Ritual, urbanism, and the everyday: Mortuary behavior in the Indus civilization

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Abstract:

Human skeletal material from archaeological sites is the most important source of evidence about embodied experience, habitual behaviors, and aspects of health in past people. Within bioarchaeology's broad area of inquiry, analysis of mortuary behavior (particularly when combined with paleopathology) is potentially the most critical tool for archaeologists to reconstruct ritual and meaning in the past. This work typically combines embodiment and practice theory to examine the importance of ritual, its contours, and its social function. This chapter asks what we mean by "ritual" and how "ritual" emerges from mortuary artifacts and features. This chapter seeks to move away from mortuary ritual as a distinct category of behavior in the Indus context, separate from a secular life in the urban environment. I argue that mortuary behavior for individuals in the Indus civilization varies because of the nature of the heterogeneous populations that occupied these urban settlements but perhaps also that mortuary and other ritual behaviors in the Indus civilization were entangled, enmeshed, and interacted with the everyday heterogeneity of people's life in the urban environment. While there is no common tradition apparent within or among all Indus cities, what is clear is that the urban lifestyle and environment participated in creating diverse rituals performed in a funerary context and that participation would contribute to memories of the cities long after their decline. Evidence is drawn from mortuary archaeology and objects, bodies and emergent behaviors, pathophysiology and health. These ritual and everyday dimensions of life in South Asia's first urban period speak to the deepest anthropological questions we can ask about meaning in the past and how it was lived in the urban context.

Keywords: Harappan civilization | Indus archaeology | Bioarchaeology | Urban | Bronze Age | South Asia

Chapter:

3.1 Ritual and Everyday Life in Urban Communities

Mortuary rituals and traditions emerge from the archaeological record with reasonable consistency for the small villages of rural India's prehistory—the cemeteries of mid-Holocene foragers of the Gangetic Plains; across villages of west-central India in the second millennium BCE; and the Neolithic Ashmounds of South India. In fact, sometimes mortuary ritual has been the only consistent feature across periods of substantial sociocultural change and subsistence transition (Raczek 2003). There is arguably much less in the way of uniformity in the mortuary archaeology of the mature Indus civilization (2600–1900 BCE), the first urban period in South Asia (Fig. 3.1). This is ironic given that the Indus civilization is famous for certain kinds of uniformity—large cities were built with uniform planning, brick sizes, weights and measures, seals and signs—spanning one-million square kilometers of territory. Unlike contemporaneous classical Egyptian or Bronze Age Arabian sites, where there are clear mortuary traditions and a small range of variation around those practices, gender or social class-based differences for example, the Urban Period of the Indus Age (c. 2600–1900 BCE) is primarily characterized by a bewildering array of variation and diverse mortuary practices.
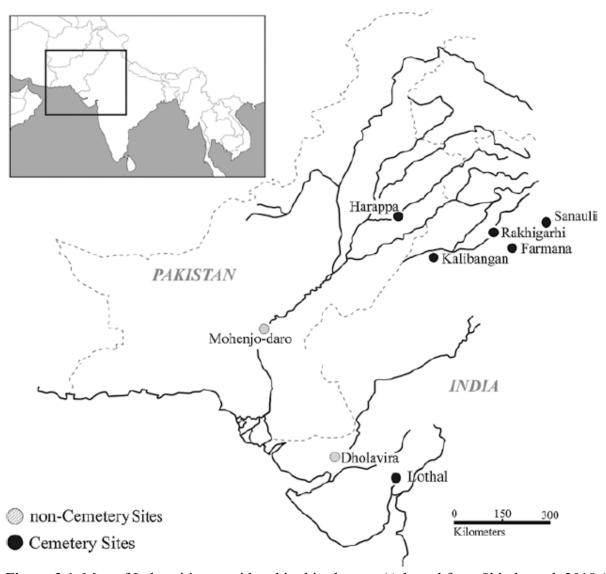

Figure 3.1. Map of Indus cities considered in this chapter. (Adapted from Shinde et al. 2018a)

The term urban refers here to the Latin *urbs* (city, or town) and *urbana* or *urbanus* (of the city) (https://latin-dictionary.net/definition/38160/urbanus-urbana-urbanum). In *The Archaeology of Urban Landscapes,* Monica Smith (2014, p. 308) describes the phenomenon of urbanization as having occurred relatively rapidly in the human career, compared to other transitions like food production that took several millennia. She defines the urban center as population aggregations whose archaeological dimensions materially record the historical, sociocultural, politico-economic and ritual interactions of their inhabitants. While these are bounded spaces, they are also intimately connected to the surrounding landscape because they rely on "outer" lands for food and other resources, including immigrants. Urban centers and their hinterlands are in relationship, one that is not purely extractive or exploitative and the size of a settlement does not always predict its relative prominence or centrality. Smith also mentions that the archaeological study of urban ritual landscapes is underdeveloped but clearly, there are examples of urban ritual centers or ritual infrastructure that can serve as anchors for spiritual or religious meaning, venues for interaction, and that can transcend the boundaries of the city to serve as pilgrimage sites (p. 311).

One reasonable explanation for the noted variation in Indus mortuary behavior might simply be that urban phenomenon—that Indus cities were comprised of an incredibly heterogeneous living population of immigrants from across a vast area, people who brought with them to the cities their diverse traditions for dealing with death and maintained those over time. This idea is supported by archaeological and bioarchaeological evidence. Many Indus cities were built on sterile soil[1] around 2600 BCE and then were rapidly occupied by tens of thousands of people, sometimes within a span of less than a century (Shinde 2016). Isotopic analysis has demonstrated that many of the males buried in the Indus city of Harappa's Urban Period cemetery were immigrants (Kenoyer et al. 2013). I would add that when these immigrants arrived in the urban spaces of "accelerated producer-consumer dynamics"(Smith 2012), these built environments were largely devoid of public, monumental, ritual architecture. The people of the Indus civilization came to occupy cities that were effectively a spiritual blank slate—literally built on sterile soil and with no public ritual spaces—and over the centuries, while the inhabitants adopted many standardized measures, weights, a uniform script, brick sizes, and construction techniques, they never adopted a common, formal, prescribed mortuary ritual between individuals within one cemetery or between different cemeteries at different cities in this territory known as a "civilization."

This chapter seeks to describe variation in mortuary behavior at Indus cities and considers two main ideas. The first is the idea that "Indus mortuary treatment" is so diverse because "Indus people" were not buried here; the civilization was fundamentally a temporary economic phenomenon enacted by people who retained separate identities—which had developed in their natal villages all over South and West Asia—even after centuries inhabiting shared urban environments. These types of questions about identity—or in this case, the lack of a coherent identity—are often addressed using mortuary archaeology, that "dense forest of symbols" (Rosaldo 1989, p. 167) that elucidates not just the meaning of death and grief but more

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[1] Possehl (2002: 50) claims 755 of 1058 (71%) of Indus cities were built on "virgin soil" and 324 (62%) Early Harappan (3300–2600 BCE) sites were abandoned prior to the Mature Period (2600–1900 BCE). He explained this pattern using the concept of a nihilistic ideology.

importantly, the meaning of life, community, social structure, relations, and culture in past societies. Typically, bioarchaeologists try to infer the meaning of mortuary "rituals"—symbolic, formal, prescribed, structured, and repetitive behaviors that appear primarily symbolic, communicative (or performative), and as intended to exert control. However, although repetitive routines may emerge in the archaeological record, it is reductionist to reduce the concept of ritual to something that "…more resemble[s] a recipe, a fixed program, or a book of etiquette than an open-ended human process." (Rosaldo 1989, p. 172). Archaeologists must not assume rituals to be "deep or conventional, or immediately transformative or but a single step in a lengthy series of ritual and everyday events" (Rosaldo 1989, p. 174).

Just as the emotions of death are not confined to the circumstances of death—the emotions of grief, sadness, loss, fear, and loneliness are experienced in a variety of contexts—"ritual", too, is not always a distinct category of behavior reserved for spiritual, symbolic moments in dedicated spaces (Brück 1999). In fact, symbolic, formal, prescribed, structured, repetitive, communicative (or performative) behaviors that are intended to exert control are suffused throughout the repertoire of daily activities in human life: from cooking, to "getting ready" for bed, to participating in academic faculty meetings. The mundane contains irrational elements and thus "ritual" performance and attempts to control are entangled in all spheres of human life, experience, and society. Mortuary treatment is a fundamental dimension of human existence and an intimate human moment that matters but it is also part of mundane, everyday action and routine (Nilson Stutz 2003, p. 19).

That brings me to the second point I would like to consider using Indus mortuary evidence: to understand the lack of a single "Indus mortuary tradition", perhaps we must discard dualistic thinking inherent to distinguishing ritual from mundane, rational structure from spiritual relations in the Indus context. To understand what that would look like we can turn to contemporary South Asia, where a million little religious traditions, god and goddesses, are hosted in processional performances of ritual throughout the city streets, as participants move together in embodied devotional performances (Srinivas 2004). All of the city's inhabitants may not be involved in a specific devotional procession but all of the inhabitants' senses are involved in a moving devotion that invokes a "kinesthetic imagination" (Srinivas 2004, p. 29): an effigy of the deity is built from clay, colorfully decorated, transported in the midst of a crowded field of music, recitations, scents, bodily contact, and food offerings (*prasad*). The locations of temples within the urban environment are spotlighted but the civic and the sacred intermingle in a ritual landscape and memories of these rituals and "sacredness" are tied to specific urban locations that would not seem spiritual unless one was aware of their significance; street corners, lanes, and niches between buildings take on ritual significance. Local recent history is staged and frames of reference enacted. The social memory of these processions is infused with intersecting human social relations, human-environmental interactions, urban experiences, and access to resources, such as water.

During the Indus Age, it is often mentioned that there is no archaeological evidence for a common spiritual or religious tradition; there is no public architectural feature that has obvious religious connotations; and there are instead small items of devotion—figurines and other homemade, handheld items for personal, familial, or small group devotion in the home, the place of work, the everyday spaces that individuals occupy. One might argue that if there is no

apparent ritual architecture or infrastructure in Indus cities, and if we agree that "Indus people" do not share a coherent, normative burial tradition, then perhaps this is because of a deep intermingling of the sacred and the mundane. If this were the case, it might emerge archaeologically as a lack of defined ritual spaces—large, public, monumental architectural spaces were not required. Perhaps, like the villages and cities of modern India, the entirety of the city was the space for ritual; any given street, structure, or other space in the urban environment could be simultaneously mundane and a deeply spiritual ritual space where ritual performance had intermingled with everyday activities and peoples' experiences. The sheer fact of the heterogeneous population of immigrants and the lack of shared formal traditional spaces and mortuary rituals, might suggest that these cities were both entirely suffused with individual spiritual practices and at the same time, devoid of communal memories of religious devotion.

Rituals are always embodied practices that explore memories (Hallam and Hockey 2001), so if each urban environment is the ritual canvas for thousands of little traditions, then any space within the city could hold the memories of ritual significance. If we apply this concept to the question of why Indus mortuary tradition is so highly variable, one thing that immediately comes to mind is that, in fact mortuary behavior in Indus cities is also not always confined to specific mortuary spaces—like formal cemeteries; for example, at the Indus city of Mohenjo Daro, the human remains themselves are not confined to a particular space but are instead found scattered in the everyday spaces of the city: a stairwell, lanes, a room in a house (Fig. 3.2). Perhaps the long-noted lack of monumental architecture *and* the lack of homogeneous mortuary ritual that I will demonstrate here might be explained by immigration but also by an intermingling of the spiritual and the secular, the ritual and mundane categories of life. Just as today's god and goddesses reside on the human landscape of South Asia—their exploits occurring in historical time and in the forests and mountains of the observable, physical landscape—human death too is mingled with the sights, sounds and scents of the city as it is paraded through the urban spaces on a path to the afterlife. Perhaps in the Indus, burials and other forms of interment represent those thousand little spiritual traditions that bridged the worlds of the living and the dead as well as the city and the natal village. This is the concept I want to explore in this chapter.

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Figure 3.2. Mohenjo Daro skeletons are not found in what would be considered a formal cemetery. These individuals in the lane between houses in the VS Area are typical of the site, wherein most of the skeletons are found in public lanes and residential areas. (Reproduced from Marshall 1931)

3.2 Describing Things: The Cities, the Burials, and the Bodies in Relation

3.2.1 Mohenjo Daro

Mohenjo Daro was the largest, and remains the most visually impressive city at the core of urban centers in the Indus River Valley. It provides perhaps the strongest possible evidence that the Indus civilization had no common mortuary tradition but also that rituals surrounding death and the memories of the dead are found in the ordinary spaces of life in the city. Mohenjo Daro does not appear to have a formal space reserved for mortuary ritual. Instead, parts of 37 individual bodies have been recovered from different areas of the archaeological site (Dales 1964); 32

complete skeletons and remains from five additional fragmentary, incomplete (or "fractional") individuals were excavated from within buildings, lanes, and stairwells of the city's lower town. Remains from three additional skeletons were included in the fill of accumulated debris in a courtyard of an Intermediate Period[2] house (House III, HR Area), possibly dumped there in preparation for a building phase in the Late Period of the site (Dales 1964). Later excavations by Mackay (1938) uncovered another 13 skeletons: bones from 9 skeletons[3] (remains of 4 adults and 5 subadults) interred "in a heap" in a lane; and 2 skeletons in a stairwell.[4] Two isolated skulls were discovered nearby, one in the lane above the stairwell and one in a pit at the bottom of the stairwell. Marshall (1931) also excavated a handful of fractional secondary burials, post–cremation urns, and 21 additional skeletons at Mohenjo Daro; unfortunately, these were all surface finds so they are not securely dated. He described: 14 skeletons[5] in a house; six skeletons[6] in a lane; and one prone skeleton[7] in another lane.

Perhaps because it was difficult to imagine an explanation for what seems to be a complete lack of a mortuary program at Mohenjo Daro, or perhaps because of the infamous difficulty of obtaining permission to study remains housed at Anthropological Survey of India in Kolkata, these 32 skeletons have been subject to very little research. Because of the relatively bizarre postures in which they were found and lack of a formal cemetery, Marshall (1931) attributed these deaths to bandits and raiders from marauding tribes of the Indus Valley hinterlands. Wheeler (1953) saw these haphazard assemblages as evidence for a massacre that was perhaps part of a larger invasion of "Aryans" (Indo-European language speakers) who brought about the end of the first urbanization phase in the subcontinent. This interpretation is obviously incorrect as there was no Aryan Invasion (Danino 2016; Mushrif Tripathy et al. 2014; Walimbe 2016); however, the greatest challenge to interpreting this assemblage is that dates for the skeletal material are uncertain. According to Hargreaves (the person who excavated the first set of remains described above), four of the 14 skeletons in Room 74 were lying partly over the remains of the south wall of the chamber, thus proving that death must have taken place at some point after the wall in question had fallen to ruin. Marshall (1931) disputed this claim, saying that the wall was part of the Intermediate Period of the city's occupation and, thus, the skeletons were from the Late Period.[8] Unfortunately, the remains themselves have yet to be dated using AMS, which should eventually be done.

It appears likely that many of these individuals at Mohenjo Daro are from the Late Period of the Indus Age. Of the six skeletons in the VS Area5, Marshall suggested they represented interments that intruded into the area that had earlier been a lane, causing the appearance of them having been left in the middle of the lane (Dales 1964). However, an examination of the photographs of

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[2] Mohenjo Daro was occupied between c. 2500–1900 BCE and the excavators (Marshall 1931, p. 10) divided the site into rough temporal divisions based on the stratigraphy and apparent shifts in material culture such that the Intermediate Period is strata 4–6 and the Late Period is strata 1–3. The Early Period is comprised by the seventh stratum and below. Marshall's excavations stopped at the seventh stratum. The Intermediate Period roughly corresponds to c. 2400–2200 BCE.
[3] Long Lane (DK Area) between block 10a and 11
[4] Room 42 of block 8a
[5] Room 74 of House V, in Section B of the HR Area
[6] Lane 4 of the VS Area, between Houses XVIII and XXXIII
[7] Deadman's Lane, HR Area, Section A.8
[8] Roughly corresponding to the end of the second millennium BCE.

these individuals calls this idea into question. The bodies are far from one another and yet appear to have been interred at the same stratigraphic level, making individual graves improbable. Also, the limbs and the bones of the pelvis and shoulders are splayed in a manner that is inconsistent with interment in a grave. These individuals appear to have decomposed in an open area or a large pit. This is also true of most of the other assemblages at Mohenjo Daro (such as the 9 skeletons in the DK Area).

The only bioarchaeological work that has been done was conducted by Kennedy (1984, 1987, 1990, 2000) and Lovell (1997), who examined the skeletal material from Mohenjo Daro and reported evidence for healed traumatic injuries and that almost 20% of the individuals had evidence of abnormal porosity on the cranial vault bones that suggested a genetic form of anemia was becoming prevalent due to a heterozygous advantage in resistance to malaria (Lovell 2016). These remains could be restudied to describe the traumatic injuries, obtain AMS dates, and apply an isotopic approach to reconstruct the geographical origins of these individuals. Modern archaeological techniques must be applied to these long-standing questions about when these individuals died, what was their relationship to the city, and how they came to be interred in this fashion. However, the evidence from Mohenjo Daro does provide support for the argument that heterogeneous ritual performances played out in the everyday spaces of the cities because the heterogeneity of the population was anathema to a common tradition and centralized ritual spaces.

3.2.2 Harappa

Harappa was one of the largest cities in the Indus River Valley and served as a kind of "type site" of the Harappan civilization because it was first scientifically investigated in 1926. It is the longest studied site—with more than 25 seasons of excavation—and one that has yielded highly significant insights to the complexity, social organization, cultural, and ideological aspects of Harappan society. The site is located in the Sahiwal District of Punjab, Pakistan. First occupied around 3300 BCE, the city grew to a population size of approximately 22,000–30,000 inhabitants (Wright 2010, p. 107) between 2600–2450 BCE, until it covered approximately 150 ha at the height of the Mature Period (2450–2150 BCE). There are two formal cemeteries here but the dead were not confined to those spaces. Here again, there were many instances of human remains (primarily skulls) uncovered outside of the recognized burial areas (Kenoyer and Meadow 2016), particularly on Mound AB, but the majority of individuals were interred in 280 burials that have been excavated at Harappa from three burial areas—two cemeteries (R-37 and H) and an ossuary, or pit of bones, at Area G.

The human remains comprise 196 individuals from the Mature Period (2450–2150 BCE), body parts from 23 individuals from Area G (ca. 2000 BCE), 26 individuals from Cemetery H stratum II (1900–1700 BCE), and 45 individuals from Cemetery H stratum I (1700–1300 BCE). Comprehensive description and photographs of the recovered remains (Gupta et al. 1962; Lovell 2014a) and detailed studies of pathophysiological markers (Kennedy 1990, 1992, 2000, 2002; Kennedy et al. Hemphill 1993; Lovell 1994, 1997, 2014a, 2016; Lovell and Kennedy 1989; Lukacs 1989, 1992, 1996, 2017) eventually led to scientific explorations of patterns of migration (Hemphill 1998, 1999a, b; Hemphill and Lukacs 1991; Hemphill 1991; Hemphill et al. 2000; Kenoyer et al. 2013; Valentine 2016), interpersonal violence (Kennedy 1984, 1987, 1990; Lovell

2014b; Robbins Schug et al. 2012), and infection and disease patterns (Robbins et al. 2006, 2007, 2009; Robbins Schug 2016, 2017; Robbins Schug et al. 2018; Robbins Schug et al. 2013). At this point, these remains are the best known and the most completely studied remains of people from any Indus city, although much work remains to be done.

There are several important aspects of the skeletal remains from Harappa that must be taken into consideration. First, they make up only a tiny fraction of the living population of the city and thus are obviously not representative of the spectrum of human experience here across two millennia of occupation (from the earliest settlement at 3300 BCE to the last remaining occupants ca. 1300 BCE). Second, while we know many people died here and were not buried in the cemetery, we do not know why these particular individuals were buried in these areas, and we have yet to understand the full range of variation in what was clearly a highly heterogeneous society. Third, one thing we do know about the individuals buried at Harappa is that the majority of the males studied were not born locally, but the females do appear to have been local (Kenoyer et al. 2013). One isotopic analysis also suggested that the males might have immigrated to the city early in life (Valentine 2016), though these results have yet to be validated. The heterogeneity we see in mortuary treatment at Harappa is certainly due to migration and heterogeneous community membership, and this suggests a rationale or motive for the lack of common ritual experience.

Cemetery R-37 has typically been an exemplar of "Indus mortuary traditions," but, in fact, disposal of the dead in this cemetery was also heterogeneous. At cemetery R-37, there were a number of individuals buried singly, in rectangular pits and an extended, supine posture, with the body oriented North-South, with the head to the north. This has been classified as the "normative practice," but even burials that follow these customs are not actually uniform. Some of these graves were lined with bricks, some individuals were buried in a shroud, and some were placed inside a wooden coffin. Additionally, there were four burials excavated by Vats (1940) that contained elements from multiple individuals. Two of these "multiple burials," 779c and 820, each contained one cranium with visible signs of infectious disease (leprosy) (Robbins Schug et al. 2013).

The mortuary traditions at Harappa (and at numerous other Indus sites) included many episodes of living people interacting with the dead after burial. Kenoyer and Meadow (2016) noted a systemic pattern of disturbance in Cemetery R-37 and described these interactions as a common feature. The living would clear out previous burials, intentionally reburying or dumping the human remains in other areas (Kenoyer and Meadow 2016, p. 151), perhaps suggesting a lack of regard for those buried earlier from other communities. At Area G (Fig. 3.3), interaction with the dead during and after decomposition is evidenced by the piling of 20 human crania, an articulated spinal column, isolated body parts (e.g., entire legs), and one prone burial (G.289) whose cranium was removed and placed to the left of the body when it was interred, which suggests the decapitation occurred as part of the mortuary ritual (Robbins Schug et al. 2018).

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Figure 3.3. Photograph of the partially complete excavation at Harappa's Area G, Trench II. Photo taken by M.S. Vats from the North-East corner of Am 42/22 in the 1928–1929 excavation season. (Reproduced from the original at the British Library)

Interaction with the dead continued in the post-urban, or Late Period (1900–1300 BCE). In this cemetery (H), 135 jars[9] were found to contain secondary burials and fractional adult and subadult skeletons, some of whom showed evidence of partial cremation. Here too there was diversity in the mortuary behavior, with earth or "open" burials also found in the earliest (lowest) layers of this cemetery. These individuals were either laid out in a supine, extended posture, or laid on their side with flexed or extended legs, often with arms crossed over their torso. Ceramics were the only grave goods, and were inconsistently present (Possehl 2002).

While some of the mortuary heterogeneity might be explained by high rates of migration and differences in community membership, some of the differences in mortuary treatment might also be due to social inequality, exclusion, and inequities that were exacerbated by the process of urbanization itself. The greatest risk of both trauma and infectious disease at Harappa appears to have been for the individuals who were interred in Area G. Leprosy was relatively common in the 23 individuals interred at Area G (22%), though the sample size from this area is small, and this may be coincidental. Interpersonal violence was also found here at a higher rate than any other Indus city. While subadults were recovered from every burial area, two of nine subadult crania recovered from Area G suffered cranial trauma. Rates of traumatic injury were much lower than in other urban cemeteries (Lovell 2014a, b; Lukacs and Hemphill 1990), and thus we have hypothesized that the individuals buried here were from a community that was more at risk for both infectious disease and interpersonal violence (Robbins Schug 2017; Robbins Schug et al. 2012, 2013).

I have argued elsewhere that this result also supports the idea that the Harappan civilization was at least somewhat hierarchical (Robbins Schug 2017). Archaeological evidence for hierarchy, as opposed to heterarchy (or different, parallel systems of rank) emerges from the archaeological record in the form of exclusion (Crumley 1979, 1995, 2001, 2005). In the skeletal assemblage at Area G, we find piles of skulls and one prone burial. These remains are not included in a formal cemetery, and they are not buried as individuals, in graves, in pots, or in coffins, like those interred in cemetery R-37 or cemetery H. Interpretation of this area requires additional excavation, as there is some question about the temporal context and the relationship between the ossuary and possibly a more formal cemetery located in this area (Kenoyer and Meadow 2016; Kenoyer, personal communication). It remains to be seen, with further excavation, whether there is also a cemetery in Area G, but the nature of this assemblage must still be understood within the context of the rest of the burials at the site. Based on the evidence at hand, these individuals were provided very different treatment, and they demonstrated the most evidence of violence and infectious diseases. This suggests social differentiation and possibly structural violence—a lack of access to basic resources like health and security for some members of a society.

It is also very important to recognize that evidence for traumatic injuries is not limited to Harappa. There is evidence for traumatic injuries at Mohenjo Daro (Kennedy 1990), Kalibangan (Sharma 1999), Rakhigarhi (Lee et al. 2019), Farmana (Mushrif Tripathy and Shinde 2019), and Lothal (Sarkar 1972, 1985). Thus, although the mortuary traditions are not held in common

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[9] Of these interments, only 26 individuals were from the post-urban Late Period (1900–1700 BCE), 78 were from a later Chalcolithic Period (1700–1300 BCE).

across different cities in different areas of the Indus civilization, there are common elements; the evidence of interpersonal violence is among those common elements.

3.3 Post-urban Communities and Cities Outside the Core Indus Valley Territory are Similarly Diverse

A number of important cities are located outside of the core Indus River Valley, which has led archaeologists to expand their conception of the "core Indus territory" since their discovery post-Independence (1947 CE). Archaeological surveys have also located at least 106 Indus sites in the Sindh region of contemporary Gujarat and 239 sites in Cholistan, in northwest India (Possehl 2002: 50). The Mature Period (2600–1900 BCE) settlements in these regions maintain the typical features of Indus urban identity and material culture but they are far outside of the Indus Valley. Typically, these cities are located along the banks of (or in the beds of) rivers, tributaries, and canals leading off of the Ghaggar-Hakra river system (Singh et al. 2011). Many of these cities were really large, and they formed an integral part of the civilization (Kalibangan, Dholavira, Rakhigarhi). Some of them were smaller (Balathal, Farmana) but have yielded critical evidence as to mortuary variation.

3.3.1 Balathal

Balathal is one of the most fascinating sites in regard to mortuary behavior in the Indus Age despite having skeletal remains from only five individuals (Robbins et al. 2006, 2007, 2009). Of the handful of people buried at Balathal, three individuals were Early Historic and two were buried from the Mature Period, including one middle-aged man, approximately 45 years of age, with a severe case of leprosy (Robbins et al. 2009). This individual was interred inside a stone enclosure 500 m^2 (27 m × 37 m) at the eastern edge of the settlement. While the structure was said to resemble an Indus "citadel," it was empty except for stratified layers of vitrified cow dung ash that appeared to have accumulated after the dung was tossed in from the top of the wall and then periodically burned. At approximately 2.66 m down, in layer 7 of the NE quadrant, the middle-aged man with leprosy was laid directly on the surface in a tightly flexed burial. Higher layers in the sequence were undisturbed, suggesting the burial dates to 2500–2000 BCE.

The presence of severe mycobacterial infection at Harappan-era sites in the Thar desert of India, far from Harappa, supports the suggestion that these mycobacterial pathogens might have emigrated here as a consequence of the exchange network, migration, and contact (Monot et al. 2005; Pinhasi et al. 2006; Robbins et al. 2009). More interesting for this discussion is the mortuary behavior. The man with leprosy is the only known example of an individual interred in a stone enclosure of this magnitude and within layers of vitrified cow dung ash. In all likelihood this does not represent a tradition that was brought to Balathal from this individual's natal place (as it is unprecedented) but, rather, represents an attempt to ritually control or exert influence on this individual's journey to the afterlife (Robbins Schug 2016). It is not clear whether the burial is deviant in relation to necrophobia or if the mortuary treatment was to facilitate his journey after death; however, it should be noted that cow dung in Hinduism historically is the most purifying substance and is used to correct the deepest forms of spiritual corruption. This burial could suggest an exception to the concept of ritual and spiritual practice occurring within the

everyday spaces of life; rather in this case, the individual was secluded within a veritable fortress dedicated to his burial and entirely walled off from the everyday space of the city.

3.3.2 Dholavira

The site of Dholavira demonstrates important evidence of mortuary variation, traditions that maintained regular interaction among the living and the dead, and connections to everyday life in the city. This 70-hectare site was occupied in the post-urban, or Late Period (2000–1800 BCE). It is located in Gujarat, in a particularly challenging environment with infrequent and low volume of rainfall, and little opportunity for agricultural production although rain water storage and abundant marine resources made up for the harsh landscape (Bisht 2015). The site has a cemetery located southwest of the main town. The mortuary treatment here demonstrates even more diversity than other Indus sites. There are two primary burials, one in a grave and the other buried within the ruins of the lower town, but there are five additional types of burials at Dholavira that do not have parallels in any other Indus cities thus far excavated; however, similar mortuary monuments may be present in surrounding Harappan communities (which have yet to be systematically investigated) (Bisht 2015, p. 633). Remarkably, at Dholavira there are hemispherical monuments (or tumuli) here that are most similar to those found in Dilmun; rectangular rock-cut, cist, or built stone memorials; round or oval cairns; composite burials; and fractional, secondary burials.

Aside from the two primary burials and a few fractional burials, the site's mortuary complex is devoid of human remains. Although the 36 monuments in the western part of the cemetery that were excavated did not yield human remains, all were built above an underground pit in which there were funerary offerings: pottery, beads, gold, and jewelry. Like many graves containing skeletons at Indus sites, these pits were oriented North-South; the overlying monuments had orientation varying from North-South, East-West, or Northeast-Northwest. The archaeologists have suggested that perhaps these mortuary monuments were raised to honor the memory of those who died locally, but were disposed of in some other fashion. However, given the wide-ranging network of exchange, and the presence of so many foreigners in the cemetery at Harappa, it is also possible that these structures were constructed as monuments to those who died elsewhere, either in preparation for the eventual return of the remains, or perhaps with the knowledge that those remains would not return but necessitated acknowledgement of their death in a foreign place.

Archaeological evidence suggests the mortuary area at Dholavira was intimately tied to everyday life in the city. A long, wide path was built in the Bronze Age, which connected the top of the living city's outer wall to the tumulus. Two circular structures (Tumulus I and II) were built by Indus people, and archaeologists have suggested these resembled buried water reservoirs, located in the midst of the cemetery, with graves surrounding them to the north, south, and west. These are rock-cut chambers, surrounded by mud-brick structures in two tiers. In addition, six of the mortuary tumuli are arranged on the banks of another buried water body. Remote sensing was used to establish the function of this feature, which may have been a water storage facility, but additional investigation is required. Other evidence of ceremonial activity includes the painting of the cists or cists in cairns with red ochre. Some of these cists contained a small space, just large enough to seat a person, in which the archaeologists have suggested a priest or family

member might have inserted offerings (Bisht 2015, p. 639). In this case, the memorials to the dead were given a dedicated space but with concrete connection to the city in the form of passageways for pilgrimages and other interactions.

Finally, like the evidence from major Indus cities like Harappa and Mohenjo Daro, unlike these tumuli, the human remains at Dholavira were not confined to a mortuary area or necropolis, but were found within the habitation area itself. There was a skull stuck in a drain leading away from a structure known as "the castle," and some human remains were located on top of the defensive wall (Bisht 2015, p. 645). There are also graves located in the lower town itself, but these date to a time after the Mature Period ended.

3.3.3 Sanauli

Sanauli is located on an ancient oxbow lake bed near the Yumna River, about 80 km north of New Delhi. This cemetery (which is not associated with a settlement) dates to the post-urban, disintegration phase of the Harappan civilization (2000–1800 BCE) and is contemporaneous with Cemetery H at Harappa (Prabhakar 2012; Sharma et al. 2003, 2007). The first season of excavation, from 2005–2006 by DV Sharma, exposed 116 graves in what has been called the "classic Harappan tradition"—52 primary extended burials, which were primarily oriented Northwest-Southeast (head to the northwest), 35 secondary burials, and 29 symbolic burials (without skeletal remains). These were studied by Dr. SR Walimbe, who discovered that one double secondary burial contained two males (both aged 30–35 years), and one triple secondary burial contained the bones of three skeletons placed in anatomical position alongside one another. One cranium was placed upside down, and the other two were missing (Sharma et al. 2007). In fact, this Late Harappan cemetery demonstrates some of the range of variation typical of sites from this time and this mention of skulls being placed upside down in the grave suggests that the mortuary tradition was not so straightforward as "primary inhumations in a cemetery" but rather interaction after a period decomposition was part of the mortuary behavior.

However, an excavation conducted at this same site in 2018 uncovered some of the most spectacular mortuary diversity in this region of India. This excavation revealed a cemetery that connects the post-urban phase Harappan cemetery traditions described above and typical Late Harappan material culture—Harappan script, decorative motifs, figurines, ivory combs, carnelian beads—with (1) the ceramic styles of the so-called "Ochre Coloured Pottery (OCP) Culture" and (2) the copper and gold weapons, jewelry, and other adornments typically associated with "Copper Hoard Culture" of the eastern Gangetic Plains. While the mortuary traditions and material culture in the burials excavated at Sanauli in the initial round of excavation (2005–6) shared many features with other post-urban Harappan sites (Prabhakar 2012; Sharma et al. 2003, 2007), the more recent excavations by the Archaeological Survey of India in 2018, directed by S.K. Manjul, have yielded striking differences with what has been labeled the "Mature Harappan mortuary tradition" (Kumar 2019).

At Sanauli, archaeologists have found one grave that contained two four-legged coffins, the tops of which are decorated with carvings and which were covered with a thin plate of copper (Kumar 2019). This one very large grave also contained two chariots of wood and copper that were buried next to the coffins. The ceramics found in these burials are all from the OCP culture,

similar to the pottery found at Faizabad, Sultanpur, and Kalibangan (Kumar 2019). At Sanauli, weapons are also found in the burials, including antennae swords and other forms typically found in the "Copper Hoard Culture." While the mortuary treatment has been initially described (Kumar 2019), additional analysis and publications are eagerly awaited. The bioarchaeological analysis has yet to be performed, and this is a critical step toward understanding the site and its relationship to the Harappan civilization.

3.3.4 Kalibangan

The ancient small city of Kalibangan is another site occupied during the Mature Period and located in the northwestern region of Rajasthan, approximately 200 km southeast of Harappa and 300 km northwest of New Delhi. Kalibangan was excavated by the Archaeological Survey of India over nine field seasons beginning in 1959, and five cultural phases were delineated. The city was first occupied in the Early (2920–2550 BCE) and Mature (radiocarbon dates were 2550–2440 BCE) Periods (Allchin and Allchin 1982:159). At its height, the city probably included about 800–1000 residents (Possehl 2002, p. 173). The city was constructed of mud brick as well as stone. The Early Harappan Period settlement does not appear to have had a regular plan, but in the Mature Period settlement, the main thoroughfares are oriented in a North-South direction, with lanes running East-West in a fashion similar to Mohenjo Daro. The settlement pattern, with a mud-brick citadel on the western end of the site and a lower residential area to the east, has led some archaeologists to consider Kalibangan one of the provincial government centers of the Harappan civilization, like Harappa and Mohenjo Daro. This city was, however, much smaller than these other urban centers, with an estimated population size in the mature phase of 1000 inhabitants in the lower town (8.6 ha). The bricks had standardized dimensions (3,2:1) that differ from the standard associated with the Mature Harappan Phase in the Indus River Valley (4:2:1), but they were nonetheless standardized according to the Indus concept.

Like Harappa and unlike the other sites discussed above, the dead were interred in a formal cemetery, 300 m West-Southwest of the higher town, of 102 burials, most of which remain unexcavated (Possehl 2002, p. 173). Primary burials (n = 88) were in rectangular or oval pits, their bodies in an extended, supine posture (Sharma 1999). Grave goods included ceramics and decorative items. However, there were also secondary burials, which occurred in pots buried in round pits; "symbolic" burials contained only ceramics. Each tradition had its own demarcated geographical area in the cemetery, which could represent different communities within Kalibangan society or various social strata; the symbolic burials could represent individuals who died far from the city but whose families chose to mark their memory in the cemetery. Sharma (1999) also suggested that within each area there were spatially clustered burials that might represent familial units.

3.3.5 Rakhigarhi

Rakhigarhi (2600–2200 BCE) is located 150 km northwest of New Delhi. At a size of more than 2.2 km^2, it is one of the largest Harappan cities outside of the Indus River Valley, in India (Dibyopama et al. 2015; Nath 1999, 2001; Nath et al. 2014; 2015). Recent excavations at Rakhigarhi (Shinde et al. 2012; Shinde et al. 2018a) have yielded a large, well-preserved cemetery and in combination with excavations at Farmana (Shinde 2006; Shinde and Osada

2008; Shinde et al. 2011; Mushrif Tripathy and Shinde 2019), important new information about mortuary behavior and Harappan society in northwest India has been gained (Mushrif Tripathy and Shinde 2019; Shinde et al. 2018a, b; Woo et al. 2018).

Excavations here have demonstrated a cemetery, north of the settlement. The cemetery does not really have a single, monolithic mortuary tradition. Of 53 burials excavated here, 35 were primary interments of single individuals in rectangular graves, and the other 18 excavated burials were not treated in that manner (Shinde et al. 2018a). Bodies interred in single inhumations were primarily placed with their heads to the north; grave goods included ceramics and gold and bead jewelry. Thirty-six percent of individuals had different mortuary treatments (Shinde et al. 2018a).

Mortuary elements shared in common across Harappa, Rakhigarhi, Farmana, and Kalibangan include the designation of a formal cemetery apart from the city, the inclusion of pottery and other artifacts in graves, the apparently haphazard disregard for intrusion on earlier interments, graves oriented roughly North-South for primary interments, and the predominance of the extended, supine posture of skeletons (Kenoyer and Meadow 2016; Mushrif Tripathy and Shinde 2019; Sharma 1999; Shinde et al. 2018a).

All of the variants in mortuary treatment described as "atypical" at Rakhigarhi—brick-lined graves, multiple burials, secondary pot burial, burial of subadults, and bodies in a prone posture—are actually elements of mortuary behavior that have also been reported at Harappa (Kenoyer and Meadow 2016; Robbins Schug 2016, 2017; Robbins Schug and Blevins 2016; Robbins Schug et al. 2012, 2013, 2018; Sastri 1965; Wheeler 1953; Vats 1940). While these variants are less common, they are not unique, and with one-third of individuals falling into this category, they are not really "atypical."

Three individuals at Rakhigarhi were buried in a prone posture. One of the prone individuals was a young adult female in a brick-lined grave, while two others were young adult males. All these burials had a large quantity of fine ceramics, which the authors interpreted as indicating that high social status might have been ascribed to these individuals. In all three cases, there was no evidence of necrophobia or intentional disrespect. The prone burial posture is relatively rare worldwide, but has been described at Kalibangan (Sharma 1999) and in two burial areas at Harappa: cemetery R-37 (Kenoyer and Meadow 2016) and Area G (Robbins Schug et al. 2018). At Kalibangan, individual 29 was interred in a prone posture, over a bed of ceramics. Two Rakhigarhi burials also occurred on a bed of pottery, but the skeletons were not face-down. At Harappa, Kenoyer and Meadow (2016) state that all of the graves excavated in cemetery R-37 that contained single individuals were placed in a supine posture, except for one adult female (152a), who was buried in a prone position (Kenoyer and Meadow 2016). The description of this individual suggests the burial was disturbed, and the excavators were unsure if this posture was how the body was originally laid out or was a product of later disturbance, particularly given the positioning of her feet on her pelvis. Vats (1940) also excavated a prone burial at Area G at Harappa. In this area, the skeletal materials are located *below* a large deposit of ceramics, not above (Robbins Schug et al. 2018). In this trench, located southeast of the city wall around Mound E, there was also a collection of isolated post-cranial remains of humans and other animals and a single prone burial described in the section on Harappa above.

Shinde et al. (2018a) describe evidence for burial of eight subadult individuals at Rakhigarhi as "atypical" for an Indus city, but that practice is not in fact, atypical. Their report does not indicate subadults were treated differently other than that they had fewer grave offerings. Kenoyer and Meadow (2016) reported 15 subadult skeletons (under 16 years of age) in Cemetery R-37 at Harappa. Like Rakhigarhi, subadults buried in cemetery R-37 at Harappa also had no pottery and no ornaments. There were 33 subadults in the materials studied by Robbins Schug and colleagues (Robbins Schug and Blevins 2016; Robbins Schug et al. 2012, 2013) from the earlier excavations at Harappa: three from R-37, nine from Area G, six from cemetery H stratum I, and 15 from stratum II. The subadults in cemetery H were each buried with an adult female. What has been described as "atypical" at Rakhigarhi is in fact within the broad range of variation for Indus mortuary behavior if we approach the data honestly and abandon the notion of supine, single interments as a normative practice in the Indus Age.

3.3.6 Farmana

Farmana was an Early (3500–2600 BCE) to Mature Period (2600–2000 BCE) site located southeast of Rakhigarhi in the state of Haryana (Shinde 2006; Shinde et al. 2008, 2011). The site has a classic Mature Period cemetery, situated 900 m northwest of the site, where 70 primary, secondary and "symbolic" burials have been excavated (Mushrif Tripathy and Shinde 2019). All the graves (whether or not they contained a human burial) were rectangular in shape and cut large enough for an adult human body, but the graves vary somewhat in their orientation, North-South and Northwest-Southeast. Unlike other sites, at Farmana, ceramics were invariably placed near the head; copper jewelry and beads were also included in the burials. Skeletons were found in 30 of the primary burials, which were placed in a supine, extended posture. The burials were all single individuals with the exception of one double burial. Subadult individuals, as well as adult males and females were buried in the cemetery.

3.4 Discussion and Conclusion

Cities are social landscapes, providing opportunities for immigrants to engage in new forms of interaction, economy, and politics. In many cases, a heterogeneous urban immigrant community might seek to integrate themselves or their communities into a pre-existing social fabric: as Monica Smith writes,

"Because cities even in ancient times grew quickly through migration, there must have been many cases in which nearly everyone in a newly emergent city was a migrant or a first-generation offspring of migrants. Only when cities had been in place for some time would there have been any sense of established residents, and they would have been continually juxtaposed against more recent immigrants who brought with them their own social networks and settled in communities where they shared languages, customs, religion, or national backgrounds" (Smith 2014: p. 315). In the case of the Indus civilization, there were some Mature Period cities that developed from previously existing Early Harappa communities, at the type site of Harappa or at Kalibangan, for example. In other cases, like Mohenjo Daro, the city was built from the ground up and there was no pre-existing town on that precise spot. Everyone was an immigrant, tied to their natal communities and their own little traditions in their spiritual and ritual life.

The Indus civilization cities are paradoxical in an important way. The civilization is well known, on the one hand, for an unprecedented level of highly standardized city planning, sanitation and water management, weights and measures, seals and script in South Asia. On the other hand, we know the human population was comprised of a very diverse population of immigrants, people who moved to the cities in the tens of thousands upon their completion ca. 2500 BCE. The material culture was strongly uniform over the entire Indus territory, yet the population was highly heterogeneous (Kenoyer 2005; Possehl 2002; Shinde 2016; Wright 2010) and as has been demonstrates, the mortuary behavior also highly diverse.

The mortuary treatment suggests the city's inhabitants largely did not share ethnic or community membership, histories or sociocultural traditions, spiritual or ritual practices; nor did a common tradition emerge after centuries of urban habitation. Another striking feature I have tried to demonstrate is that mortuary ritual is not always confined to specific spaces in these settlements; instead, the living and the dead interacted and often shared urban settings, like streets, wells, or rooms. Many archaeologists have also wondered why there is no evidence for big public ritual facilities in Indus cities but perhaps that is because the relationships with god and goddesses were also maintained in highly individual or small-group based performances—interacting with terracotta figurines, in the making of the tiny stamp seals that portrayed religious figures or rituals, and in the painting of spiritual figures on ceramics—that occurred in diffuse locations throughout the city. No monumental religious architecture was required. Perhaps the urban landscape itself was fundamentally a space of both secular and spiritual interaction: migrants, traders, and local people lived and/or worked in this place, they experienced both the secular and the spiritual moments of their lives in these newly built environments. Perhaps the mundane streets and houses of the city itself contained spiritual meaning and memories.

The mortuary traditions found in Indus cities seem to reflect this idea of little traditions, the diversity of the cities and their people. This chapter clearly demonstrates that the major common feature of mortuary traditions across and within Indus cities is the heterogeneity of the treatment of human remains. Bodies and parts of bodies are not restricted to mortuary areas, but they can be found in residential and public areas as well as in cemeteries or necropolises. Clearly there was regular interaction with the dead. At Dholavira, the necropolis is a rare example of shared public ritual space. The grave sites of Harappa were regularly disturbed. This heterogeneity not only confirms diverse community memberships re-enacted in diverse ritual performances of death, but in some cases, explicit connections were being made to histories, people, and places far from Indus cities themselves. While the landscape of the city represented economic opportunities and a kind of proto-historic multicultural society of people with diverse identities, it was also a place devoid of shared spiritual meaning (memories, monuments, and religious spaces). The treatment of the dead was one arena for ritual and spiritual practice, and here the idea of diverse small traditions is confirmed.

In this chapter, I have presented one explanation for the heterogeneous mortuary behavior in Indus cities, for the lack of monumentality in general, and for the apparent lack of interest in deep integration or state-level control over any aspect of life not related to economic or organizational relationships. By extension, I also present a possible explanation for why it became so easy for so many to walk away from these cities once the commercial opportunities

folded in on themselves. Perhaps there was only a shallow degree of connectivity among the diverse inhabitants of these communities. When climate, economic, and other social changes made urban life untenable, their ties to kin in their natal villages, familiarity with other lifestyles in outside communities, and lack of deep ties to the city "enabled rural dwellers to seek 'safety in numbers' at times of … crisis and enabled urban dwellers to take advantage of rural economic opportunities and to disperse into the countryside when urban warfare, natural disasters, or epidemics made cities unappealing" (Smith 2014: p. 315) Although Smith was not speaking explicitly about the Indus context in this quote, it is remarkably applicable here.

Rather than wondering why people appear to have abandoned the cities and left behind all the "Indus traditions" (ceramic styles, script, weights and measures) at the end of the Mature Period (1900 BC), this model would suggest that shared features of the civilization were actually shallow in meaning and once the economic party was over, the inhabitants of the cities simply packed up and went back home, leaving all the artifacts of exchange behind. This model begs the question, if many of the individuals buried in the Indus cities are not "Indus people" but instead immigrants from places far afield, how should we define "Indus people" and in what far off places might we find them? Aside from the archaeological implications of this project, it might also seem to have contemporary relevance as understanding urban community dynamics becomes an important part of predicting migrant flows—and their implications for pathogen flows and other human health impacts—in the planning for a changing climate. Climate change will impact population sizes and mobility and migration is a principal biocultural response to changing environments; however, bioarchaeology demonstrates that not everyone moves in the face of environmental changes. It is the historical and sociocultural dynamics of human agency that determine diverse responses in human communities and the outcomes of those different strategies and bioarchaeology can provide a more nuanced view of who leaves and who might choose to remain.

References

Allchin, B., & Allchin, R. (1982). *The rise of civilization in India and Pakistan*. Cambridge: Cambridge University Press.

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

Brück, J. (1999). Ritual and rationality: Some problems of interpretation in European archaeology. *European Journal of Archaeology, 2*(3), 313–344.

Crumley, C. L. (1979). Three locational models: An epistemological assessment for anthropology and archaeology. *Advances in Archaeological Method and Theory, 2*, 141–173.

Crumley, C. L. (1995). Heterarchy and the analysis of complex societies. *Archeological Papers of the American Anthropological Association, 6*(1), 1–5.

Crumley, C. L. (2001). Communication, holism, and the evolution of sociopolitical complexity. In J. Haas (Ed.), *From leaders to rulers* (pp. 19–33). Boston: Springer.

Crumley, C. L. (2005). Remember how to organize: Heterarchy across disciplines. In W. W. Baden (Ed.), *Nonlinear models for archaeology and anthropology* (pp. 35–50). London: Routledge.

Dales, G. F. (1964). The mythical massacre at Mohenjo-daro. *Expedition Magazine, 6*(3), 36–43.

Danino, M. (2016). Aryans and the Indus civilization: Archaeological, skeletal, and molecular evidence. In G. Robbins Schug & S. R. Walimbe (Eds.), *A companion to South Asia in the past* (pp. 205–224). Boston: Wiley Blackwell.

Dibyopama, A., Kim, Y. J., Oh, C. S., Shin, D. H., & Shinde, V. (2015). Human skeletal remains from ancient burial sites in India: with special reference to Harappan civilization. *Korean Journal of Physical Anthropology, 28*(1), 1–9.

Gupta, P., Dutta, P. C., & Basu, A. (1962). *Human skeletal remains from Harappa* (p. 74). New Delhi: Anthropological Survey of India, Memoire.

Hallam, E., & Hockey, J. (2001). *Death. Memory and Material Culture*. Oxford: Berg.

Hemphill, B. E. (1991). Biological adaptations and affinities of Bronze Age Harappans. *Harappa Excavations 1986–1990: A multidisciplinary approach to Third Millennium urbanism* (Monographs in World Archaeology No. 3), 137–182.

Hemphill, B. E. (1998). Biological affinities and adaptations of Bronze Age Bactrians: III. An initial craniometric assessment. *American Journal of Physical Anthropology, 106*(3), 329–348.

Hemphill, B. E. (1999a). Biological affinities and adaptations of Bronze Age Bactrians: IV. A craniometric investigation of Bactrian origins. *American Journal of Physical Anthropology, 108*(2), 173–192.

Hemphill, B. E. (1999b). Foreign elites from the Oxus civilization? A craniometric study of anomalous burials from Bronze Age Tepe Hissar. *American Journal of Physical Anthropology, 110*(4), 421–434.

Hemphill, B. E., & Lukacs, J. R. (1991). Hegelian logic and the Harappan civilization: An investigation of Harappan biological affinities in light of recent biological and archaeological research. *South Asian Archaeology, 1991*, 101–120.

Hemphill, B. E., Lukacs, J. R., & Walimbe, S. R. (2000). Ethnic identity, biological history and dental morphology: Evaluating the indigenous status of Maharashtra's Mahars. *Antiquity, 74*(285), 671–681.

Kennedy, K. A. R. (1984). Trauma and disease in the ancient Harappans. In *Frontiers of the Indus Civilization* (pp. 425–436). New Delhi: Books and Books.

Kennedy, K. A. R. (1987). Reconstruction of trauma, disease and lifeways of prehistoric peoples of South Asia from the skeletal record. *South Asian Archaeology, 1984*, 61–77.

Kennedy, K. A. R. (1990). Reconstruction of trauma, disease and lifeways of prehistoric peoples of South Asia from the skeletal record. In M. Taddei (Ed.), *South Asian Archaeology 1987* (p. 61). Rome: Istituto Italiano per il Medio ed Estermo Oriente (IsMEO).

Kennedy, K. A. R. (1992). Biological anthropology of human skeletons from Harappa: 1928 to 1988. *Eastern Anthropologist, 45*, 55–85.

Kennedy, K. A. R. (2000). *God-apes and fossil men: Paleoanthropology of South Asia*. Ann Arbor: University of Michigan Press.

Kennedy, K. A. R. (2002). Biological anthropology of human skeletons from Harappa. *Indian Archaeology in Retrospect, 2*, 293–316.

Kennedy, K. A. R., Lovell, N. C., Lukacs, J. R., & Hemphill, B. E. (1993). Scaphocephaly in a prehistoric skeleton from Harappa, Pakistan. *Anthropologischer Anzeiger, 51*(1), 1–29.

Kenoyer, J. M., & Meadow, R. H. (2016). Excavations at Harappa, 1986–2010: New insights on the Indus Civilization and Harappan burial traditions. In G. Robbins Schug & S. R. Walimbe (Eds.), *A companion to South Asia in the past* (pp. 145–168). Boston: Wiley Blackwell.

Kenoyer, J. M., Price, T. D., & Burton, J. H. (2013). A new approach to tracking connections between the Indus Valley and Mesopotamia: Initial results of strontium isotope analyses from Harappa and Ur. *Journal of Archaeological Science, 40*(5), 2286–2297.

Kumar, V. (2019). A note on the Chariot Burials found at Sinauli district Baghpat U.P. *Indian Journal of Archaeology*. http://www.ijarch.org/Admin/Articles/9-Note%20on%20Chariots.pdf. Last accessed 3 June 2019.

Lee, H., Waghmare, P., Kim, Y., Hong, J. H., Yadav, Y., Jadhav, N., et al. (2019). Traumatic injury in a cranium found at Rakhigarhi cemetery of Harappan civilization as anthropological evidence of interpersonal violence. *Journal of Archaeological Science: Reports, 23*, 362–367.

Lovell, N. C. (1994). Spinal arthritis and physical stress at bronze age Harappa. *American Journal of Physical Anthropology, 93*(2), 149–164.

Lovell, N. C. (1997). Anaemia in the ancient Indus Valley. *International Journal of Osteoarchaeology, 7*(2), 115–123.

Lovell, N. C. (2014a). Additional data on trauma at Harappa. *International Journal of Paleopathology, 6*, 1–4.

Lovell, N. C. (2014b). *Skeletal paleopathology of human remains from cemetery R37 at Harappa, excavated in 1987 and 1988*. https://era.library.ualberta.ca/items/cb2eab00-d67b-4574-9e8ecfe54f2966bf. Last accessed 3 June 2019.

Lovell, N. C. (2016).. Bioarchaeology of the Indus Valley). In G. Robbins Schug & S. R. Walimbe (Eds.), *A companion to South Asia in the past* (pp. 169–186). Boston: Wiley Blackwell.

Lovell, N. C., & Kennedy, K. A. R. (1989). Society and disease in prehistoric South Asia. *Old problems and new perspectives in the archaeology of South Asia, 2*, 89–92.

Lukacs, J. R. (1989). Harappan dentition. *Pakistan Archaeology, 25*, 315–332.

Lukacs, J. R. (1992). Dental paleopathology and agricultural intensification in South Asia: New evidence from Bronze Age Harappa. *American Journal of Physical Anthropology, 87*(2), 133–150.

Lukacs, J. R. (1996). Sex differences in dental caries rates with the origin of agriculture in South Asia. *Current Anthropology, 37*(1), 147–153.

Lukacs, J. R. (2017). Dental adaptations of Bronze Age Harappans: Occlusal wear, crown size, and dental pathology. *International Journal of Paleopathology, 18*, 69–81.

Lukacs, J. R., & Hemphill, B. E. (1990). Traumatic injuries of prehistoric teeth: New evidence from Baluchistan and Punjab provinces, Pakistan. *Anthropologischer Anzeiger, 48*, 351–363.

Mackay, E. J. H. (1938). *Further excavations at Mohenjo-Daro: Text* (Vol. 1). Director General, Archaeological Survey of India.

Marshall, S. J. (1931). *Mohenjodaro and the Indus Valley civilization*. London: Arthur Probsthain.

Monot, M., Honoré, N., Garnier, T., Araoz, R., Coppée, J. Y., Lacroix, C., et al. (2005). On the origin of leprosy. *Science, 308*(5724), 1040–1042.

Mushrif Tripathy, V., Shinde, V., & Chakraborty, K. S. (2014). Preliminary findings on human skeletal remains from Harappan site of Farmana. *Iranian Journal of Archaeological Studies, 2*(2), 51–64.

Mushrif Tripathy, V., & Shinde, V. (2019). *Human skeletal assemblage from the Harappan site of Farmana: Bioarchaeological analysis*. New Delhi: Kaveri Books.

Nath, A. (1999). Further excavations at Rakhigarhi. *Puratattva, 29*, 46–49.

Nath, A. (2001). Rakhigarhi: 1999–2000. *Puratattva, 31*, 43–46.

Nath, A., Law, R., & Garge, T. (2014). Initial geologic provenience studies of stone and metal artefacts from Rakhigarhi. *Heritage: Journal of Multidisciplinary Studies in Archaeology, 2*, 74–100.

Nath, A., Walimbe, S. R., Garge, T. M., Mushrif Tripathy, V., Dehuri, R., & Malik, A. (2015). Harappan interments at Rakhigarhi, Haryana. *Man and Environment, 40*, 2.

Pinhasi, R., Foley, R., & Donoghue, H. D. (2006). Reconsidering the antiquity of leprosy. *Science, 312*(5775), 846–846.

Possehl, G. L. (2002). *The Indus civilization: A contemporary perspective*. Maryland: Rowman Altamira.

Prabhakar, V. N. (2012). *Burial practices of the Harappans: Sanauli Excavation–A Case Study*. Unpublished PhD. thesis. Kurukshetra: Kurukshetra University.

Raczek, T. P. (2003). Subsistence strategies and burial rituals: Social practices in the late Deccan chalcolithic. *Asian Perspectives, 42*, 247–266.

Robbins Schug, G. (2016). Begotten of corruption? Bioarchaeology and "othering" of leprosy in South Asia. *International Journal of Paleopathology, 15*, 1–9.

Robbins Schug, G. (2017). A hierarchy of values: The bioarchaeology of complexity, order, health, and hierarchy at Harappa. In H. D. Klaus, A. Harvey, & M. N. Cohen (Eds.), *Bones of complexity: Osteological indicators of emergent Heterarchy and hierarchy* (pp. 263–289). Gainesville: University Press of Florida.

Robbins Schug, G., & Blevins, K. E. (2016). The center cannot hold: A bioarchaeological perspective on environmental crisis in the second millennium BCE, South Asia. In G. Robbins Schug & S. R. Walimbe (Eds.), *A companion to South Asia in the past* (pp. 255–273). Boston: Wiley Blackwell.

Robbins Schug, G., Gray, K., Mushrif Tripathy, V., & Sankhyan, A. R. (2012). A peaceful realm? Trauma and social differentiation at Harappa. *International Journal of Paleopathology, 2*(2-3), 136–147.

Robbins Schug, G., Blevins, K. E., Cox, B., Gray, K., & Mushrif Tripathy, V. (2013). Infection, disease, and biosocial processes at the end of the Indus Civilization. *PLoS One, 8*(12), e84814.

Robbins Schug, G., Parnell, E. K., & Harrod, R. P. (2018). Changing the climate: Bioarchaeology responds to deterministic thinking about human-environmental interactions in the past. In J. Buikstra (Ed.), *Bioarchaeologists speak out* (pp. 133–159). Cham: Springer.

Robbins, G., Mushrif, V., Misra, V. N., Mohanty, R. K., & Shinde, V. (2006). Biographies of the skeleton: Palaeopathological conditions at Balathal. *Man and Environment, 31*(2), 50–65.

Robbins, G., Mushrif, V., Misra, V. N., Mohanty, R. K., & Shinde, V. S. (2007). Adult skeletal material from Balathal: A full report and inventory. *Man and Environment, 32*(2), 1–26.

Robbins, G., Tripathy, V. M., Misra, V. N., Mohanty, R. K., Shinde, V. S., Gray, K. M., et al. (2009). Ancient skeletal evidence for leprosy in India (2000 BC). *PLoS One, 4*(5), e5669.

Rosaldo, R. (1989). Introduction: Grief and a headhunter's rage. In R. Rosaldo (Ed.), *Culture and Truth: The remaking of social analysis*. Boston: Beacon Press.

Sarkar, S. S. (1972). *Ancient races of the Deccan*. New Delhi: Munshiram Manoharlal.

Sarkar, S. S. (1985). Human skeletal remains from Lothal. *Lothal—A Harappan port town 1955–62, 2*, 269–304.

Sastri, K. N. (1965). *New light on the Indus Civilization: Disposal of the dead, the Aryan problem and the Atharvaveda* (Vol. 2). Delhi: Atma Ram.

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

Sharma, D. V., Nauriyal, K. C., & Prabhakar, V. N. (2003). Sanauli: A late Harappan burial site in the Yamuna-Hindon Doab. *Puratattva, 34*, 35–44.

Sharma, D. V., Nauriyal, K. C., & Prabhakar, V. L. N. (2007). Excavations at Sanauli 2005–06: A Harappan necropolis in the upper Ganga-Yamuna Doab. *Puratattva, 36*, 166–179.

Shinde, V. (2006). *Harappan cemetery at Farmana. Excavations at Farmana: District Rohtak, Haryana, India,* 2008, pp. 550–673.

Shinde, V. (2016). Current perspectives on the Harappan civilization. In G. Robbins Schug & S. R. Walimbe (Eds.), *A companion to South Asia in the past* (pp. 127–144). Boston: Wiley Blackwell.

Shinde, V., & Osada, T. (2008). *A report on excavations at Farmana 2007–2008*. Kyoto: Research Institute for Humanity and Nature.

Shinde, V., Osada, T., & Kumar, M. (Eds.). (2011). *Excavations at Farmana, District Rohtak, Haryana, India, 2006–2008*. Kyoto: Indus Project, Research Institute for Humanity and Nature.

Shinde, V., Green, A., Parmar, N., & Sable, P. D. (2012). Rakhigarhi and the Harappan civilization, recent work and new challenges. *Bulletin of the Deccan College Research Institute, 72*, 43–53.

Shinde, V. S., Kim, Y. J., Woo, E. J., Jadhav, N., Waghmare, P., Yadav, Y., et al. (2018a). Archaeological and anthropological studies on the Harappan cemetery of Rakhigarhi, India. *PLoS One, 13*(2), e0192299.

Shinde, V., Lee, H., Yadav, Y., Waghmare, P., Jadhav, N., Hong, J. H., et al. (2018b). A young couple's grave found in the Rakhigarhi cemetery of the Harappan civilization. *Anatomy & Cell Biology, 51*(3), 200–204.

Singh, R. N., Petrie, C. A., Pawar, V., Pandey, A. K., & Parikh, D. (2011). New insights into settlement along the Ghaggar and its hinterland: A preliminary report on the Ghaggar Hinterland Survey 2010. *Man and Environment, 36*(2), 89–106.

Smith, M. L. (2012). Seeking abundance: Consumption as a motivating factor in cities past and present. *Research in Economic Anthropology, 32*, 27–51.

Smith, M. L. (2014). The archaeology of urban landscapes. *Annual Review of Anthropology, 43*, 307–323.

Srinivas, S. (2004). *Landscapes of urban memory: The sacred and the civic in India's high-tech city*. Hyderabad: Orient Longman.

Stutz, L. N. (2003). *Embodied rituals and ritualized bodies: Tracing ritual practices in late Mesolithic burials* (Acta Archaeologica Lundensia. Series in 8, 46).

Valentine, B. (2016). More than origins: Refining migration in the Indus civilization. In G. Robbins Schug & S. R. Walimbe (Eds.), *A companion to South Asia in the past* (pp. 187–204). Boston: Wiley Blackwell.

Walimbe, S. R. (2016). Human skeletal studies: Changing trends in theoretical and methodological perspectives. In G. Robbins Schug & S.R. Walimbe (Eds.) *A Companion to South Asia in the Past* (pp. 482–95). Chichester: Wiley-Blackwell.

Vats, M. S. (1940). *Excavations at Harappa* (Vol. 2). Delhi: Manager of Publications.

Wheeler, R. E. M. (1953). *The Indus civilization* (The Cambridge history of India; Supplementary volume). Cambridge: Cambridge University Press.

Woo, E. J., Waghmare, P., Kim, Y., Jadhav, N., Jung, G. U., Lee, W. J., et al. (2018). Assessing the physical and pathological traits of human skeletal remains from cemetery localities at the Rakhigarhi site of the Harappan Civilization. *Anthropological Science, 126*(2), 111–120.

Wright, R. P. (2010). *The ancient Indus: Urbanism, economy, and society, case studies in early societies*. Cambridge: Cambridge University Press.