

Human Skeletal Remains from Ancient Burial Sites in India: With Special Reference to Harappan Civilization

Astha Dibyopama¹, Yong Jun Kim¹, Chang Seok Oh², Dong Hoon Shin², Vasant Shinde¹

¹*Department of Archaeology, Deccan College Post Graduate and Research Institute, India*

²*Department of Anatomy, Institute of Forensic Science, Seoul National University, Korea*

(Received 1 January 2014, Revised 5 October 2014, Accepted 12 December 2014, Published Online 30 March 2015)

Abstract : Harappan Civilization is well known for highly sophisticated urban society, having been flourished in extensive regions of northwestern part of Pakistan and northeastern part of Afghanistan as its heyday around 4500 years ago. Most archaeologists agree on the periodization of this civilization as three different phases (Early, Mature and Late), which represent its cultural process of origin, development and decline. From the Harappan sites, one can note that there were about more than fifty burial sites discovered so far related with the civilization. In this article, we are trying to introduce the brief picture of the Harappan burials from the archaeological as well as anthropological perspectives.

Keywords : Harappan Civilization, Burial sites, Anthropology, Archaeology, Human skeletal remains

Introduction

Harappan Civilization (or Indus Valley Civilization, IVC) was named after Harappa village in Pakistan, the first archaeological site ever reported of the same civilization. The regions where Harappan Civilization flourished include Punjab province of India-Pakistan, Cholistan and Sind province of Pakistan, southeastern parts of Afghanistan, and modern Indian state of Haryana, Rajasthan and Gujarat (Fig. 1). Harappan materials were also reported from some sites of Gulf Region such as Ras al Jind in Oman and Hilli in Bahrain.

This civilization seems to have gradually developed out of the indigenous farming communities. About 2500 BCE, the communities became more unified culturally; and in

some places, people began laying out carefully planned cities. The Harappan people had developed well-planned cities with civic amenities such as civil hydraulic system along with highly sophisticated technology. Periodization of three phases is generally accepted for the Harappan culture among researchers: Early (3300 ~ 2600 BCE), Mature (2600 ~ 2000 BCE) and Late Harappan (2000 ~ 1700 BCE) periods. Each period suggests the cultural process having occurred in vast region of Indian subcontinent: the origin, development and decline of the Harappan Civilization [1].

Related with our interest especially for anthropology, the archaeological investigations have revealed the extensive human skeletons from burials of Harappan people. In fact, there are about more than fifty burial sites of the Harappa Civilization have been discovered so far, though smaller in number in comparison to that of settlement sites that are more than 2,000 in numbers. In this article, for the first time ever, we try to put together some representative Harappan burial sites with anthropological perspectives. Our current review could be meaningful to future studies on

The author(s) agree to abide by the good publication practice guideline for medical journals.

The author(s) declare that there are no conflicts of interest.

Correspondence to : Vasant Shinde (Deccan College, Post-Graduate & Research Institute (Deemed University) Pune-411 006, INDIA

E-mail : vshinde.dc@gmail.com

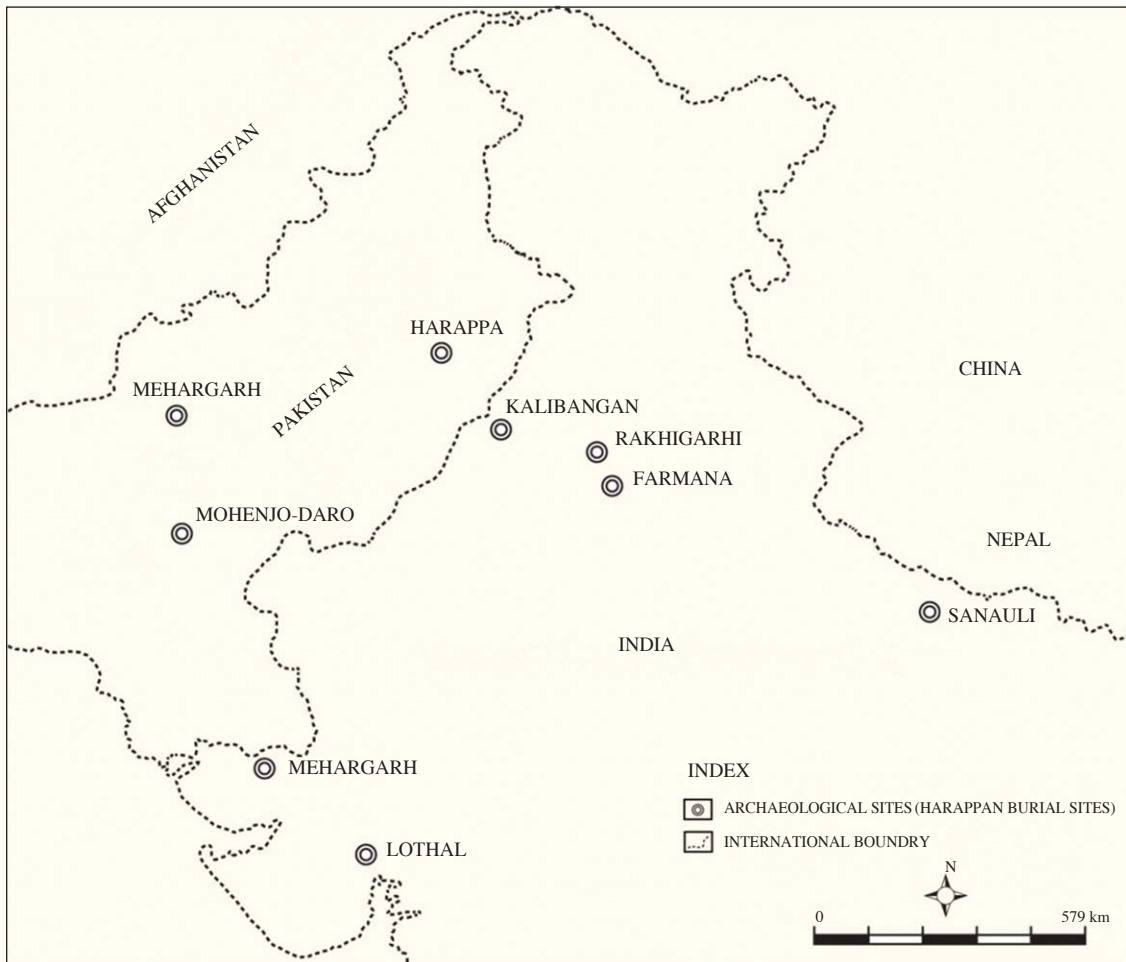


Fig. 1. Distribution of important Harappan sites in India and Pakistan with evidences of burial practice.

the human remains from ancient Harappan burials, considering that anthropological investigation into human remains of ancient civilization provide a great amount of invaluable data about the society itself.

Human Skeletons from Harappan Burial Sites

Harappan people used to bury the dead people in separate graveyards located within one kilometer or less from the habitation site [2]. However, its locality should not be easily detectable if archaeologists would not do extensive survey on it. Harappan people's humble funerary practice let archaeologists use relatively simple typological classification of burials. For providing the information on human

skeletons from Harappan Civilization, we will limit our discussion on chief Harappan sites which at first yield good burial site as well as are archaeologically important: Mehrgarh, Kalibangan, Lothal, Dholavira, Rakhigarhi, Harappa, Mohenjo-daro, Farmana and Sanauli.

1. Mehrgarh

The archaeological site of Mehrgarh is located in Baluchistan of Pakistan. It was discovered in 1974 by French archaeologists Jean-François Jarrige and Catherine Jarrige, and then had been excavated further in the years of 1974, 1986 and 1997~2000. Although this site is not so famous to non-specialists, its importance in Harappan archaeology is laid on its full stratigraphic sequence from agro-pastoralism to Harappan-Mature phase. This site has also so far the oldest evidence of burials made by Harappan people.

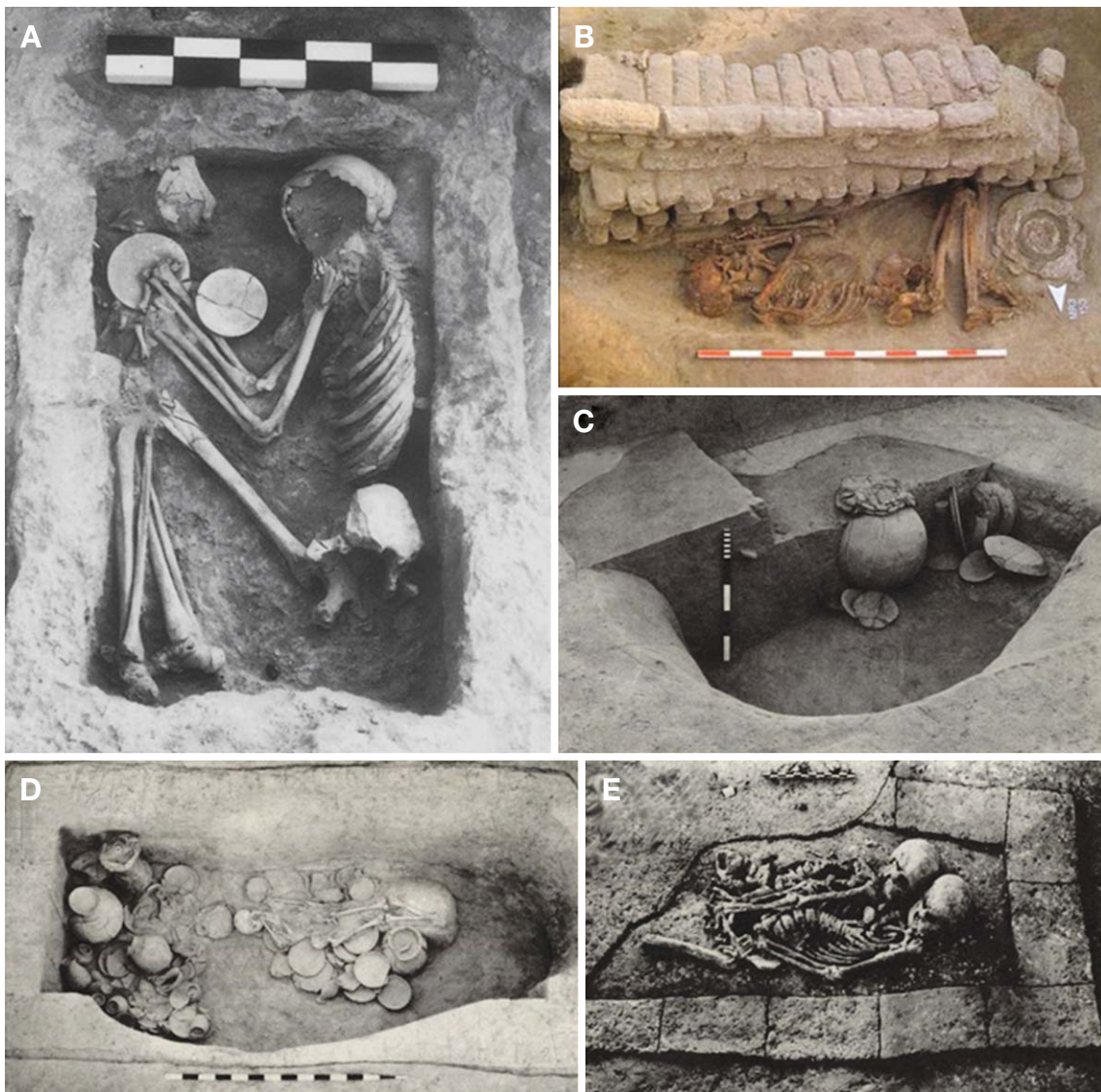


Fig. 2. Burials in different Harappan sites. (A) and (B) Burials at Mehrgarh site. (A) Burial in clay box (B) Mehrgarh burials, pit with side chamber closed up with mud bricks. (C) and (D) Burials found at Kalibangan site. (C) Pot Burial without Skeleton. (D) Kalibangan brick-lined grave. (E) A burial at Lothal site. A double burial inside brick lined grave.

From the Chalcolithic (copper-used but in primitive level) layer dated at 1st half of the 4th millennium BCE, 73 skeletons were found in the burials. Most of the graves were found close to the ground level due to the site formation; the bones were therefore found in a bad state.

The burials in Mehrgarh site can be divided into two different categories. First, there were *individual burials* where a single individual was enclosed in narrow mud walls (Fig. 2A). Next, *collective burials* have thin mud brick walls within which skeletons of six different individuals were discovered (Fig. 2B). The bodies in the *collective burials*

were kept in flexed position and were laid in east to west direction. Also interesting were child bones that were found in a large jar (or *urn burial*) (4000 ~ 3300 BCE). The grave goods from the burials were less in numbers; small carinated-pot, necklaces and pendants of lapis lazuli, turquoise, carnelian and steatite and in one grave copper compartmented seal [3].

2. Kalibangan

The site is located on the left riverbank of Ghaggar, in

the northern part of Rajasthan, about 310 km northwest of Delhi. Kalibangan means *black bangles* by local dialect because the countless fragments of black terracotta bangles found scattered over the site. An Italian scholar L.P. Tessitori discovered the site in the year of 1916 though he just took some small trenches to open the site at that time. In 1960~1969, Archaeological Survey of India (ASI) did subsequent excavation for the site in much larger scale [4]. The Harappan cemetery at Kalibangan is located at 300 meters to the *west south west* of the citadel area. The individual was placed in a supine position within rectangular and oval pit, which were sometimes lined with bricks. There were also empty pots buried in circular pit or the commemorative burials in big rectangular or oval pits, in which skeletal remains were not buried at all (Fig. 2C and D) [5].

3. Lothal

This site is located in the Delta of Sabarmati River, Gujarat. When S.R. Rao discovered this site, only habitation site was identified at first. However, the cemetery of Lothal was discovered later, as a result of systematic probing on the western periphery of the mound undertaken in 1958.

The cemetery was situated at the northwestern part of the habitation mound. Although the site was disturbed due to ploughing activities, 19 burial pits were unearthed until 1960. Since two other stray skeletons were also found in the cemetery area, the total number of skeletons found in this site was 21. Body orientation of skeletons from this site was mainly in north-south direction without any degree of variation. Only in a few cases, the head was tilted towards the east. Arms were kept pressed against the body while lying on its back. Quantities of grave goods were very poor from the site.

Single skeleton was discovered from most of the burials. However, there were also a few *joint burials* containing two individual skeletons in each burial. In fact, this is the only Harappan site where *joint burials* have yet been discovered (Fig. 2E). It should be also noted that *chopping marks* were noticed on the tibia collected from the cemetery site; and in another skeleton, skull and legs had signs of fractures. These signs might have been unique paleopathological findings, or possibly, a symbol of punishment [6].

4. Dholavira

This is an archaeological site of Kutch district in Gujarat

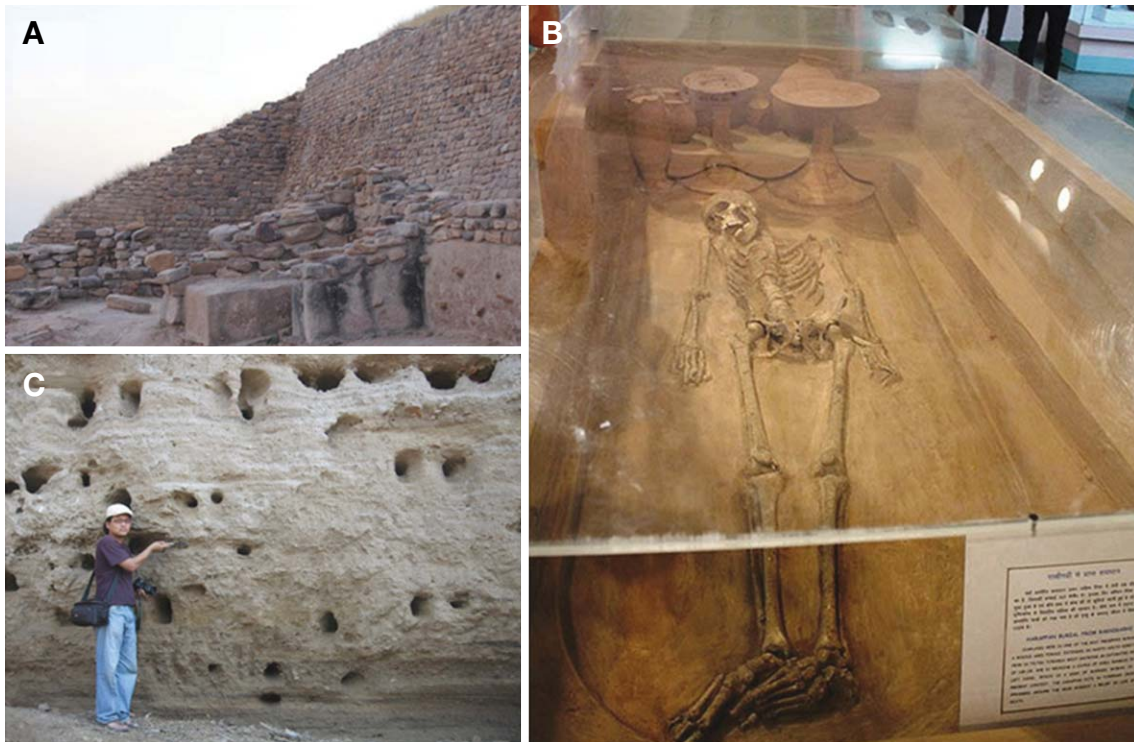


Fig. 3. (A) The Dholavira site. (B) Rakhigarhi site. (C) Harappan burial from Rakhigarhi site.

state of India. The site is the fifth largest Harappan site ever discovered in Indian subcontinent. It has been under the excavation of the ASI since the year of 1990 (Fig. 3A).

Interestingly enough, at Dholavira site, only one case could be identified as typical Harappan type burial. At the burial, the skeleton was placed in supine and in an extended position. A copper mirror has been found as burial good. Apart from this pit, there were also varieties of the graves, all of which were just *symbolic* in nature. The Dholavira site is also very famous for the *stupa-like mud-brick architecture* employed in construction graves. Although there were no skeletons inside any of them, the *stupa-like structure* is a very unique finding because the same kind of architecture has not yet been found in any other Harappan sites [7].

5. Rakhigarhi

It is a village in Haryana state of India, around 150 kilometers apart from Delhi. Acharya Bhagwan Dev was the first one to notice Harappan relics in this site. Since 1997, the ASI has undertaken a detailed excavation of the site, revealing the size of the lost city (at least 2.2 km²) and recovering numerous Harappan artifacts (Fig. 3B). Evidence of paved roads, drainage system, large rainwater collection, storage system, terracotta brick, statue production, and skilled metalworking has been uncovered. Jewelry, including bangles made from terracotta, conch shells, gold, semi-precious stones have also been found.

During the field excavations at Rakhigarhi in 1999~2000, a cemetery area was investigated (Fig. 3C). Eleven extended burials of primary inhumation type were found individually in oblong pit, with slightly raised head kept towards north and tilted towards east (with a few exceptions of westward tilting). Three female skeletons were exposed, showing the evidence of shell bangles in their left wrists. A miniature gold armband was also found near the elbow of a female skeleton. Apart from this, steatite beads were also noticed around the skull, worn as necklace [8].

6. Harappa

As mentioned above, Harappan Civilization was named after this type-site situated now in Pakistan. When Sir John Marshall and Daya Ram Sahani discovered it in 1921~1922, only habitation site was discovered there. However, in the year of 1927, cemetery site named as *Cemetery H*

came to light due to natural weathering. Later in 1987~1988, K.N. Sastri also discovered the *Cemetery R-37* at the same site [9].

Cemetery H (Late Harappan period) is located very near to the northwest area of Archaeological Museum of Harappa. It seems to have developed regionally out of the northern part of the Harappan Civilization around 1700 BCE. *Cemetery H* burials can be divided into two categories. First, archaeologists found more than 135 of *jar burials* in the place. This type of burial was used for the dead babies [10]. Skulls were touched one side of the jar wall while the long bones were placed horizontally, crossing each other in various position. These are mainly *secondary-fractional burials* containing only a few bones from a single person or sometimes from several individuals. Considering that *jar burials* were popular in agricultural society, the finding in large scale from sites of Harappa and Kalibangan may suggest many farmers might have resided at these two ancient cities.

Next, we also note *primary-pit burial* that is common among Harappan people buried in *Cemetery H*. The orientation of the skeletons of the *primary-pit burial* was north-east-to-southwest or sometimes west-to-east. Skeletons were generally laid in a side position with inflexed or extended legs. Only one skeleton is laid in a supine position. In most cases, arms were bending and hands were placed in front of the face though an exception was discovered in the case whose forearms crossed each other at the abdomen. In some cases animal bones were also found along with the human skeletons. Burial goods were of humble nature such as long-necked water jar, offering dish and flasks etc. [9].

On the other hand, as for *Cemetery R-37*, total 90 burials were unearthed from the site. The pits were mainly rectangular; and the skeletons inside are oriented in north-south direction. Maximum burials were extended with supine position of the body. Heads were generally placed towards north while legs were toward south. Bricks lined some of the graves whereas red-colored wooden coffins were found in the other graves. Potteries were discovered as burial goods in every grave. Apart from potteries, shell bangles, copper rings, steatite disc beads, Carnelian beads, Lapis, jaspers, micro beads are also found from the pits, mainly along with female skeletons.

7. Mohenjo-daro

This site is one of the largest settlements of Harappan Civilization ever discovered. It is an archaeological site in the province of Sindh, Pakistan. Rakhaldas Bandyopadhyay discovered this site as early as 1922. In the 1930's, major excavations were further conducted at the site under the leadership of Sir John Marshall, D.K. Dikshit and Earnest Mackay. The final major excavations had been done in 1964 and 1965 [11].

In contrast to its majestic urban sight, the well-organized cemetery from Mohenjo-daro has not yet been located. Instead, the most remarkable and controversial feature in Mohenjo-daro was many skeletal remains scattered in disarray throughout the ancient city. In fact, it is really strange that many skeletons were found in the street of Mohenjo-daro, but not being buried in any places there. Mortimer Wheeler thus associated the scene with the so-called *Aryan invasion* in the Sind region, a kind of tragedy causing the destruction of Harappan civilization [12]. However, the subsequent physical-anthropological study by Kenneth Kennedy has proved that they were not killed, but were died of some other calamities much later than Harappan time [13].

8. Farmana

This site is located in the Rohtak district of Haryana state. the excavation at the site was carried out in 2006~2009, by a team of Deccan College, Postgraduate and Research Institute (Pune, India; Supervisor, Dr. Vasant Shinde), under the collaboration with Research Institute of Humanity and Nature (Kyoto, Japan) and Maharshi Dayanand University (Rohtak, Haryana, India). The three season's excavation revealed two distinct Harappan phases: Early and Mature Harappan. A well planned structure and vast amount of archaeological data was also recovered as a result of the excavation.

During the second season of excavation (2007~2008), Farmana cemetery was also discovered. This was located in the northwest of the habitation site at a distance of 900 m (Fig. 4A). Excavation at Farmana cemetery has generated enormous data on the Harappan population. Total evidence of 70 burials has been traced so far from Farmana, being divided into three categories: primary (Fig. 4B), secondary (Fig. 4C) and symbolic burials (Fig. 4D). Most common orientation of the buried was the NW-SE in rectangular pits and numerous pots and jewellery were unearthed from these pits [14]. In the burials of Farmana site, archae-

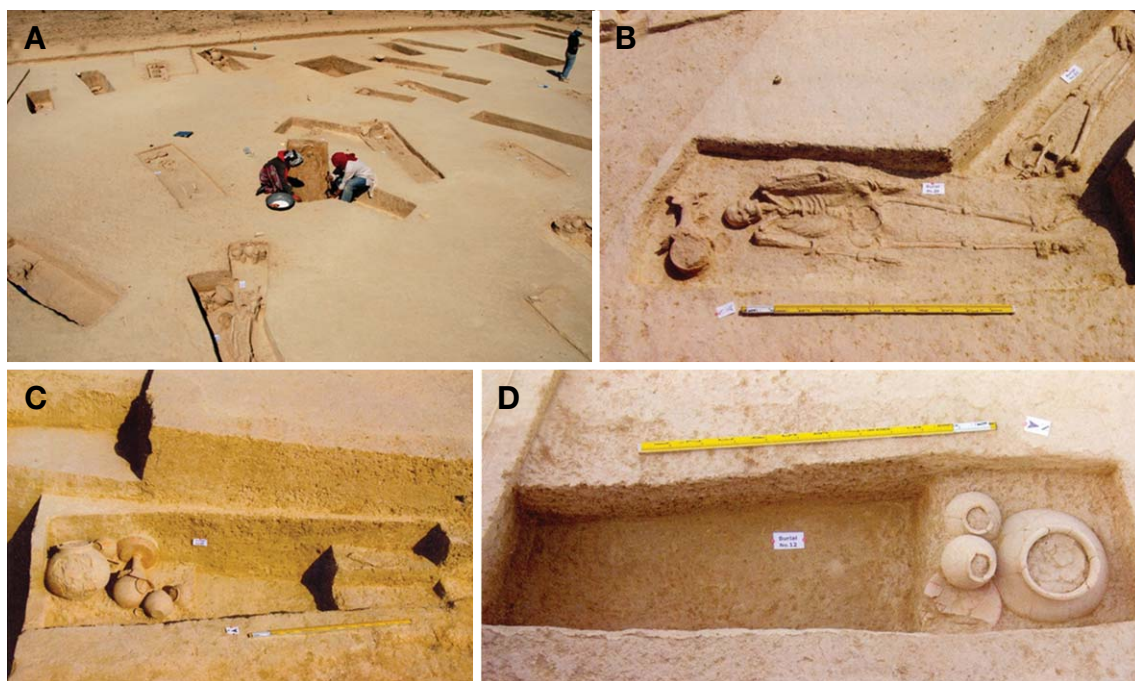


Fig. 4. (A) Harappan burials from Farmana Oriented either in N-S, NW-SE or NE-SW directions. (B) Primary burials from Farmana. (C) Secondary burials from Farmana. (D) Symbolic burials from Farmana.

ologists identified that the burials were composed of three different types based on their orientations. As for this finding, they interpreted that it gives an impression of the presence of at least three distinct groups in a settlement at Farmana [15].

9. Sanauli

The village Sanauli is located in the Baghpat district of Uttar Pradesh near Yamuna River. The archaeological mound was located at the area 8 km west of the village. The late Harappan habitation, as revealed by the pottery assemblage and associated skeletons, were found in agricultural field of the area. Only fragmentary bones could be collected from the site. In one case, a skull was observed laid towards the north, and the rest of body towards south [16].

Debates on Harappan People

From the perspective of anthropology, nothing is more important than studies on who were the inhabitants of Harappan civilization. Therefore, concerning biological affinities of the Indus valley inhabitants during Harappan period [17], we must note that there have been very hot debates among the related archaeologists and anthropologists. By anthropological researches over skeletal remains, some researchers claimed that two to four races might have been co-present in Harappan society. Any variation from these idealized types of races was explained as the result of admixture between pure races [18-24].

However, we could not make an easy conclusion on this hypothesis because researchers like Brian Hemphill and J. R. Lukacs thought differently. By research on cranial features of the skeletons from Harappan burial sites, they tried to assess the biological continuity or discontinuity among the peoples in regions. About the subject, they can give following speculation: early chalcolithic inhabitants of Mehrgarh and late Harappan inhabitants of *Cemetery H* in Harappa share close biological affinity. In fact, they could not deny the long period of *in situ* continuity of Harappan peoples' biological traits [25].

Although we agree the viewpoint of Hemphill and Lukacs in general, it could not be easily denied that the biological continuity also coupled with the occasional pulses of genetic input from outside either. We speculate that the genet-

ic input might have been conditioned by frequent trade of India, which could be further cemented by marriage alliances between the peoples in different areas. The first genetic exchange must have occurred from Neolithic period, between the Indus valley and the Iranian Plateau. During the 1st millennium B.C., the secondary genetic exchange based on seaborne trade could be identified. The trade routes appear to have shifted to a gradual introduction of new genes into the Indus valley and then neighboring lands [25]. In fact, the origin and continuity of ancient Indian people has been the one of the main subjects anthropologists worldwide have discussed about; and it will remain as such, for the time being in the future.

Conclusion

In this article, we attempted to project brief picture of burial tradition followed by the health and diet of the people of Harappan civilization. In fact, excavated Harappan burials are scanty in India and not much in-depth scientific research has been carried out on them, comparing with the Harappan habitation site [26]. But still the data available to us till date about the Harappan burial practices is quite helpful in reconstructing the different aspects of Harappan population, their life style, socio economic status etc.

We note that the evidence of human remains and burials of Harappan civilization provided substantial amount of information about the society. And forthcoming studies on human remains from Harappan sites will provide invaluable information on the health and disease status of the people from one of the oldest ancient civilizations around the world. In fact, considering that archaeological and anthropological information was always significant to each other, for getting the comprehensive knowledge about the ancient Harappan society, interdisciplinary collaboration between two research fields would be still necessary in the future.

References

1. Wright RP. The Ancient Indus: Urbanism, Economy and Society, Cambridge: Cambridge University Press; 2010.
2. Possehl G. Harappan Civilization: A recent perspective.

- New Delhi: American Institute of Indian studies; 1993.
3. Jarrige C, Jarrige JF, Meadow RH, Quivron G (eds.). Mehr-garh Field Reports 1974-85: From Neolithic times to the Indus Civilization. Parkistan: The Department of culture and Tourism government of Sindh; 1995.
 4. Sastri KN. A New Light on the Indus Civilization (vol. 2). Delhi: Atma Ram and Sons; 1965.
 5. Vats MS. Excavation at Harappa. Delhi: Government of India Press; 1940.
 6. Marshall J. Mohenjo-Daro and the Indus Civilization: Being an Official Account of Archaeological excavations at Mohenjo-daro carried out by government of India between the years 1922 and 1927, Delhi: Indological Book House; 1973.
 7. Wheeler M. The Indus Civilization. Cambridge: Cambridge University Press; 1953.
 8. Kennedy KAR. A reassessment of the theories of racial origins of the people of Indus Valley civilization from recent anthropological and archaeological data. 6th Wisconsin, conference on South Asia, Madison; 1977.
 9. Lal BB, Jagat Pati Joshi BK, Thapar MB. Excavations at Kalibangan: The Early Harappans (1960-1969), 1st ed. New Delhi: Archaeological Survey of India; 2003.
 10. Sharma AK. The Departed Harappans of Kalibangan. New Delhi: Sundeep Prakashan; 1999.
 11. Rao SR. Lothal, New Delhi: The Director General of Archaeological Survey of India, India; 1985.
 12. Bisht RS. Dholavira: New horizons of the Indus civilization. Purattatva 1991; 20:71-82.
 13. Nath A. Rakhigarhi: A Harappan Metropolis in the Saraswati-Drishadvati Divide. Purattatva 1998; 28:39-46.
 14. Shinde V, Osada T, Uesugi A, Kumar M. Harappan Necropolis at Farmana in the Ghaggar Basin. Special Report No. 4. New Delhi: Indian Archaeological Society; 2010.
 15. McIntosh JR. The Ancient Indus Valley: New Perspectives, California: ABC-CLIO; 2008.
 16. Sharma DV, Nauriyal KC, Prabhakar VN, Kant V. Sanauli: A Late Harappan Burial Site in the Yamuna-Hindon Doab. Purattatva 2004; 34:35-45.
 17. Kennedy KAR, Possehl GL. Were There Commercial Communications between Prehistoric Harappans and African Populations? Adv Anthropol. 2012; 2:169-80.
 18. Guha BS, Basu PC. Report on the human remains excavated at Mohenjodaro in 1928-29. E.J.H. Mackay (ed.). Further excavations at Mohenjodaro (vol. 1), New Delhi: Government of India Press; 1938. p. 613-38.
 19. Gupta P, Dutta PC, Basu A. Human skeletal remains from Harappa, Calcutta: Anthropological Survey of India, 1962; 9:3-186.
 20. Dutta PC. The bronze age Harappans: A reexamination of the skulls in the context of population concept. Am J Phys Anthropol. 1972; 36:391-6.
 21. Krogman WM, Sassman WH. Skulls found at Chanhudaro. E.J.H. Mackay (ed.). Chanhudaro excavations 1935-1936. New Haven: American oriental society, 1943; 253-63.
 22. Kumar GD. Ethnogenesis of the Indus Valley population. Field research project report 47, Coconut Groove: Florida; 1971.
 23. Sarkar SS. The aboriginal races of India, Calcutta: Bookland; 1954.
 24. Sewell RBS, Guha BS. Human remains. J. Marshall (ed.). Mohenjodaro and Indus civilization. London: Arthur Probsthan; 1931, 599-648.
 25. Hemphill B, Lukacs JR. Hegelian logic and the Harappan civilization: An investigation of Harappan biological affinities in light of recent biological and archaeological research. South Asian Archaeology; 1991. p. 101-20.
 26. Wallimbe SR, Tavares A. Human Skeletal Biology: Scope, Development and Present Status of Research in India, in Recent Studies in Indian Archaeology, Paddayya K (eds.). Indian Council of Historical Research, New Delhi: Munshiram Manoharlal; 2002. p. 367-402.

고대 인도 하라파 문명 무덤에서 얻어진 사람뼈 연구 현황

아쉬타 디비오파마¹, 김용준¹, 오창석², 신동훈², 바산트 신데¹

¹데칸대학 고고학부, 인디아

²서울대학교 의과대학 해부학교실, 대한민국

간추림 : 하라파 문명은 인더스강 유역의 넓은 지역에 걸쳐 고도의 문화를 꽃피운 인류 4대 문명의 하나로서 극히 세련된 도시생활을 특징으로 하며 그 문명의 성쇠에 따라 전 기간을 조기, 성숙기, 만기의 셋으로 나누고 있다. 하라파 문명과 관련된 고고학 유적에서는 많은 숫자는 아니지만 무덤 유적이 확인되어 이로부터 사람뼈가 수습되기도 하는데 이에 대해서는 현재 기초적인 조사가 수행되어 있지만 더 많은 연구가 아직 필요한 실정이다. 이 논문에서는 사람뼈가 발견된 대표적 하라파 문명 유적지를 소개하고 현재까지 얻어진 관련된 성과를 살펴봄으로써 앞으로의 연구에 도움이 되고자 한다.

찾아보기 낱말 : 하라파 문명, 무덤, 인류학, 고고학, 사람뼈