanism, it is important to acknowledge the long term cultural and genetic roots that derive from much earlier periods dating back to the Palaeolithic (>10,000 BCE). These roots have been identified in the past by physical anthropologists through both the study of stone tools and technology (Dennell 2008) as well as through the study of human skeletal remains. Scholars such as Kenneth A.R. Kennedy (Kennedy 2002), Nancy Lovell (Lovell 2014), John Lukacs and Brian Hemphill (Hemphill 1999a, 1999b; Hemphill et al. 1991; Lukacs 1989; Lukacs and Hemphill 1991) have long argued that the skeletal data provide strong evidence for the indigenous character of populations from Mehrgarh and Harappa as well as other sites in Peninsular India. These earlier studies have recently been supported by the important new DNA evidence from the site of Rakhigarhi (Narasimhan et al. 2019; Shinde et al. 2018; Shinde et al. 2019). Hunting-foraging communities continued to coexist alongside later settled communities and probably contributed a wide range of technologies in the Indus cities, including the supply of forest products and labour to urban economies (Possehl 2002a). Trading networks that arose during the Early Food Producing and Regionalisation eras may have developed along earlier seasonal land-based migration routes, but also appear to have included maritime exchange that linked the South Asia to Arabia. Further studies are needed to understand the interactions between populations in Arabia and coastal regions of Baluchistan, Sindh and Gujarat.

Origins of Indus Urbanism

The issue of the origin of Indus urbanism has been a major point of debate beginning with the earliest excavations and continuing even today. Dr. M.R. Mughal was the first scholar to demonstrate through his study of pottery and other artefacts from Kot Diji, Harappa and other settlements (Mughal 1970, 1974, 1981), that the foundations of Indus urbanism can be traced to the Early Harappan occupations that lie underneath most of the towns and larger urban centres. Through the recent excavations at Harappa, it has been possible to go even further back in history to show that people were living at Harappa during the Upper Palaeolithic and Neolithic period. The discovery of diagnostic stone tools and some diagnostic beads from the earliest levels at Harappa indicate that somewhere under the large mounds there should be settlements of Palaeolithic and Neolithic communities (Kenover 2011). More detailed evidence of the settlement development comes from the Ravi and later Kot Diji level occupations. From these levels, we see evidence for the use of north-south and east-west orientation for architecture and the establishment of the 1:2:4 mud brick ratio (Kenoyer and Meadow 2000). In addition, the early settlers at Harappa were well connected with trade networks that linked the settlement to important resource areas as far as Gujarat and Sindh to the south and southwest, as well as Baluchistan and Afghanistan to the west and north (Kenoyer 2011; Law 2011b). The study of various aspects of crafts and subsistence from the Ravi and Kot Diji levels at Harappa also confirm the early development of technologies and subsistence systems that were essential to the emergence of the later urban centre.

At the site of Mohenjodaro, there is evidence for an Early Harappan occupation below the western "citadel" mound that was discovered in the deep diggings of Wheeler in 1950 (Wheeler 1968) and is confirmed by the pottery reported from the earliest levels by Alcock (Alcock 1986). More recently, I was able to examine some of the pottery from the lowest levels of HR area that came from deep corings made by Dr. G.F. Dales. Here too the pottery can be identified as relating to the Kot Diji Phase and it confirms that there was a very large Kot Diji Phase occupation at the site of Mohenjodaro prior to the development of the Harappa Phase city. These occupations are now deeply buried beneath the water table and it will be difficult to access them, but it would be possible to obtain some samples by additional coring and well digging. The presence of Early Harappan occupations at Dholavira (Bisht 2015) and Rakhigarhi (Nath 2015) show that the same overall processes of urban development were occurring in all regions of the Indus.

At the same time, these communities were not isolated from adjacent regions. Beginning as early as the Neolithic, we know that the people of Mehrgarh were obtaining lapis lazuli from northern Afghanistan and turquoise from Baluchistan or even from further East in Iran (Barthélemy De Saizieu 2003; Jarrige 1982). They were also obtaining shell from the Karachi coast and further along the Makran coast. It is also possible that they obtained some shell species even from across the Gulf in Oman (Kenoyer 1983, 1995). During the Early Harappan Period, we have evidence of shell from the Indus or Gujarat coastal regions reaching as far as Mesopotamia. The large shell cylinder seal (originally misidentified as marble) of the late Uruk-Jemdet Nasr Period from Mesopotamia (Hansen 2003: 39-40, Fig. 10b), dating to 3300-2900 BCE can only have been produced from the species Turbinella pyrum, that is found on the coast near Karachi and in the Gulf of Kutch. Excavations in the UAE have found evidence for interaction between Baluchistan and Eastern Arabia during this same general time period and more recently, excavations at the site of Salut, Sultanate of Oman have uncovered what may be a Kot Diji style sherd with grooved surface. On the basis of these finds, we can also assume that some people from surrounding regions were also interacting with the Indus and contributing both raw materials as well as some ideas that would eventually become incorporated into the later urban society. With resources and ideas, we can also assume some degree of gene flow that would eventually show patterns of interaction over broader regions.

Traditions from the Indus were also moving across the Gulf to the Arabian Peninsula and we need to study these patterns in more detail in the future. Studies of ceramic production in the UAE provide evidence for important links with Baluchistan during the Early Harappan and early Chalcolithic periods. This indicates that people from both sides of the Gulf were interacting and exchanging both technological ideas and decorative styles (Méry 1996). Another important example is the site of coastal fisher communities found at Ras al Hamra -5 (RH5), in modern Muscat. This community was settled along the coast from around 3800-3300 BCE (Munoz 2018; Salvatori 2007). The burials have a wide array of ornaments made with local stones as well as shell. One unique feature that is not found in earlier or later periods in Arabia is the use of wide shell bracelets that are very similar to those seen at Mehrgarh, though they are made with Conus shells (Coppa et al.1985; Salvatori 2018: Fig. 6.2). Since shell bangles were being made and produced in the Indus region as early as 7000 BCE, it could indicate that the bracelets at RH5 may have been influenced to some extent by contact with Baluchistan and the Indus. After this time the practice of using shell bracelet disappears in Arabia and does not show up again during the prehistoric period. This pattern will be important when discussing the interactions between the Indus and Eastern Arabia during the Harappa Phase.

One of the key challenges that we face in our study of Indus urbanism is in determining the source of specific aspects of Indus culture that derive from different regions and how much impact did connection with outside regions have on the character of Indus elites and their culture. This is a topic that requires specialised analysis and careful excavation to sort out the threads of technological, cultural, ideological and socio-economic development over time. I feel that each of the regions encompassed by the Indus Tradition probably contributed different components and also retained local patterns that were not adopted by other cities. The integration of these various regions into a larger tradition does not mean that they had to lose their own regional identity. Even though the Indus Tradition has many unifying characteristics, it also has important regional variations that need to be more clearly articulated.

Indus Cities: Harappa Phase

During the period from around 2600-1900 BCE the major urban centres and surrounding towns and villages became integrated into a complex socio-economic, political and ideological relationship (Kenoyer 2014). In the following section I will focus on a few major categories of Indus artefacts that can provide insight into the nature of Indus integration and diversity;

- 1. Settlement organisation and perimeter walls;
- Provisioning of the settlements including food items and food preparation;
- Production of specialised objects to define status and identity, such as seals, beads and bangles;
- 4. Disposal of the dead and cemeteries.

The patterns seen in these materials provide evidence for how people in the cities were organised, how and what they ate, what they produced to differentiate themselves, how they interacted with other regions, and how they disposed their dead. After seeing these patterns, it is clear that the Indus cities were well organised and highly stratified urban centres that were dynamic and experienced important changes over time.

1. Settlement organisation and perimeter walls

One of the most distinguishing features of Indus urban centres and also many of the smaller settlements in rural regions is the presence of massive mudbrick perimeter walls. At the larger sites of Mohenjodaro and Harappa, these walls were first built only of mud brick but in the later phases they were faced with fired brick to make them more durable.

Gateways were used to control access with narrow entries that would allow only one ox cart to come in or go out at a time. This is the ultimate form of control into and out of a city. If the gates were closed, there were facilities outside the city walls where travellers and traders could stay until the gates opened in the morning.

So far there is no evidence for warfare at any Indus settlement and the fact that the walls and gateways of Harappa were maintained for 700 years indicates that the walls continued to be used for control throughout the Harappa phase. During the Late Harappan period we do not know if city walls were maintained at Harappa, but based on excavations at the site of Jaidak in Gujarat (Ajithprasad 2008), we know that the walls of the settlement were no longer being used after the Harappa Phase. At many settlements with walls, such as Harappa (Kenoyer and Meadow 1999) and even smaller sites such as Bagasra (Bhan et al. 2005), there were extensive occupations outside the walls during the Harappa Phase. This indicates that the city walls were used to control access into only one part of the settlement and not to control everyone associated with the settlement.

At Harappa, people began to live outside the walls of Mound E, and eventually the city incorporated that part of the site and built a wall around it (Kenoyer and Meadow 1999). The same thing happened to the north of Mound AB with the settlement of Mound F. However, we do not have any evidence of a wall around Area J to the south of Mound AB or of the western habitation areas. We also do not know if there is a wall around the areas occupied by modern Harappa Town. These few examples provide important perspectives on the nature of urban and rural settlement systems. What was the benefit to the people inside the wall and who was allowed to enter and live and work inside the walled areas?

Based on the finds inside the walls, we know that there were well-ordered streets and drains, with areas that had concentrations of craft activities. Most of the crafts that occurred inside the walls relate to the production of commodities that were needed for daily life as well as items that can be associated with status and wealth. While some of these types of activities may have taken place in extra-mural workshops, so far there is not much evidence for this. The incentive to develop and maintain a workshop inside the city walls may have been related to security from bandits or other competitors. It also probably had a lot to do with the issue of shared resources and marketing. Cities today have market areas where people can obtain a wide range of goods without having to go to different parts of the city to obtain them. Indus cities were also organised in this manner, especially at the larger settlements such as Harappa (Kenoyer and Miller 2007), Mohenjodaro (Mackay 1938) and Dholavira (Bisht 2015; Prabhakar 2018; Prabhakar et al. 2012), but also even at the smaller ones such as Shikarpur (Bhan and Ajithprasad 2008; Chase et al. 2016).

2. Provisioning of the settlements including food items and food preparation

The types of foods eaten by the people in the cities and rural settlements included domestic and wild plant and animal products, which would be quite varied depending on the region of the Indus they were living in (Petrie *et al.* 2016). In addition to the well-known staple foods of wheat, barley, millet and rice, there is evidence for other types of wild foods that would have been growing in the regions around the major cities (Fuller and Madella 2009; Madella 1995, Madella *et al.* 2018, Madella and Fuller 2006; Weber 2001, Weber and Fuller 2008, Weber *et al.* 2011). We also have concrete evidence for the use of spices to flavour the food in ways that would be very familiar to anyone in South Asia today. These flavours are not typical of West Asia or East Asia and reflect the local cuisines of the greater Indus region. The use of mustard, turmeric, ginger, fenugreek, coriander, garlic, poppy, sesame, garlic and possibly safflower indicate exchange between cuisine of the Indus and nearby cultures (Kashyap and Weber 2010, 2013; Weber 2001, 2003; Weber *et al.* 2011 and J. Bates - personal communication). The varieties of foods found in the Indus cities indicates that people would have had lots of variety to select from and also to use foods as a way of identifying one's class as well as ethnic identity.

Studies of food residues in pottery are beginning to show that there are some distinct patterns of food use with different types of pottery vessels and this suggests that some communities may also have had special ways to prepare and serve foods (ongoing research by Akshyeta Suryanarayan, Kalyan Shekar Chakraborty, and Arvin Mathur).

Studies of faunal remains from inside and outside the walled sectors at Bagasra by Brad Chase (Chase 2007) showed that the diet of people inside the walls was slightly different, with the consumption of better cuts of meat being found inside while people outside were eating less prestigious meats. We do not yet have analysis of this type from Harappa or other large urban centres but we know that food and diet was much more complex that earlier scholars had thought (Meadow and Patel 2003). What people ate and how it was prepared may have been an important feature that both integrated and differentiated communities were living in Indus settlements.

3. Production of specialised objects to define status and identity

The study of specialised objects such as seals, beads and bangles provide a rich set of data to understand the diversity of communities living in Indus cities and rural settlements. There is a relatively large body of literature on this topic and in this presentation, I will focus on only a few aspects to illustrate how these artefacts were used to integrate and also differentiate groups within the settlements. The regional patterns of artefact use also help to define the diversity of Indus cultural traditions.

Seals are without doubt one of the most widely recognised artefacts that define a site as belonging to the Indus Tradition and specifically to the Harappa Phase. There are Early Indus Seals found during the Early Harappa Phase (Kenoyer 2006), but the seals with script and animal motifs are the most diagnostic feature of the urban phase. Their disappearance at the end of this period is also quite abrupt and reflects a major change in the nature of Late Harappan cities. One of the important results of the stratigraphic recording and excavations at Harappa is the determination that everyone in the city did not use seals and that their distribution is patterned. Some houses on Mound ET had no evidence for the use of seals, while next door the house has seals. There are also more seals and tablets in areas near to the market area and the gateways, with less use in areas away from these localities.

The chronology of seal styles at Harappa shows that they did change over time and so did the nature of the writing (Kenoyer 2006; Kenoyer and Meadow 2010). The seals from Period 3A had very short inscriptions, while those of Period 3B had longer but more varied inscriptions. The seals from Period 3C included long inscriptions associated with animal motifs as well as seals with only inscriptions and no animal motif. Preliminary analysis of the signs on these seals by Mayank Vahia and Nisha Yadav show that there are new signs in the latest seals script that were not present in the earlier periods (Vahia and Yadav - personal communication). This pattern indicates that there were new words coming into use, either as names or as the incorporation of new linguistic elements. Studies of the manufacture of seals by Gregg Jamison also show that seals were being made in different workshops within the larger settlements as well as at some of the smaller settlements (Jamison 2018, 2016). This indicates that there was no single dominant seal production centre and that diverse elites had the ability to direct the production and designs of seals that would be accepted and recognised as being legitimate symbols of authority in all regions of the Indus.

Beads were also an important form of personal ornament that allowed people in the cities to differentiate themselves in publicly visible ways. While there are many different types of Indus beads, there are some shared elements that distinguish Indus bead production from the beads made in Iran or Oman or other regions of West Asia. This distinctiveness is seen in all stages of production of stone beads, from the selection of the raw material to the shaping, grinding, polishing and finally drilling of the beads (Bhan 2018; Kenoyer 2017a and b). Glazed steatite beads and faience beads produced by Indus craftspeople also reveal distinct patterns and styles that are distinct from similar types of beads in Mesopotamia and Egypt (Kenoyer 1992, 1994; Law 2011a; Miller 2008, Miller and Kenoyer 2018; Vidale 2000). Since the main sources of raw materials for hard stone such as carnelian and banded agate is in either Gujarat or Baluchistan, studies of earlier periods of stone bead making in these regions are needed to better understand what contributions their regional technologies may have had on Indus bead making. At present no Early Harappan bead workshops have been found in these regions but this is something that needs to be investigated.

One of the other important categories of ornaments that would have been easily seen, as indicators of class or ethnic identity are bangles and bracelets made of different raw materials. The earliest use of shell bangles is found in the Neolithic burials at Mehrgarh (Kenoyer 1995) and shell bangles made from clam Purātattva 50

shells have been found at Balakot, Allahdino, Sothka Koh, Lothal (Kenoyer 1983) and Chanhudaro (Aurore Didier personal communication). Shell bangles made from sawn Turbinella pyrum were widely produced at most Indus sites, but Gujarat was clearly one of the main suppliers of both the raw shell and partly finished bangles (Bhan et al. 2005). One important question that still needs to be addressed is Who were the women and occasionally men that were allowed to wear shell bangles? Narrow shell bangles of Turbinella pyrum are found on the left arms of many female and one male burial from Harappa. They are also found on the arms of women in burials at other Indus sites. But not all women in these cemeteries had shell bangles. We also have very wide shell bangles from Indus sites but no burials have been found with these types of wide shell bangles. This indicates that different types of bangles were worn by communities living in the cities and that only one of these communities practiced burial in the earth.

It is also important to note that only shell bangles are found in burials and no other types of bangles. This is also an important indicator of diversity in ornament traditions.

Overall, however, the propensity for the production and use of bangles in the Indus Tradition is very different from that seen in contemporaneous societies in Arabia (no bangles except for at Ras al Hamra) and they are relatively rare in Mesopotamia and Iran. The presence of Indus style wide shell bangles at sites in Central Asia, as well as in Susa and in other sites in Mesopotamia could indicate the presence of Indus women or possibly men who were wearing these ornaments. Bangles in the Indus can be seen as a form of cultural identity that integrates people within the Indus Tradition but at the same time allows people to differentiate themselves based on the type of bangle and possibly the ways in which they were worn. This could also include bracelets and anklets made from steatite as well as other types of beads.

4. Disposal of the dead and cemeteries

The final topic that needs to be addressed for the Indus cities relates to the disposal of the dead. Earlier scholars have argued that the lack of royal burials and large cemeteries indicates that the Indus culture was not the same type of state level society as that seen in Egypt and Mesopotamia. However, excavations throughout the Indus region have consistently shown that although there are some earth burials with a few burial goods, most people of the Indus were probably not buried at all. This point has not been adequately discussed and yet it is extremely important when trying to identify ancient populations that were living in the cities. The ancient city of Harappa extended over 150 hectares in area and based on rough estimates of population, it could have housed anywhere from 40,000 to 60,000 (Kenoyer 2014). The combined excavations of the Harappa Phase cemetery at Harappa have revealed around 280 individuals (Kenoyer and Meadow 2016) and even if this number were to double with the full excavation of the cemetery, it can only represent a very small segment of the urban population. There is possibly another area of the site that has additional Harappa Phase burials, but this too would not be enough to account for the whole city. This pattern is also seen at all the other Indus sites that have reported Harappa Phase cemeteries, including Lothal (Rao 1979), Rupar (Dutta et al. 1987), Kalibangan (Sharma 1999), Farmana (Shinde et al. 2010), and Rakhigarhi (Nath et al. 2015; Shinde et al. 2018).

The dating of the burials at Harappa indicate that they represent all major periods of the Harappa Phase which means that they include over 700 years of sequential interments. The burials of this cemetery show some important patterns based on skeletal morphology as well as the pottery. On the one hand the women appear to be more closely related to each other than the men. It would suggest that women were buried next to their ancestors and men were buried next to the women who

they married. Strontium isotope analysis of the teeth from these burials indicates that many of the women and a few of the men were local from Harappa, while others were not from this part of the Punjab and Ravi River valley. This would indicate that for this community men and some women were coming to the site to marry with local inhabitants. This type of pattern is seen primarily for elites who have links to distant urban centres. Farmers and local nomadic communities usually marry with nearby families and not over long distances. The pottery found in the burials is similar to pottery found in various parts of the urban site and some styles associate with Mound E while others are more common in other parts of the settlement. This suggests that the people in this cemetery were living in all parts of ancient Harappa and not just in one part of the site. The patterns seen from these burials indicate that the city was integrated between the different mounds but the fact that only one community was being buried shows that not all of the people living in the city shared the same burial traditions. These other communities must have disposed of their dead by cremation or exposure, or by disposal in the rivers. These other traditions would not leave any archaeological evidence, so there is no way to test for it.

So far, no DNA has been recovered from the human bones from Harappa though we have been trying since 1988 to recover some kind of organic remains from the bones. Even if we were to eventually recover DNA, it is important to emphasise that this only would represent one group of what is clearly a diverse urban population. I would argue that all of the people living in the city of Harappa reflect the diverse cultural traditions of the Indus, and not just the people buried in the Harappa cemetery. Indus cities such as Harappa were the first to bring together people from all regions of the northern subcontinent and as such were a locus for integration. However, they were also highly diverse in all aspects of their organisation and character, and I hope that I have been able to show how we can identify and study this through the few examples presented today.

Conclusion

I am very encouraged by the incredible advances being made in the study of the Indus Tradition and for that matter all of the major archaeological periods of ancient South Asia. The list of papers being presented at this annual conference is evidence for the many new directions that archaeologists are taking. It is also great to see more international collaboration with scholars from many different institutions and different scientific backgrounds working together to try and address the challenges of decoding the past. I feel that we need to continue to harness the wealth of information available through both the internet and to continue to collaborate through the sharing of data and ideas. One of the main areas that I feel is critical to further advances is the development of well-defined and shared terminologies so that we can refine our categories and come to more meaningful interpretations. Workshops that bring interested scholars together are important, but the easiest way to accomplish this is to make photos of objects available through the web so that people can easily compare and contrast what is being discussed.

Acknowledgements

It is a great honour for me to be invited to present the keynote address to this group of distinguished scholars. I would like to begin by thanking the Indian Archaeological Society for their invitation and the opportunity to share the results of my recent research. Special thanks to all the officers of the society, especially to Dr. K.N. Dikshit who has always been a supportive colleague over many years. I also want to thank Dr. Rajesh, S.V. and Dr. Abhayan G.S. for their invitation and local hospitality. I was fortunate to be able to visit this department a few years ago and am very happy to return to Kerala for this conference.

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Refrences

Ajithprasad, P. 2008. Jaidak (Pithad): A Sorath Harappan Site in Jamnagar District, Gujarat and Its Architectural Features. In *Linguistics, Archaeology and the Human Past*, Occasional Paper 4, eds. T. Osada and A. Uesugi, 83-99. Kyoto: Research Institute for Humanity and Nature.

Alcock, L. 1986. A Pottery Sequence from Mohenjo Daro: R.E.M. Wheeler'S 1950 "Citadel Mound" Excavations. In *Excavations at Mohenjo Daro, Pakistan: The Pottery*, eds. G.F. Dales and J.M. Kenoyer, 493-551. Philadelphia: University Museum Press.

Barthélemy, De Saizieu B. 2003. *Les Parures De Mehrgarh: Perles Et Pendentifs Du Néolithique Préceramique Á La Période Pré-Indus: Fouilles 1974-985.* Paris: Editions Recherche sur les Civilisations.

Bhan, K.K. 2018. Some Important Aspects of Technology and Craft Production in the Indus Civilization with Specific Reference to Gujarat. In *Walking with the Unicorn: Social Organization and Material Culture in Ancient South Asia* (Jonathan Mark Kenoyer Felicitation Volume), eds. D. Frenez, G.M. Jamison, R.W. Law, M. Vidale and R.H. Meadow, 48-67. Oxford: Archaeopress Archaeology.

Bhan, K.K. and P. Ajithprasad. 2008. Excavations at Shikarpur 2007-2008: A Costal Port and Craft Production Center of the Indus Civilization in Kutch, India. URL: http://a. harappa. com/ content/excavations-shikarpur-gujarat-2008-2009 Accessed

Bhan, K.K., V.H. Sonawane, P. Ajithprasad and S. Prathapchandran. 2005. A Harappan Trading and Craft Production Centre at Gola Dhoro (Bagasra). *Antiquity* 79 (304): 1-7.

Bisht, R.S. 2015. *Excavations at Dholavira (1989-90 to 2004-2005)*. New Delhi: The Archaeological Survey of India.

Chase, B.A. 2007. *Meat Provisioning and the Integration of the Indus Civilization: A Perspective from Gujarat (India)*. PhD Thesis, University of Wisconsin, Madison.

Chase, B., P. Ajithprasad and S.V. Rajesh. 2016. The Identification of Diversity: Material Cultures and Social Practice in Harappan Gujarat. In *South Asian Archaeology and Art: Contextualizing Material Culture in South and Central Asia in Pre-Modern Times*, eds. V. Widorn, U. Franke and P. Latschenberger, 111-124. Turnhout, Belgium: Brepols Publisher.

Chatterjee, A. and J.S. Ray. 2017. Geochemistry of Harappan Potteries from Kalibangan and Sediments in the Ghaggar River: Clues for a Dying River. *Geoscience Frontiers* 9 (4): 1-10. doi: 10.1016/j.gsf.2017.07.006.

Coppa, A., R. Macchiarelli, S. Salvatori and G. Santini. 1985. The Prehistoric Graveyard of Ra's Al-Hamra (Rh5). *Journal of Oman Studies* 8: 97-102.

Courty, M.A. 1986. Geoarchaeological Approach of Holocene Paleoenvironments in the Ghaggar Plain. *Man and Environment* X: 111-115.

Dennell, R.W. 2008. *The Palaeolithic Settlement of Asia*. Cambridge: Cambridge University Press.

Durcan, J.A., D.S.G. Thomas, S. Gupta, V. Pawar, R.N. Singh and C.A. Petrie. 2019. Holocene Landscape Dynamics in the Ghaggar-Hakra Palaeochannel Region at the Northern Edge of the Thar Desert, Northwest India. *Quaternary International* 501: 317-327.

Dutta, P.C., A. Pal, P. Gupta and B.C. Dutta. 1987. *Ancient Human Remains from Rupar*. Calcutta: The Anthropological Survey of India.

Frenez, D., J.M. Kenoyer, M. Degli Esposti, C. Thornton, C.M. Cable and C. Schmidt. 2014. Indus Style Artifacts from Interior Oman: Long Distance Trade or Local Production? Seminar for Arabian Studies, 2014. London.

Fuller, D.Q. and M. Madella. 2009. Banana Cultivation in South Asia and East Asia: A Review of the Evidence from Archaeology and Linguistics. *Ethnobotany Research and Applications* 7: 333-352.

Gupta, S.P. 1999. The Indus-Sarasvati Civilization: Beginnings and Development. In *The Dawn of Indian Civilization (up to c.* 600 BC)(History of Science, Philosophy and Culture in Indian Civilization), Vol. I, Part 1, ed. G.C. Pande, 269-375. New Delhi: Centre For Studies in Civilizations.

Hansen, D.P. 2003. Art of the Early City-States. In *Art of the First Cities: The Third Millennium B.C. From the Mediterranean to the Indus*, ed. J. Aruz, 21-42. New York: The Metropolitan Museum of Art.

Hemphill, B. 1999a. Biological Affinities and Adaptations of Bronze Age Bactrians: Iv. A Craniometric Investigation of Bactrian Origins. *American Journal of Physical Anthropology* 108: 173-192.

Hemphill, B. 1999b. Foreign Elites from the Oxus Civilization? A Craniometric Study of Anomalous Burials from Bronze Age Tepe Hissar. *American Journal of Physical Anthropology* 110: 421-434.

Hemphill, B.E., J.R. Lukacs and K.A.R. Kennedy. 1991. Biological Adaptations and Affinities of Bronze Age Harappans. In *Harappa Excavations 1986-1990: A Multidisciplinary Approach*, ed. R.H. Meadow, 137-182. Madison: Prehistory Press.

Jamison, G.M. 2016. Seal Production in the Indus Civilization: A Comparative Analysis of Regional Carving Traditions. In *South Asian Archaeology and Art: Contextualizing Material Culture in South and Central Asia in Pre-Modern Times*, eds. V. Widorn, U. Franke and P. Latschenberger, 79-89. Turnhout, Belgium: Brepols Publisher.

Jamison, G.M. 2018. The Organization of Indus Unicorn Seal Production, A Multi-Faceted Investigation of Technology, Skill, and Style. In *Walking with the Unicorn: Social Organization and Material Culture in Ancient South Asia* (Jonathan Mark Kenoyer Felicitation Volume), eds. D. Frenez, G.M. Jamison, R.W. Law, M. Vidale and R.H. Meadow, 272-291. Oxford: Archaeopress Archaeology.

Jarrige, J.F. 1982. Excavations at Mehrgarh: Their Significance for Understanding the Background of the Harappan Civilization. In *Harappan Civilization*, ed. G.L. Possehl, 79-84. New Delhi: Oxford and IBH Publishing Co.

Kashyap, A. and S. Weber. 2010. Harappan Plant Use Revealed by Starch Grains from Farmana, India. *Antiquity* 84. Available at http://antiquity.ac.uk/projgall/kashyap326/ (accessed 18 August 2016).

Kashyap, A. and S. Weber. 2013. Starch Grain Analysis and Experiments Provide Insights into Harappan Cooking Practices. In *Connections and Complexity: New Approaches to the Archaeology of South Asia*, eds. S. Abraham, P. Gullapalli, T. Raczek and U. Rizvi, 107-126. Walnut Creek: Left Coast Press.

Kennedy, K.A.R. 2002. Biological Anthropology of Human Skeletons from Harappa. In *Indian Archaeology in Retrospect* (*Protohistory: Archaeology of the Harappan Civilization*), Vol. II, eds. S. Settar and R. Korisettar, 293-316. New Delhi: Indian Council of Historical Research and Manohar Publishers. Kenoyer, J.M. 1983. Shell Working Industries of the Indus Civilization: An Archaeological and Ethnographic Perspective. PhD Thesis, University of California, Berkeley.

Kenoyer, J.M. 1991. The Indus Valley Tradition of Pakistan and Western India. *Journal of World Prehistory* 5 (4): 331-385.

Kenoyer, J.M. 1992. Ornament Styles of the Indus Valley Tradition: Evidence from Recent Excavations at Harappa, Pakistan. *Paléorient* 17 (2): 79-98.

Kenoyer, J.M. 1994. Faience Ornaments of Harappa and the Indus Civilization. *Ornament* 17 (3): 35-39, 95.

Kenoyer, J.M. 1995. Shell Trade and Shell Working During the Neolithic and Early Chalcolithic at Mehrgarh. In *Mehrgarh Field Reports 1975 to 1985 - from the Neolithic to the Indus Civilization*, eds. C. Jarrige, J.-F.Jarrige, R.H. Meadow and G. Quivron, 566-581. Karachi: Dept. of Culture and Tourism, Govt. of Sindh and the French Foreign Ministry.

Kenoyer, J.M. 1998. *Ancient Cities of the Indus Valley Civilization.* Karachi: Oxford University Press and American Institute of Pakistan Studies.

Kenoyer, J.M. 2006. The Origin, Context and Function of the Indus Script: Recent Insights from Harappa. In *Ethnogenesis of South and Central Asia, Proceedings of the Pre-Symposium of RIHN and the 7th Esca Harvard-Kyoto Roundtable*, eds. T. Osada and N. Hase, 9-27. Kyoto: Research Institute for Humanity and Nature, RIHN.

Kenoyer, J.M. 2008. The Origin and Character of Indus Urbanism: New Perspectives and Challenges. In *The Ancient City: New Perspectives on Urbanism in the Old and New World*, eds. J. Marcus and J.A. Sabloff, 183-208. Sante Fe: SAR Press/ National Academy of Sciences.

Kenoyer, J.M. 2011. Regional Cultures of the Greater Indus Valley: The Ravi and Kot Diji Phase Assemblages of Harappa, Pakistan. In *Cultural Relations between the Indus and the Iranian Plateau During the Third Millennium BCE*, eds. T. Osada and M.Witzel, 165-217. Cambridge, MA: Department of South Asian Studies, Harvard University.

Kenoyer, J.M. 2014. The Indus Civilization. In *The Cambridge World Prehistory*, eds. C. Renfrew and Paul C. Bahn, 407-432. Cambridge: Cambridge University Press.

Kenoyer, J.M. 2015. The Archaeological Heritage of Pakistan: From the Palaeolithic to the Indus Civilization. In *History of Pakistan*, ed. R. Long, 1-90. Karachi: Oxford University Press.

Kenoyer, J.M. 2017a. History of Stone Beads and Drilling: South Asia. In *Stone Beads of South & South-East Asia: Archaeology, Ethnography and Global Connections*, ed. A. Kanungo, 127-150. Ahmedabad and New Delhi: Indian Institute of Technology, Gandhinagar and Aryan Books International.

Kenoyer, J.M. 2017b. Stone Beads of the Indus Tradition: New Perspectives on Harappan Bead Typology, Technology and Documentation. In *Stone Beads of South & South-East Asia: Archaeology, Ethnography and Global Connections*, ed. A. Kanungo, 149-164. Ahmedabad and New Delhi: Indian Institute of Technology, Gandhinagar and Aryan Books International.

Kenoyer, J.M. and R.H. Meadow. 1999. Harappa: New Discoveries on Its Origins and Growth. *Lahore Museum Bulletin* 12: 1-12.

Kenoyer, J.M. and R.H. Meadow. 2000. The Ravi Phase: A New Cultural Manifestation at Harappa. In *South Asian Archaeology 1997*, eds. M. Taddei and G. De Marco, 55-76. Rome/Naples: Istituto Italiano per l'Africa e l'Oriente/Istituto Universitario Orientale.

Kenoyer, J.M. and R.H. Meadow. 2010. Inscribed Objects from Harappa Excavations: 1986-2007. In Corpus of Indus Seals and Inscriptions, Vol. 3. New Material, Untraced Objects, and Collections Outside India and Pakistan, Annales Academiae Scientiarum Gennicae, eds. A. Parpola, B.M. Pande and P. Koskikallio, xliv-lviii. Helsinki: Suomalainen Tiedeakatemia.

Kenoyer, J.M. and R.H. Meadow. 2016. Excavations at Harappa: 1986-2010: New Insights on the Indus Civilization and Harappan Burial Traditions. In *The Companion to the South Asian Past*, eds. G.R. Schug and S.R. Walimbe, 145-168. Hoboken, NJ: John Wiley and Sons.

Kenoyer, J.M. and H.M.-L. Miller. 2007. Multiple Crafts and Socio-Economic Associations in the Indus Civilization: Perspectives on Continuity and Change from Harappa, Pakistan. In *Rethinking Craft Production: The Nature of Producers and Multi-Craft Organization*, ed. I. Shimada, 152-183. Salt Lake City: University of Utah Press.

Law, R.W. 2011a. Inter-Regional Interaction and Urbanism in the Ancient Indus Valley: A Geologic Provenience Study of Harappa's Rock and Mineral Assemblage. New Delhi: Manohar Publishers. Law, R.W. 2011b. Inter-Regional Interaction and Urbanism in the Ancient Indus Valley: A Geologic Provenience Study of Harappa's Rock and Mineral Assemblage. *Occasional Paper 11, Linguistics, Archaeology and the Human Past.* Kyoto, Japan: Research Institute for Humanity and Nature.

Lovell, N.C. 2014. *Skeletal Paleopathology of Human Remains* from Cemetery R37 at Harappa, Excavated in 1987 and 1988. Canada: University of Alberta Education and Research Archive.

Lukacs, J.R. 1989. Biological Affinities from Dental Morphology: The Evidence from Neolithic Mehrgarh. In *Old Problems and New Perspectives in the Archaeology of South Asia*, ed. J.M. Kenoyer, 75-88. Madison, Wisconsin: Department of Anthropology, University of Wisconsin, Madison.

Lukacs, J.R. and B.E. Hemphill. 1991. The Dental Anthropology of Prehistoric Baluchistan: A Morphometric Approach to the Peopling of South Asia. In *Advances in Dental Anthropology*, eds. M.A. Kelly and C.S. Larsen, 77-119. New York: Alan R. Liss.

Mackay, E.J.H. 1938. Further Excavations at Mohenjodaro: Being an Official Account of Archaeological Excavations at Mohenjo-Daro Carried out by the Government of India between the Years 1927 and 1931. New Delhi: Government of India.

Madella, M. 1995. A Preliminary Study of Phytolith Analysis, Agriculture and Use of Plants at Kot Diji (Sindh-Pakistan). *Ancient Sindh* 2: 93-108.

Madella, M. and D.Q. Fuller. 2006. Palaeoecology and the Harappan Civilisation of South Asia: A Reconsideration. *Quaternary Science Review* 25: 1283-1301.

Madella, M., P. Ajithprasad, C. Lancelotti, J.J. García-Granero, F.C. Conesa, C. Gadekar and S.V. Rajesh. 2018. The North Gujarat Archaeological Project – Nogap. A Multi-Proxy and Multi-Scale Study of Long-Term Socio-Ecological Dynamics. In *Walking with the Unicorn: Social Organization and Material Culture in Ancient South Asia* (Jonathan Mark Kenoyer Felicitation Volume), eds. D. Frenez, G. Jamison, R. Law, M. Vidale and R.H. Meadow, 343-358. Oxford: Archaeopress Archaeology.

Mallah, Q.H. 2007. Archaeological Investigation in the Lower Hakra Basin of Sindh Pakistan. *INDO-KOKO-KENKYU Indian Archaeological Studies*. Masih, F. 2018. Ganweriwala – a New Perspective. In *Walking* with the Unicorn: Social Organization and Material Culture in Ancient South Asia (Jonathan Mark Kenoyer Felicitation Volume), eds. D. Frenez, G.M. Jamison, R.W. Law, M. Vidale and R.H. Meadow, 377-383. Oxford: Archaeopress Archaeology.

Meadow, R.H. and A.K. Patel. 2003. Prehistoric Pastoralism in Northwestern South Asia from the Neolithic through the Harappan Period. In *Indus Ethnobiology: New Perspectives from the Field*, eds. S. Weber and W.R. Belcher, 65-94. Lanham, ML: Lexington Books.

Méry, S. 1996. Ceramics and Patterns of Exchange across the Arabian Sea and the Persian Gulf in the Early Bronze Age. In *The Prehistory of Asia and Oceania: Xiii International Congress of Prehistoric and Protohistoric Sciences*, eds. G. Afanas'ev, S.Cleuziou, J.R. Lukacs and M. Tosi, 167-179. Forli, Italy: ABACO.

Miller, H.M.-L. 2008. The Indus Talc-Faience Complex: Types of Materials, Clues to Production. In *South Asian Archaeology 1999*, ed. E.M. Raven, 111-122. Leiden: International Institute of Asian Studies.

Miller, H.M.-L. and J.M. Kenoyer. 2018. Invisible Value or Tactile Value? Steatite in the Faience Complexes of the Indus Valley Tradition. In *Walking with the Unicorn: Social Organization and Material Culture in Ancient South Asia* (Jonathan Mark Kenoyer Felicitation Volume), eds. D. Frenez, G.M. Jamison, R.W. Law, M. Vidale and R.H. Meadow, 389-394. Oxford: Archaeopress Archaeology.

Mughal, M.R. 1970. *The Early Harappan Period in the Greater Indus Valley and Northern Baluchistan*. PhD Thesis, Department of Anthropology, University of Pennsylvania.

Mughal, M.R. 1974. New Evidence of the Early Harappan Culture from Jalilpur, Pakistan. *Archaeology* 27 (2): 106-113.

Mughal, M.R. 1981. New Research on the Origins of the Indus Civilization. *Sind Quarterly* 9: 45-51, 60.

Munoz, O. 2018. Funerary Practices at Ras Al-Hamra Rh-5. New Data from 2005/2009. In *In the Shadow of the Ancestors: The Prehistoric Foundations of Early Arabian Civilization*, 2nd Expanded Edition, eds. M. Tosi, S. Cleuziou and D. Frenez, 147-150. Muscat: Ministry of Heritage and Culture, Sultanate of Oman. Narasimhan, V.M., N. Patterson, P. Moorjani, N. Rohland, R. Bernardos, S. Mallick, I. Lazaridis, N. Nakatsuka, I. Olalde, M. Lipson, A.M. Kim, L.M. Olivieri, A. Coppa, M. Vidale, J. Mallory, V. Moiseyev, E. Kitov, J. Monge, N. Adamski, N. Alex, N. Broomandkhoshbacht, F. Candilio, K. Callan, O. Cheronet, B.J. Culleton, M. Ferry, D. Fernandes, S. Freilich, B. Gamarra, D. Gaudio, M. Hajdinjak, E. Harney, T.K. Harper, D. Keating, A.M. Lawson, M. Mah, K. Mandl, M. Michel, M. Novak, J. Oppenheimer, N. Rai, K. Sirak, V. Slon, K. Stewardson, F. Zalzala, Z. Zhang, G. Akhatov, A.N. Bagashev, A. Bagnera, B. Baitanayev, J. Bendezu-Sarmiento, A.A. Bissambaev, G.L. Bonora, T.T. Chargynov, T. Chikisheva, P.K. Dashkovskiy, A. Derevianko, M. Dobe S, K. Douka, N. Dubova, M.N. Duisengali, D. Enshin, A. Epimakhov, A.V. Fribus, D.Q. Fuller, A. Goryachev, A. Gromov, S.P. Grushin, B.K. Hanks, M. Judd, E. Kazizov, A. Khoklov, A.P. Krygin, E. Kupriyanova, P. Kuznetsov, D. Luiselli, F. Maksudov, A.M. Mamedov, T.B. Mamirov, C. Meiklejohn, D.C. Merrett, R. Micheli, O. Mochalov, S. Mustafokulov, A. Nayak, D. Pettener, P. Richard, D. Razhev, M. Rykun, S. Sarno, T.M. Savenkova, K. Sikhymbaeva, S.M. Slepchenko, O.A. Soltobaev, N. Stepanova, S. Svyatko, K. Tabaldiev, M. Teschler-Nicola, A.A. Tiskin, V.V. Tkachev et al. 2019. The Formation of Human Populations in South and Central Asia. Science 365: 1-15.

Nath, A. 2015. *Excavations at Rakhigarhi (1997-98 to 1999-2000)*. New Delhi: The Archaeological Survey of India.

Nath, A., S.R. Walimbe, T.M. Garge, V. Mushrif-Tripathy, R. Dehuri and A. Malik. 2015. Harappan Internments at Rakhigarhi, Haryana. *Man and Environment* XL, No. 2: 9-32.

Petrie, C.A., J. Bates, T. Higham and R.N. Singh. 2016. Feeding Ancient Cities in South Asia: Dating the Adoption of Rice, Millet and Tropical Pulses in the Indus Civilisation. *Antiquity* 90 (354): 1489-1504.

Possehl, G.L. 2002a. Harappans and Hunters: Economic Interaction and Specialization in Prehistoric India. In *Foragers-Traders in South and Southeast Asia: Long-Term Histories*, eds. K.D. Morrison and L.L. Junker, 62-76. Cambridge: Cambridge University Press.

Possehl, G.L. 2002b. *The Indus Civilization: A Contemporary Perspective*. Walnut Creek: AltaMira Press. Prabhakar, V.N. 2018. Decorated Carnelian Beads from the Indus Civilization Site of Dholavira (Great Rann of Kachchha, Gujarat). In *Walking with the Unicorn: Social Organization and Material Culture in Ancient South Asia* (Jonathan Mark Kenoyer Felicitation Volume), eds. D. Frenez, G. Jamison, R. Law, M.Vidale and R.H. Meadow, 475-485. Oxford: Archaeopress Archaeology.

Prabhakar, V.N., R.S. Bisht, R.W. Law and J.M. Kenoyer. 2012. Stone Drill Bits from Dholavira: A Multi-faceted Analysis. *Man and Environment* XXXVII, No. 1: 8-25.

Rao, S.R. 1979. Lothal: A Harappan Port Town (1955-62), Vol. I. *Memoirs of the Archaeological Survey of India*, No. 78.

Ratnagar, S. 2001. Harappan Trade in Its 'World' Context. In *Trade in Early India*, ed. R. Chakravarti, 102-127. New Delhi: Oxford University Press.

Salvatori, S. 2007. The Prehistoric Graveyard at Ra's Al-Hamra 5, Muscat, Sultanate of Oman. *Journal of Oman Studies* 14: 5-20.

Salvatori, S. 2018. The Prehistoric Graveyard at Ras Al-Hamra Rh-5. In *In the Shadow of the Ancestors: The Prehistoric Foundations of Early Arabian Civilization*, 2nd Expanded Edition, eds. M. Tosi, S. Cleuziou and D. Frenez, 141-146. Muscat: Ministry of Heritage and Culture, Sultanate of Oman.

Sharma, A.K. 1999. *The Departed Harappans of Kalibangan*. New Delhi: Sundeep Prakashan.

Shinde, V., T. Osada, A. Uesugi and M.M. Kumar. 2010. *Harappan Necropolis at Farmana in the Ghaggar Basin*. New Delhi: The Indian Archaeological Society.

Shinde, V., Y.J. Kim, E.J. Woo, N. Jadhav, P. Waghmare, Y. Yadav, A. Munshi, M. Chatterjee, A. Panyam, J.H. Hong, C.S. Oh and D.H. Shin. 2018. Archaeological and Anthropological Studies on the Harappan Cemetery of Rakhigarhi, India. *PlosOne* 0192299: 1-30.

Shinde, V., V.M. Narasimhan, N. Rohland, S. Mallick, M. Mah, M. Lipson, M. Michel, J. Oppenheimer, K. Stewardson, N. Jadhav, Y.J. Kim, M. Chaterjee, A. Munshi, A. Panyam, P. Waghmare, Y. Yadav, H. Patel, A. Kaushik, K. Thangaraj, M. Meyer, N. Patterson, N. Rai and D. Reich. 2019. An Ancient Harappan Genome Lacks Ancestry from Steppe Pastoralists or Iranian Farmers. *Cell* 179: 1-7.

Tosi, M. 2001. The Harappan Civilization Beyond the Indian Subcontinent. In *Trade in Early India*, ed. R. Chakravarti, 128-151. New Delhi: Oxford University Press.

Vidale, M. 2000. *The Archaeology of Indus Crafts: Indus Craftspeople and Why We Study Them.* Rome: Istituto Italiano per l'Africa e l'Oriente.

Weber, S.A. 2001. Seeds of Urbanism Revisited. *Antiquity* 75: 413-414.

Weber, S.A. 2003. Archaeobotany at Harappa: Indications for Change. In *Indus Ethnobiology: New Perspectives from the Field*, eds. S. Weber and W.R. Belcher, 175-198. Lanham, ML: Lexington Books.

Weber, S.A. and D.Q. Fuller. 2008. Millets and Their Role in Early Agriculture. *Pragdhara* 18: 69-90.

Weber, S.A., A. Kashyap and L. Mounce. 2011. Archaeobotany at Farmana: New Insights into Harappan Plant Use Strategies. In *Excavations at Farmana, District Rohtak, Haryana, India:* 2006-2008, eds. V.S. Shinde, T. Osada and M. Kumar, 808-825. Kyoto: Indus Project, Research Institute for Humanity and Nature.

Wheeler, R.E.M. 1968. *The Indus Civilization (Third Edition)*. Cambridge: Cambridge University Press.

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