
Settlement Archaeology of Balathal and Gilund with Special Reference to Architecture and Site Planning

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Abstract: *The Ahar-Banas chalcolithic culture complex (c. 3600BCE – 1500BCE) is the most famed of the non-Harappan chalcolithic culture of western India and this culture is particularly noted for its incipient urbanisation stage. Two of the majorly excavated chalcolithic sites namely Balathal and Gilund have provided remarkable structural remains including both public and domestic architecture. Present work has focused on micro-level settlement of Balathal and Gilund along with the developmental phases of chalcolithic architecture, functions of the structures, site organisation, management and defence mechanisms, and to understanding the development of structures in the context of adjacent landscape. It also attempts to compare the structure from both the sites and see whether there can be a structural interpretation on a generic basis for Ahar culture sites.*

Keywords: Gilund, Balathal, Rajasthan, Chalcolithic Culture, Settlement Archaeology, Architecture, Site Planning

Introduction

The chalcolithic culture of south-east Rajasthan was named Ahar culture (Sankalia 1969:216) after the site where it was first discovered. This Ahar culture (Figure 1) also known as Ahar Banas culture (Sankalia 1969:216) was discovered by R.C. Agrawal of the Rajasthan State Department of Archaeology in the 1950s. The Aharian were considered as the first farmer of Rajasthan (Misra 2007:154). This culture flourished on the river Banas and her tributaries like Berach, Kothari, Khari, Dai, Sodar and Mashi (Misra 2007:156-57). The Ahar culture was dated from c.3600BCE to c.1500BCE (Sarkar 2012-13:139). Around 111 sites (Misra 2007) of Ahar culture are reported till date among them excavated are Ahar (Sankalia *et al.*, 1969), Balathal (Misra 1997), Ojiyana (Meena B.R. *et al.*, 2000), Purani Marmi (Mohanty *et al* 1999-2000), Gilund (Shinde *et al.*, 2014), Pachamta and Chhatrikhera (Raczek *et al* 2015) . The culture is unique in the sense that being a regional chalcolithic culture it reached a proto urban phase when compared to other regional chalcolithic cultures of India which are primarily rural in nature. It has produced beautiful ceramic repertoire (Mishra 2008), seal impressions

(Ameri, 2010) apart from impressive structural finds. The most distinct aspect of the architecture, as well as site planning uncovered at these two sites, is that the developmental phase in the mature period shows the proto-urban level of development. This is, however, absent in other regional chalcolithic culture in India which are mostly rural in nature. The Ceramics of the Ahar culture always pointed out the striking similarities with the Harappans. The architecture and site planning also have some similarity with Harappan Cultural sites. The description of architectures uncovered from major excavated sites has been discussed by V. N. Misra (2007). However, an understanding of these structures both public and domestic, their interrelationship with each other and their placement within the context of the landscape of the site has not been studied. Thus, settlement planning in these individual sites has never been looked into. Structures play a very important role in understanding the history of a particular culture or the site. It also helps us to understand the social and economic aspect of a particular culture.

Chalcolithic Structural Evidence from the Site of Balathal and Gilund

Balathal: The village Balathal (24° 42' 99" N and 73° 58' 59.99" E) is located in Vallabhnagar tehsil of Udaipur district, Rajasthan, India. The archaeological site is located on the eastern margin of the present village of Balathal. The site of Balathal was excavated from 1994 to 2000 jointly by Deccan College Post Graduate and Research Institute and the Institute of Rajasthan Studies, Rajasthan Vidyapeeth, Udaipur under the direction of V.N. Misra. The date of Balathal falls in the bracket of c.3300BCE to 1800BCE (Table 1) (Misra 2007; Sarkar 2011:457).

Table 1: Chalcolithic Cultural Chronology of the Site (Sarkar 2011:457)

Layer	Cultural Chronology	Calibrated Range
21-18	Early Chalcolithic	c.3300-2600BCE
17-15	Matured Chalcolithic	c.2600-2200BCE
14-13	Late Chalcolithic	c.2200-1800BCE

At the site of Balathal total 16 chalcolithic structures were unearthed, that are 14 domestic structures, one outer Boundary wall and the fortified enclosure. The excavator has divided these structures into Public and Domestic. Furthermore, the domestic structures were divided into eight structural phases- I to VIII (Misra 2007:169-174). In this paper, an attempt has been made to put these structures under Early, Mature and Late Chalcolithic phases following Table 1.

Construction Material and Techniques: Principal materials used for construction on the site of Balathal were stone, mud bricks and mud. The foundation of the houses was laid by stones and walls were made of mud, mud bricks and stones. The floor of the houses was made of silt, rubbles and pebbles. Sometimes the walls and floors of the houses were plastered with clay and cowdung. The roof was probably made of wooden beams and rafters, capped by mud in case of massive structures and thatched

for small structures (Misra 1997:256). Locally available granite and gneiss rock were used for the construction. Since loose stone was not available they were quarried from locally available rock (Misra 1997:256). Stones were minimally dressed except in few cases.



Figure 1: Map showing excavated sites of Gilund and Balathal (Sarkar 2011)

List of the Structures found at the site of the Balathal

- o Public structures: Fortified Enclosure (Figure 2) and Outer boundary wall
- o Domestic Structures: Divided into Early, Mature and Late Chalcolithic

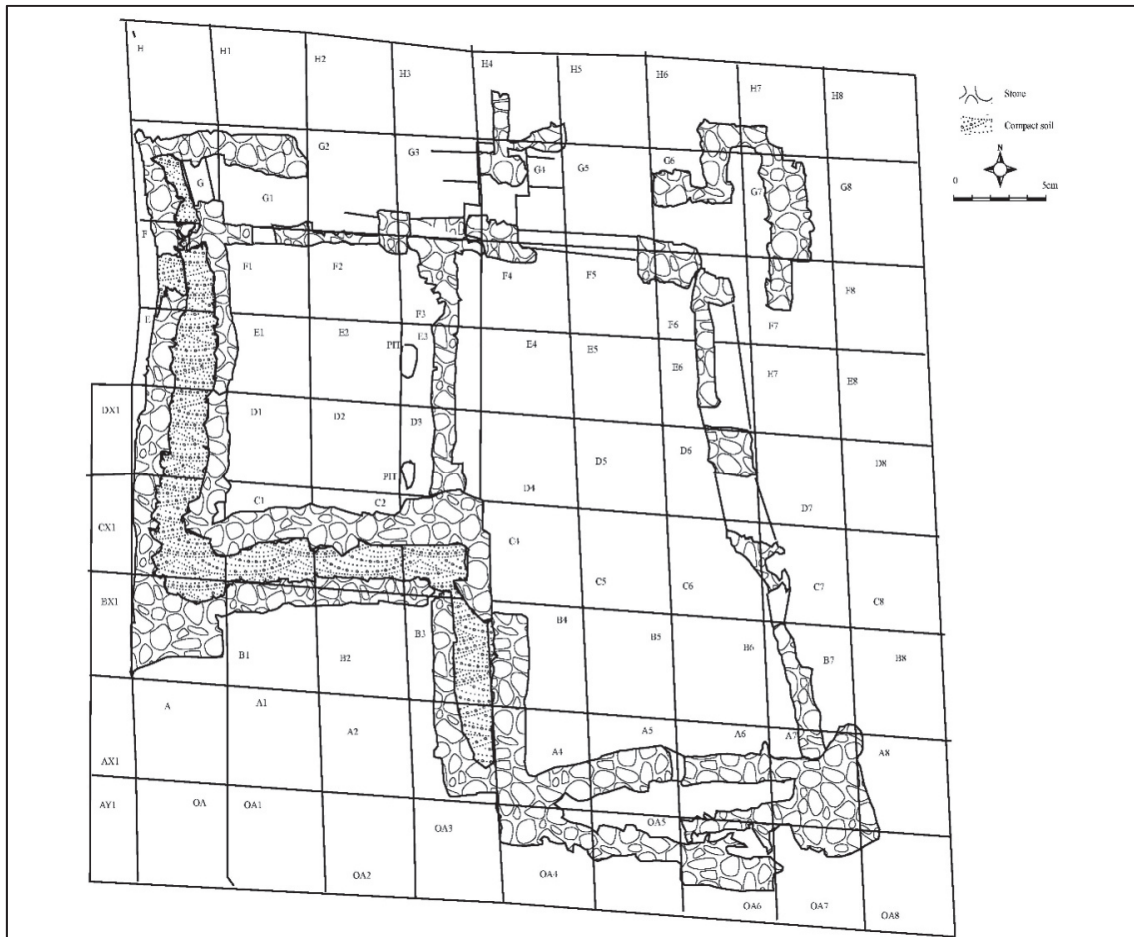


Figure 2: The Fortified Enclosure, Mature Period from the Site of Balathal

Early Structures: Although there is no conclusive evidence of structures from these level, however, Misra has mentioned about the probable presence of wattle and daub structures with well-made floors and circular huts with 2 m diameter. Presence of post holes was reported which indicates that walls were supported with wooden posts.

Mature Chalcolithic: Ten structures found. St.5, St.6, St.8, St.9, St.10 (Figure 3), St.11(Figure 4), St.13(Figure 4), St.14 (Figure 4), St.15(Figure 4) and St.32.

Late Chalcolithic: Four structures were uncovered. St.16, St.23, St.24 and St.25.

Gilund: The ancient habitation mound of Gilund (25°01'56" N and 74°15'45" E) is located in Rajsamand district, Rajasthan, India. Gilund was first excavated by B.B.Lal of the Archaeological Survey of India (IAR 1959-60). In his first excavation report he has referred to the site as Bhagwanpura, but currently, it is named after the nearby contemporary village Gilund. The site was again excavated jointly by Deccan College Postgraduate and Research Institute Pune, and the University of Pennsylvania, under the direction of Prof. Vasant Shinde and Late Prof. Gregory L. Possehl from the year 1999 to 2005. The dates of Gilund falls in the bracket of c.3200BCE to 1700BCE. (Shinde *et al.* 2014).

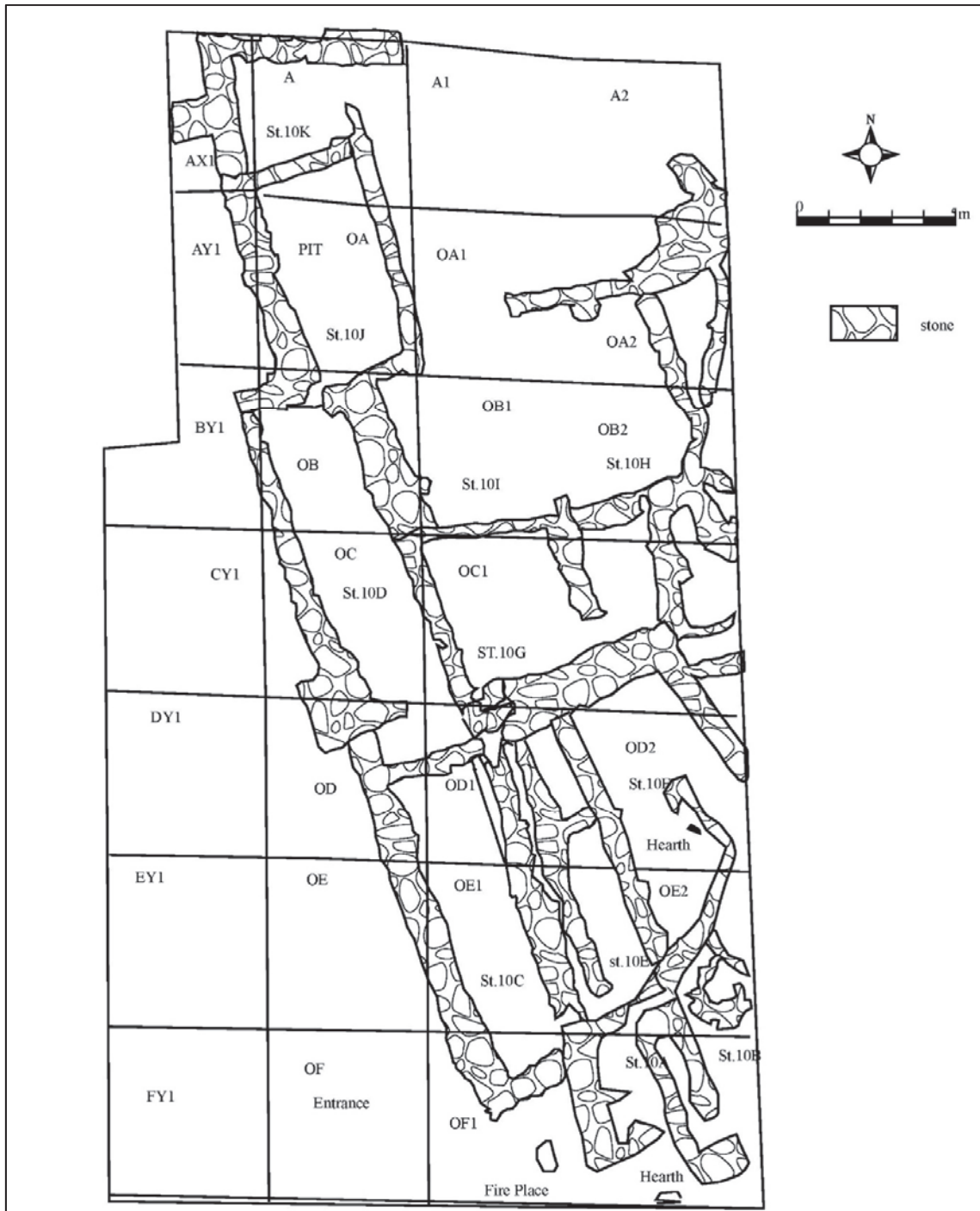


Figure 3: Structure No. 10 (11 roomed Structure), Mature Chalcolithic from the Site of Balathal

Table 2: The Chalcolithic Cultural Chronology of Gilund (Sarkar 2012:139-151)

Layer	Cultural Chronology	Calibrated Range
29-26	Early Chalcolithic	3200-2600BCE
22-14	Matured Chalcolithic	c.2600-2000BCE
13-7	Late Chalcolithic	c.2000-1700BCE

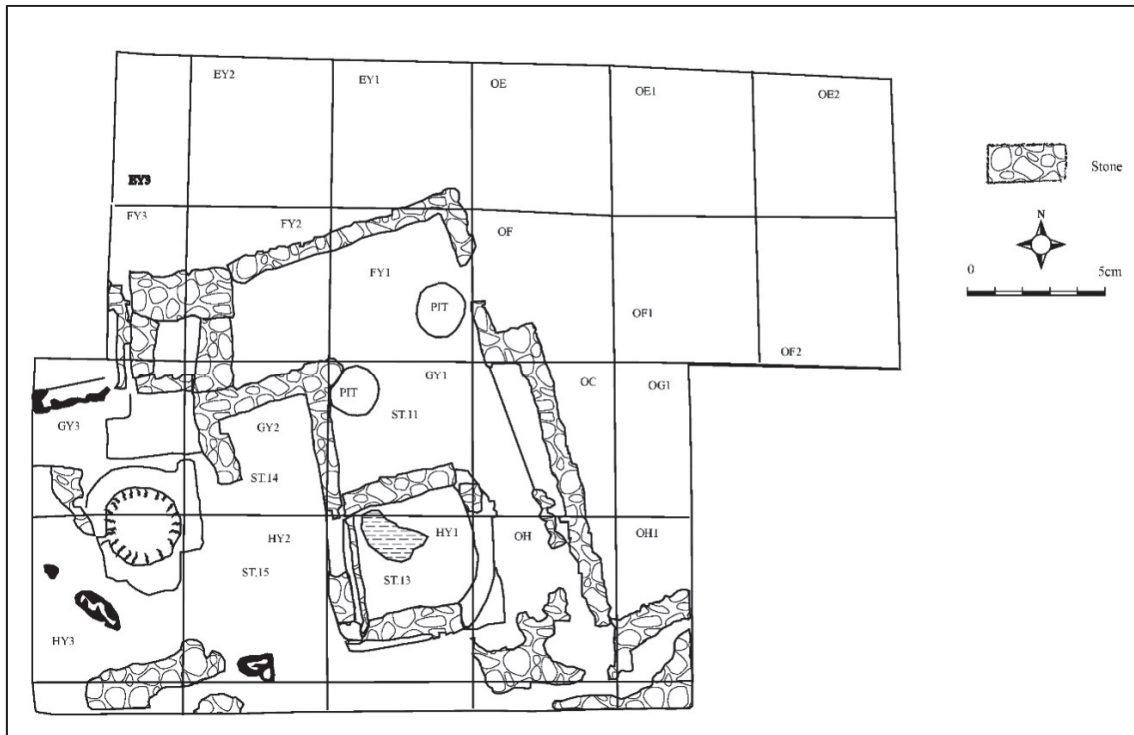


Figure 4: Structure No. 11, 13, 14, 15 Mature Chalcolithic from the Site of Balathal

The site of Gilund is divided into of two mounds named GLD-1 and GLD-2. There are total 17 structures uncovered from the site. The five mature chalcolithic structures were uncovered at GLD-1. GLD-2 was divided into Area I to IV.

Construction Material and Techniques: The structures were mainly made of mud-bricks set in mud mortar. Almost all domestic structures gave evidence of well-made floors plastered with cow dung and mud. Wattle and daub houses were also noticed. No structures were reported from Early Chalcolithic in Gilund.

Following is the list of structures uncovered from the site of Gilund.

- o Structural remains on GLD-1: St.1, St.2, St.3, St.4 (associated feature: Tandoor), St.5 (associated feature circumference wall).
- o Structural remains on GLD-2 (Area I):

Late Chalcolithic: St.2, St.3(Figure 5), St.4 (Figure 6), St.5 (Figure 7), St.6, St.8 (associated feature storage bin, storage building and two storage platform).

Mature Chalcolithic: St.7 (associated feature 9 pits) and Parallel-wall mud brick structural complex (Figure 8).

- o Structural remains on GLD-2 (Area III): St.9, St.10, Circumference wall on the east side of GLD-2 and Circumference wall in trenches 206, 207 and 208.
- o Area IV: St.11, St.12, two armed hearths, the kiln in trench 310, burned brick wall.

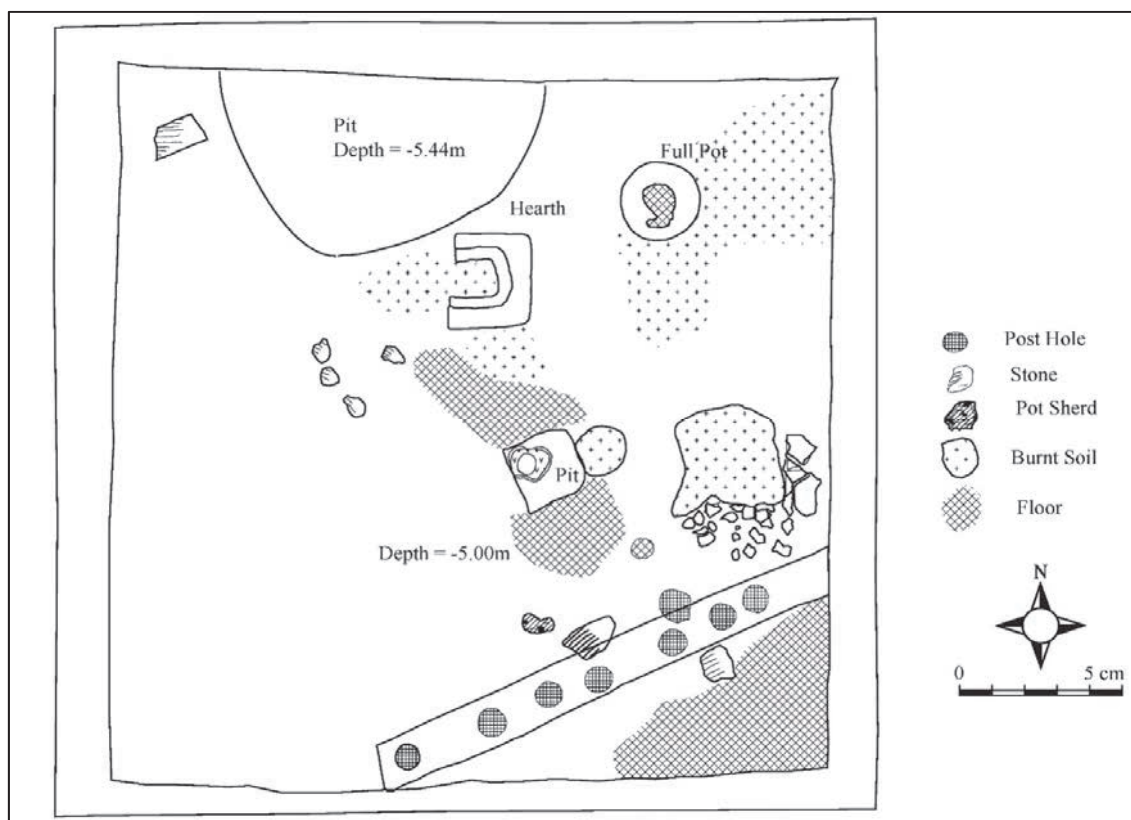


Figure 5: Structure No.3 GLD-2 Late Chalcolithic from the Site of Gilund

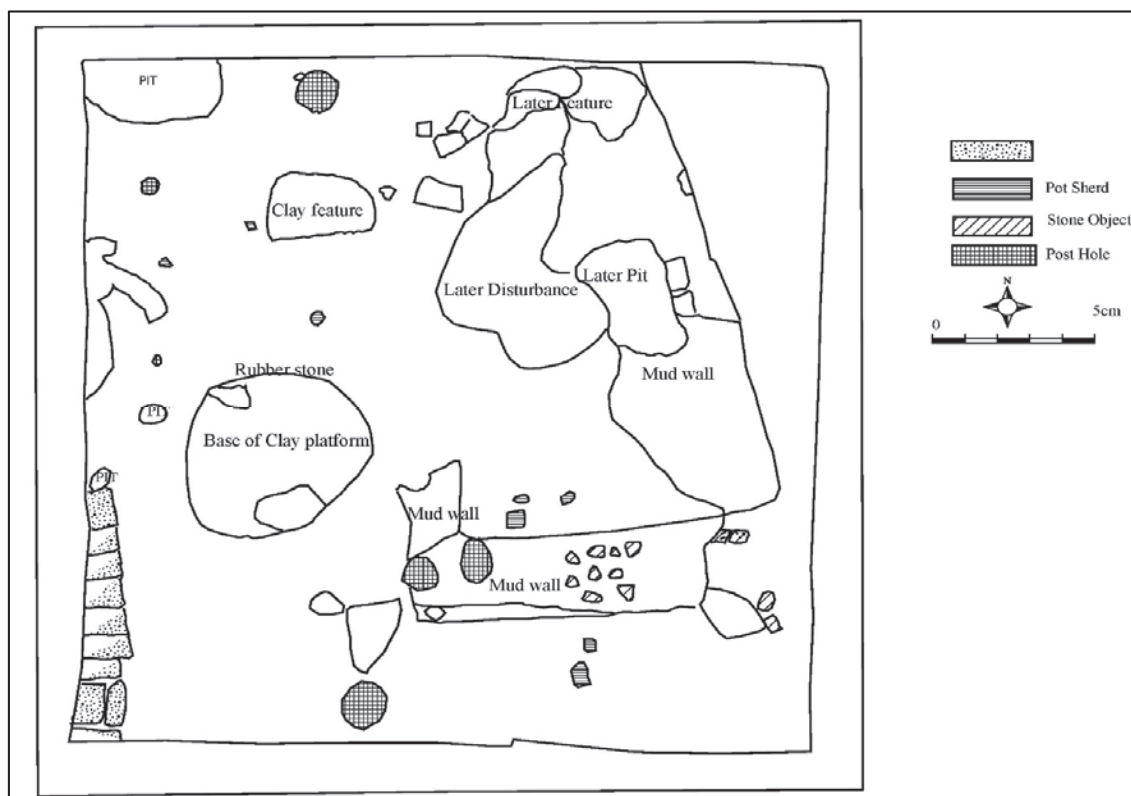


Figure 6: Structure No.4 GLD-2 Late Chalcolithic from the Site of Gilund

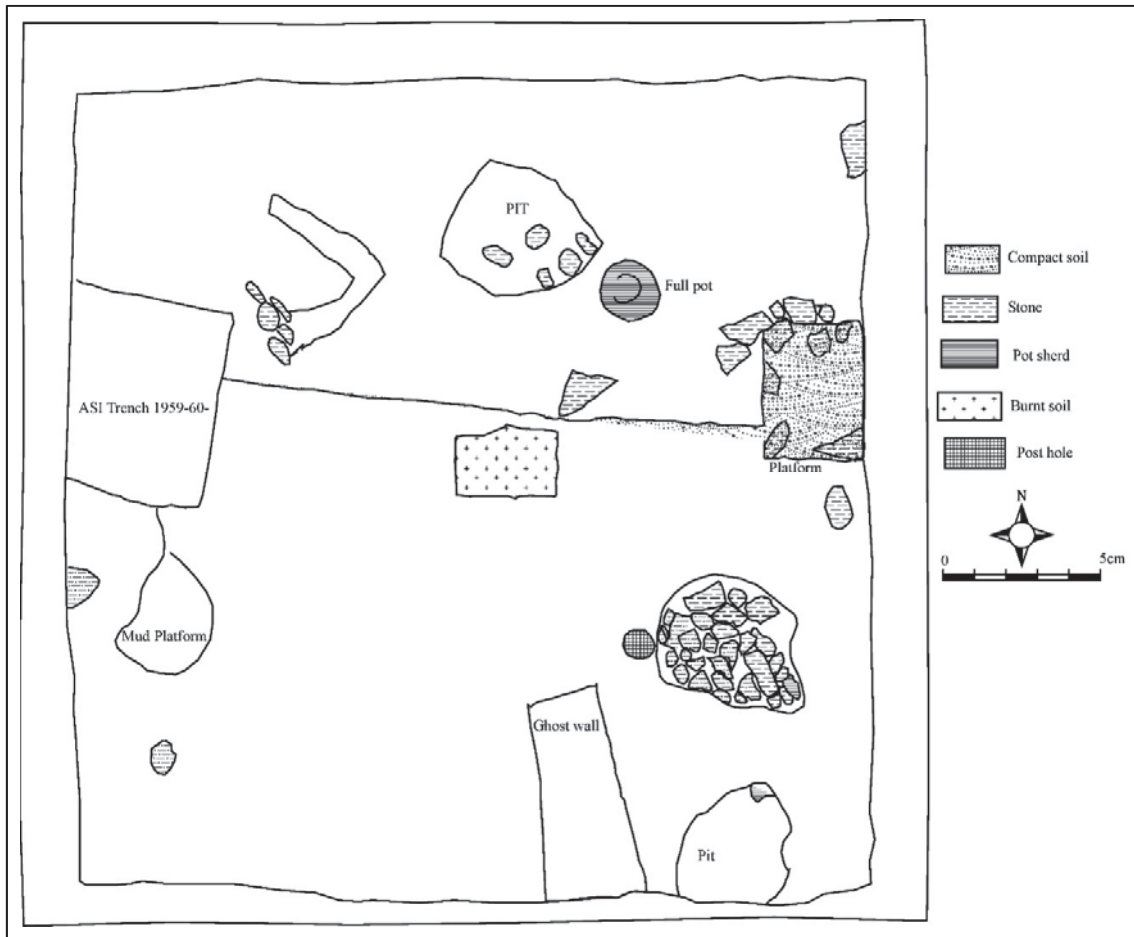


Figure 7: Structure No.5 GLD-2 Late Chalcolithic from the Site of Gilud

Structural Development at Balathal and Gilund

Balathal: Balathal shows the evolutionary sequence from early to late phase. In the early phase, the nature of the structure is fragile represented by circular small huts with an average diameter approximately 2m. Mainly these houses were either made of mud or wattle and daub (Misra 2007:169) with the thatched roof. However, there are few pieces of evidence of structures made of mud bricks and stones towards the later period of the early phase which shows a gradual development in building technology.

In the mature phase, we have ten structures uncovered roughly rectangular or square in shape. No circular huts were noticed. The foundations were laid on semi-dressed stones, well-made floors rammed hard with brown silts. Many of structure's walls and floors were plastered with clay or cow dung. In mature phase, we have the evidence of structural complex varying in size- initially starting with three rooms (St. 11 which enclosed the st. 13, 14 and 15) (Figure 4) and then reaching upto eleven rooms during later phase (St. 10) (Figure 3). These varying sizes of structures might indicate the presence of a stratified society where the smaller structures belong to common people while the more elaborate one belonged to the elite classes. In the structural phase VI, richest among all the architectural phase also revealed the presence of the streets and

lanes running north-south and east-west dividing the structural complexes (Misra 2007:170). The oval-shaped fire pits were noticed at the beginning of the mature period which was later replaced by 'U' shaped chulhas with three arms forming two contiguous chulhas. Presence of more than one hearth in a single room was also noticed. This may imply bigger family unit than an earlier phase. Raised platforms closed to chulhas was a very common feature at the site.

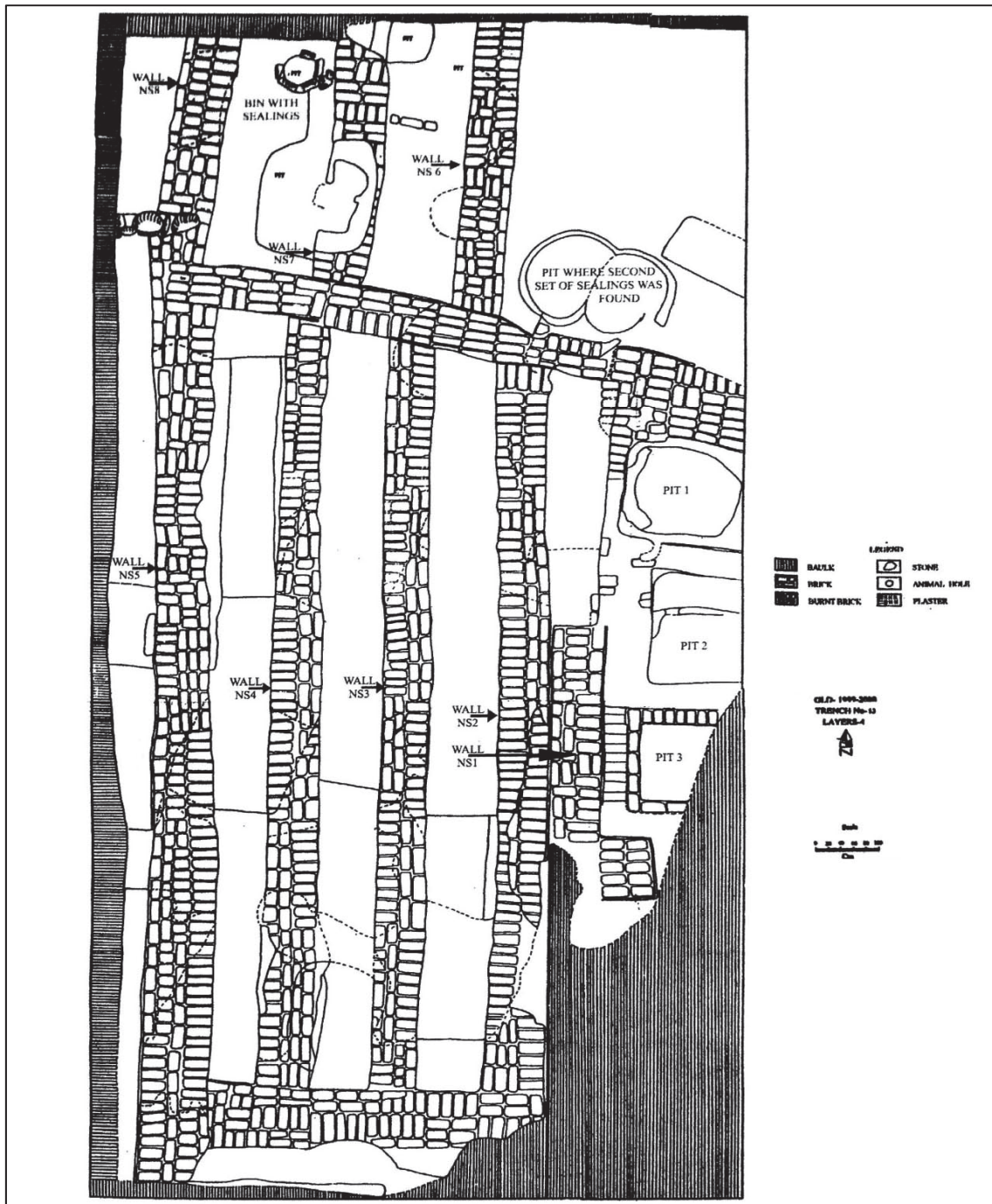


Figure 8: The Parallel Walled Complex Matured Chalcolithic from the Site of Gilund (Courtesy: Gilund Report)

Four structures are known from the late period of Balathal. The size of the structures markedly shrinks in the late phase. One structure (St. 16) has been found with three rooms however excavation has revealed that rooms were built in the successive period and not all at one time. In the late period use of stones was noticed rather than mud-bricks in the construction of houses. The remains of wattle and daub construction with reed impression, small sized structures, lesser use of mud-bricks, the absence of streets and lanes suggests a degenerative phase.



Figure 9: Industrial area of Gilund (Courtsey: Gilund Report)

Gilund: There are no early chalcolithic structures reported from the site. A total of nine structures were uncovered from both the mounds in Gilund. Unlike Balathal, Gilund shows smaller structural complexes in the mature phase. However, two-roomed structure (St. 3) has been reported on GLD 1. 'U' shaped chulhas and fire pits have been identified as domestic hearths. At Gilund also the foundation of the structures is laid by stone and walls are made of mud-bricks. It is interesting to note that towards the later phase of mature chalcolithic in Gilund, remains of burnt wattle and daub structures were found in area III on GLD-2. Excavations have not reported the presence of streets or lanes in between the structures but a possible road has been identified running in a roughly north-south direction between GLD-1 and GLD-2 (Shinde *et al*

2014:27). However, no chronology has been assigned to the road. Nonetheless, it is mentioned that the edges of the road join the outer circumference walls of GLD-1 and GLD-2. The Parallel walled Mud-brick Structure is the only impressive structural complex from the matured period in Gilund. The presence of this enormous public structure implies the presence of the convincing socio-economic organization.

The circumference wall has also been reported from index trench of GLD-1 and area III of GLD-2. In both cases, the walls have not been traced completely but it seems that both the mounds had their own circumference wall (personal communication with Prof. Vasant Shinde). The industrial area identified on GLD-2 is quite elusive. Although the area has reported a huge amount of slag, however that there was a smelting furnace (Figure 9) cannot be proved decisively. It should be noted that the excavation in this area is incomplete and partial. An extensive excavation in this area in future may provide a better understanding of the nature of the industrial area. The late chalcolithic structures are mostly small and rectangular in shape made of mud or wattle and daub. In the late phase, the number of storage pits is also decreased.

Analysing the Function of the Structures

The structures uncovered from both the sites are broadly classified into public structures and domestic structures. Single houses and multiple roomed structural complex were used for inhabiting, supported by associated features like hearth or chulhas, tandoor (St.4 GLD-1), storage platforms (St.8 GLD-2, Area-1), storage bins (St.8 GLD-2, Area-1), dividing walls, well-made floors and food processing equipment like saddle and quern, mullers and pestles, etc. Other than this kitchen area was identified with surety. The dividing walls as has been found in the site of Gilund may have divided rooms into living area and sleeping area. At the site of Balathal St. 8 has been identified as potter's house based on the presence of pottery kiln in middle room (Misra 2007:172). At the same site in the structure no.15, enclosed within the structural complex 11, a huge amount of burnt mud wall fragments and burnt clay lumps were found. The structure did not have well-made floors and probably was burnt. Based on the flimsy nature and its position towards the southern periphery of the site this could be identified as craft's man house.

The most elusive structure of Balathal is central fortified enclosure (Figure 2) which is still a matter of debate. Considering the huge thick walls covering an area 550sq.m within the fortified enclosure and the presence of bastions reported on the three sides asserts the fact that the structure was significant in its function and must have been used for the communal purpose. The mud-bricked parallel wall structure (Figure 8) uncovered at the site of the Gilund was definitely used as a warehouse. However, due to the absence of archaeobotanical evidence, we cannot say what was stored in it.

The outer fortification wall at Balathal and the two circumference walls at Gilund were built for marking the territory and also as safety measures from possible external threats.



Figure 10: The Parallel Wall Complex from the site of Khirsara (<http://www.frontline.in/arts-and-culture/heritage/discovering-khirsaras-harappan-glory/article4794614.ece>)

The Site Organisation, Management and Defence as Part of Settlement Planning

The Ahar Banas culture was surrounded by a number of contemporary cultures with which it is believed to have a different degree of contact. In mature chalcolithic phase, the major influence on Ahar culture was that of Harappans as it was physically closest to Ahar Banas culture. The tan ware found at the sites of Balathal and Gilund is almost identical to Harappan ware of Gujarat (Misra 2007:180). White painted black and red ware which is a typical Aharian pottery were also reported from the Harappan site of Kanmer (Kharakwal *et al.* 2007). The Harappan site of Farmana from Harayana gave evidence of thin red slipped ware of Ahar culture (Shinde *et al.* 2011) in its mature phase.

Similarly, a major influence of Harappans was noticed in the structural development of Balathal and Gilund. The Harappan site Khirsara in Gujrat deserves special mention in this context. The site gave evidence of Industrial hub comprising of furnaces, tandoor and evidence of copper smelting and ash (Nath 2012). This sounds similar to the industrial area of Gilund, although the authors would like to make this statement with certain caution as the industrial area of Gilund needs to be explored on a deeper level.

Another remarkable find from the site of Khirsara is a massive warehouse with long parallel walls running north-south (Figure 10) similar to the one found in Gilund. The only difference lies in the fact that the warehouse in Khirsara is bigger in size with 14 parallel walls.

Most of the Harappan sites are fortified for example Harappa, Mohenjodaro, Dholavira and Kalibangan. Both the sites of Ahar culture has boundary wall. This shows that the Aharians were developing similar defence mechanism like that of the Harappans. Many Harappan cities resembled grid pattern. The basic concept was dividing the cities in different blocks and parts and cutting the streets as right angles (Shinde 2018: 22). The presence of “road” in Gilund and “streets and lanes” in Balathal dividing the settlement into blocks also shows the proto-urban level of settlement management. Thus some level of similarity in site organization is noticed between Aharian sites and Harappan sites.



Figure 11: The Site of Gilund with the dry Banas Bed at a distance of 1.2 km from the site (Courtesy: Gilund Project)

The Development of the Structures in the Context of Adjacent Landscape

Balathal: This site rests over a thin deposit of black cotton soil that formed over the natural bedrock. As there is no river nearby thus, annulling any chances of floods the first settlers did not feel the need to settle on the elevated land. At the southern edge, there is a large natural depression. In the past, this depression may have been deep as

indicated by 10m thick silt deposits and may have retained water throughout the year. This water was the main source for agriculture as well as domestic purposes of the chalcolithic people. This must have attracted the early farmers of Balathal to choose this site for settling (Misra 1997:252). The vegetation in this region is characterised by a variety of grass, thorny bushes like ker, khejdi and babul. These grass and bushes were the main sources of pasture land for domestic animals. The profuse use of stone foundation in a building structure is justified by the stony ground towards the north of the site. A question here may be raised as to why stones have not been used in superstructure? An academic guess to this problem can be addressed in the fact that carrying stone is quite difficult and laborious work and since the area is also very fertile and provides easy availability of clay and silt, use of mud and mud-bricks was easier and practical option. It is believed that the area during the chalcolithic time had thick vegetation of xerophytic trees, thorny bushes and grasses and also had dispersed jungle and may have held wild animals, the presence of boundary wall around the settlement stands up to be the sensible choice against such threats.



Figure12: Brick mould for modern brick production in Gilund
(Courtesy: Shinde *et al.* 2014)

Gilund: The site of Gilund is located in the middle of Banas Basin in Mewar Plain. The site is approximately 1.20km south of Banas River (Figure 11), for chalcolithic people this river served as a source of water, fish, stone and potentially reeds and transport (Shinde *et al.*, 2014:1) and probably this was the main reason for early agriculturist to have located the site in this strategic position. The soil around the site is currently used for making mud-brick and baked brick (Shinde *et al.*, 2014: 55) (Figure 12). Since

excavators in the site have also revealed the mudbrick structure and the rich repertoire of pottery, it could be summarised that the same local soil was used then also. Stone foundation was also found in Gilund and this can be justified by the abundant occurrence of sandstone and quartzite in the bed of Banas river and in 2km radius north of the Gilund, and also schist which is available in all direction. Thus it is clear that the raw material used for constructing both domestic and public structures were all locally available and plentiful. The evidence of the circumference wall on both GLD-1 and GLD-2 may have completely surrounded both the mounds as the site was prone to the risk of flooding from the nearby Banas. The site of Gilund have also yielded archeo-faunal evidence (Shinde *et al.*, 2014) including tiger and wild boar thus the circumference wall may also have protected the settlements from such wild animals. The lime plaster was found profusely at Gilund on the floor and walls. Limestone which is the main ingredients in lime plaster is present 3km northeast and 3.5km south-east of Gilund. The site of Gilund has yielded the copious amount of storage pits. In addition, the presence of parallel structural complex states the fact of possible grain storage as the area is surrounded by the good quality arable land. Besides, the river Banas must have provided water for irrigation. Considering this fact, it could be perceived that the huge parallel wall structural was probably used for storing surplus grains.

Conclusion

The Ahar sites notably Balathal and Gilund are attested with permanent habitation. From the earlier chalcolithic level, man's effort to house himself have survived in the form of circular huts cut into the ground, the holes of a wooden post, floors of beaten clay and cow dung and hearths.

In the following mature period, the type of settlement become more consolidated. House construction in this period was characterised by a diversity of dwelling types ranging from two roomed to the eleven-roomed complex structure. Stone foundation for the structures also became an essential requirement in this period. The results of the early chalcolithic culminated in mature chalcolithic. The layout of the settlements now took the form of large organised community with fundamental planning. For the first time, streets and squares appeared. An important advance can be seen in mature chalcolithic construction: the use of plasters on both inside and outside walls and in storage pits, floors, storage platforms and double chulhas. The house plans are more regular and limited to rectangular or square roomed structures. Overall the mature period shows a general development leading to the creation of organised settlement, construction of monumental building indicating a state of the surplus economy. The presence of public architecture like central fortified enclosure and boundary wall inferred mobilisation of public fund and labour. The presence of sealings in Ahar cultural sites demonstrates central administrative authority and controlled economy. This is the time where inclination towards urban development and communication with nearby cultures were witnessed. In the late chalcolithic period, evident is a general disorganisation which could suggest an economic and cultural decline. This is

seen in poor remains of the settlement which are flimsy in nature. The structure sizes reduced and previous storage pits were used for throwing garbage.

Although this research was able to find an answer for most of its aim, there are areas which need to be explored in future. For example, the site of Gilund has not revealed any information on early chalcolithic structures. At Balathal also the number of early chalcolithic structures are insufficient to talk on a regional level. Some of these sites must have formed centres for other smaller settlements in the general area. One such centre was probably Gilund, the largest reported site standing at twenty-five hectares. A more detailed horizontal excavation at the site of Gilund is required to look into the settlement planning on a greater level and identify different occupation area. Detailed horizontal excavation would also help us to address on inter-relationships of structures and to understand site organisation at a more decisive level.

References

- Ameri, M. E. 2010. *Sealings at the Edge of Third Millennium Middle Asian Interaction Spheres: The View from Gilund, Rajasthan, India*. (Unpublished PhD dissertation). New York: Institute of Fine Arts, New York University.
- Meena, B. R. and A. Tripathy. 2000. Excavation at Ojiyana. *Puratattva* 30: 67-73.
- Mishra, A. 2008. *Beyond Pots and Pans: A Study on Chalcolithic Balathal*. New Delhi: Aryan Books International.
- Misra, V. N. 1997. Balathal: A Chalcolithic Settlement in Mewar, Rajasthan, India; Results of First Three Seasons Excavation, *South Asian Studies* 13: 251-273.
- Misra, V. N. 2007. *Rajasthan: Prehistoric and Early Historic Foundation*. New Delhi: Aryan Books International.
- Mohanty, R.K., Anup Mishra, P.P. Joglekar, P.K. Thomas, Jeevan Kharakwal and Tama Panda. 1999-2000. Purani Marmi: A late Ahar Culture Settlement in Chitaurgarh District, Rajasthan. *Puratattva* 30: 132-141.
- Nath, J. 2012. Khirsara: An Important Harappan Post in Western Kachchh. *Itihas Darpan* 17 (1): 58-69.
- Raczek, T. P. 2014. Lithic from Gilund in Shinde et al edited *Excavations at Gilund: The Artifacts and other Studies*. Pennsylvania: University of Pennsylvania Press.
- Raczek, T. P., N. Sugandhi, P. Shirvalkar, and L. Pandey. 2015. The Mewar Plain Archaeological Assessment. *SAA Current Research* 266, http://www.saa.org/CurrentResearch/pdf/saa_cro_266_The_Mewar_Plain_Archaeolo.pdf, accessed.
- Sankalia, H. D., S. B. Deo and Z. D. Ansari. 1969. *Excavations at Ahar (Timbavati)*, Pune: Deccan College Post Graduate Research Institute.
- Sarkar, A. 2011. Chalcolithic and Modern potting at Gilund, Rajasthan: A Cautionary Tale. *Antiquity* 85: 994-1007.
- Sarkar, A. 2012-2013. *A Study of Cultural Development from Early to Mature Chalcolithic in Mewar Region of Rajasthan*. (Unpublished PhD dissertation). Pune: Deccan College Post Graduate Research Institute.

- Shinde, V. 2018. *Ancient Indian Knowledge System: Archaeological Perspective*. Pune: Vidyanand Prakashan.
- Shinde, V. S., T. Osada and M. Kumar. 2011. *Excavations at Farmana 2006-2008*. Kyoto: Indus Project, Research Institute for Humanity and Nature.
- Shinde, V., T. P. Raczek and G. L. Possehl. 2014. *Excavations at Gilund: The Artifacts and Other Studies*. Pennsylvania: University of Pennsylvania Press.