

Development of Chalcolithic Phases in Gilund through Ceramic Chronology

Amrita Sarkar^{1,*} and Vasant Shinde¹

¹*Department of Archaeology, Deccan College Postgraduate and Research Institute*

(Deemed University), Pune, India

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This paper deals with pottery assemblage from the chalcolithic phase of the site of Gilund in Rajsamand district of Rajasthan. Though pottery from this site has been studied earlier (Shinde et al 2002), however there was no literature available on the ceramic chronology of Gilund with layers ascertained to it. This paper tries to build up a ceramic chronology in the site in order to identify different phases in the chalcolithic period and ascertain layers to these phases. It further attempts to put forward certain developmental trends and characteristics of chalcolithic pottery for the site of Gilund with probable functional interpretations.

Keywords: Chalcolithic; Ahar-Banas; Gilund; Pottery; Rajasthan

Introduction

At twenty five hectares, Gilund (fig. 1) is the largest of 111 reported sites of the Ahar-Banas Complex (Shinde and Possehl 2005) also known as Ahar Culture (Sankalia et al 1969). This culture were initially supposed to have some connection with Troy and other sites in Anatolia by Sankalia (1969: 223) based on similarity in incised terracotta beads, though this hypothesis is nulled by present scholars. It is situated in the wide fertile valley of the Banas River, which is about one kilometer north of the modern village of Gilund. The archaeological site is part of the modern village, which is roughly 120 km to the northeast of Udaipur City in Rajsamand district, at the southern end of "Khetri Copper belt." The site has a special place in the Protohistoric Archaeology of India. Nearly 45 years ago, one season's excavation by B.B. Lal of the Archaeological Survey of India brought to light previously unknown features of the Chalcolithic culture of South Asia. These included the use of burnt bricks for construction and a unique parallel walled mud-brick structure (IAR, 1959-60). These discoveries indicated that the site had great potential for future research work on Chalcolithic Mewar.

Since 1999, the University of Pennsylvania has participated with Deccan College Post-Graduate and

Research Institute in a multi-disciplinary research project at Gilund. During these excavations, the site became famous after the startling discovery of an underground clay bin containing over 100 seal impressions, which excavators believe that these impressions have parallels with the Bactriana-Margiana-Archaeological Complex (BMAC) of Northern Afghanistan and Central Asia (Possehl et al 2004). However a present study on the sealing from Gilund by Ameri (2010) asserts that these sealings indicate a reflection of the Shifting of Indo-Iranian patterns. Apart from these seals, a large variety of pottery vessels and terracotta objects have been found in many contexts throughout the site. Impressive and complex mud-brick structures including magazine type ware house, storage bins, kilns, and evidence for other pyro-technological activities have been found. The use and manufacture of kiln-burnt bricks by the ancient inhabitants of Gilund is also another remarkable feature of the site. Other finds include a cart track or road and a large retaining wall. Additional objects found at the site include clay figurines, beads, and game pieces. From all these finds, excavators believe that from the late third to early second millennium BC, Gilund's population was stratified, and that the elite members of Gilund's society had wide ranging contacts with contemporary populations in S.W. Iran, Afghanistan, and Central Asia.

*Corresponding author. E-mail address: amritjoy@gmail.com



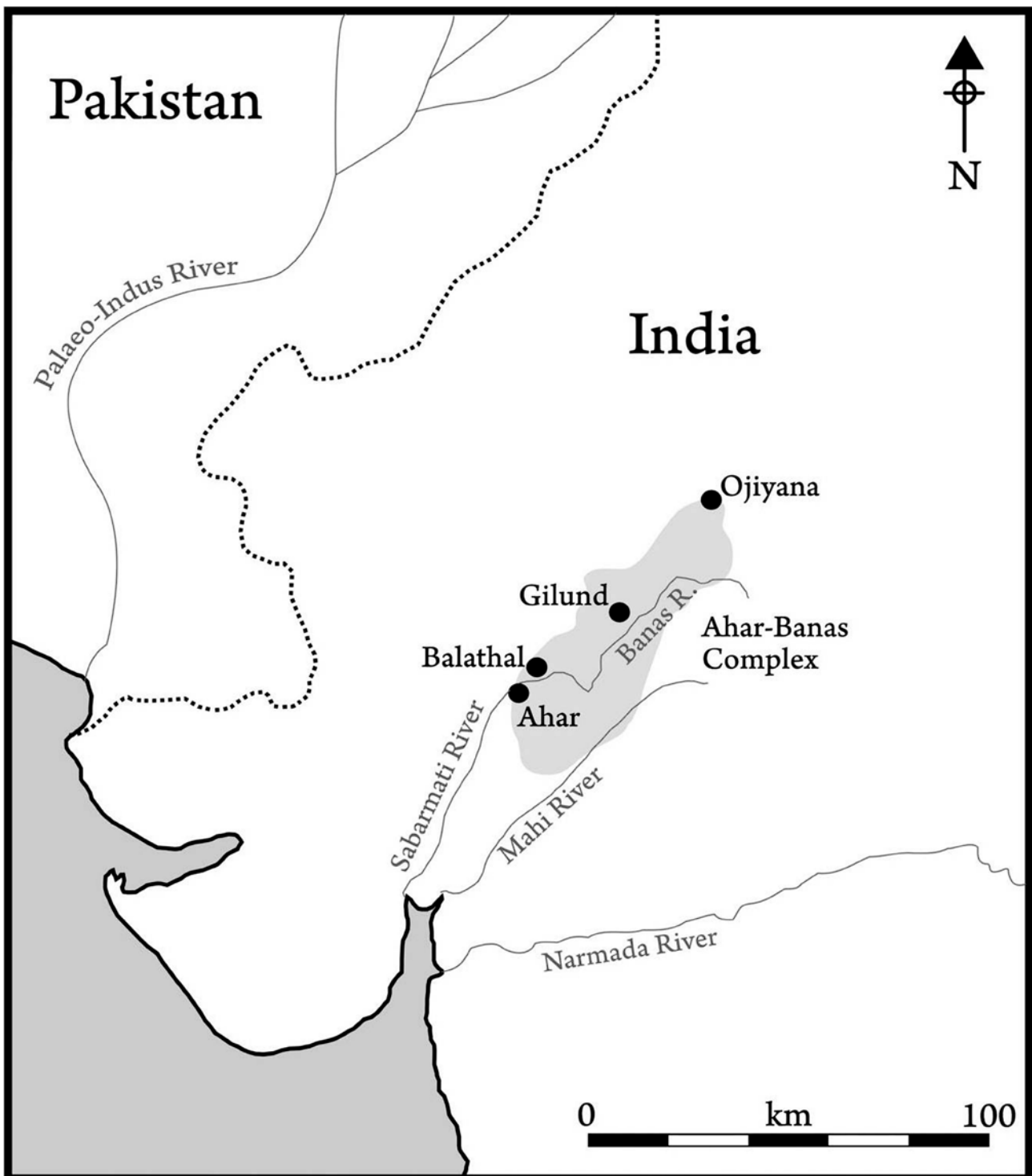


Fig. 1: Map showing the excavated sites of Ahar-Banas Complex.

Chalcolithic Pottery Assemblage of Gilund

The Chalcolithic Pottery (figs. 2, 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 2011). The Chalcolithic pottery of Gilund is very similar to the Ahar-Banas assemblage. The





Fig. 2: Clockwise from left, Reserved Slipped ware, Tan Ware, Thick Red Slipped ware, Buff Ware, Black and Red ware and Thin Red Slipped ware (After: Sarkar 2011).



Fig. 3: Grey ware from Ahar-Banas Complex (After: Sarkar 2011).

latest classification (Sarkar 2011) reveals four broad groups of 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). This technique of production involves the manufacturing process starting from the preparation of clay to firing stage. 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 was divided into fine and coarse variety. After that each subgroup of finer or coarser variety is further sorted according to its form.



(I) Red Ware

(a) Thick Red Slipped Ware (medium to coarse)- these are coarse wares applied with thick red slip on the outer, upper half of the body whereas the lower outer half is unslipped and rusticated. In between the Slipped, upper half and unslipped, lower half lies the incised design in geometric forms like wavy lines, criss-cross incisions, herring bone patterns and chevrons. This application of slip on half of the vessel body is only applied in case of handis and globular pots. Dishes and bowls are fully applied with slips. The colour of the slip varies in red (Hue 10R 4/6- 5/6), dark red (Hue 10R 3/6), orange (Hue 2.5YR 6/6), dull orange (Hue 2.5YR 6/6), bright brown (Hue 2.5YR 5/6), reddish brown (Hue 2.5YR 4/6), dull reddish brown (Hue 2.5YR 5/4). The inner surface is unslipped but smooth. The major forms in this ware are large and narrow mouthed globular jars and pots and medium sized handis.

(b) Coarse Red Ware- these are coarse grained unslipped wares mostly without designs but in few occasions carry incised designs on the outer surface in the form of wavy lines. The major forms are wide mouthed globular jars and handis and also large dishes and shallow basins.

(c) Micaceous Coarse Red Ware- these are wheel made red ware with coarse fabric having mica flakes throughout the fabric. Both slipped and unslipped varieties are found. The slip colours varies from reddish brown (10R 5/4) to bright brown (2.5YR 5/6) to orange (2.6 YR 6/6). Unslipped outer surface are generally rough but inner surfaces are either slipped or smoothened.

(d) Thin Red Slipped Ware- these are fine grained wares applied with a highly burnished thin slip on the outer surface and rim portion of the inner surface. The colour of the slip varies in red (Hue 10R 4/6, 5/6, 4/8), orange (Hue 2.5YR 6/6), bright brown (Hue 2.5YR 5/8, 5/6), reddish brown (Hue 2.5YR 4/6), dark reddish brown (Hue 5YR 3/6) and dull reddish brown (hue 2.5YR 5/4). The major shape is convex sided deep bowls and few globular pots in small and medium size with everted or beaded rim.

(e) Reserved Slip ware – medium to coarse

grained ware that were applied with two slips on the external or internal surface, first treated with a thin slip usually of light red colour followed by a second slightly thicker slip of darker colour. Before the second slip would dry completely, decorative patterns were executed by scooping out a part of the slip by a comb like instrument. Since no rim sherds were found in this ware type, definite morphologies could not be ascertained.

(f) Polychrome Ware- this is primarily a red ware of medium fabric. The surface treatment consists of a red slip over which are found painted decoration in black and white combination mostly in the form of single or interlaced diamonds. As only body sherds have been retrieved, no forms could be identified.

(g) Malwa Ware- only 9 sherds were retrieved that could be identified as Malwa Ware. These are coarse grained Red Ware, slipped on the outer and inner surface (though in most cases slips are worn out). It is painted on the outer surface with black pigment. The patterns found are horizontal bands and chevrons. The core thickness varies from 5-8cm. They have heavy and dark cores, indicative of ill/over firing.

(II) Black and Red Ware

These are found both in coarse and fine variety though morphologies differ. They are named so because the inner surface and the shoulder portion of the outer surface is black and the rest of the outer surface is red. In the finer variety both the inner and outer surfaces are slipped and burnished. But among the coarser variety only the outer surface is slipped and burnished. The colour of the inner slip is black (Hue 10R 1.7/1), to reddish black (Hue 2.5YR 2/1). The colour of the outer slip varies in dull reddish brown (Hue 2.5YR 4/4), dull orange (Hue 7.5YR 7/4), bright brown (2.5YR 5/6), dull brown (Hue 7.5YR 5/4), orange (hue 2.5YR 6/6), dull orange (Hue 5YR 6/4). Also among the finer variety of BRW vessels are painted with white pigment over the black inner as well as outer surface. The painted designs are mostly geometric comprising of straight and wavy lines both vertical and horizontal, dashes and concentric arcs. The major shapes in the finer variety are shallow small sized and medium sized



bowls both convex-profiled and carinated with knife edged rim. In the coarser variety we have shallow small basins and few wide mouthed handi.

(III) Buff Ware

These are fine grained wares and occur in small quantity. The surface is applied with cream coloured slip which is powdery and comes off in hand if rubbed. Even the cores are buff or pink as kaolin is added to the clay which does not change to red colour even after fired at high temperature (Mishra 2008). Sometimes painting with black pigment has been found in horizontal band. Very few body sherds were retrieved so no morphologies could be established in this ware type.

(IV) Grey Ware

(a) Slipped Grey Ware- these are coarse grained ware slipped and burnished on the outer upper half of the vessel and the lower portion is unslipped and roughened with sand. The colour of the slip varies in Grey (Hue 5Y 5/1), yellowish grey (Hue 2.5Y 5/1), greyish yellow brown (Hue 10YR 6/2), brownish grey (Hue 10YR 4/1), dull yellow orange (Hue 10YR 6/2), greyish brown (5YR 4/2), greyish yellow brown (10YR 5/2); dull brown (7.5YR 5/3); dark greyish yellow (2.5Y 5/2); to dull yellow (2.5Y 6/3); dull yellow orange (10R 6/3). In between the slipped and unslipped portion the vessels are profusely decorated with incised designs in geometric patterns. The major shapes in this ware type are narrow mouthed, globular jars and medium sized, carinated handis. Few wide mouthed parallel sided jar is also noticed.

(b) Plain Grey Ware- these are coarse grained unslipped variety without any decoration. The major forms in this type are basins and dishes with few narrow mouthed globular pots.

Reconstruction of Ceramic Chronology in Gilund

The 4 series of trench from GLD1 was Index

trench cut in the form of step trench and from this series trench 4D, 4E and 4F (fig. 4) were chosen in order to study the pottery from the chronological perspective. Table 1 shows the trench along with layers that yielded Chalcolithic pottery from its early phase to late phase. It should be clarified that potsherds retrieved from layer 22 to 32 were lesser in amount, at times reduced to 10-15 sherds/layer. Moreover potsherds from layer 27-32, seemed to be of washed materials as there were quite a number of typical late Chalcolithic forms noticed. This hints that material found between layers 27-32 are in a mixed context. This likelihood could be supported as the foundation of the fortification wall was above this layer and potsherds from above must have percolated down as most of them were found

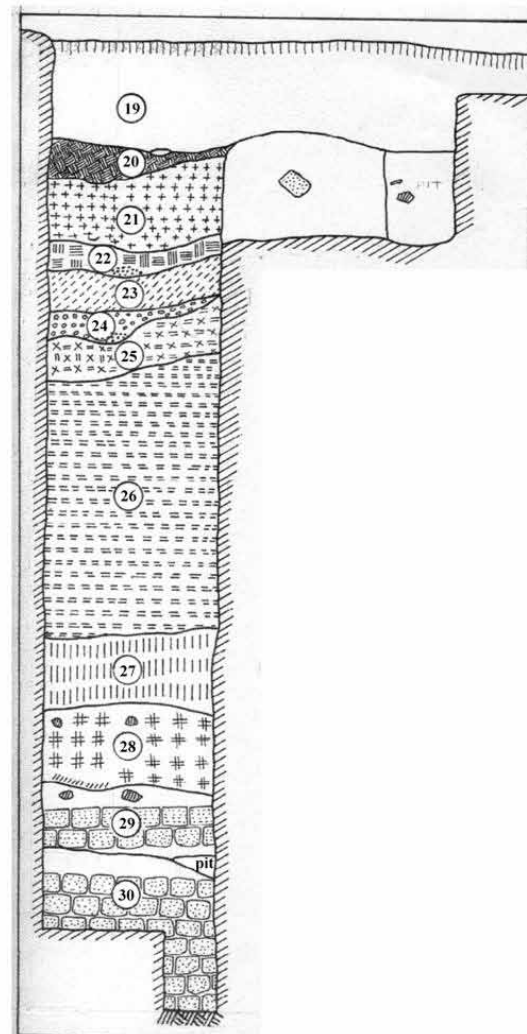


Fig. 4: Stratigraphy of Gilund (Trench 4F, GLD1).



Trench	Layers
4D	7
≠	8
≠	9
Pit not excavated	10
4E	11
≠	12
≠	13
≠	14
≠	15
4F	16
≠	17
≠	18
≠	19
≠	20
≠	21
≠	22
≠	23
≠	24
≠	25
≠	26

Table.1: Trench along with layers studied for the chronological developmental of pottery.

lying against the wall. It should also be brought to notice that most of these layers contain brickbats, probably collapsed materials from the wall. Thus potsherds from layer 27-32 were not considered into the analysis as these could provide an erroneous picture. If and when potsherds were retrieved from layer 22- 26 has been included into the analysis, but their occurrence and frequency both are at a low level. Hence comprehensive deduction about ceramic morphology could not be derived from the lower levels in Gilund. Moreover only selective ware types have been taken into consideration to understand the development in morphology temporally like Thick Red Slipped. Coarse Red, Coarse Grey, Black and Red and Thin Red Slipped wares as these ware types occur throughout.

(I) Thick Red Slipped Ware (fig. 5)

From layer 26 to 22 we see small globular

pots with rim diameter ranging from 12 to 16cm with out-turned, tapering rim. Also are seen basins with triangular rim and ledged rim. Not much designs are found in these layers excepting a very few occasion of incised patterns. Three to four varieties of slip application is found.

From layer 21 onwards morphologies start changing a bit. In place of basins, large and medium sized bowls appear with incurved tapering rim. The globular pot continues but with out-turned squared rim. In layer 16 small, globular pots continues. Layer 16 is followed by bowls and triangular rim basin in layer 15. Fabric becomes medium-grained and five varieties of slip application are noticed. Incised designs in geometric patterns are noticed along with scooping and punctured designs.

From layer 14 onwards minor changes are noticed in forms as well as fabrics. From layer 14 onwards fabric becomes coarse grained. Slip application reduces to three varieties. Pots are medium fired and contains incised designs in geometric pattern same as the previous layers. Small globular vases appear in layer 14 and continue in layer 13. Basins cease to appear. Instead small bowl with convex profile are found mostly with 12 cm of rim diameter. From layer 12 morphologies starts changing drastically. In layer 11 apart from globular pots, carinated cooking vessels and bowls are seen. In layer 9 constricted necked, globular jar appears similar to Mishra (2008) finding belonging to phase CI of Balathal. These constricted necked, globular jar are first seen in layer 15 in authors analysis from Balathal. Same morphologies that of small globular pots with few bowls continue till layer 7.

(II) Coarse Red Ware

The major forms noticed in layer 21 are basins and pans. Thus it could be hypothesized that the lower levels might have similar morphologies. They are primarily coarse grained ware, unslipped from outside having a granular outer surface, because of treating it with sand particles. It is smoothed from the inner side and is mostly unslipped. In layer 19 a stand probably holding a bowl/dish is found. The fabric is coarse but dense which indicates that clay was well levigated. The breaks are also straight.



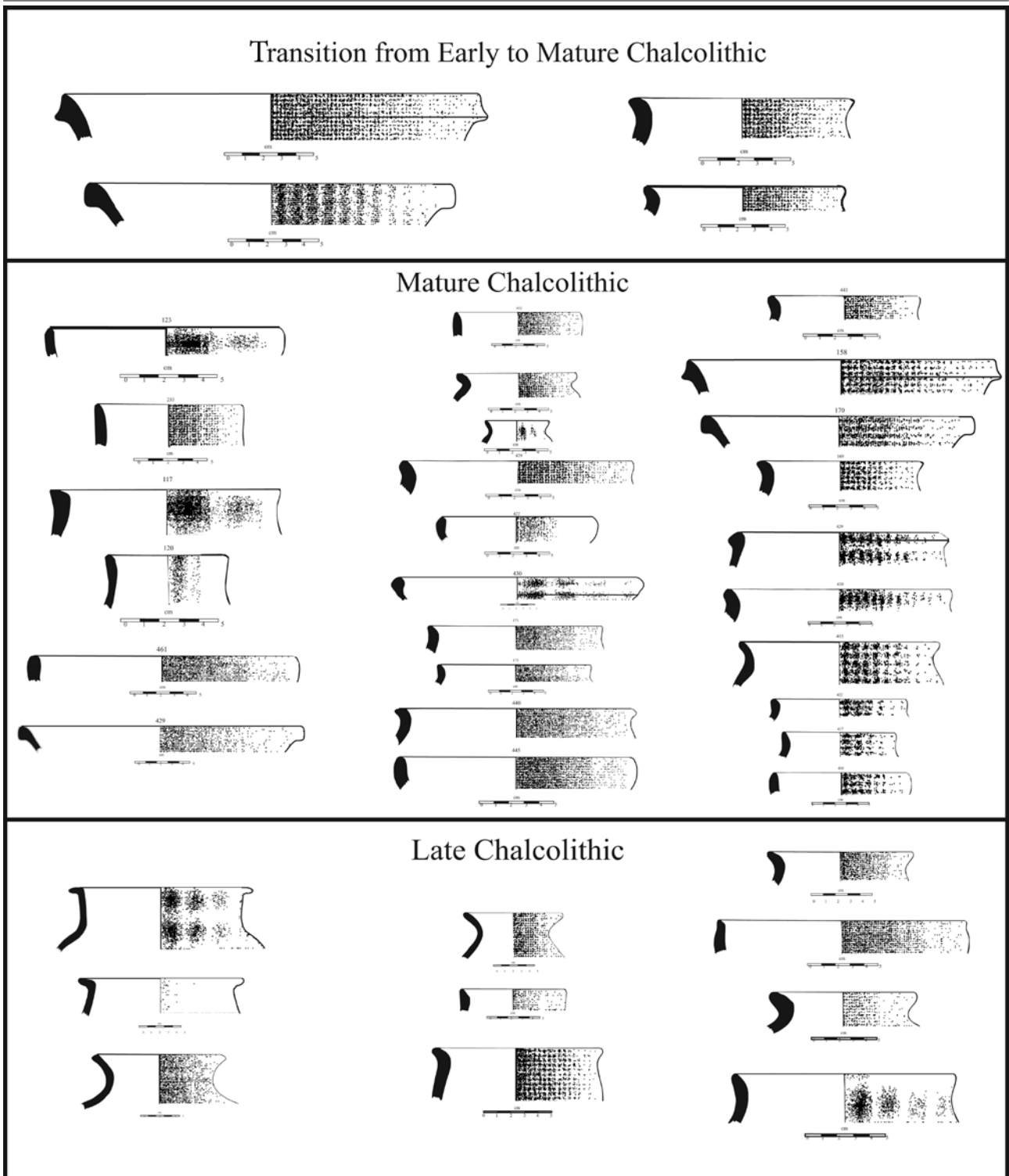


Fig.5: Thick Red slipped ware forms in Gilund.

The thickness of the cores varies from 5mm to 1.5cm. Core contains mica and impurities. The impurities are in large size and are in the form of local 'Kankars'. Impurities also occur on surface.

In layer 17 apart from basin that continues from lower layer, vertical sided, carinated dish and bowls also come into existence. Slip is also noticed on the inner side of the vessel from this layer. Some sherds show incised designs. Layer 16 shows some



more modifications in the form of channeled rim. Basin is the major form. Apart from this a triangular rimmed neck is retrieved. Layer 15 follows most of the basins from the previous layer but also adds globular pots/ cooking vessels with out-turned rim.

Layer 14 continues to produce basin with carinations on the outer surface. However squared rim seems to decrease and instead rounded rims are more common. Small globular pot is also noticed. Layer 13 adds some minor changes like out-turned beaded rim, ledged rim, and cylindrical jars. The rims mostly become tapered. Globular pots also noticed. Similar patterns continue till layer 9.

(III) Coarse Grey Ware (fig.6)

In Layer 21, medium-sized, convex profiled bowls, small globular pot with beaked rim having 12-18 cm of rim diameter also appears, medium sized handi, large carinated dish/pan with 24-38 cm of rim diameter with slightly incurved featureless rim and probably a medium sized jar is noticed. Thus majority of the forms are bowls, followed by basins and dish and then globular pots.

In layer 19, similar morphologies are found from the previous levels but with one exception that starts to appear from this layer is a large deep basin with attached drooping ledge probably used as a hold. Forms in layer 17 comprises of the previous layers with three bowls, three basins, two handis, one ledged basin and one carinated dish although bowl size increases now with rim diameter ranging from 20-24cm. Fabric from layer 21 to 17 is coarse grained with four varieties of slip treatment. Three slip variations are found in layer 21, increasing to six in layer 19. In layer 16, among the morphologies cooking vessel continues but majority of the forms show bowls followed by basins and dish/ pan. Layer 16 also has the same forms along with parallel sided storage jars. A fine piece of small convex profiled bowl with everted rim and ribbings on the outer surface is also noticeable in this layer. This form is typically found in Thin Red Slipped ware and one in Grey Ware Variety is definitely an exception. This indicates that during the Late Mature phase in Gilund this particular form was also duplicated in

the Grey Ware variety by the potters. Decorations include ridges and series of thin appliqué horizontal bands and incised designs. Over an appliqué ridge closely spaced short cuts, corrugated shoulder with a design of broad appliqué suspended loops with closely cut designs are found. This appliqué design occurs first in layer 17 and continues upto layer 13.

In layer 14, there is a sudden decrease in forms as only bowls are seen. But it could be assumed that large carinated dish/pan and basins and very few globular vase were there as they are retrieved from layer 13. Again in layer 11 bowls and globular vessel is noticed, followed by bowls and basin in layer 9. In layer medium sized globular pot, narrow necked globular pot with an elongated body, large dish with 40cm of rim diameter, shallow basin with convex profile and channeled, nail-headed rim having a diameter of 22cm, large deep bowl, carinated on the outer surface are noticed. Layer 7 once again shows a marked decrease in form with only globular pot and shallow bowl. Layer 14 and 13 continued the slip application of previous layers but from layer 12 till layer 7 four varieties of slip application were available.

(IV) Black and Red Ware (fig. 7)

In between layer 26-21, the major forms are sub-spherical bowl with rudimentary everted or beaded rim with diameter ranging from 10 to 14cm. The fabric is medium-coarse grained and only one variety of slip application is noticed. The paintings are in the form of circular pattern with dot inside, semi-circular concentric arcs and parallel vertical lines.

From layer 20, convex profiled bowl started appearing with everted rim. From layer 17 to 15 not much rim sherds were retrieved thus much cannot be said about the morphology. One uncommon form, noticed in layer 17 which is generally not found in thin Black and Red Ware type is probably a handi with thin section and out-turned rim, having ribbings on the shoulder portion. Besides, convex profiled bowl with everted and out-turned, rounded rim has developed. The fabric in layer 17 became medium grained followed by fine grained in layer 16 and 15. Six varieties were slip treatment are also noticed in these layers.



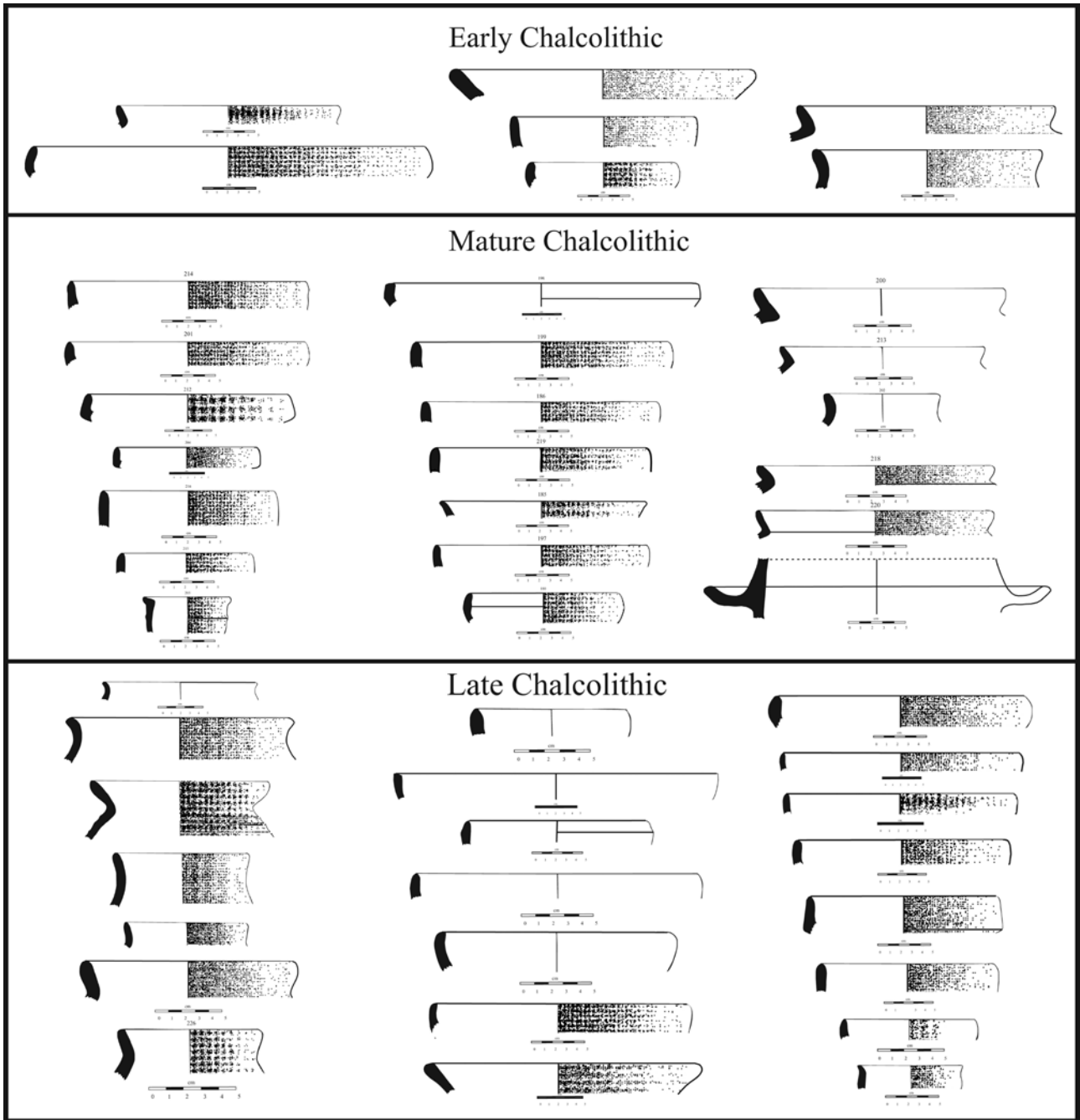


Fig.6: Coarse Grey Ware from Gilund.

In layer 14 convex profiled bowl with everted and small flared out rim is noticed, rim diameter varying from 12-14cm. In layer 12 convex profiled bowls with short everted rim having rounded and pointed lip are major forms followed by convex profiled bowl with straight featureless rim in layer 11. Layer 9 however shows some modifications in the form of knife-edged and flared out rim

with carination. But major forms remains bowl of varying sizes with rim diameter ranging from 10 -16cm. Layer 8 and 7 follows the morphologies of layer 9 but flared out rims are not seen any more. Instead, comes featureless, out-turned, everted and beaded rims. The major forms in these layers are also bowl though the frequency of small sized bowl increases with 8-12cm of rim diameter.



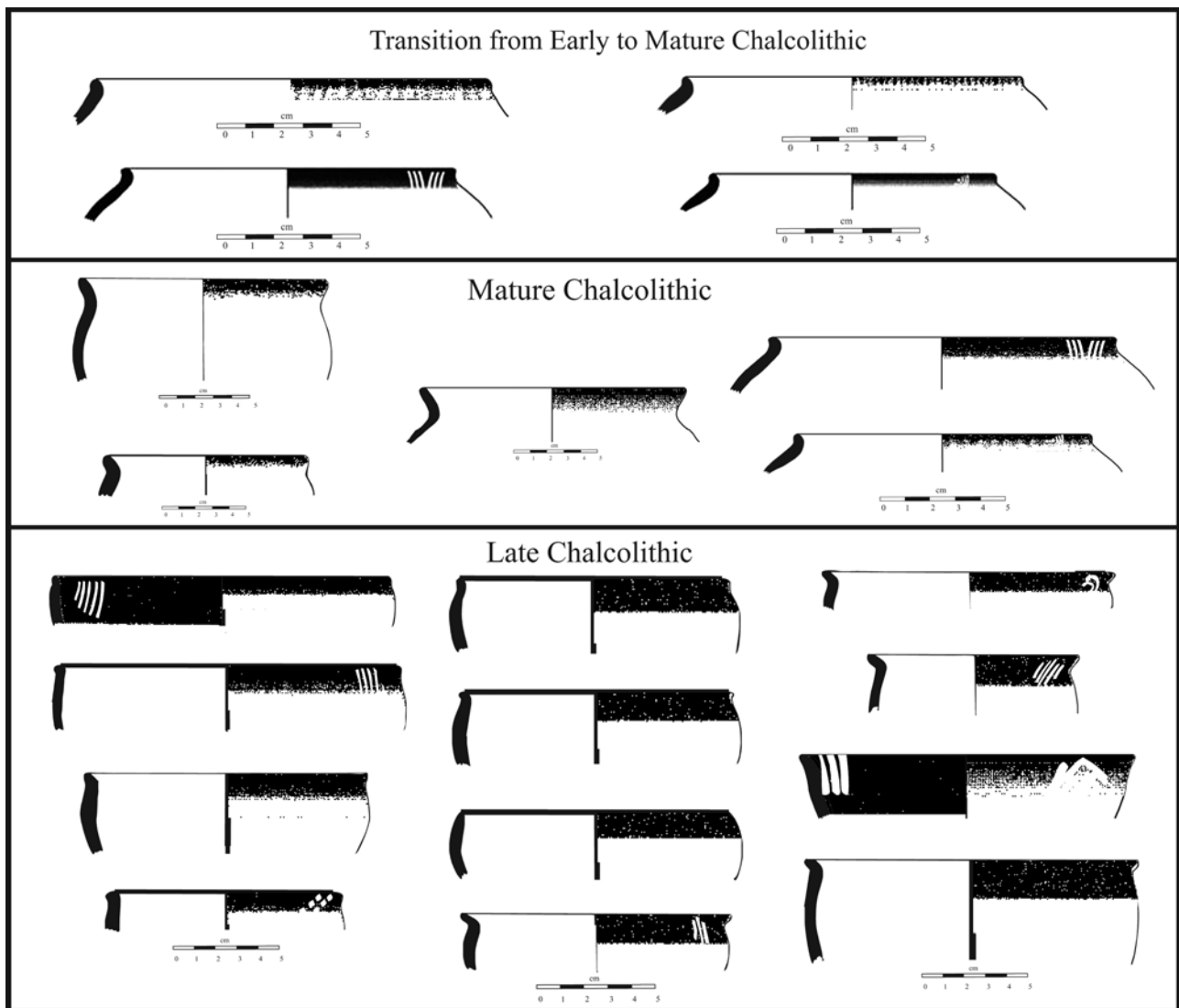


Fig. 7: Black and Red ware shapes from Gilund.

(V) Thin Red Slipped Ware (fig. 8)

Layer 22 yielded one rim sherd that of a small globular pot with everted rim in its rudimentary stage. Layer 21 however shows a lot of additions in morphology. In fact this layer has yielded maximum assemblage of Thin Red Slipped ware. Apart from small globular pots, convex profiled bowl with everted and beaded rim were introduced. In fact they outnumbered globular pot. Five varieties in slip colour were noticed in this layer. The thickness of the core reduced to 1.5mm. Decoration in the form of punctured incisions was also noticed. The assemblage is very similar to assemblage of layer 18, 17 of BTL. Layer 19 has only bowls

almost same as previous layer. Assemblage wise this layer is analogous to layer 16 of BTL.

Layer 17 morphologies have reduced and yielded one rim sherd of bowl with sloping sides but the size of the bowl has increased, now with 16cm of rim diameter and continues to be so till layer 13. Fabric is fine and slip varieties are two. Layer 16 has only yielded body sherds. Thickness of the core continues to be 1.5-5mm. Assemblage wise these layers are similar to layer 16 of Balathal.

Layer 13 and 14 has medium sized, convex profiled bowls only. Slip variety noticed is one. Fabric is fine but core thickness has increased to minimum of 3cm. Assemblage wise these



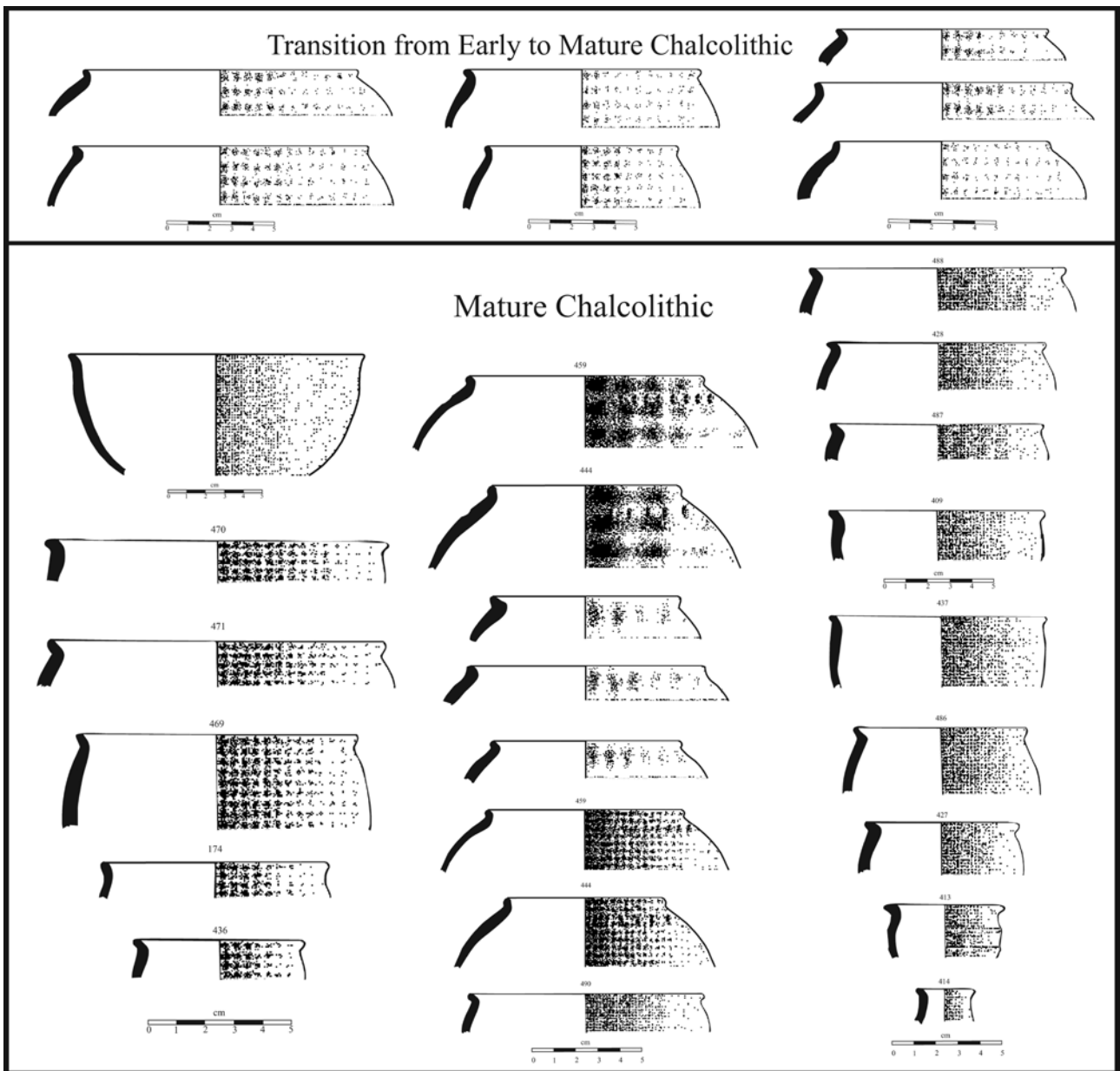


Fig. 8: Thin Red Slipped ware forms from Gilund.

layers are similar to layer 13 and 14 of Balathal.

(VI) Micaceous Coarse Red Ware

These are coarse red ware, slipped on the outer surface. The characteristic of this ware is that it had mica flakes scattered through the fabric. These are fast wheel made ware and are medium to ill-fired as is evident from the grey to black cores. This

ware also started to appear only from layer 12 and continued till layer 7. The major form is large basin either with convex profile or sloping sides with squared rim. The sides generally thin down towards base. However there are minor changes in this form over the layers. In layer 9, small bowls, cooking vessels and also small globular pot are seen. In layer 7 however all these three forms i.e. small bowls, cooking vessels and globular pots cease to exist and large dishes are found besides the basins.



It must be mentioned here that same morphology have been reported in Ojiyana (Meena and Tripathy 2000, 2001) and Marmi (Mohanty et al 1999-2000) in the later phases.

Discussion and Conclusion

After a detailed qualitative and quantitative analysis of ware types, certain developmental trends to an extent were noticed which can be considered as typical characteristic features related to the site and can further be compared with other Ahar cultural sites. 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 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 researcher 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 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 the early part of the mature phase.

In the late phases in Gilund 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. 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 or grilling.

Since 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 paper too but



with reservation. Some modifications and minor changes were 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 following cultural chronology could be assigned, shown in Table.2.

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.

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