

A Study of Development of the Ahar Culture in south-east Rajasthan, India from a ceramic point of view

2

Amrita Sarkar
Deccan College Postgraduate and Research Institute
(Deemed University)
Pune- 411006, INDIA
Email- amritjoy@gmail.com

Summery

This paper deals with pottery assemblages from the chalcolithic sites of Balathal and Gilund of the Ahar Culture of southeast Rajasthan. The author tries to build up ceramic chronologies for each of these individual sites in order to identify different phases in the chalcolithic period and ascertain layers to these phases. It is done to evaluate whether pottery assemblage do give us much information on history and society of Ahar people. It further integrates data from these two major excavated sites and attempts to provide certain developmental trends and characteristics of chalcolithic pottery of the specific prehistoric "culture region", once the type site (Ahar) has been established and culture region has been defined (Ahar/Banas/Mewar/southeast Rajasthan).

Introduction

The particular focus of the present research is one of the most mundane of human-material products- earthen ware ceramics from the chalcolithic sites of Balathal and Gilund, the two most extensively excavated sites of Ahar Culture (Sankalia *et al* 1969) named after the type site Ahar. The Ahar Culture (FIG 1) also known as Ahar-Banas Complex (Shinde and Possehl, 2005) with 106 reported sites is the indigenous, Chalcolithic village farming community developed in southeast Rajasthan India and dates back to late 4th millennium BCE to late 2nd millennium BCE. The major theoretical questions that most archaeologists face dealing with pottery assemblages like what can pottery tell us about cultural change over time, specifically in terms of the mechanics of technological innovation, ecological/environmental adaptation, and social relations in order to understand cultural process. Mewar region i.e. southeast Rajasthan in India is evolving as one of the most important area in South Asia for understanding independent development of sedentism and origin of agriculture (Shinde *et al* press). This paper is an effort to evaluate whether pottery assemblage do give us much information on history and society of Ahar people, permitting the development of realistic expectations for variability in pottery form in the archaeological record. And in doing so will also attempt to build up a ceramic chronology for the Chalcolithic Mewar Region as a whole identifying distinct distinguishable features in different phases of Chalcolithic, if identifiable.

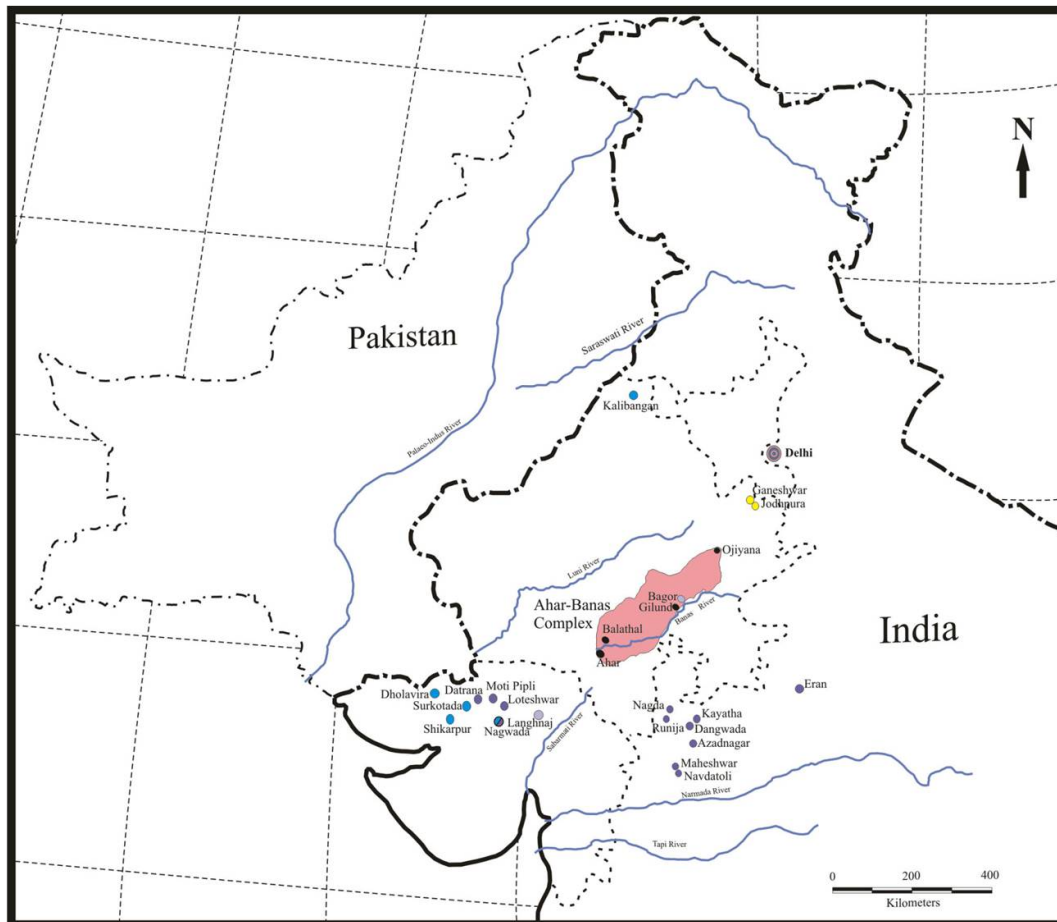


Figure 1. Ahar Banas Cultural Complex (Sarkar, 2011 b)

Ahar Ceramic Corpus

The pottery assemblage (Fig. 2 and 3) of Ahar-Banas Complex has been studied by various scholars and has been classified differentially (Misra *et al* 1995, Shinde *et al* 2002, Misra 2007, Mishra 2008, Sarkar 2011a and b). The latest classification (Sarkar 2011a and b) reveals four broad groups i.e. Red Ware, Grey/Black Ware, Black and Red Ware (BRW) and Buff ware based on technique of production still prevalent among the traditional potters in southeast Rajasthan (Sarkar 2011 a and b). This technique of production involves the manufacturing process starting from the preparation of clay till the pots leave for markets. Each group is classified further based on the surface treatment, so Coarse Red ware, Thick Red Slipped Ware, Thin Red Slipped Ware, white painted Black and Red ware etc. Each of the subgroups is then divided based on fabric into fine medium or coarse variety. Slip colour may be deceptive as a guide, thus the Munsell colour chart was used in order to standardize the colours then each of these subgroups were divided into fine and coarse variety. After that each subgroups of finer or coarser variety is further sorted according to its form.



Figure 2. Clockwise from top- Reserve Slipped ware, Tan ware Thick Red Slipped ware, Buff ware, Black and Red Ware and Thin Red Slipped ware (Sarkar, 2011 a)

Comparative stratigraphic context of pottery from Balathal and Gilund



Figure 3. Grey ware (Sarkar 2011 a)

It has been noticed that both the sites of Balathal and Gilund have similar forms appearing in particular ware type. Thus correlating the layers having similar forms could help us contextualizing layers to separate cultural/developmental phases and can thus help us to reconstruct a comparative cultural phases for both the sites. Stratigraphy was available from the site of Balathal (Misra et al 1997). Layer 1-4 was identified as early historic and layers 5-12 in index trench F4 were initially marked through a deposit of burnt cow dung and vitrified ash which was absent in the residential area and layer 5 of the residential area matched with the layer 13 of index trench. Changing the layers at that stage of excavation would have meant changing the layers on thousands of sherds and antiquities. Thus in the residential area the layers are numbered from 1 to 4 and then from 13 onwards. Because of this conspicuous pragmatic decision even though the recorded number of layers in most

trenches is 21 to 22 and the actual number is only 14 to 15. In case of Gilund total 32 layers were identified among which layer 1-6 was Early Historic, 7- 28 as Chalcolithic and 29-32 as Mesolithic by the excavators (personal communication with Shinde).

This comparative study is however not above limitations. Generally comparison of stratigraphic context in an ideal situation is done between parallel chronological phases. As for example if lowest levels of Gilund and Balathal are to be compared then ideally both the lowest level should range say between 3500 BCE and 3000BCE. But in a realistic situation where there is a dearth of absolute dates a from all levels of excavated sites that could be standardized, how one might opt for such comparative stratigraphic context? The only means of doing such a comparative stratigraphic analysis between the sites of Balathal and Gilund that the researcher could consider was by material data, with special reference to pottery in this case. Individual chronologies for the both the sites of Gilund and Balathal had been established before by respective excavators of the sites.

Balathal- chalcolithic range (Misra 2005)
3700-3620 BCE to 2200-1830BCE (calibrated form)

Early Chalcolithic-

Mature Chalcolithic-

Gilund- Chalcolithic range (Shinde and Possehl 2005)

Early Chalcolithic- 3200 BCE- 2600BCE

Mature Chalcolithic- 2600 BCE - 2000 BCE

Late Chalcolithic- 2000 BCE -1700 BCE

Some of the major pottery types specially those which are landmark of Ahar Culture and the ones that have been reported throughout in both the site of Gilund and Balathal would be compared. This is done with a view to provide a seriation to understand the cultural development on the basis of pottery types and their co-occurrences in the two sites as well as to understand the stratigraphic and ceramic relations between Gilund and Balathal during different phases and also try to establish a specific and comparative chronology for the Ahar-Banas Complex as a whole. To further simplify this comparative seriation some of the subgroups have been seamed together as fabric wise they are same for e.g. slipped and unslipped Grey Ware have been put together and same with Red Ware (slipped and unslipped). The wares taken into consideration are Coarse Grey Ware (Slipped/Unslipped), Coarse Red Ware (Slipped/ Unslipped), Fine Black and Red ware and Thin Red Slipped Ware. It is needless to say that there will always be site specific variation even in a particular form for a particular ware type. For example, cordoned jars or pots have mostly flat projecting rim in case of Balathal, but in Gilund they have out-turned rim, tapered at the lip, convex profiled bowl/ basins in Coarse Grey Ware have mostly tapering lip in Gilund whereas those in Balathal had mostly rounded lip. Hence when comparing vessel forms importance have been given more on the corporal shape of the vessels in a broad way rather than minute differences. This was done with an assumption that similar vessel forms irrespective of small differences in rim profile might have served same broader functional purposes.

Black and Red Ware (fine)

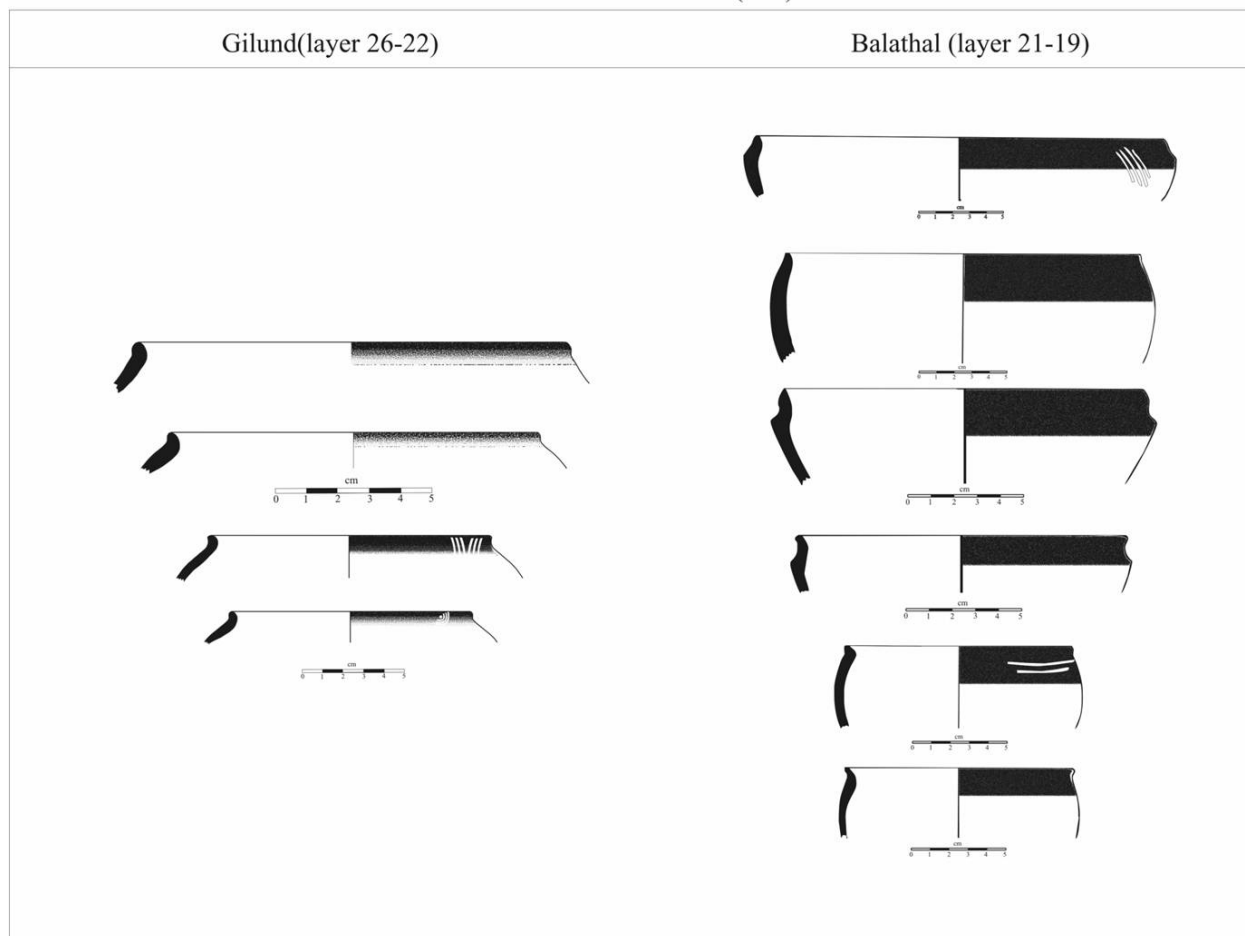


Fig 5. Stratigraphic comparison of BRW in Early Chalcolithic levels of Gilund and Bala

Fine Black and red Ware (BRW)

The white painted Fine Black and Red Ware, the characteristic ware type of Ahar-Banas Complex shows a bit of diverse morphologies in two sites. Though there are certain similarities, dissimilarities are spotted more. The main standard morphology that has been found in this ware type in Balathal is shallow carinated bowl with knife edged rim whereas in Gilund more of spherical and convex profiled bowl is noticed. No similarity in vessel type was noticed when the lower levels of both Gilund and Balathal were compared (Fig.5). As it is seen that the morphologies in between layer 26-22 noticed in Gilund comprises of spherical bowls with rudimentary everted rim. Those in Balathal in between layers 21-19, shows carinated bowls with knife edged rim along with convex profiled bowls with everted or beveled rim. Paintings are noticed in the lower levels of Balathal as well as in Gilund comprising of horizontal bands, vertical slanting bands, semi circular bands and dots.

In the middle levels of the site which is represented by layers 21-13 in case of Gilund and 18-15 in case of Balathal, shows few similarities (Fig 6.). They are in the form of constricted necked, globular pot with out-turned rim, rounded at the lip (highlighted in red circle); convex

Black and Red Ware (fine)

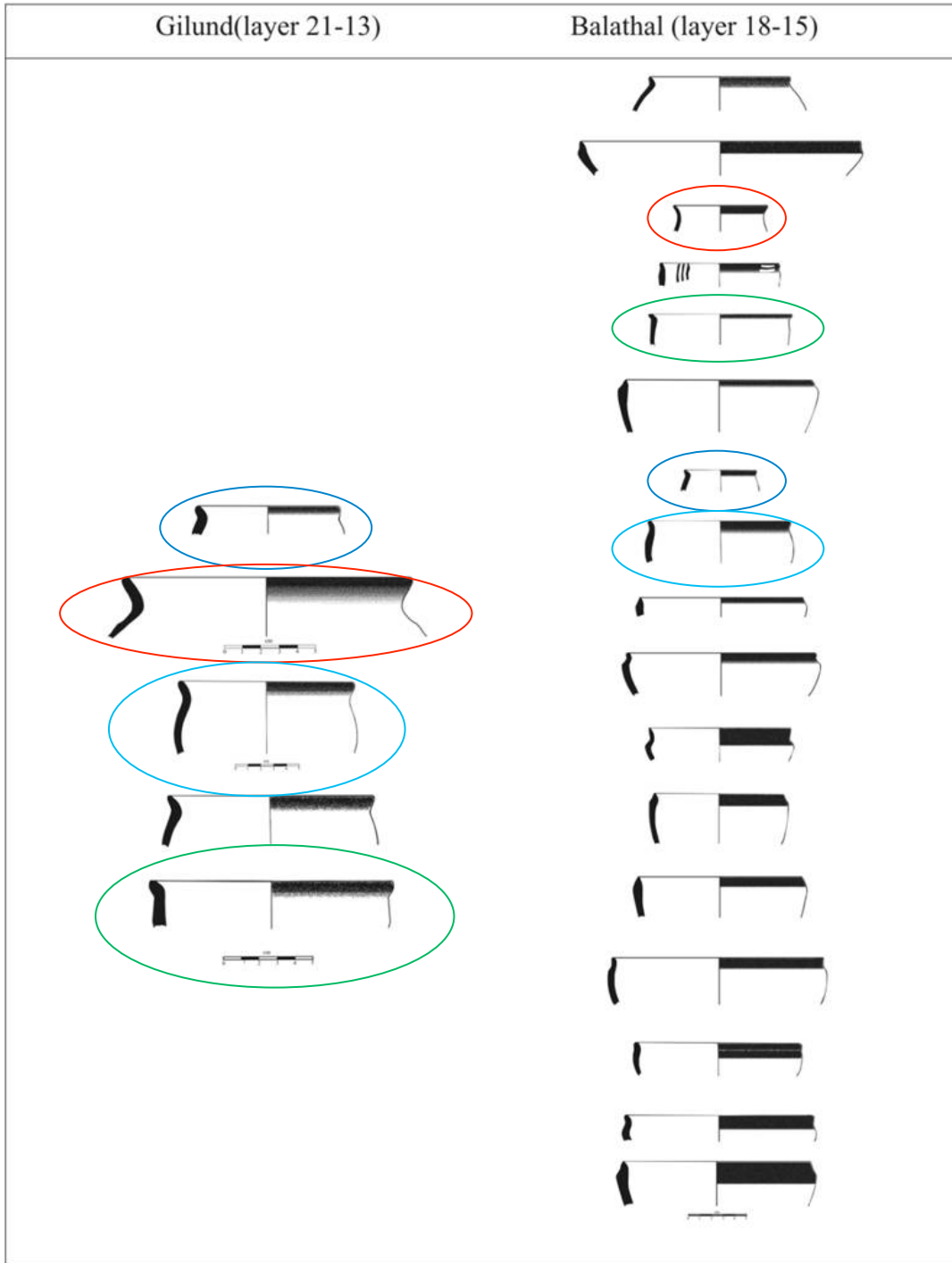


Fig.6 Stratigraphic comparison of BRW in Mature Chalcolithic levels of Gilund and Balathal

Black and Red Ware (fine)

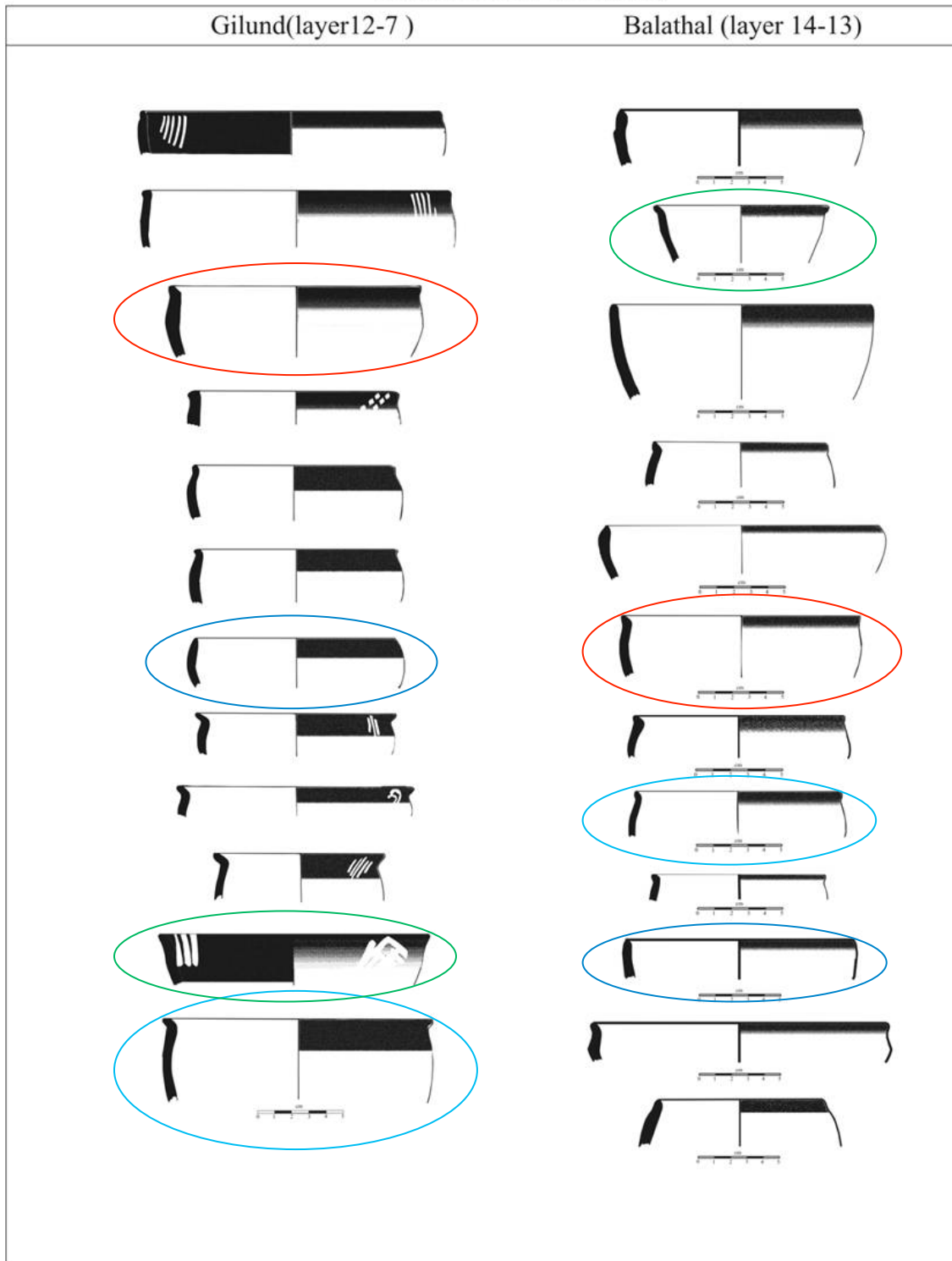


Fig.7 Stratigraphic comparison of BRW in Late Chalcolithic phases of Gilund and Balathal

profiled bowl with concave neck and out-turned rim, tapered at the lip (highlighted in blue circles) and faintly convex profiled bowl with sloping sides and everted rim (highlighted in green circles) and small convex profiled bowl with everted rim (highlighted in violet circles). Paintings are noticed on few vessels in both the sites in the form of vertical and horizontal bands and dots placed with concentric arcs. In the later phases of both the sites consisting of layers 7-12 in Gilund and layers 13-14 in Balathal are also noticed few similarities (Fig.7). The forms are convex profiled bowls with slightly beveled rims (highlighted in red circle), convex profiled bowl with sloping sides and everted rim (highlighted in green circle), convex profiled bowl with undercut-everted rim (highlighted in blue circle) and convex profiled bowl with slightly incurved and knife edged rim (highlighted in violet circles).

Thin Red slipped Ware (TNRS)

Based on the observation on the forms and fabric of TNRS from both the sites it could be summarized that layer 26-22 in Gilund is equivalent to layer 21 to 19 in Balathal, both belonging to Early levels. Fig. 8 shows the similarity in forms between the two sites in the Early Chalcolithic phase as we see that both the sites have similarity in spherical bowl with everted rim, rudimentary everted rim as well convex profiled bowl with out-turned rim, rounded at the lip. Though it could be perceived that the more common profile in Gilund is spherical and that of Balathal is convex profile (profile similarity is highlighted with coloured circles).

Similarly form found in layers 21-13 in Gilund shows some parallel with forms found in between layers 18-15 (Fig. 9). Similarity is seen in convex profiled deep bowls with everted rim and sloping sides, also thinning towards base (highlighted in blue circles); similarity is seen in spherical profiled bowl with beaded rim and having punctured incisions on the outer surface (highlighted in red circles); similarity is seen in spherical profiled bowl with beveled- channeled rim as well as rudimentary everted rim (highlighted in green circle); similarity is observed in faintly convex profiled bowl with small everted rim (highlighted in green circle); similarity is seen in deep, convex profiled bowl with out-turned, tapering, slightly undercut rim (highlighted in violet circles); similarity is seen in convex profiled bowl with beveled-channeled rim (highlighted in brown) and finally similarity is also spotted in shallow convex profiled bowl with ribbings on the outer surface (highlighted in light blue circles).

In Gilund from layer 12 -7, not a single sherd of Thin Red Slipped Ware was retrieved, thus indicative of the fact that this ware type was totally absent in the late chalcolithic phase in Gilund. In case of Balathal layer 14 provided very few Thin Red Slipped ware sherds with morphologies similar to previous layer i.e. layers 15. But layer 13 did not yield any sherd of Thin Red Slipped ware. Therefore it could be said that in the later phase of Late chalcolithic in Balathal Thin Red Slipped ware ceased to be exist however was present in the early phase of Late Chalcolithic.

Thin Red Slipped ware

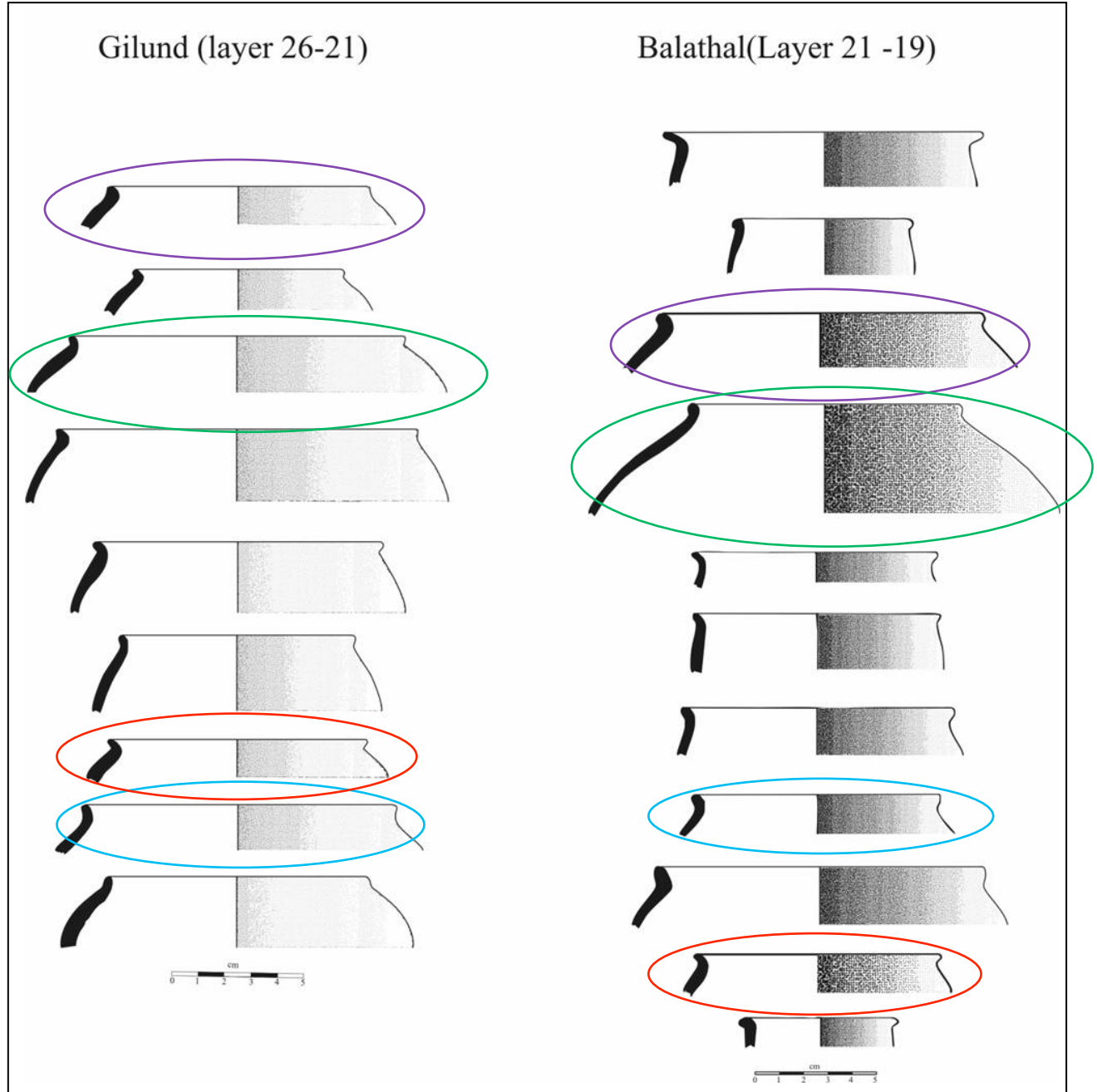


Fig.8 Stratigraphic comparison of TNRS in Early Chalcolithic phases of Gilund and Balathal

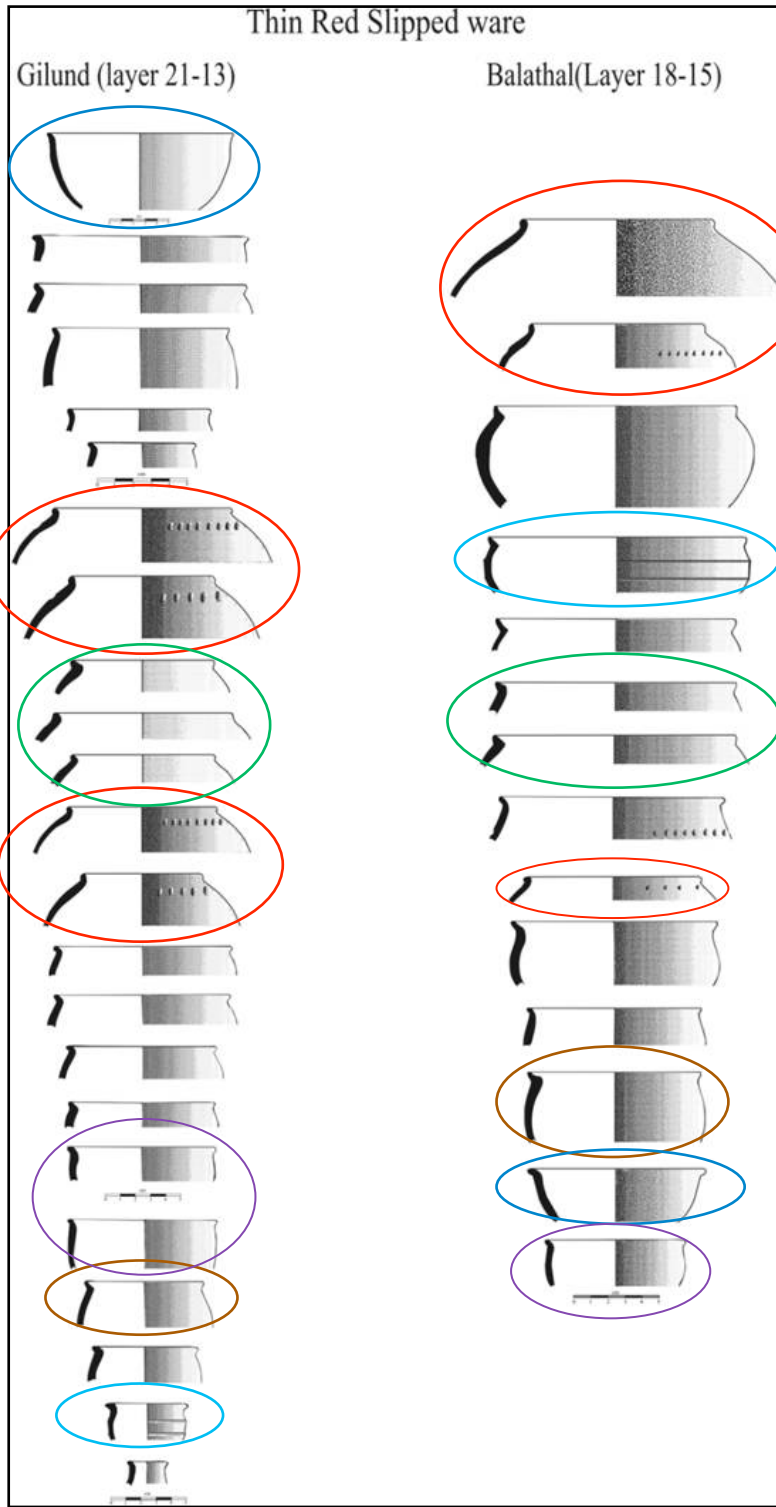


Fig. 9 Stratigraphic comparison of TNRS in Mature Chalcolithic phases of Gilund and Balathal

Coarse Red Ware (slipped/unslipped)

In this category, the Thick Red Slipped ware and the Coarse Red Ware are clubbed together. This is done because both the wares are coarse grained and have similar fabric. This also done to minimize the error of classifying one ware into two different types based on the undecorated lower part of decorated pot as in previous researches.

Unfortunately very few sherds were retrieved from the lower levels of Gilund. But in Balathal large basins with sloping sides and beaded rim, convex profiled bowl, small globular pots and constricted necked handi (Fig. 10). There are similarities in both the like in cooking vessel (highlighted in red circle) and convex profiled bowls with incurved knife edged rim (highlighted in green circle).

In between layers 21 to 13 in Gilund we see the large basins with roughly triangular rim and round beaded rim and also with ledged rim, large to small convex profiled bowls, constricted necked pots and wide mouthed storage jars with out-turned beaked rim. In between layers 18-15 in Balathal we see similar basins with roughly triangular rim, convex profiled bowl, globular pots with concave neck, constricted necked handis, high necked pots with out-turned rounded or overturned beaked rim and wide mouthed storage jars from the upper level (Fig. 11).

In the lower levels of the Mature phase some similarities re noticed in forms between both the sites like those of basins with sloping sides and rough triangular rim (circled in blue), convex profiled bowl with tapering rim (circled in green) and wide mouthed globular jars with concave neck (circled in violet). Similarities also noticed in probably globular pots with wide mouth having out-turned, rounded rims (circled in brown) occurring in the lower levels of the Mature phase in Gilund and middle level of the Mature phase in Balathal.

In between layers 12-7 in Gilund, some new forms appear like the high necked globular pot with flat projecting out rim in the Thick Red Slipped ware category. Other than this we see concave, constricted necked globular pot with out-turned rim. Besides we have convex profiled bowls from the previous layers, wide mouthed globular pots with everted rim. In between layers 14- 13 in Balathal we also see high necked globular pots with flat projecting out rim but this started from the last level of Mature phase in Balathal, thus was not new introduction in Balathal late Chalcolithic. Other than this we have constricted necked handi, convex profiled bowls, and small globular pots with out-turned rim.

Few parallel forms were noticed in both the sites of Balathal and Gilund (Fig. 12) in the last phases like the convex profiled pot with everted rim (circled in brown), high necked storage vessels with out-turned flat projecting rim (circled in blue), small globular pot with short concave neck and out-turned rim (circled in green), and small to medium sized convex profiled bowl (circled in red).

Coarse Red Ware (Slipped/Unslipped)

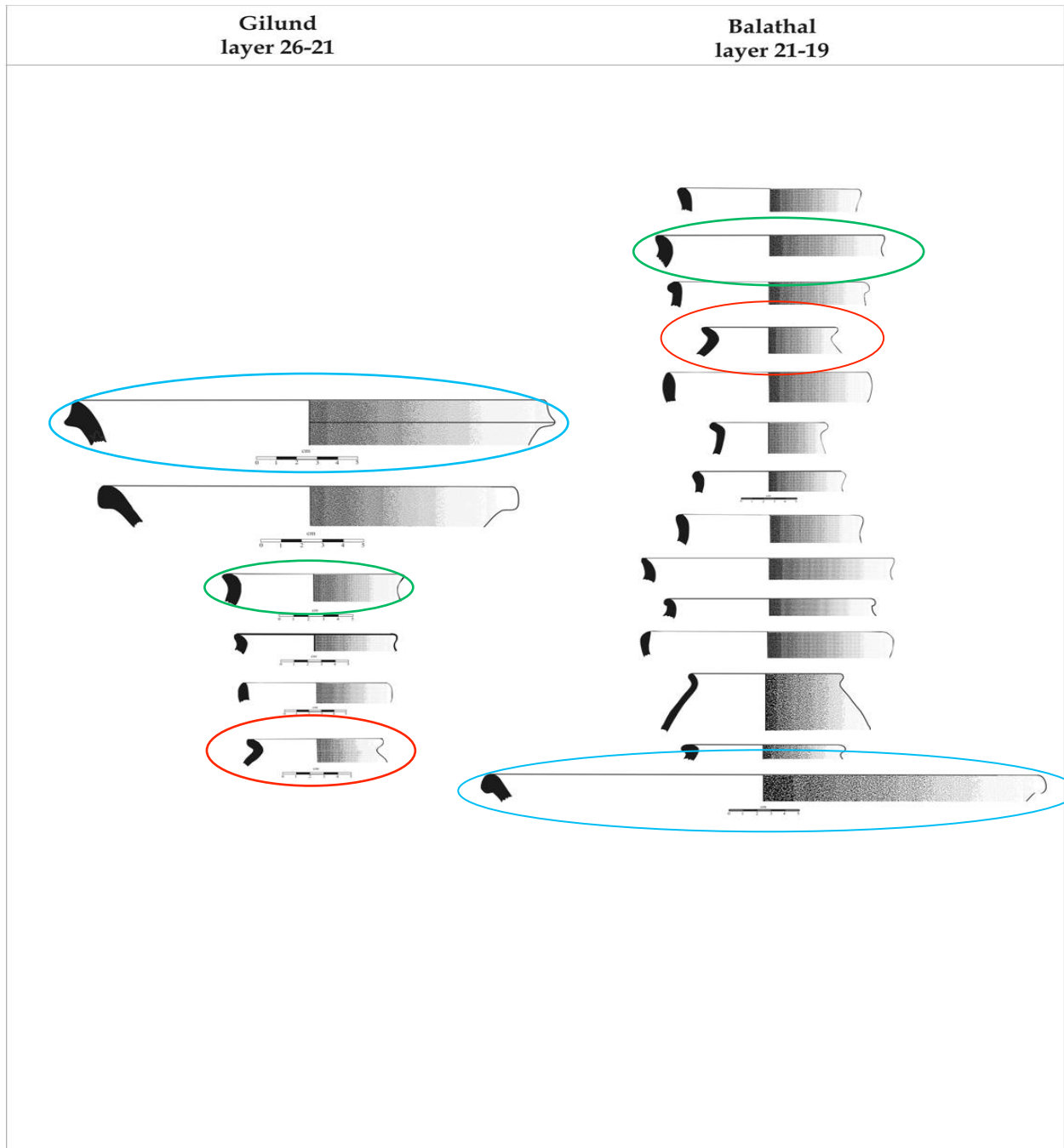


Fig. 10 Stratigraphic comparison of Coarse red Ware in Early Chalcolithic phases of Gilund and Balathal

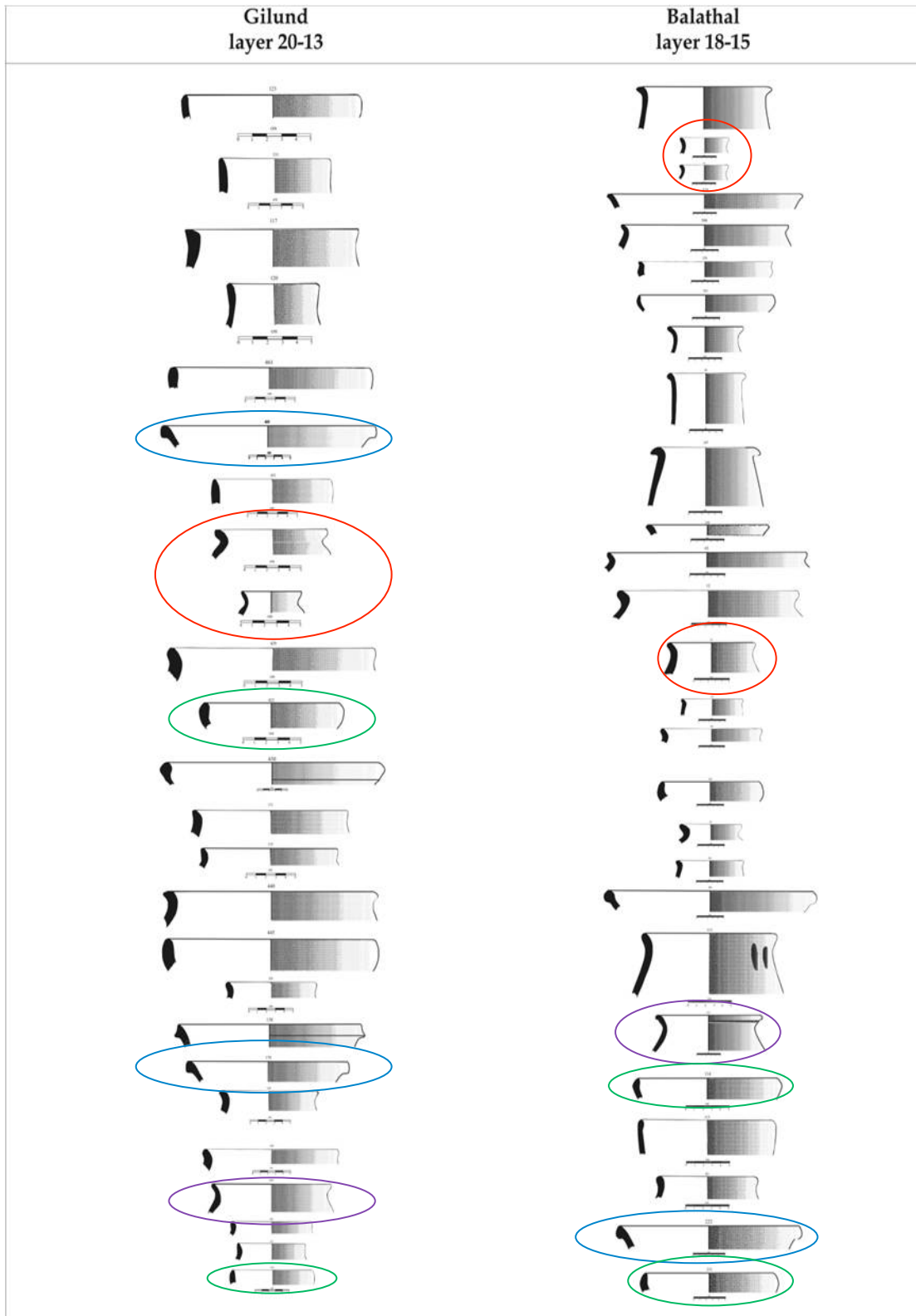


Fig. 11 Stratigraphic comparison of Coarse red Ware in Mature Chalcolithic phases of Gilund and Balathal

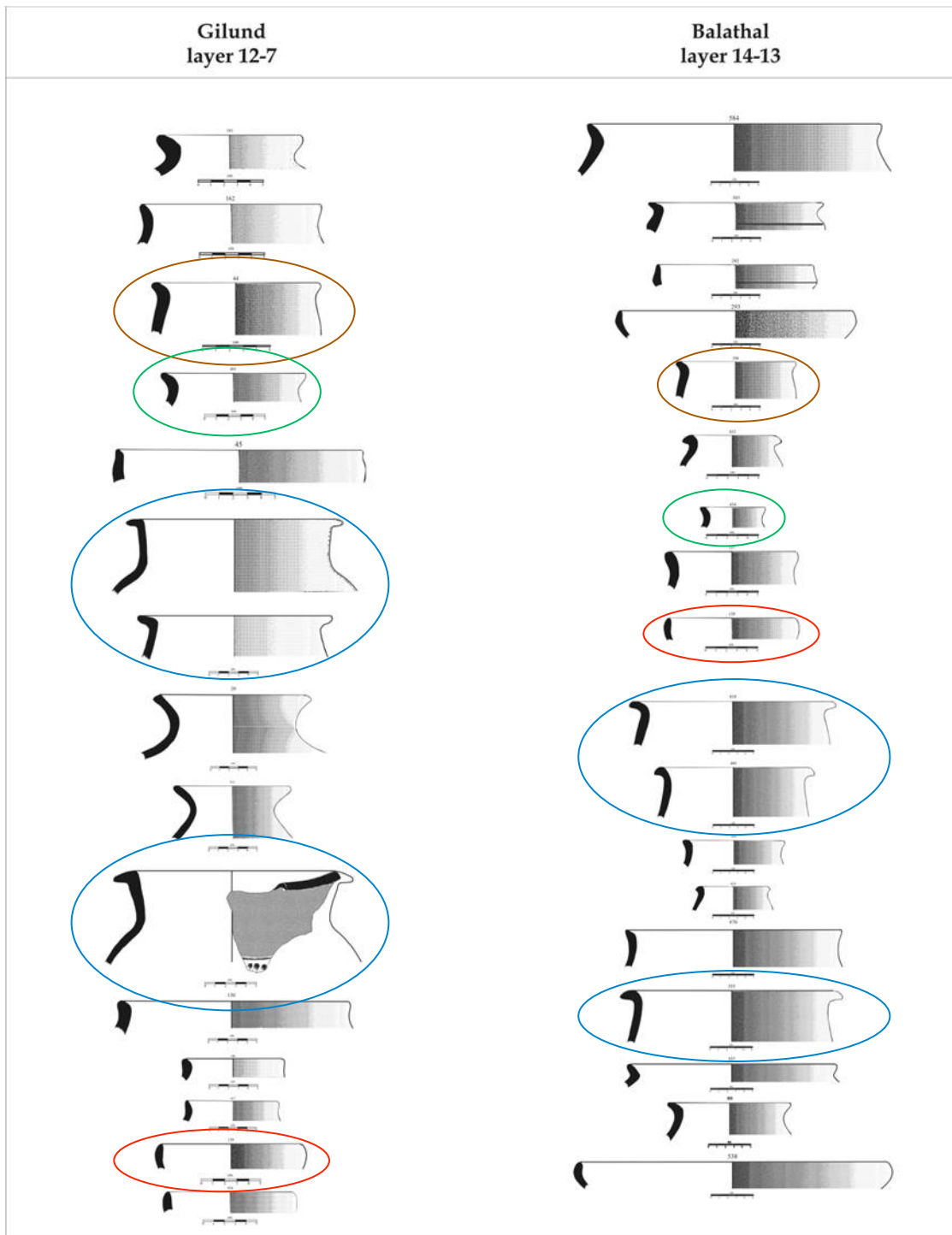


Fig. 12 Stratigraphic comparison of Coarse red Ware in Late Chalcolithic phases of Gilund and Balathal

Coarse Grey Ware (slipped/unslipped)

The most interesting feature that came out of the comparative analysis between Balathal and Gilund is that frequency of pots and handis are more in Balathal whereas Gilund provides more of basins and dishes. This trend indicates that cooking and storage vessels are more frequent in Balathal whereas Gilund had more serving vessels. Regardless of this basic disparity few interesting similarity are also noticed. Following are discussed both with respect to layers.

In between layers 26-22 (Fig. 13), Gilund had large dish/pan, basins with sloping sides, convex profiled bowls, constricted necked cooking pots and wide mouthed jar probably. In the lowest layers of Balathal (Plate 9) i.e. layer 21-19 we have constricted necked handi and only two carinated basins and probably a cylindrical sided storage jar.

In between layers 21 to 13 in Gilund, there are some new introductions of forms like ledged deep bowl, large to small carinated dishes and small convex profiled bowl with beveled-channeled rims. The ledged deep bowl is initiated in the early part of the Mature Chalcolithic and the carinated dishes and small convex profiled bowl in this ware type is initiated in the middle phase of the Mature Chalcolithic period. The other form types like constricted necked cooking pots, convex profiled bowls and basins with sloping sides continue from the previous layers. In between layers 18-15 in Balathal, there are again some new forms coming up like the ledged deep bowl, constricted necked put but with an internal projection at the neck and wide mouthed storage jars probably with globular profile. Frequency of convex profiled bowls and basins are also noticed increasing between these layers which were almost absent in the earlier layers. If both the sites are compared (Fig. 14) then it comes out that the ledged deep bowl appears in both the site during the mature phase (circled in red). Other than this similarity is also found in the occurrence of convex profiled large bowls, though frequency is more in Gilund (circled in blue); small globular pot with high neck (circled in brown) and wide mouthed constricted necked handi (circled in green).

In between layer 12 -7 in Gilund the new form that appeared are cordoned jars and large shallow, convex profiled basin with squared rim having a inward slanting lip. The other forms basins with sloping sides, convex profiled bowls, carinated dishes all continue from previous layers. Noteworthy is the reduction in cooking vessels. In between layers 14-13 in Balathal, cordoned jars appears. Other than that, are noticed small sized cooking pots and small globular pots.

When both the sites are compared (Fig. 15) it could be realized that appearance of cordoned jars (circled in red) in the late phase is common in both the sites. Other than that convex profiled shallow basin with incurved rim (circled in green) is common between the two sites in the late Chalcolithic phase.

Coarse Grey Ware

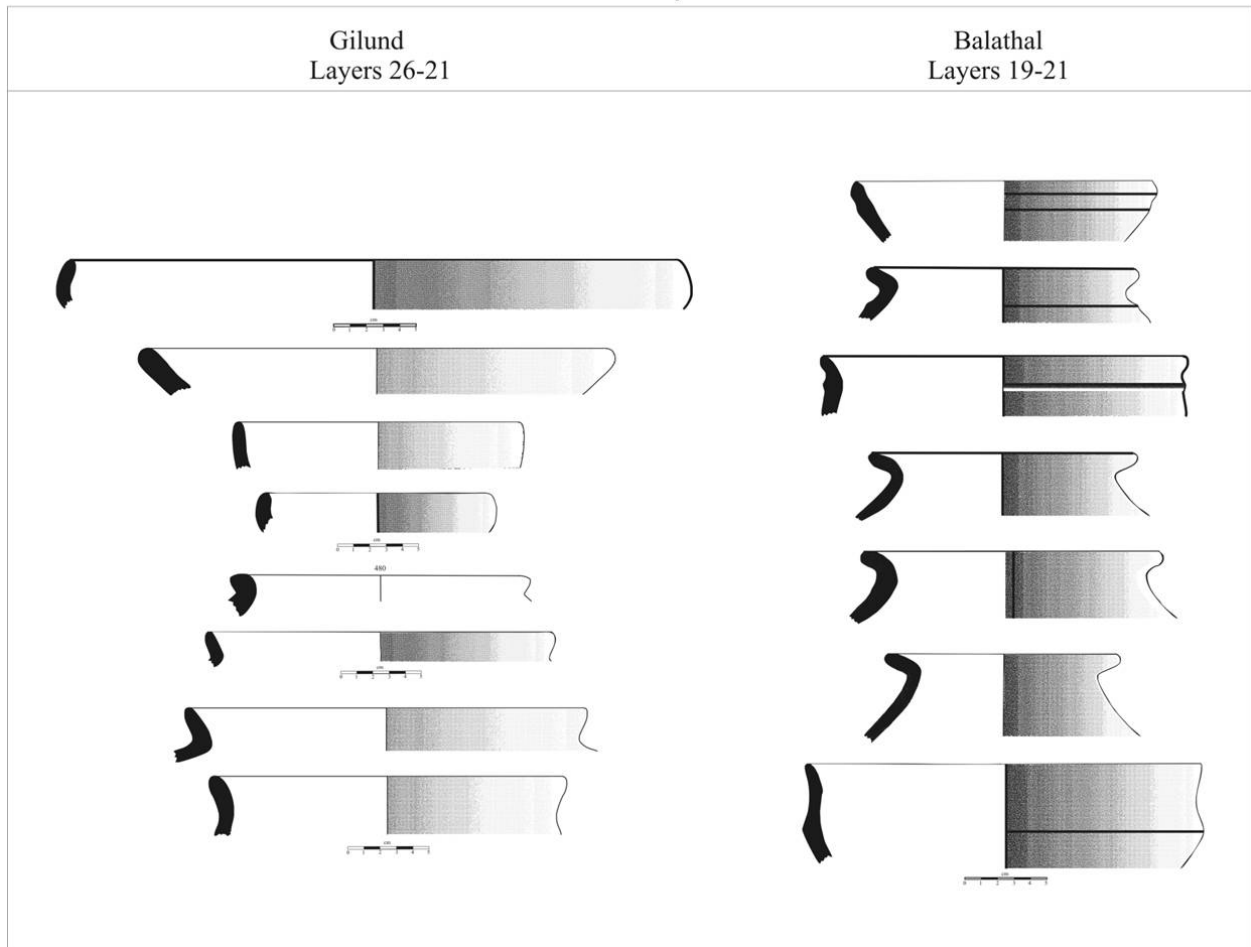


Fig. 13 Stratigraphic comparison of Coarse Grey Ware in Early Chalcolithic phases of Gilund and Balathal

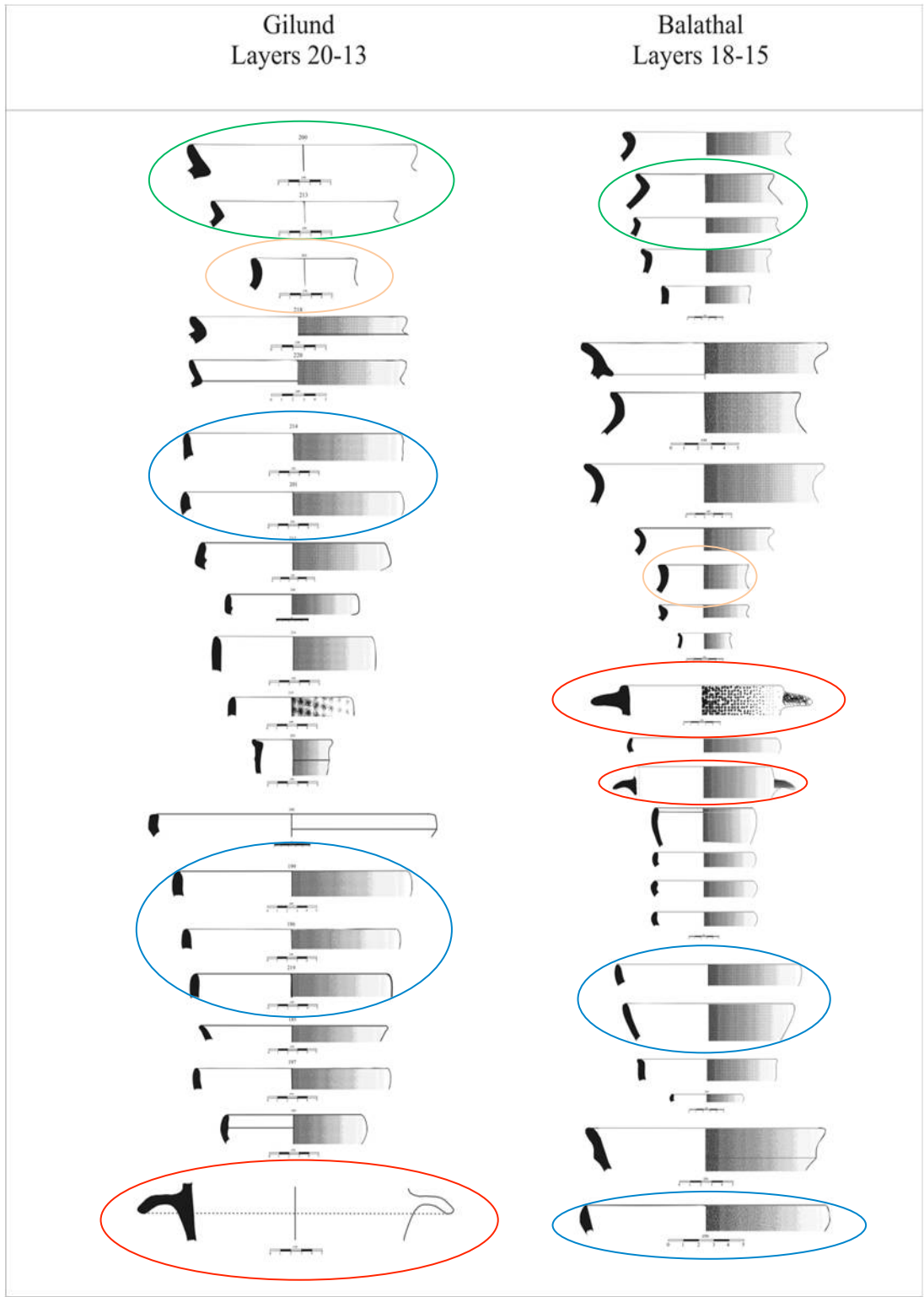


Fig. 14 Stratigraphic comparison of Coarse Grey Ware in Mature Chalcolithic phases of Gilund and Balathal

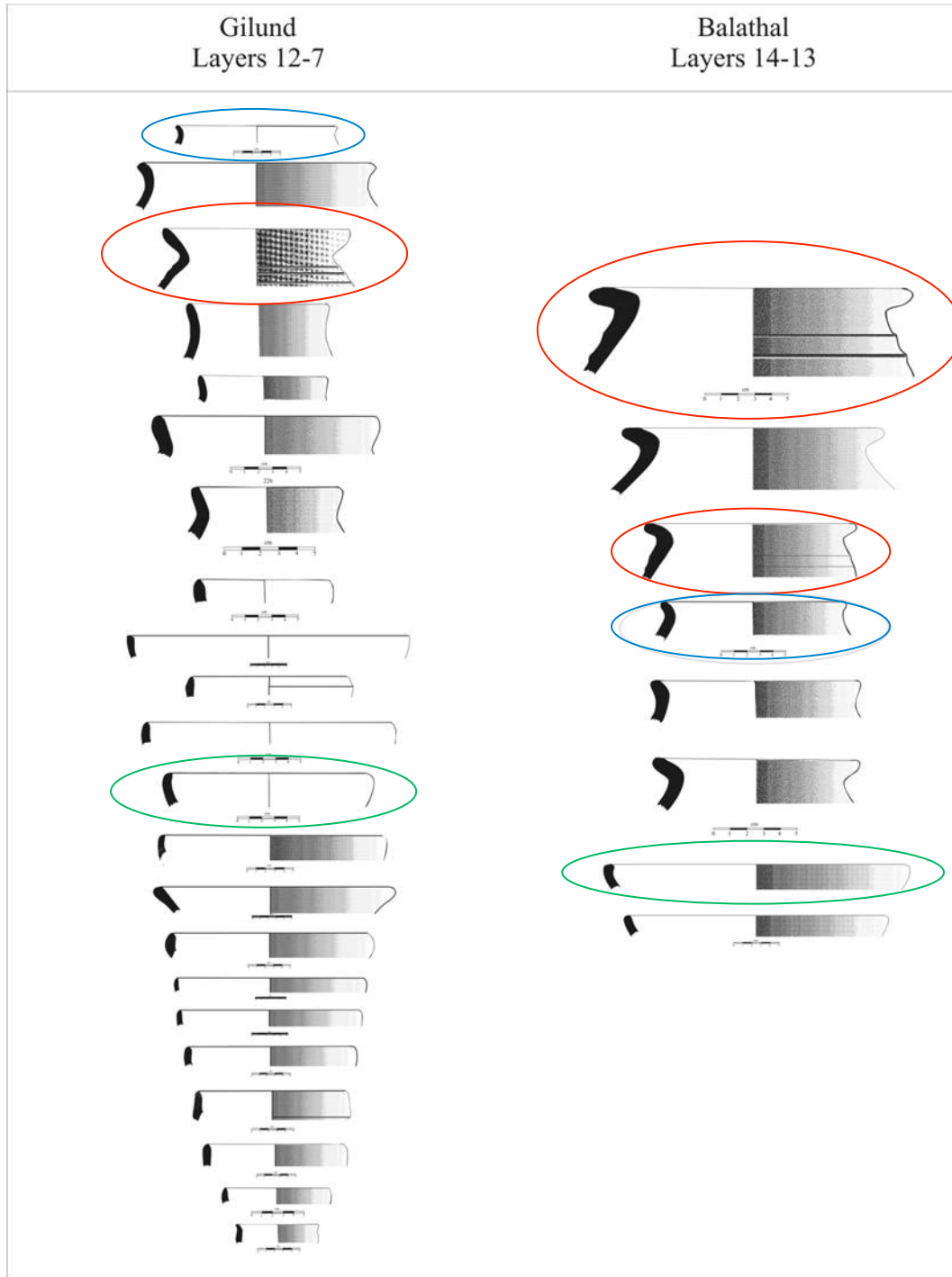


Fig. 15 Stratigraphic comparison of Coarse Grey Ware in Late Chalcolithic phases of Gilund and Balathal

After doing a comparative quantitative seriation of morphologies appearing in different cultural chronologies in both the sites of Balathal and Gilund, fascinatingly quite a bit of similar developmental trends could be noticed between both the sites (Fig. 16) shows that in the Early Chalcolithic and transitional phase between Early to Mature Chalcolithic in Balathal the dominant form are bowls followed by globular pot. Similar trend is noticed in Gilund (Fig. 17). In the Mature phase in Balathal, bowl is the dominant form, followed by globular pot and then basin. Exactly similar is the trend noticed in Gilund. In the following transitional phase between Mature to late, there is an overall decrease in form. In the late phase however though bowls still outnumber any other forms, the striking similarity noticed in both the sites is increase in use of basins followed by globular pots.

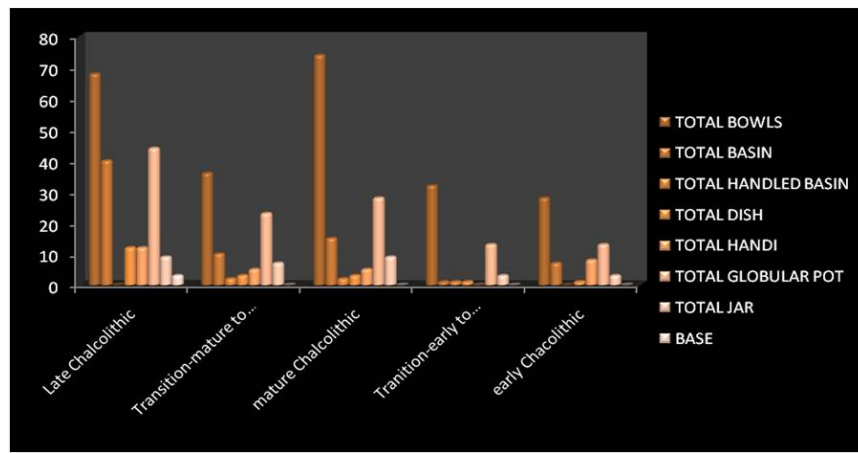


Fig. 16 Quantitative seriation of all morphologies in Balathal

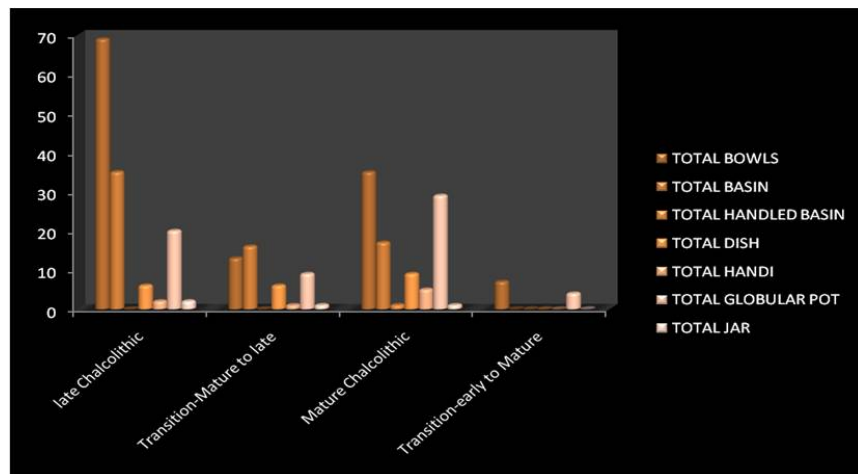


Fig. 17 Quantitative seriation of all morphologies in Gilund

Reconstructing Ceramic Chronology

After a detailed systematic study of morphologies in chalcolithic layers both in the site of Balathal and Gilund the author was able to build up a ceramic chronology for the individual sites

and ascertain layers to these Chronologies. For the site of Balathal the ceramic Chronology is as follows:

Layers	Cultural Chronology
21-19	Early Chalcolithic
18	Transition from Early Chalcolithic to Mature Chalcolithic
17-16	Mature Chalcolithic
15	Transition from Mature Chalcolithic to Late Chalcolithic
14-13	Late Chalcolithic

Table 1. Table showing chalcolithic cultural chronology in Balathal

For the site of Gilund the Ceramic Chronology is as follows :

Layers	Cultural Chronology
32- 30	Mesolithic (?)
29-27	Early Chalcolithic (?)
26-22	Transition from Early To Mature Chalcolithic
21-15	Mature Chalcolithic
14-13	Transition from Mature Chalcolithic to Late Chalcolithic
12-7	Late Chalcolithic

Table 2. Table showing chalcolithic cultural chronology in Gilund

Data from the lowest levels of Gilund are not definitive enough to propose conclusive chronology and assign layers to this chronology, but based on scattered data and previous research it could be suggested but with caution that layer 32 to 27 most probably retrieved similar material cultures. In between these layers too strictly speaking no definitive evidence from pottery assemblage could be retrieved to mark layers 32-30 to Mesolithic with certainty. However conferring benefit of doubt to excavator's identification, these layers are kept as Mesolithic in this research too but with reservation. Some modifications and minor changes could be noticed from layer 26 which continued till 22. From layer 21 onwards there were new introduction in pottery morphology that continued almost till layer 15, after which again certain dissolution was noticed in pottery morphology and from layer 12 onwards there were drastic changes in pottery morphology and ware type. Based on these observations the above cultural chronology could be assigned.

Developmental trends, similar characteristics and site specific dissimilarities established based on comparative cultural chronologies

After doing a detailed comparison of both qualitative and quantitative analysis of ware types between both the sites similar developmental trends to an extent were noticed in between both the sites which might further can establish typical characteristic features related to Ahar Banas. For example Thin Red Slipped ware type is a feature which is not to be found in Early levels in Ahar cultural sites. This ware type evolved in the transitional phase between Early to Mature Chalcolithic, increased and became steady with its convex and spherical profiled bowls in Mature phase, started decreasing in the Transitional phase between Mature to Late, may or may not be found in the Late phase (in Gilund totally absent in late phase, in Balathal totally absent in layer 13 which is the last chalcolithic layer).

The second example is the ledged, deep basins. This particular form is again not to be found in Early levels in Ahar cultural sites. This form evolved in the transitional phase between Early to Mature Chalcolithic and became steady in Mature then totally absent in the Late phases.

Appearance of large basins with sloping sides and squared rim in Coarse Red Ware category is a feature which should be typically associated with Late phases in Ahar cultural sites. This is not only noticed in Balathal and Gilund but were also reported from late phases of the sites like Ojiyana and Marmi.

Another interesting similarity between both the sites are appearance of Reserve Slipped ware from the lowest levels. This ware was first recovered in the Ahar Culture at the lowest levels of Balathal Phase A, and now the lower levels of Gilund have produced it though in limited quantities. Overall in both sites bowls, followed by globular pots is the dominant feature followed by increase in dry storage jars in Mature phases. Thus this trend could be holding true even for other Ahar-Culture sites.

There have been site specific differences also. For example in Balathal Tan ware is a very important ware type evolving in the transition between Early to Mature Chalcolithic and becoming a steady one almost identical to “Harappan wares of Gujarat (Misra 2007; 180)” in the Mature Chalcolithic. This ware type however is extremely rare in Gilund. Only few sherds have been found which too little a data to comment with certainty is. On the other hand Polychrome ware which is sturdy red ware of medium coarse fabric with a distinctive surface treatment that consists of a combination of white, black and red coloured painted decorations mostly of single or interlaced diamonds. The shapes are difficult to identify as only a few body sherds have been found from the transitional phase between Early to Mature Chalcolithic. A similar ware was found at the site of Ahar (Sankalia *et al.* 1969) but is totally absent in Balathal. In Ahar too the sherds were limited and shapes unidentifiable.

Conclusion

There has always been arguments and speculation as to how much pottery data is really beneficial in order to understand cultural development. It is here that the author wishes to justify her choice of taking pottery as the medium for understanding cultural development. Pottery is nothing but one of the artefacts found in any habitation site. The production of any artifact can be described as a sequence of steps that require the acquisition of raw materials and tools, the

operation of particular techniques, and the skill or social knowledge of the performer(s) (Cresswell 1972; 1990, Edmonds 1990, Schangler 1994, Sillar and Tite 2000). This sequence of steps has been described as a *Chaîne Opératoire*, a term originally coined by Leroi Gourhan, 1964-65 (Schangler 1994). The way *Chaîne Opératoire* is understood depends on the researcher's view of what is the end result. In this research the end result was the pot. How one might then can understand this end result in relation to the rest of the culture? Cultural value can be attributed to any artifact only when attempt has been made to understand how that particular artifact was used, by whom, when and for what.

Ahar Banas complex is a sedentary farming community. Undoubtedly in such communities everyone requires food, clothing, housing etc. This will need to organize productive activities in such a way that each person can gain access to necessary tools and resources. If the potters in the sites were full time professionals then they must have worked during the substantial part of the year. Environment is a constraint as the temperature and humidity throughout the year is not conducive for making pottery (Sarkar 2011 a) for whole community or for the region and then few days each year to make pots that they need for their own use.

The main aim of this research was to put forward certain developmental trends related to pottery for the "culture region" as a whole by integrating material data from the major excavated sites. Protohistoric communities were examined in each individual site from the point of view of its own, internal cultural configurations and then collating these features in order to get a broader developmental trend for the culture complex as a whole which has been done for the first time. Cultural chronology in this part was available but they were based on single sites as for example based only on Ahar or Balathal or Gilund. And each of this established cultural chronologies show different developmental trends. The published literature talked about dissimilar cultural interpretation based on similar material found. This particular baffling situation where similar materials or cultural trend has been treated differentially might have been a result of trying to reconstruct "culture region" (Ahar/Banas/Berach/Mewar/SE Rajasthan) based on single site. Thus the special merit of this study is that it was done keeping in mind continuity of historical process and not in isolation Once pottery has been introduced and produced in a community, it is important to understand the use and social function of it otherwise the production would be meaningless. In this research, form was given utmost importance because the way society structures a wide diversity of different forms in pottery can talk about consumption, trade and exchange, organization of production and technology. This research has resulted successfully in giving some general developmental trends in the evolution of Ahar-Banas Complex as a whole.

In the Early phases of Chalcolithic period the Ahar-Banas people have limited preferences in respect to morphologies and surface treatment. Bowls, cooking vessels and globular pots seems to be the preferred vessel form. The dark, smoky cores are indicative of probably over-ground firing where temperature is not well controlled. Decorations mainly comprised of incised designs in geometric pattern and few white paintings on Black and Red ware.

In the Early to Mature Transitional phase of Ahar- Banas complex, generally small convex profiled bowls have started appearing in, had steady increase in the mature phase, again started decreasing in the mature to late transitional phase and then totally absent in the late phase. These are small to medium in size, fine ware and applied with highly burnished slip. This particular

ware type has been described as table wares previously but the author is of opinion that in spite of being a fine-grained ware these could be utilitarian vessels not used in fire. Some of them has channeled rim which means that there was even provision to use lid. These could have been used for serving soups and stews etc i.e. primarily liquid food. The range of sizes can be justified probably to usages by different consumers, smaller ones for children, larger ones may be for adult working men/women.

Equally attractive are the storage jars appearing in Mature phase probably for dry storage as they have broad mouths with their ornamented top and coarse rusticated lower portion. The appliqué designs on the top of these jars are also an introduction in this phase.

Another interesting morphology that needs to be highlighted is the large, ledged basin that appears in the mature phase in both Balathal and Gilund and cease to exist in late phases. Introduction of this type of new forms can be ascribed to demand of the time and society. This particular form looks like vessels not used on the fire, and probably have been used for wide range of functions. The interesting thing is this particular type cannot stand by itself as it has a globular bottom so there must have been a use of stand to rest it on ground. This might have been used to soak grains or pulses, or to present large amount of food at festivals or even wash hands or faces. The uniform cores of the pottery are also indicative of the fact that pottery must have been fired in kiln in Mature phase. The presence of a kiln in structural phase VI of the Mature phase in Balathal which is also richest in the architectural evidence (Misra 2007:189) supports this fact.

Very small quantity of Buff ware reported from Gilund as well as Ahar stands on a different footing. At this stage it is difficult to say whether it was an import. Physically the fabric of Buff ware noticed in Gilund compels the researcher to say it is local. Same dilemma continues with the Polychrome wares reported from Gilund. Total five sherds have been found from the early part of the mature phase.

In the late phases in all sites there is a marked reduction in cooking vessels/handis and increase in plates and platters which could have been used as cooking trays and large basins with flaring sides and squared rim. Similar forms are also noticed from sites like Marmi (Mohanty, 1999-2000) and Ojiyana (Meena and Tripathy, 2000, 2001) from the late chalcolithic phase. This might indicate a change in food habit in the community. Pans and platters in today's Gilund village are kinds of flat griddle used to cook chapattis (flat bread). These are cooked by roasting the breads on the griddle. Thus increase in pans might indicate increase in dry cooking methods like roasting.

It should be mentioned here that possible vessel functions stated here are based on ethnographic parallels, intuitive analysis and to an extent wild speculation and thus are not conclusive. Nevertheless pots are for people. By looking into the processes of making and using pottery, insights into the life of people who were producing and using them could be arrived and that can finally help us in ordering cultural and social relations.

Collating archaeological facts along with available absolute dates (Shinde et al 2004, Shinde and Possehl 2005, Raczek, 2007 and Misra 2005), following could be considered as a comprehensive cultural chronology for the Mewar Region from Mesolithic to Chalcolithic:

Cultural Chronology	Calibrated range
Mesolithic	c.5600-4500 BCE
Meso-Chalco Transitional	c.4500-3300 BCE
Early Chalcolithic	c.3300- 2800 BCE
Early to Mature Transitional	c.2800-2600 BCE
Mature Chalcolithic	c.2600- 2200 BCE
Mature to late Transitional	c.2200-2000 BCE
Late Chalcolithic	c.2000-1700 BCE

Table 3. Table showing Mesolithic to Chalcolithic cultural chronology in Mewar Region of Rajasthan

Bibliography

- Cresswell, R. 1972. Les trios sources d'une technologie nouvelle in J. Thomas and L. Bernot edited *Langues et techniques, nature et société II: Approche ethnologique approche naturaliste*. Paris: Klincksieck. Pp- 21-27
- Cresswell, R. 1990. A new technology revisited in *Archaeological Review from Cambridge* 9 (1). Pp- 39-54
- Edmonds, M. 1990. Description, understanding and the 'chaîne opératoire' in *Archaeological Review from Cambridge* 9 (1). Pp- 55-70
- Meena, B.R. and Alok Tripathy. 2000. Excavation at Ojiyana in *Puratattva*, 30
- Meena, B.R. and Alok Tripathy. 2001. Further Excavation at Ojiyana in *Puratattva*, 31
- Mishra, Anup. 2008. *Beyond Pots and Pans: A study of Chalcolithic Balathal*. IGRMS and Aryan Book International. New Delhi
- Misra, V.N. 2005. Radiocarbon Chronology of Balathal, District Udaipur, Rajasthan in *Man and Environment*, vol XXX (1). Pp-54-60
- Misra, V.N. 2007. *Rajasthan: Prehistoric and Early Historic Foundations*. Aryan Books International. New Delhi
- Misra, V.N., V Shinde, R.K. Mohanty, Kurush Dalal, Anup Misra, Lalit Pandey and Jeevan Kharakwal. 1995. Excavation at Balathal- Their Contribution to the Chalcolithic and Iron Age Cultures of Mewar Region, Rajasthan, *Man and Environment*, XX-1. Pp- 57-80.
- Misra, V.N., V Shinde, R.K. Mohanty, Lalit Pandey and Jeevan Kharakwal. 1997. Excavation at Balathal, Udaipur District, Rajasthan with Special Reference to Chalcolithic Architecture, *Man and Environment*, Vol. XXII -2. Pp- 35-59.
- 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. Pp-132-141
- Raczek P. Teresa. 2007. Shared Histories: Technology and Community at Gilund and Bagor, Rajasthan, India (c 3000- 1700 B.C.). Phd Dissertation. University of Pennsylvania
- Sankalia, H.D., S.B. Deo and Z.D.Ansari *Excavations at Ahar (Timbavati)*, Deccan College, Pune.(1969)
- Sarkar, Amrita. 2011a. Chalcolithic and modern potting at Gilund, Rajasthan: a cautionary tale in *Antiquity* 85. Pp.994-1007
- Sarkar, Amrita. 2011b. *A Study of Cultural Development from Early to Mature Chalcolithic in Mewar Region of Rajasthan*. Unpublished Ph. D. thesis. Deccan College Postgraduate and Research Institute, Pune
- Schlanger, N. 1994. Mindful technology: unleashing the chaîne opératoire for an archaeology of mind in C. Renfrew and E. Zubrow edited *The Ancient Mind: elements of cognitive archaeology*. Cambridge University Press. Pp- 143-151
- Shinde, V., S., Sinha Deshpande and G.L. Possehl. 2002. The Ceramic Assemblages in Protohistoric Mewar (Rajasthan) with Special Reference to Gilund and Balathal. *Puratattva* 32. Pp- 5-24.
- Shinde, V.S., Shweta Sinha Deshpande and Y. Yasuda. 2004. Human Response to Holocene Climate Changes in Western India between 5th and 3rd Millennium BC, in *Monsoon and Civilization*, Roli Books, New Delhi. Pp. 383-406
- Shinde, V.S. and G. Possehl, 2005. A Report on the Excavations at Gilund 1999-2001, *South Asian Archaeology 2001*, edited by C. Jarrige, Paris
- Shinde, V.S, S. Sinha Deshpande and Amrita Sarkar. Chalcolithic South Asia: Aspects of Crafts And Technologies (in press)
- Sillar, B. and M. Tite. 2000. The challenge of technological choices for material science approaches in archaeology in *Archaeometry*. Pp- 2-20