

Typological Chronology of Pottery Assemblages from the Lal-lo Shell Middens in Northern Luzon, Philippines

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要約: フィリピン、北部ルソン島カガヤン川下流域に分布するラロ貝塚群を中心とした遺跡群の調査は、先史時代における狩猟採集社会と農耕社会の相互関係の歴史プロセス解明を目的としている。そのためにまず各遺跡の存続期間を明確にする調査を継続してきた。これまでの調査によって遺跡群は 4000 年前以前の土器出現以前の剥片石器群の時代、4000 年前以降の土器群の時代、そして貿易陶磁を出土する時代に編年できる。土器群はさらに 4 つに区分され、4000~3400 年前の有文赤色スリップ土器群、3400~3000 年前の無文赤色スリップ土器群、2000~1500 年前の有文黒色土器群、そして 1500~1000 年前の無文黒色土器群に編年されることが、層位と C14 年代によって確認されている。本稿では、各時代の指標となる遺跡から出土した土器の形態的特徴のバリエーションと器種構成を提示する。さらそれらのなかで同時代の遺跡間で共有される特徴的な土器の形態がその時代の指標となることを 4 つの土器群ごとに確認する。最後に、各時代の指標となる土器の形態によって編年された遺跡群が、カガヤン川下流域の低地と丘陵において、どのように変遷するかを明らかにする。

Keywords: Lal-lo Shell Middens, Typological Chronology, Decorated Red-slipped Pottery Assemblage, Non-Decorated Red-Slipped Pottery Assemblage, Decorated Black Pottery Assemblage, Non-Decorated Black Pottery Assemblage, Settlement Pattern

Introduction:

Lal-lo Shell Middens are located on the river bank along a fifty-kilometer stretch of the Lower Cagayan River, Northern Luzon, Philippines. More than twenty shell midden sites are recognized on the river bank, and other archaeological sites, like caves or open air sites are found in the limestone hills on the east bank of Cagayan River (Fig.1). The purpose of the research is to reconstruct the prehistory of interdependent relationships between lowland farmers and upland hunter-gatherers in Lal-lo area (Ogawa 2000b, 2002a, 2003b). For this purpose, the archaeological research on the Lal-lo Shell Middens and the caves and open sites in the hilly area in Lal-lo has been conducted since the middle of 1980's. The ethnoarchaeological research on the shell gatherers and Agta hunter-gatherers in Lal-lo area has been also operated. By the integration of results from these researches, the purpose will be accomplished. But the first step of the purpose is to establish the local chronology by the artifacts and grasp the changing settlement patterns by the distributions of sites in time and space.

Four different pottery assemblages have been excavated from Lal-lo shell middens. The Decorated Red-Slipped Pottery Assemblage, considered to be the oldest, was excavated from the Magapit Shell Midden. The Magapit Shell Midden is located on the limestone hill with fifty meters above mean sea level and facing the Cagayan River. Three other pottery assemblages were all excavated from the sites on the river bank with less than ten meters above mean sea level. The Non-Decorated Red-Slipped Pottery Assemblages were excavated from the silt layer under the shell layers on the river bank. The Decorated and Non-Decorated Black Pottery Assemblages were excavated from the shell layers. The stratigraphic order of the three pottery assemblages confirmed by the excavations is from the lowest to the uppermost layers: Non-Decorated Red-Slipped Pottery Assemblage, Decorated Black Pottery Assemblage and Non-Decorated Black Pottery Assemblage.

Addition to the stratigraphic order of pottery assemblages, the relative chronology of pottery assemblages has been examined through typological studies of the potteries excavated (Aoyagi et al. 1991; Ogawa 2002a-c, 2003a, 2004; Tanaka 1993, 2002b, Figs. 2, 3). As shown in Fig.4, the changing distributions of the archaeological sites in Lal-lo area can be divided into six chronological periods: the Flake (pre-pottery) Assemblage Period, the four Pottery Assemblages Periods, and the Period of Trade Ceramics. The absolute datings of these pottery assemblages were obtained by AMS C-14 dating: 3400 to 3000 cal.BP for the Non-Decorated Red-Slipped Pottery Assemblages, 2000 to 1500 cal.BP for the Decorated Black Pottery Assemblages, and 1500 to 1000 cal.BP for the Non-Decorated Black Pottery Assemblage (Table 1). No calibrated C-14 dates are yet to be obtained for the Decorated Red-Slipped Pottery Assemblage, instead non-calibrated C-14 datings of 3800 to 2800 BP were obtained (Aoyagi et.al. 1993). The stratigraphic order between the Decorated Red-Slipped Pottery Assemblage and other three pottery assemblages is not yet confirmed by the excavations. But the Decorated Red-Slipped Pottery Assemblage is supposed to typologically precede the other three pottery assemblages. At present, it must be assumed that the Decorated Red-Slipped Pottery Assemblage appeared first in Lal-lo area from

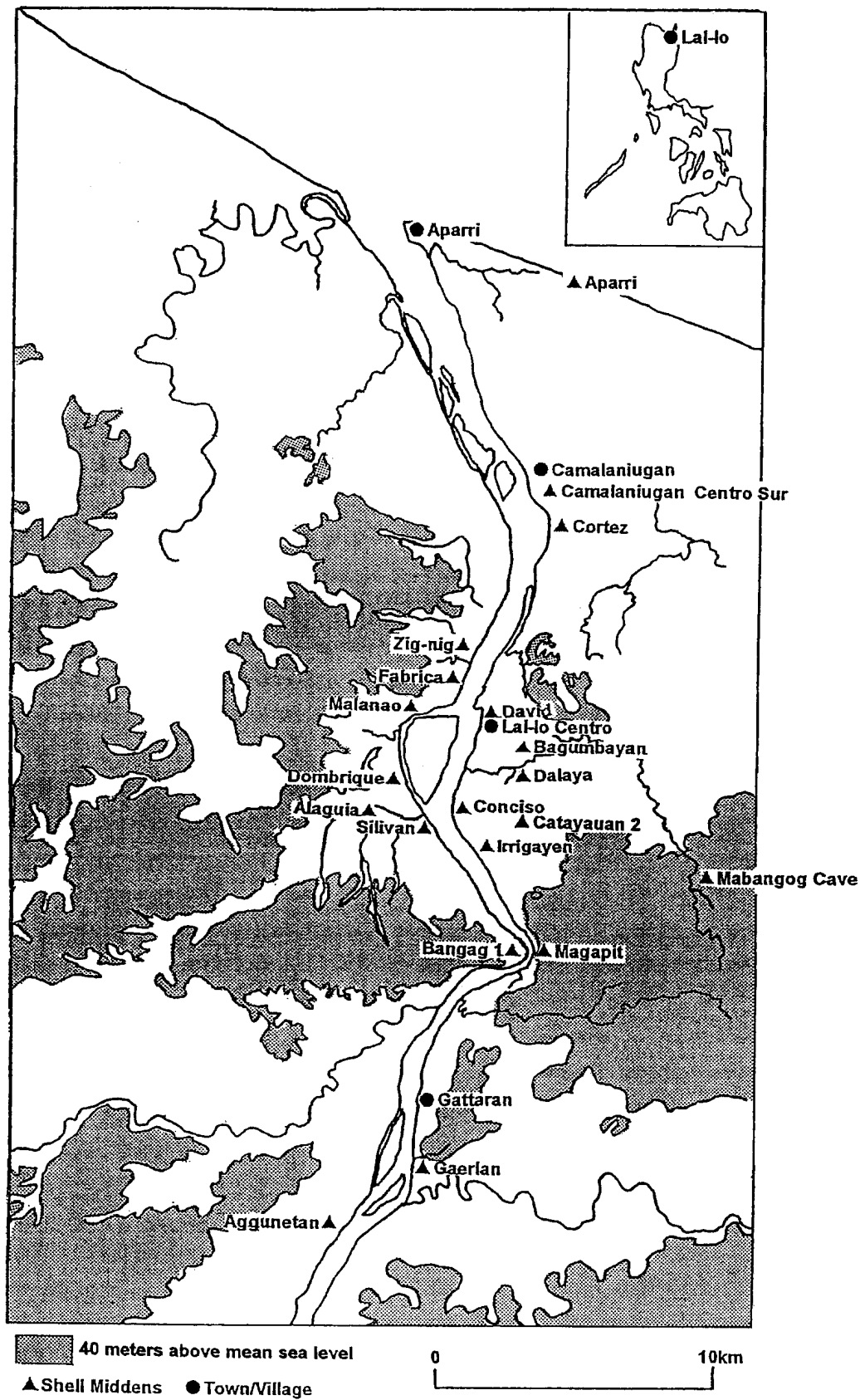
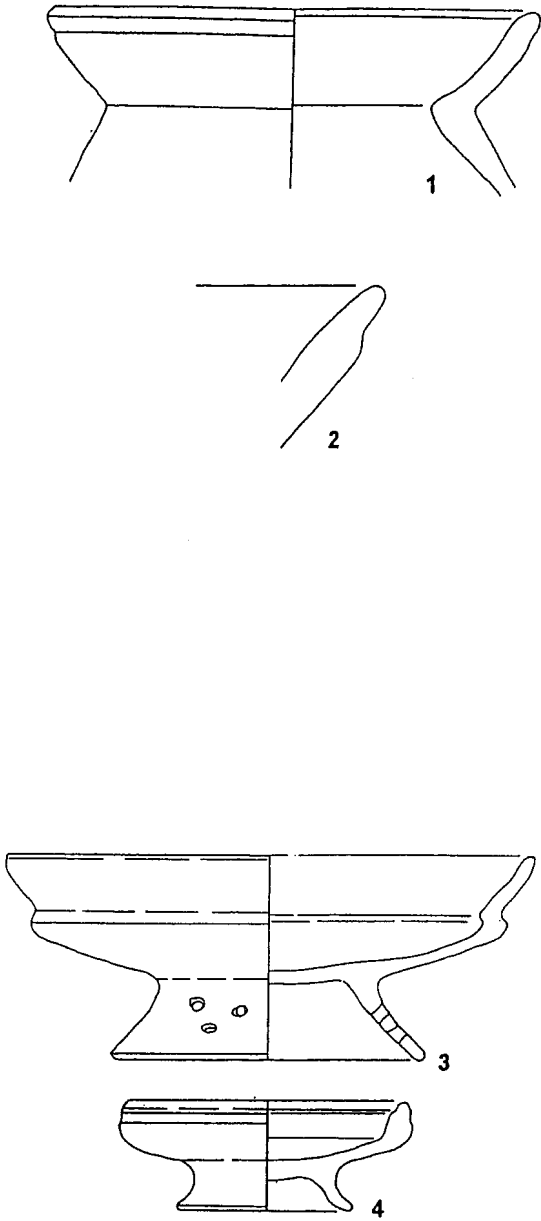


Fig. 1 Site Location Map of Lal-lo Shell Middens

Non-Decorated Red-Slipped Potteries (R2)



Decorated Red-Slipped Potteries (R1)

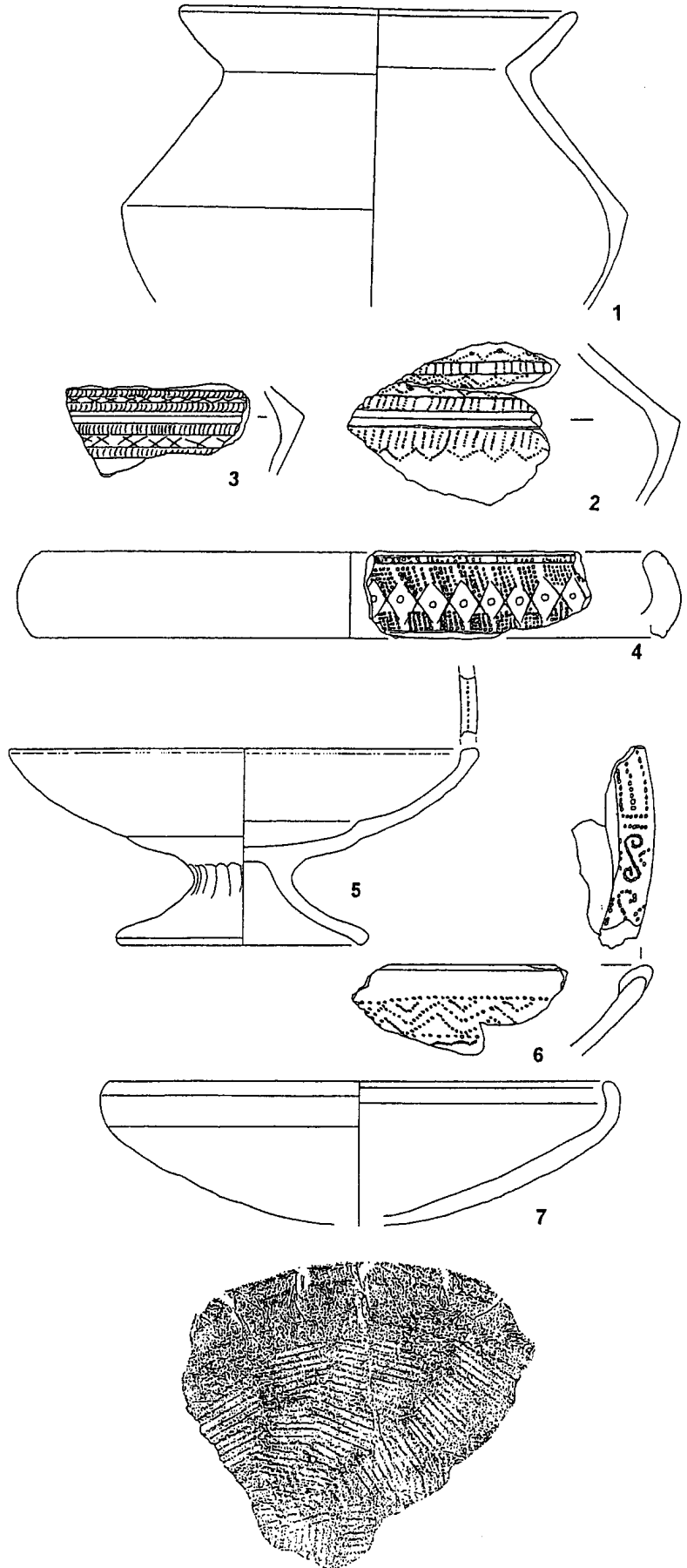
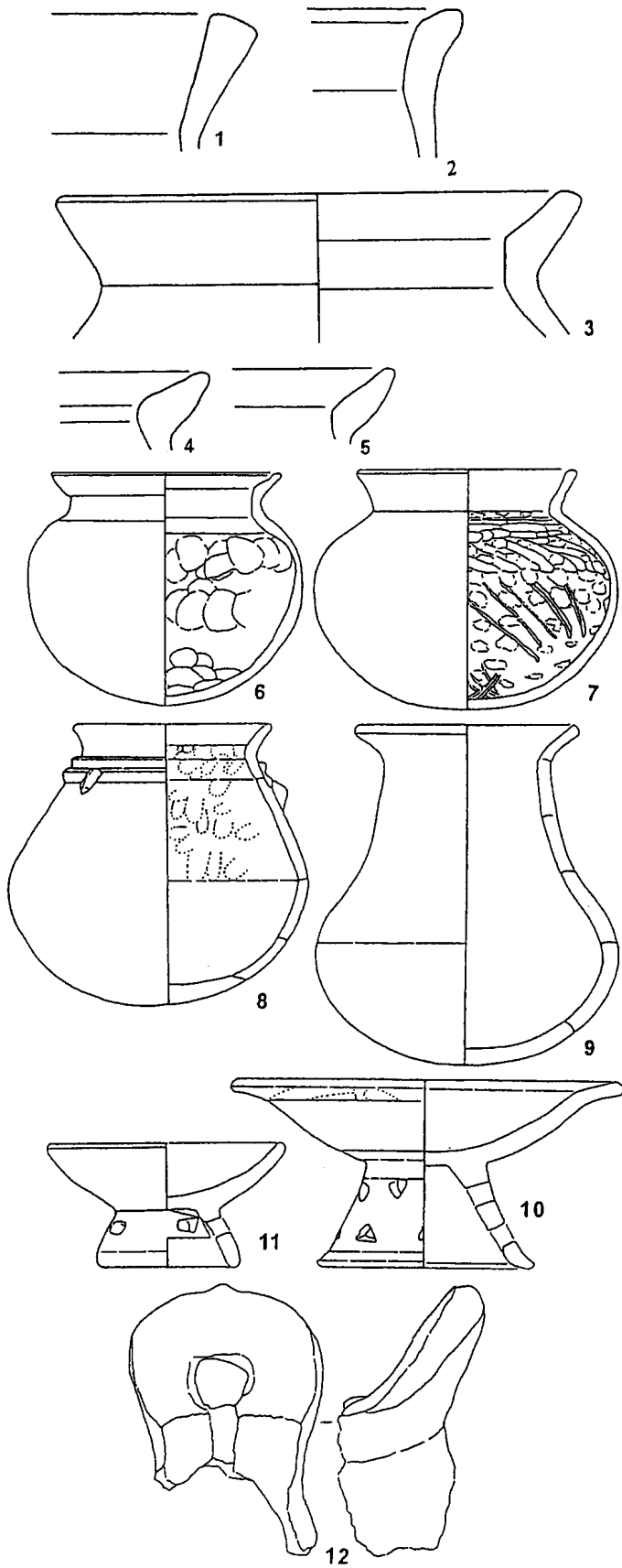


Fig. 2 Comparison of Diagnostic Pottery Types of Two Different Red-slipped Pottery Phases

Non-Decorated Black Potteries (B2)



Decorated Black Potteries (B1)

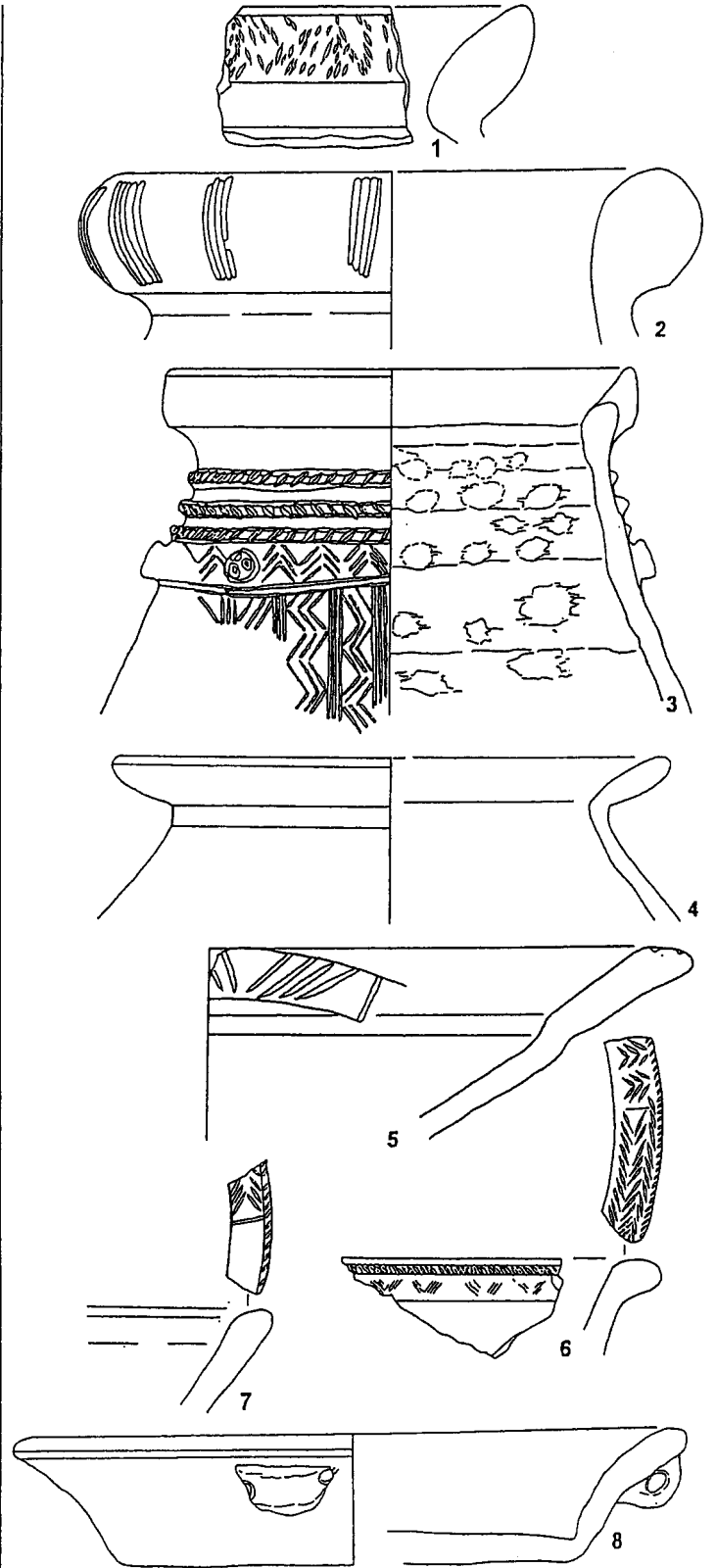
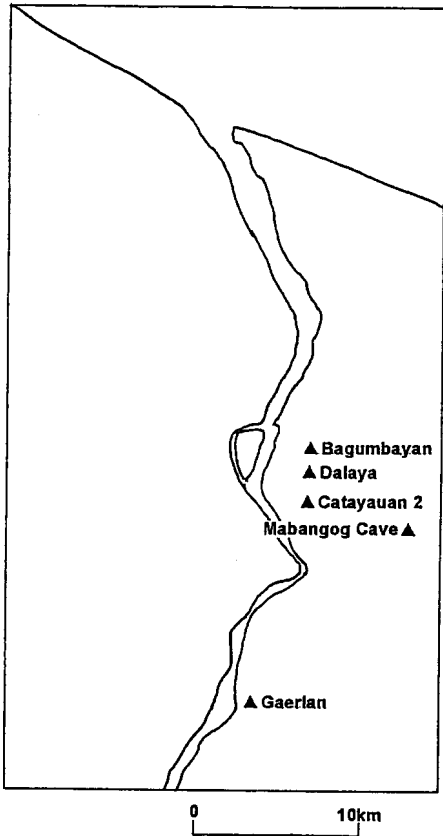
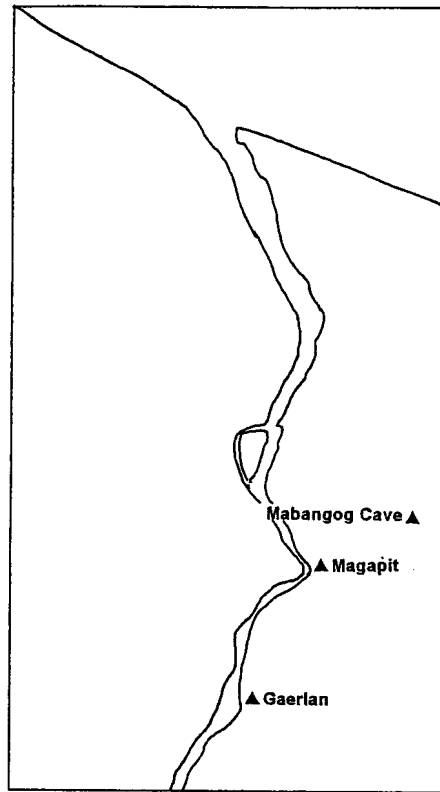


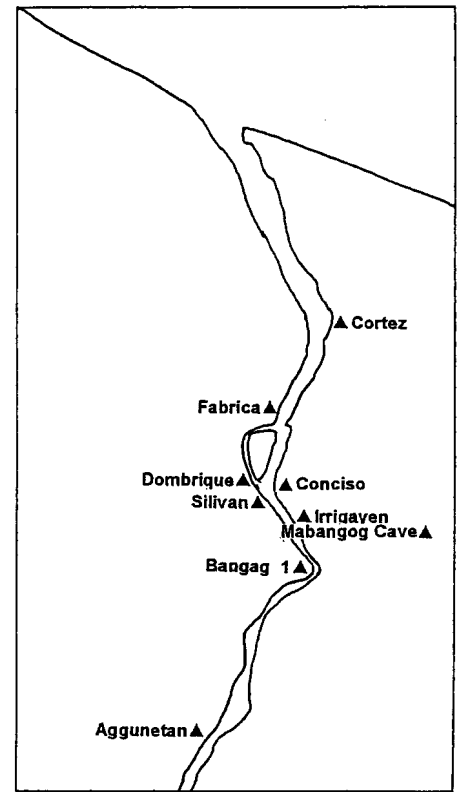
Fig. 3 Comparison of Diagnostic Pottery Types of Two Different Black Pottery Phases



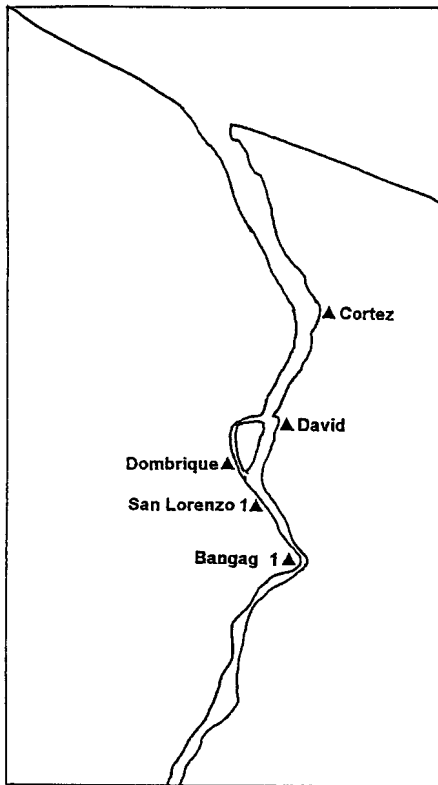
Phase 1: Flake Assemblage
; Before Second Millennium BC.



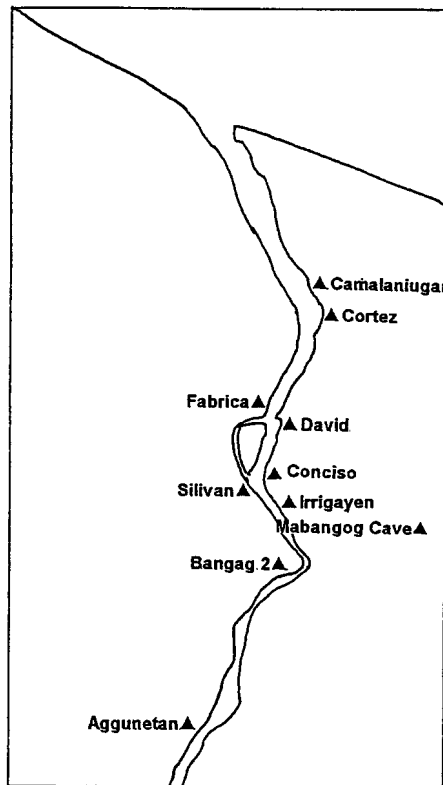
Phase 2: Decorated Red-Slipped Pottery (R1)
; Second Millennium BC.



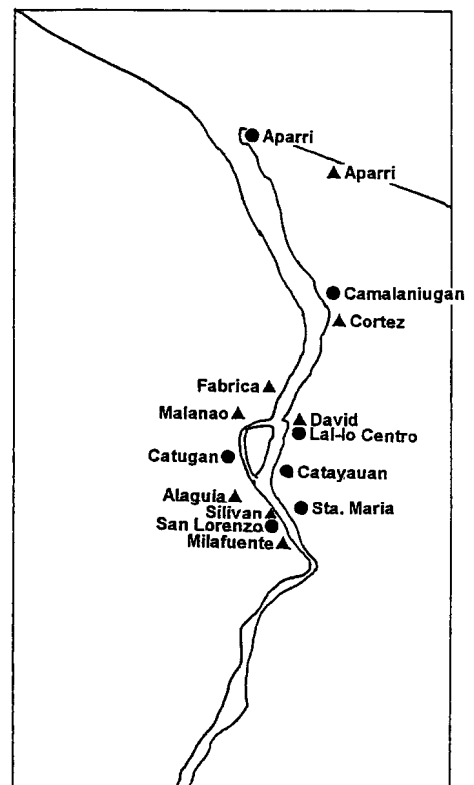
Phase 3: Non-Decorated Red-Slipped
Pottery (R2); 3400 to 3000 BP.



Phase 4: Decorated Black Pottery (B1)
; 2000 to 1500 BP.



Phase 5: Non-Decorated Black Pottery (B2)
; 1500 to 1000 BP.



Phase 6: Trade Ceramics
; 14th to 18th Century
▲ Shell Middens ● Town/Village

Fig. 4 Transformation of Settlement Patterns in Lal-lo from Second Millennium BC to the Recent

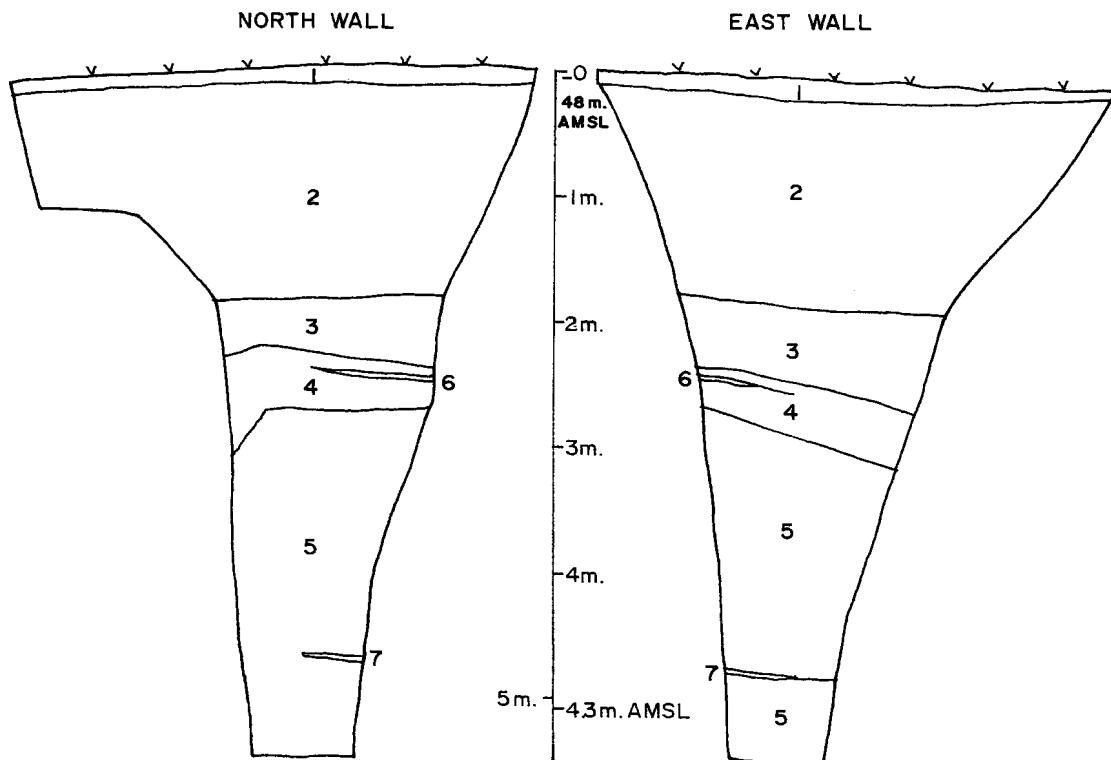
4000 to 3400 years BP, namely the first half of the second millennium BC.

Based on these results of studies, the purpose of this paper is to present the basic references of typological features of four pottery assemblages from the Lal-lo Shell Middens to establish the local chronology of the sites. Specifically, the different types of potteries from each pottery assemblage will be classified in sub types by the features of pottery's shape, especially the rim shape, the decoration elements, and the combinations of these features of potteries will be examined in comparing excavated samples, and extracted the age-specific features of each pottery assemblage. These types and sub-types of potteries will be used as indexes to distinguish the chronological period of the sites, and these indexes will show similarities between excavated artifacts from different sites of the same period. By these typological studies on potteries from the different sites and periods, the changing settlement patterns will be shown by the distributions of sites in time and space.

1. Decorated Red-Slipped Pottery Assemblage (Fig. 5-9)

Up to now in the Lal-lo Shell Middens, the Decorated Red-Slipped Pottery Assemblage has only been excavated from the Magapit Shell Midden Site. Limited examples of pottery sherds that have similar characteristics with Magapit Shell Midden have been excavated from the Gaerlan Shell Midden and Mabangog Cave. The Magapit Shell Midden is located on a limestone hill with 50 meters above mean sea level and which is about 40 km upstream from the Cagayan River estuary. This shell midden is composed of freshwater bivalve shells, land snails, animal bones, and pottery sherds. The shell midden was formed like mound having a dimension of 5 m × 10 m and a height of 3 m before excavation (Fig.5). The shell layers had reached 5.5 m in depth. The ratio of shells to the soil and other components exceeded 90%. Pottery sherds were excavated throughout the shell layers (Aoyagi et al. 1988). Based on the typological analysis of the pottery sherds, these sherds are of the same pottery assemblage irrespective of their position in the 5.5 m depth (Aoyagi et al. 1991, 1993).

The Decorated Red-Slipped Pottery Assemblage is categorized into: Jar type (red slipped and polished with a wide rim), Bowl-A type (red slipped and polished with foot-ring), and Bowl-B type (shallow bowl with no red slip coating and no decoration). Jar Type



1 : Surface Soil, 2 : Shell Layer with Brown Soil, 3 : Shell Layer with Dark Brown Soil, 4 : Broken Shell Layer
 5 : Yellowish Brown Shell Layer, 6 · 7 : Charcoal Layer

Fig. 5 Stratigraphical Profile of Walls, Magapit Shell Midden

and Bowl-A type pottery are decorated. Decoration is basically a dotted pattern impressed with a toothpick-like tool or a continuous dotted pattern done with a comb-like tool. Most of the decoration is done by dot impression of those tools, and the incision is rarely observed. The decoration is mostly concentrated in the part of carination of the jar's body (Jar type) or in the rim area of the bowl (Bowl-A type). Sometimes the impressed or incised portion of pottery has carbonate inlay. On the outer surface of the body of Bowl-B Type vessel remain the paddle marks that were made during making the form of vessel, and the inside is not polished but finished by the wiping. The paste of pottery is mostly fine and contains sand with a diameter of less than one millimeter. And the firing of pottery is generally good. The characteristic of the different types of Decorated Red-Slipped Pottery assemblage are presented as follows:

1-1. Jar Type Potteries (Fig. 6)

Fig 6 shows the shape variations of the Jar Type potteries of Decorated Red-Slipped Pottery Assemblage. Based on the rim shape, eight types have been identified.

J-1 No. 1 is a rim sherd with wide mouth, round bottom, and has a carination at its widest circumference of body. Red slip was applied on the whole outer surface of jar and interior surface from rim until neck. This is one of the commonest Jar types of its time.

J-2 No. 2 has a flared, thickened rim above a distinctly high straight neck. The lip of the rim is flared outward and thickened.

J-3 No. 3 has no distinct neck but has a thick wall. The thick rim flares slightly outward. Even without seeing the whole shape of the pottery, since mostly, only sherds of upper half were found, one can imagine its curve meeting the maximum diameter of the body. The jar has a round shaped bottom.

J-4 No. 4 has no distinct neck but has a thin wall. The rim slightly protrudes from the body and is thickened. Like J-3, it can be projected that this Jar has a wide circumference and has a round shaped bottom.

J-5 No. 5 has a gradually flared outwardly thickened lip. It also has a band of decoration under the rim.

J-6 No. 6 is a Jar without a distinct neck. Its wide lipped rim has a two-row dotted pattern.

J-7 No. 7 has a distinct wide convex rim with a slight concavity inside the mouth of the vessel. The neck is decorated with a horizontal pattern of incised diamonds shape like with single dot impressed in the center of each diamond. The diamond design is surrounded above and below by diagonal rows of little dots impressed by a comb-like tool. Other five pieces of this type of sherds were found in the Magapit Shell Midden and were thoroughly examined by Tanaka (1996).

J-8 No. 8 was a surface find found on the shell midden beside the national highway in 1986. The wall is curved inward from a flat bottom halfway up to the waist and then flares sharply outward to the shoulder just below the rim. From there the rim forming the carination curves inward to the mouth. The whole exterior of the jar has a complicated pattern of decoration. It has three bands each containing three incised horizontal lines that decorate the rim, waist, and bottom of the jar. These lines are connected by vertical decorative bands. The horizontal decorative bands on the other hand contain three decorative elements. Above is a continuous fine pattern of fingernail shape impression divided into two parallel rows, next are two parallel waves of small impressed circles, and below is another impressed nail pattern with three impressed groups forming two parallel rows. Two continuous parallel rows of nail shape impressions are in the vertical decoration. On the base of the jar, intersecting lines forming an "x" are incised under two horizontal lines.

No. 9, 10, and 11 are the part of Jar carination. No. 9 and 10 are mainly decorated with incision. The decoration of No. 9 consists of very fine and short incision in the horizontal narrow band separated by incised horizontal lines. The decoration of No. 10 is mainly composed of continuous fingernail patterning bands divided by horizontal incised lines. On the other hand, No. 11, the bands of decoration are also segregated by horizontal incised lines, but it consists mainly of vertical and zigzag dotted patterns created by comb-like tool. The red slip color tone of No. 11 is bright and the paste is fine, but the red slip color tone of No. 9 and 10 is dark and the paste is coarse. These can not be classified into the same type of Jar. No. 9 and 10 should be classified into J-8 because these could be made of same paste and red slip like No. 8. On the No. 11, the technique of incised horizontal lines to segregate the band of decoration is similar to the one of No. 8, 9 and 10, but the technique of decoration of impressed dot pattern, the fine paste and the bright color tone is similar to the pottery group of the dotted pattern decoration including the Bowl A Type.

Almost all the Jar type pottery has fine paste, bright color tone red slip and are polished. Not only the Jar Type pottery, but also

the Bowl-A Type pottery, they have same features of paste and red slip color tone. And also they have the decoration of dot impression by comb like tool. Contrastively No. 8, 9 and 10 sherds decorated by incision have the dark red slip color tone and the paste coarse. Numbers of this type of sherds excavated are limited, but they were revealed throughout the shell layers from the top to the bottom together with the pottery sherds having fine paste, bright color tone red slip. It is impossible to locate this type of sherds to the specific level or time of shell midden formation. Therefore the pottery with dark red slip color tone and the paste coarse may have been imported to the Magapit area. But there is no specific source yet as to where this type of pottery was produced.

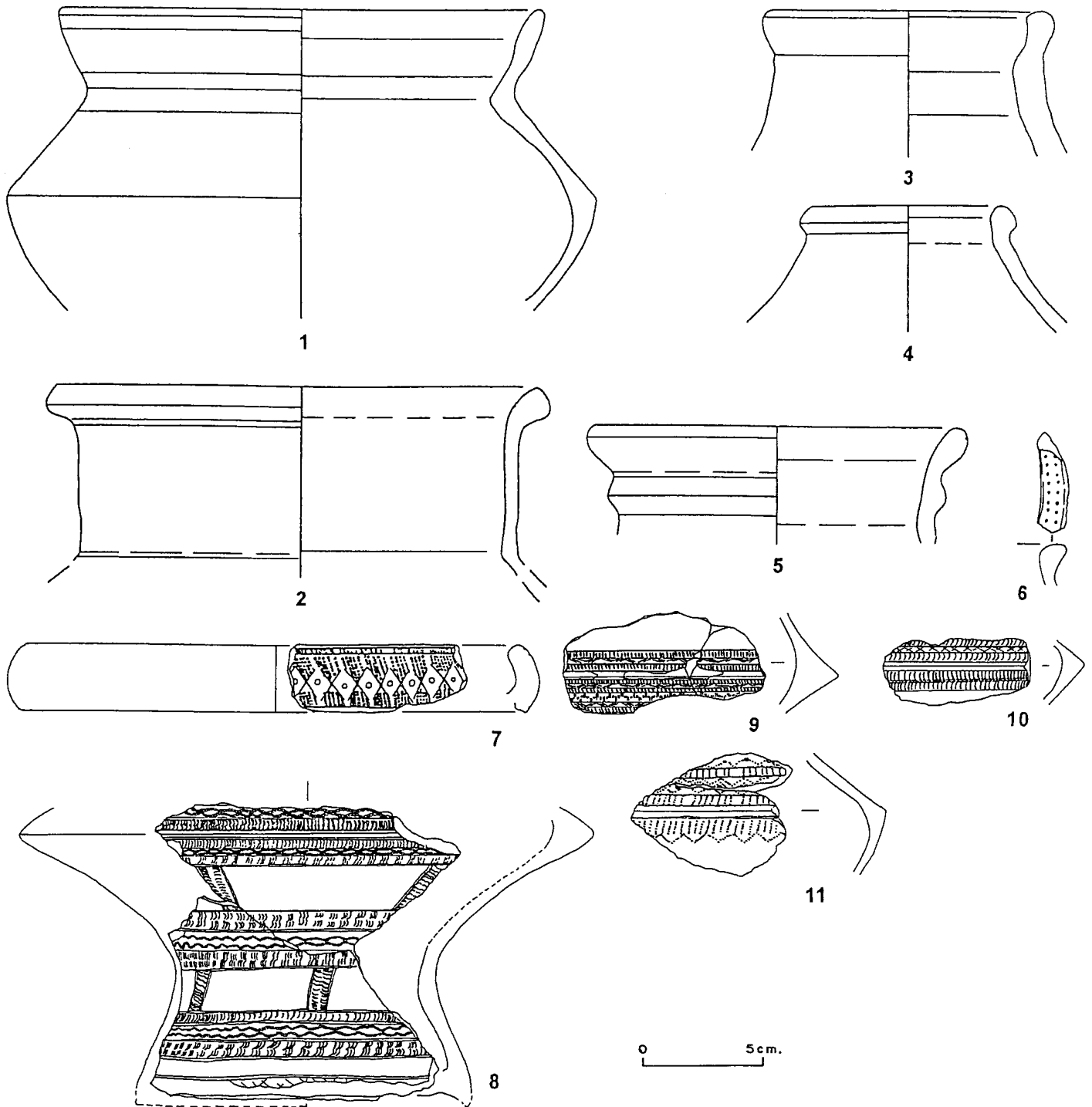


Fig. 6 Jar Type Pottery of Decorated Red-slipped Pottery Assemblage from Magapit Shell Midden

1-2. Bowl A Type Pottery (Fig. 7)

Fig. 7 shows Bowl A type pottery of the Decorated Red-Slipped Pottery Assemblage. This type of pottery is polished and red-slipped and has a foot ring shown in No. 1 and No. 2 of Fig. 7. The bright color tone red slip coats the inside and outside surfaces of the vessel and is polished. Mostly this type of vessels is also red-slipped applied at the interior foot ring. The decoration of Bowl A Type pottery is mostly dot impression by comb-like tool, although the Jar Type pottery decoration can be classified into two groups

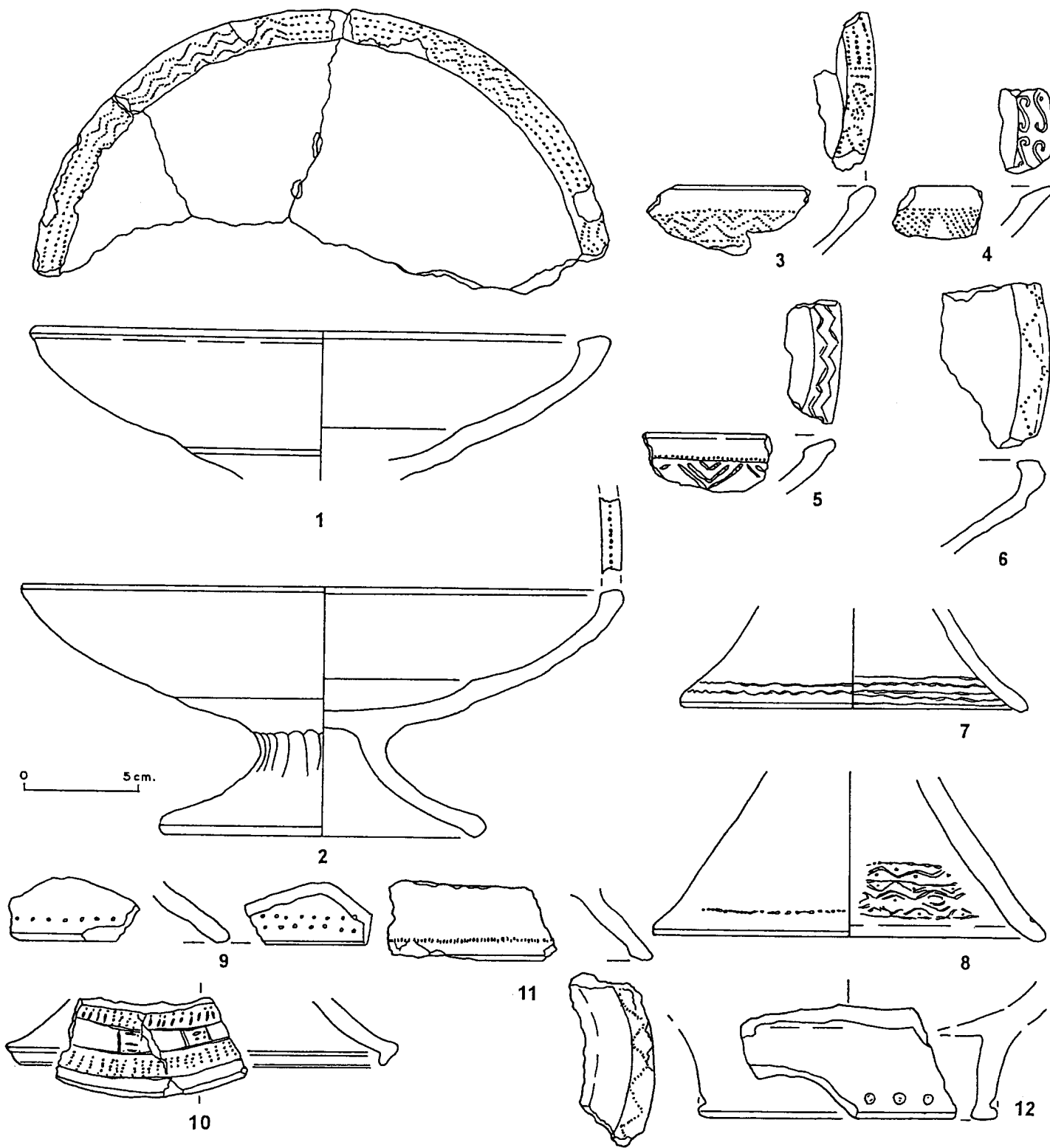


Fig. 7 Bowl A Type Pottery of Decorated Red-slipped Pottery Assemblage from Magapit Shell Midden

like impression and incision.

The typical shape of the Bowl A Type pottery has an outward curved body and an inward curved rim. The incurvated rim lip is thickened. As shown in No. 1 to No. 6 of Fig. 7, the thickened lip has the punctuated designs of zigzag and parallel dots or S-shape dots. Decoration can also be found outside of the rim. Triple rows of zigzag dot punctuations design can be found on No. 3 and No. 5. No. 4 shows bands of diagonal dot-row design which form a series of inverted triangle.

From No. 7 to 11 show the foot rings of the Bowl A Type pottery. The decoration of foot ring rim is dotted design on the both side of rim part. For No. 7 and 8, the decoration inside the foot rings is more elaborate than the exterior part. For No. 10, the rim of foot ring has an inwardly bent lip. The decoration is composed of single bands bordered by incised lines arranged horizontally and vertically, and the continuous dotted design decorates the bordered spaces. The feature of No. 7, 8, 9 and 11 is the decoration on the inner side of foot ring which is invisible during using the vessel.

No. 12 shows an unusual downward tapering and depressed slightly inward at the border of body and foot ring, otherwise the foot rings are normally wide-based. Near the bottom there is a horizontally aligned dotted design made by a tool with large diameter rod. It is difficult to imagine the whole shape of vessel, but there is the possibility that it would be more likely the foot-ring of a Jar Type vessel than that of a Bowl Type pottery. Visually it looks like a flat based vessel and functionally it can stabilize the vessel. Same type of sherd are found in the Non-decorated red slipped pottery assemblage (Fig. 11: 25).

Bowl A Type red slipped pottery has bright color tone which is similar to most of the Jar type pottery. However, the dark toned red slipped Jar Type pottery, which is thought to be imported from outside Magapit area, is not found in the Bowl A type pottery.

1-3. Bowl B Type Pottery (Fig.8)

In the Decorated Red Slipped Pottery Assemblage, there is a category of pottery that is neither red -slipped nor polished. This type of pottery has paddle marks on the exterior body surface. Wiping with a soft cloth smoothes the rim and the interior body surface. Many of this type of pottery were excavated in the Magapit Shell Midden (Fig.8). The vessel has a shallow bowl body and a round bottom. It has a rounded body and the rim turns inward. The outer surface texturing resulted from beating the exterior surface with a grooved paddle. Beside the paddle marks, the impressed mat weaving can be observed at the bottom of this type of bowl. The mat weave may have been impressed while the pottery had been dried on a woven mat.

It has been known since the mid-1980s that Bowl B Type pottery was widely distributed along the Cagayan River. It has been found also in the Carig area, Tuguegarao City, the capital of Cagayan Province about 80 km from the town of Lal-lo, along National Highway on the east bank of the Cagayan River; and in Nassipin Village at the town of Gattaran about 30 km south adjoining Lal-lo Town (also on the east bank of the Cagayan River). New samples were found on the surface ground in Naddungan Village also in the

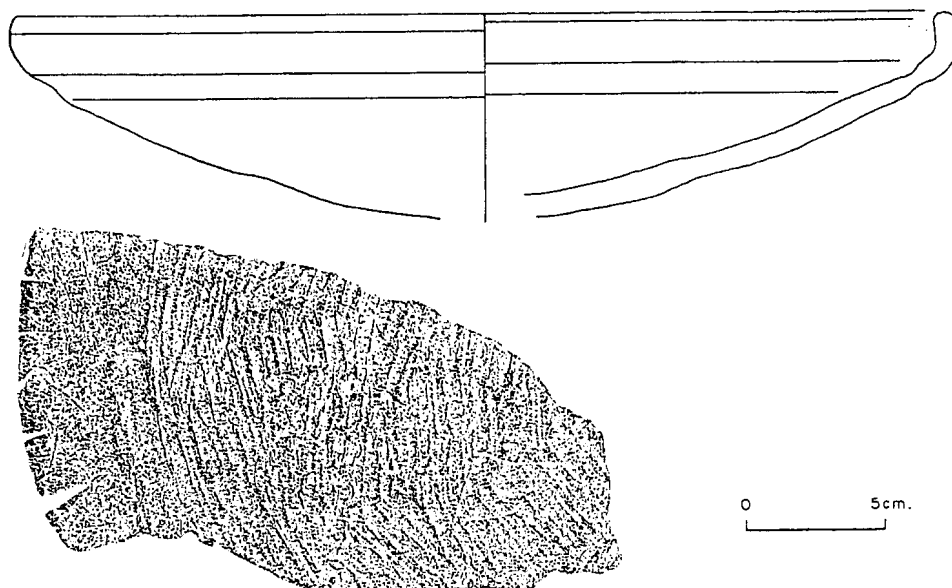


Fig. 8 Bowl B Type Pottery of Decorated Red-slipped Pottery Assemblage from Magapit Shell Midden

town of Gattaran about 10 km southeast of the Magapit Shell Midden. This shell midden is found on a hill with 40 m elevation facing the alluvial plain formed by Dummon River, an east tributary of the Cagayan River. These three sites have no shell midden formation and are all located outside the Cabibi's (local term for freshwater bivalves form dominantly shell middens in Lal-lo) natural habitat.

1-4. Comparison of Diagnostic Pottery Types of the Decorated Red-slipped Pottery Assemblage from Different Sites (Fig. 9)

A few examples similar to the Decorated Red-Slipped Pottery Assemblage excavated from the Magapit Shell Midden were unearthed in other shell midden sites. Nothing similar to the Jar type vessel was yet excavated. However, rim sherds similar to the Bowl A Type pottery were found in Gaerlan Shell Midden and Mabangog Cave. Fig. 9 shows a comparison of such similar potsherds. Samples from both sites lack dotted patterning in the rim portion, however, there is resemblance in the thickening of the rim lip.

Gaerlan Shell Midden is located on the east river bank of the Cagayan River, 10 km upstream from Magapit Shell Midden. Some red-slipped pottery was excavated from the upper shell layer (Garong 2002). Below this layer only chert and andesite flakes were excavated. There were no potsherds found. Based on this archaeological condition and considering the first appearance of pottery in the Lower Cagayan River, Gaerlan Shell Midden is equally important as Magapit Shell Midden.

Mabangog Cave is located in the limestone hill with 50 m altitude. This is about 6 km northeast of Magapit Shell Midden. In Mabangog Cave, the freshwater bivalves form the shell midden in a 30 cm depth deposit down to bedrock. The freshwater bivalves locally known as Cabibi compose all the Lal-lo shell middens. Red-slipped pottery and black pottery shreds were excavated in this cave. The excavated pottery sherds were not decorated making it difficult to specify the period of pottery assemblage and of the cave's occupation by using pottery as a chronological index.

The distribution of the shell midden during the Decorated Red-Slipped Pottery Phase is different from the other three pottery periods. The areas where the Decorated Red-Slipped Pottery Assemblage have been excavated or collected from the surface are limited to the south of Magapit Shell Midden. The distribution of the Bowl B type pottery extends up to 80 km south of the Lal-lo area and 10 km inland from the east bank of Cagayan River up to the hilly area. But after the Decorated Red-Slipped Pottery Phase, based on the relative chronology of pottery assemblages, the shell middens are mostly concentrated in the lower Cagayan River area and north of Magapit Shell Midden. There is not enough data to explain the differences in the distribution of shell midden sites. But with reference to the Lal-lo area, the prehistoric environmental conditions of the Lower Cagayan River especially north of Magapit Shell Midden did not support the growth of Cabibi during the formation of the Decorated Red-Slipped Pottery Phase. Cabibi never thrived in marshy areas with slow-moving current. Compared to the present level, the sea level must have been higher then and the river current slow and probably the marshland extended north of Magapit Shell Midden in the Lower Cagayan River. The prehistoric

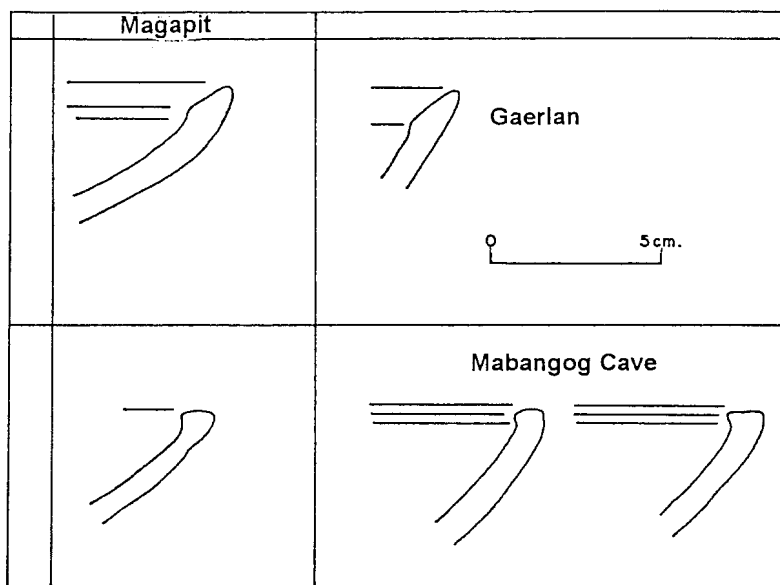


Fig. 9 Comparison of Diagnostic Pottery Types from Different Sites (Magapit, Gaerlan and Mabangog Cave) of the Decorated Red-slipped Pottery Phase

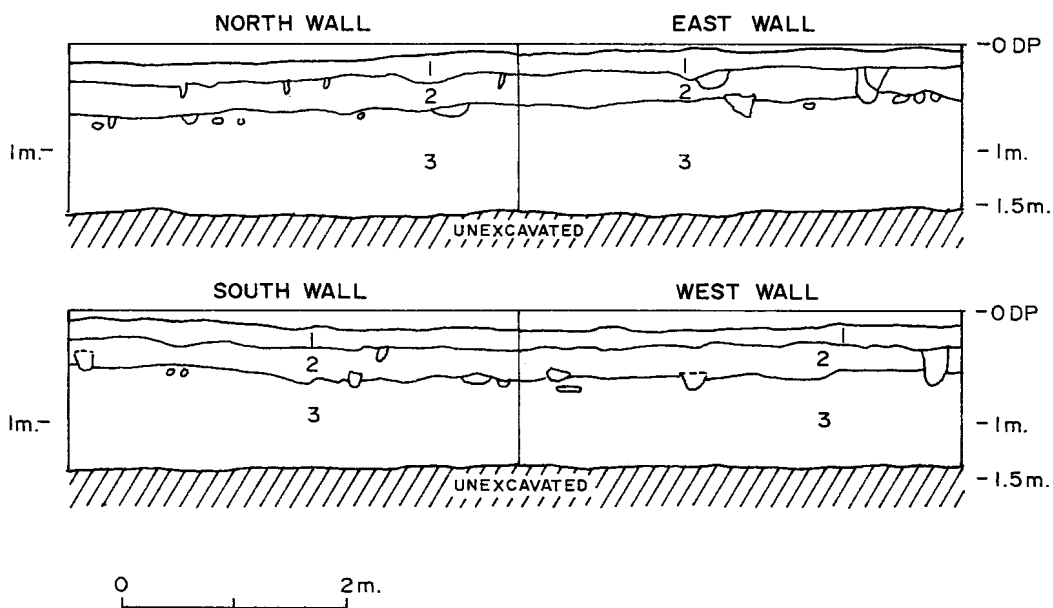
Cagayan River environment must have supported the growth of Cabibi along the south of the Magapit Shell Midden site. Cabibi from here may have formed the Magapit and Gaerlan Shell Middens and distributed by people in the hilly area and in Mabangog Cave.

2. Non-Decorated Red-Slipped Pottery Assemblage (Fig. 11, 12)

The distribution of the Non-Decorated Red-Slipped Pottery Assemblage excavated from Lal-lo Shell Middens extends wider than the one of the Decorated Red-Slipped Pottery Assemblage (Fig. 4). In this period, the shell middens become to be located on the Cagayan River bank about 10 m elevation and are distributed from Cortez Shell Midden, 10km from the estuary of the Cagayan River and up to the south of Bangag 1 Shell Midden, 50km. All Non-Decorated Red-Slipped Pottery Assemblages are excavated from a silt layer below the shell layers. The most notable characteristic of this period is the lack of shell midden formation. Non-Decorated Red-Slipped Pottery Assemblages were not associated with the shell layer along the river terrace. It is a big possibility that the palaeoenvironmental condition during the period of Non-Decorated Red-Slipped Pottery Assemblages could not be suitable to the habitat of freshwater bivalve shells (cabibi) which form predominantly the Lal-lo Shell Middens. The subsistence patterns of this period should be different from the other three periods.

The Irigayen Site of the Santa Maria Shell Midden had the most examples of the Non-Decorated Red-Slipped Pottery Assemblage (Ogawa 2002b, c, 2004). This pottery assemblage was excavated in the silt layer below the shell layer. Features such as hearth and burial pits belonging to the period of Non-Decorated Black Pottery Assemblage were excavated. An extended burial was unearthed from the silt layer, associated with the Non-Decorated Black Potteries (Fig. 10). There are no similar features found in the silt layer. Only Non-Decorated Red-Slipped Pottery sherds were excavated throughout the 1.5 m silt layer deposit.

The paste and surface color tone of the Non-Decorated Red-Slipped Pottery Assemblage resembles that of the Decorated Red-Slipped Pottery Assemblage. Decorated potsherds are found in the Non-Decorated Red-Slipped Pottery Assemblage, but the number is few (Fig.11: 11-13, 21, 26) and their decoration lacks fine finishing comparing to the one of Decorated Red-Slipped Pottery Assemblage. Types of potteries are similar in two pottery assemblages, composed of Jar and Bowl types. But Bowl-B type pottery of the Decorated Red-Slipped Assemblage, which has the paddle marks on the outer surface of body, has not been excavated from the sites of Non-Decorated Red-Slipped Pottery Assemblage. But Jar and Bowl type's potsherds of both pottery assemblages were polished after red-slipped.



- 1 : Surface Layer with whole shape and broken shell
- 2 : whole shape shell layer with dark brown soil, Non-Decorated Black Pottery Phase
- 3 : yellowish brown silt layer, Non-Decorated Red-Slipped Pottery Phase

Fig. 10 Stratigraphic Wall Profile of the Irigayen Site, Santa Maria Shell Midden

2-1. Jar Type Pottery (Fig. 11)

Jar types from the Non-Decorated Red-Slipped Pottery Assemblage are classified into J-1 to J-5 (Fig. 11).

J-1 No. 1 and 2 of Figure 11 are the rims flare outwardly from the neck, but vented gently to inward. The lip slightly thins and has a slight undulation on its exterior.

J-2 No. 3 is a rim flares outward and has thinning lip. The thinning of lip makes step at the outer surface just down from the lip. This shape of the lip and rim is a one of diagnostics of the Non-Decorated Red-Slipped Pottery Assemblage comparing to the other pottery assemblages.

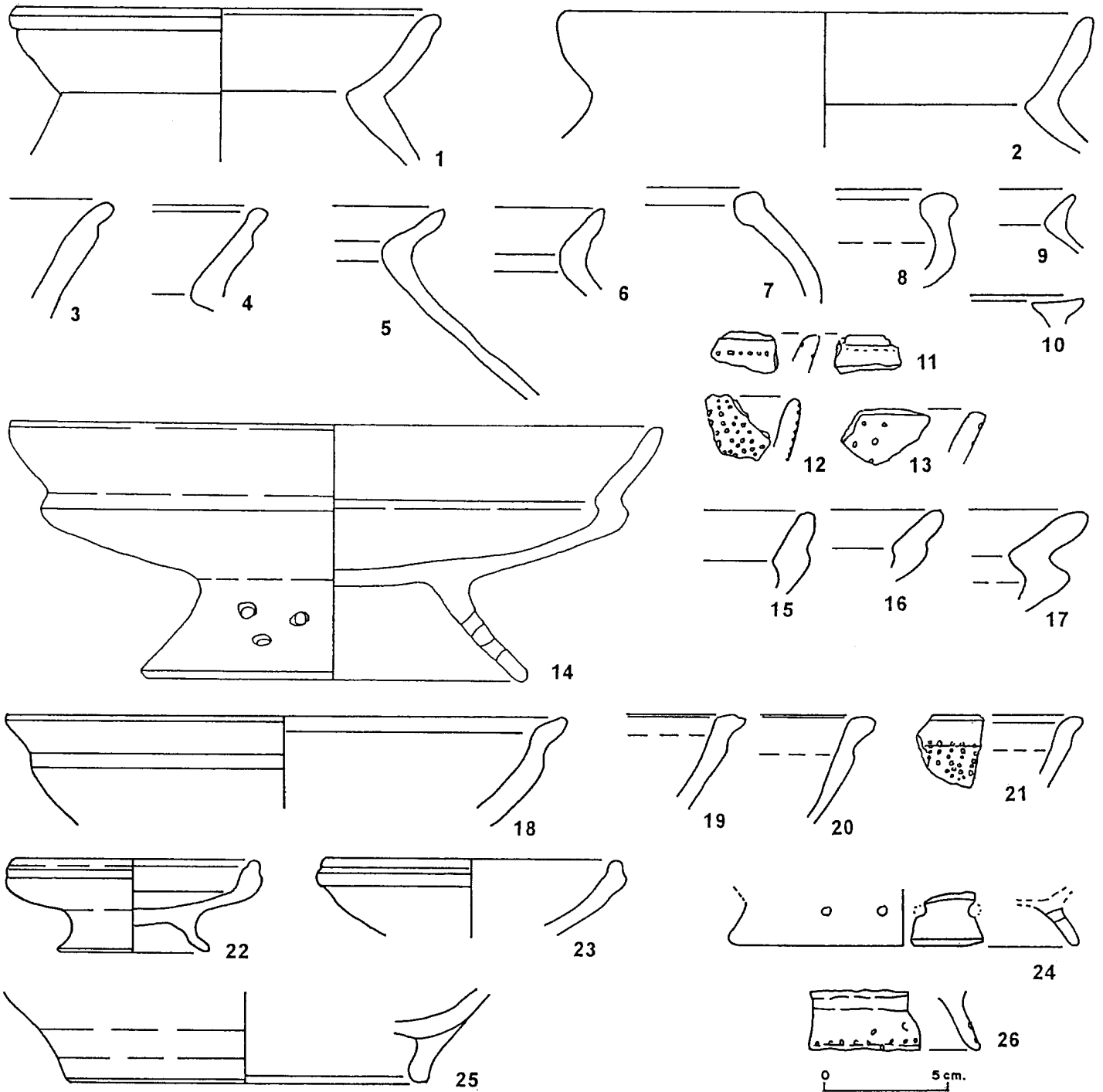


Fig. 11 Jar and Bowl Type Pottery of the Non-Decorated Red-slipped Pottery Assemblage from Irigayen Site, Santa Maria Shell Midden

J-3 No. 4 has a thinning lip on the exterior surface similar to J-2. The rim flares outward but curves a little inward from the neck similar to J-1.

J-4 No. 5 and 6 have thick neck and rim flaring outward and gently thinning to a sharp edge of lip.

J-5 No. 7 and 8 have no neck. The rim thickens at the rounded-profiled lip.

Others This section summarizes the Jar Type rim sherds whose whole shape cannot be distinguished and which cannot be classified into types. No. 9 and 10 must be parts of small Jars. No. 10 has a lip with a flat wide surface. No. 11, 12 and 13 are examples of the Jar type rims with decoration. These rim sherds are decorated with dot punctuations. These are rare samples of decorated potsherds of the Non-Decorated Red-slipped Pottery Assemblage.

2-2. Bowl Type Pottery (Fig. 11)

The Bowl type pottery of the Non-Decorated Red-Slipped Pottery Assemblage has greater shape variations than that of the Decorated Red-Slipped Pottery Assemblage.

B-1 No. 14 of Fig. 11 is a Bowl Type pottery with foot ring. The body is stepped below the rim and the lip is not thickened. The foot ring has three holes perforated by rod-like tool. No. 15, 16 and 17 are rim fragments of this type. The step of No. 15 and 16 are just under the rim, not prominent comparing with the one of No. 17. The step of the bowl body of the Decorated Red-Slipped Pottery Assemblage is near the foot-ring (see No. 1 and 2 of Fig. 7), while the one of the Non-Decorated Red-Slipped Pottery Assemblage is nearer the rim. The position of step is an index to distinguish the polished bowl of the Decorated Red-Slipped Pottery Assemblage from the one of Non-Decorated Red-Slipped Pottery Assemblage.

B-2 The body of No. 18 flares outward but the rim is bent like S-shape. Because of the S-shaped profile, a horizontal grooved band is seen on the exterior rim below the lip. Although the S-shaped profile is not prominent on No. 21, a horizontal grooved band is also seen on the exterior rim below the lip. No. 21 is decorated by the dot punctuations on the outer surface, but lacks fine finishing like the one of Jar type pottery. No. 19 and 20 have no S-shaped profile rim, but lip is thickened outward and a similar horizontal grooved band is also made on the exterior part below the lip. Therefore, these are classified in this type.

B-3 No. 22 is a Bowl with a small foot-ring. The base of the body is flat and the thickened rim is vertically bent. The lip is made like nipple. The small foot-ring flares outwardly. No. 23 has also thickened rim and nipple-like lip. The body is not flat like No. 22, but everted outward. This type of footed bowl has not been found in the Decorated Red-Slipped Pottery Assemblage.

Foot ring No. 24 to 26 shows the foot ring of a Bowl Type pottery. No. 24 has two round holes created by a rod-like piercing tool. No. 25 has a foot ring curves inward where it joins the base. The Decorated Red-Slipped Pottery Assemblage has also this similar feature (No. 12 of Fig. 8). No. 26 is decorated by horizontal dot patterning on the exterior part of the foot ring.

2-3. Comparison of Diagnostic Pottery Types of the Non-Decorated Red-slipped Pottery Assemblage from Different Sites (Fig. 12)

The types of the Non-Decorated Red-Slipped Pottery Assemblage from Irigayen Shell Midden have also been excavated from many other shell midden sites. As shown in Fig. 12, each type of rim: J-2, J-3, B-1 and B-2 is represented in Cortez, Fabrica and Dombrique shell midden sites and Mabangog Cave. In all these sites except Mabangog Cave, the Non-Decorated Red-Slipped Pottery Assemblage is revealed from silt layer under the shell layer.

3. Decorated Black Pottery Assemblage (Fig. 13-17)

In the next cultural phase to the Non-Decorated Red-slipped Pottery Assemblage, The Decorated Black Pottery Assemblage appears in the Lal-lo Shell Middens. In this cultural phase, shell middens became to form again on the Cagayan River bank (Fig. 4). This shell layer has a dimension of 500 m in length, 50 m in width, and has a depth of 2 m (Fig. 13). This shell layer was built up with a high uniformity and density of shells. Features such as jar burial and open-pit burial were excavated.

The Decorated and Non-Decorated Black Pottery Assemblages were originally identified by the feature that is the black color tone of the vessel's surface. The Black pottery was applied the red slip at the first step of production, and polished the surface, and fired in open air. After firing, the potteries still hot were covered with organic matter such as rice husks making the surface of the

	Irrigayen				
J 2					Cortez Dombrique
J 3					Cortez
B 1					Fabrica
B 2					Cortez
B 2					Mabangog Cave

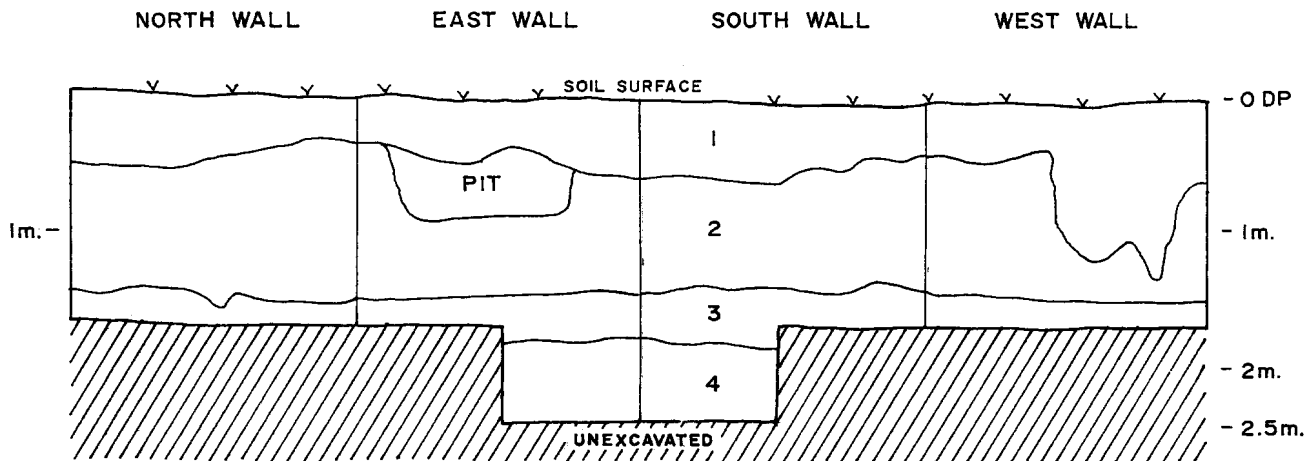
0 5 cm.

Fig. 12 Comparison of the Diagnostic Pottery Types of the Non-Decorated Red-slipped Pottery Phase from Different Shell Midden Sites (Irrigayen, Cortez, Dombrique, Fabrica and Mabangog Cave)

pottery smudged. By the process of charcoal smudging, the color of pottery surface becomes black. However, it should be noted that not all of the pottery belonging to the Black Pottery Assemblages is black color surface. Red slip was mostly applied on the surface of the pottery belongs to the Jar and Bowl Types before firing and smudging. There are some potteries that are not smudged and the color remained red. There are also the excavated Black Pottery Assemblage specimens that are half black and half red due to partial smudging. Black surface color of the pottery is used as a one of the indexes to distinguish the Decorated or Non-Decorated Black Pottery Assemblage from the Decorated or Non-Decorated Red-Slipped Pottery Assemblage, but is not necessarily the only index. The indexes to distinguish the differences of Pottery Assemblages must be multiple. These are typological features, association of different potteries from same layer, decoration elements, firing, paste and temper, etc. But because the Black Pottery Assemblages has been represented by the surface color until now, it would be better to use this nomenclature for convenience.

The Decorated Black Pottery Assemblage was excavated from Cortez, Dombrique, David, and Bangag 1 shell midden sites in the Lal-lo Shell Middens (Fig. 4). The stratigraphic order of layers of Cortez site can be chronologically ordered as follows: Non-Decorated Red-Slipped Pottery Assemblage→Decorated Black Pottery Assemblage→Non-Decorated Black Pottery Assemblage.

The stratigraphic order of the Dombrique site: Non-Decorated Red-Slipped Pottery Assemblage→Decorated Black Pottery Assemblage. The chronological order of the David Shell Midden site: Decorated Black Pottery Assemblage→Non-Decorated Black Pottery Assemblage. The following discussion was based on the analysis of the excavated potsherds from Cortez Shell Midden site because the number of the Decorated Black Pottery specimens exceeded that of the other shell midden sites. And it was possible to classify the shapes of the potteries.



- 1 : Surface Layer, whole shape and broken shell layer with dark brown soil
- 2 : Layer 1, whole shape shell layer with brown soil.
Upper portion: Non-Decorated Black Pottery Phase, lower portion: Decorated Black Pottery Phase
- 3 : Layer 2 Upper, yellowish brown silt layer, Decorated Black Pottery Phase
- 4 : Layer 2 Lower, yellowish brown silt layer, Non-Decorated Red-Slipped Pottery Phase

Fig. 13 Stratigraphic Wall Profile of Cortez Site, Dugo Shell Midden

3-1. Jar Type Pottery (Fig. 14)

J-1 No. 1 to 12 show the rims of the Decorated Black Pottery. The rim is heavily thickened and it curves upward and outward from the neck. The exterior rim surface is decorated with short incised lines or dot design. The rim exterior surface of No. 1 and 4 and the wide lip of No. 5 are decorated by the horizontal incised arrow feather marks. The exterior surface of the rim of No. 2 and 3 are patterned with clusters of short incisions. A fine criss-cross pattern of intersecting incised lines and incised arrow feather marks adorns flat and wide lip of No. 6 and 7. Also on the exterior surface of the rim of No. 7, there are two horizontal lines of dot punctuations. For No. 8 to 12, their rims are thick and bulbous in profile. The decorations on the exterior rim share a resemblance because of the regular interval of vertical incised combed lines. As more specimens are excavated, there is the possibility of adding a new category of type for these pot sherds. No. 12 has two lines of bumps encircling the neck. It resembles J-3 type (see No. 22 of Fig. 14). But as the whole shape cannot be guessed, it is categorized into J-1.

J-2 No. 14 to 19 show a special characteristic where a rim flares sharply outward from its neck. There are two kinds of rims, one is thinly made and the other is thickly made. This type of Jar with a sharp bent from neck is not found in the other pottery assemblages or cultural phases, which made it easily distinguishable from the other types of jars of other assemblages.

J-3 No. 22 is a heavily decorated jar. It has a vertically raised rim, and on the shoulder, three lines of appliqué narrow bands, triangular shape in profile, with engraved diagonal notches in alternating direction on each band. Under the raised bands, there is the horizontal band of decorations. The incised lines of chevron in threes are continuously set in horizon. The clay disks appliqué with three punctured holes are also attached in-between this zigzag design. Below this band, is another decoration composed of vertical incised lines in threes at even intervals. In-between the incised lines, the incised lines of chevron in threes are set in vertically, forming zigzag lines. The clay disk appliqué with three hole punctuations on the wide raised band has sometimes been comes off from the jar body and discovered also from other shell midden sites where the Decorated Black Pottery Assemblage exists. At first

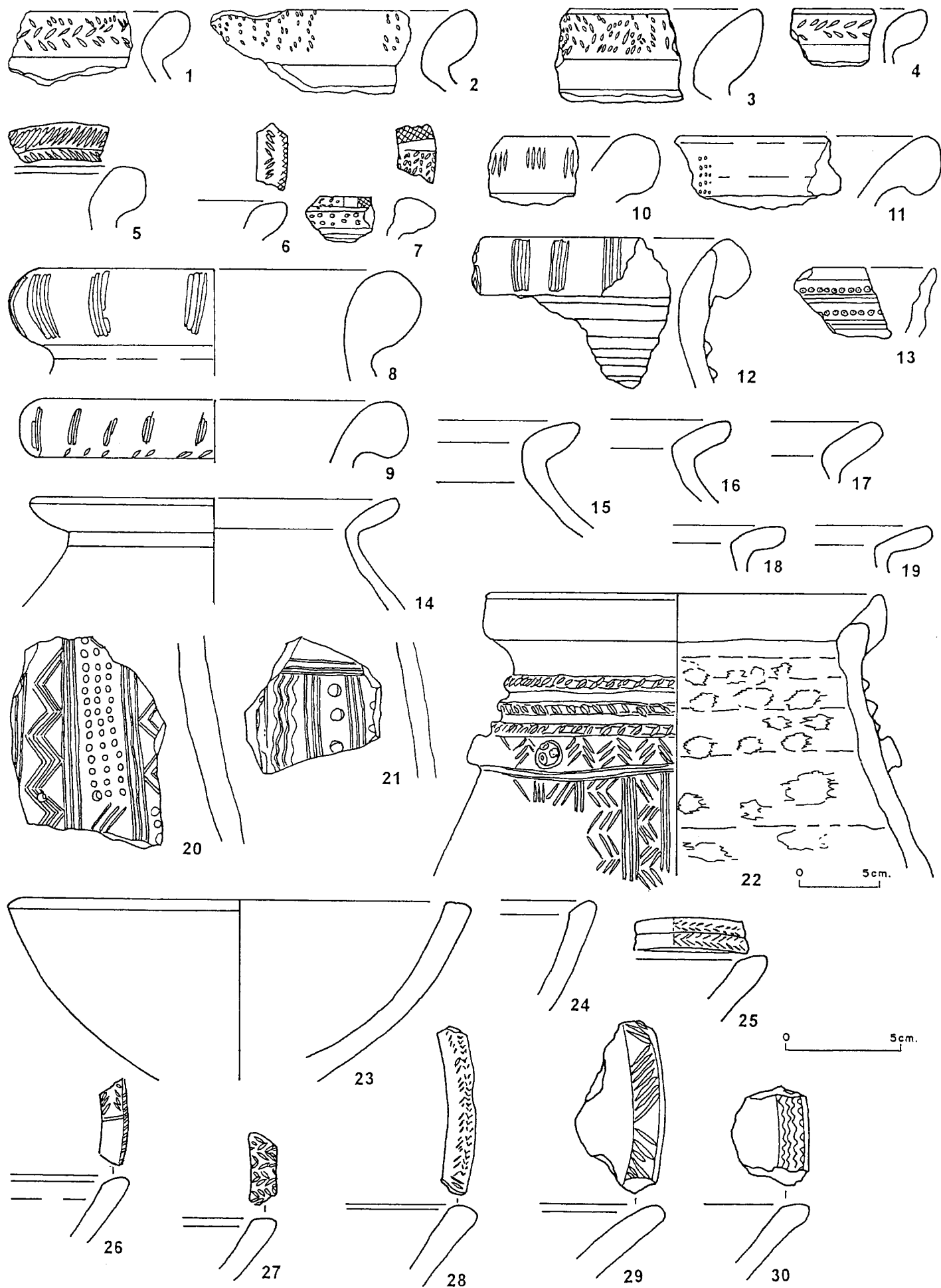


Fig. 14 Jar and Bowl Type Pottery of the Decorated Black Pottery Assemblage from the Cortez and Dombrique Sites

we thought the three punctured holes are represented the eyes and mouth of human or animal faces. But it is difficult to imagine this disk as a face because the attachment position and holes angles in Jar No. 22 are a little off centered. No. 20 and 21 are body parts of J-3 Type jar, show similar decoration. No. 20 shows a three vertical-row dotted pattern alternating with vertical zigzags. No. 21 shows large dots in vertical rows.

Other No. 13 has unique characteristics among the Decorated Black Pottery artifacts so it is categorized as "Other". The wall profile rises meanderingly from the body to the rim. Bands of round-dotted decoration in two horizontal rows encircled the body. The decorating tool may have been a thin bamboo pipe.

3-2. Bowl Type Pottery (Fig. 14, 15)

Bowl Types of the Decorated Black Pottery Assemblage can be categorized into B-1 to B-3.

B-1 This type has a slightly thickened rim. It has a convex curved body and a wide mouth. No. 23 has a rectangular rim in profile, but other rims have flattened lips. Mostly the inside lips are flattened, but No. 28 is flattened outside. These flattened areas of lips are decorated (No. 26 to 30 in Fig. 14). The decorations consist of short, thick incised lines with an arrow feather or continuous chevron design. Fig. 14 shows only decorated ones, however almost lips are undecorated.

B-2 The body of No. 1 to 4 in Fig. 15 flares outward but the rim is bent like S-shaped wall profile. No. 1 has a slight rim curve, but No. 4 shows the body wall flaring straight outward and the rim curving horizontally. A foot ring may have existed for types B-1 and B-2 but there were no foot ring found among the excavated materials.

B-3 No. 5 is a shallow and flat base bowl. The thick rim outwardly curved from the base. An ear lug or handle with a hole is applied at the exterior part of the rim. This bowl was used as a cover for the Jar Burial excavated in Dombrique Shell Midden site (Ogawa 2003a). No. 6 has also outwardly everted rim and an ear lug is attached vertically at the exterior surface of body.

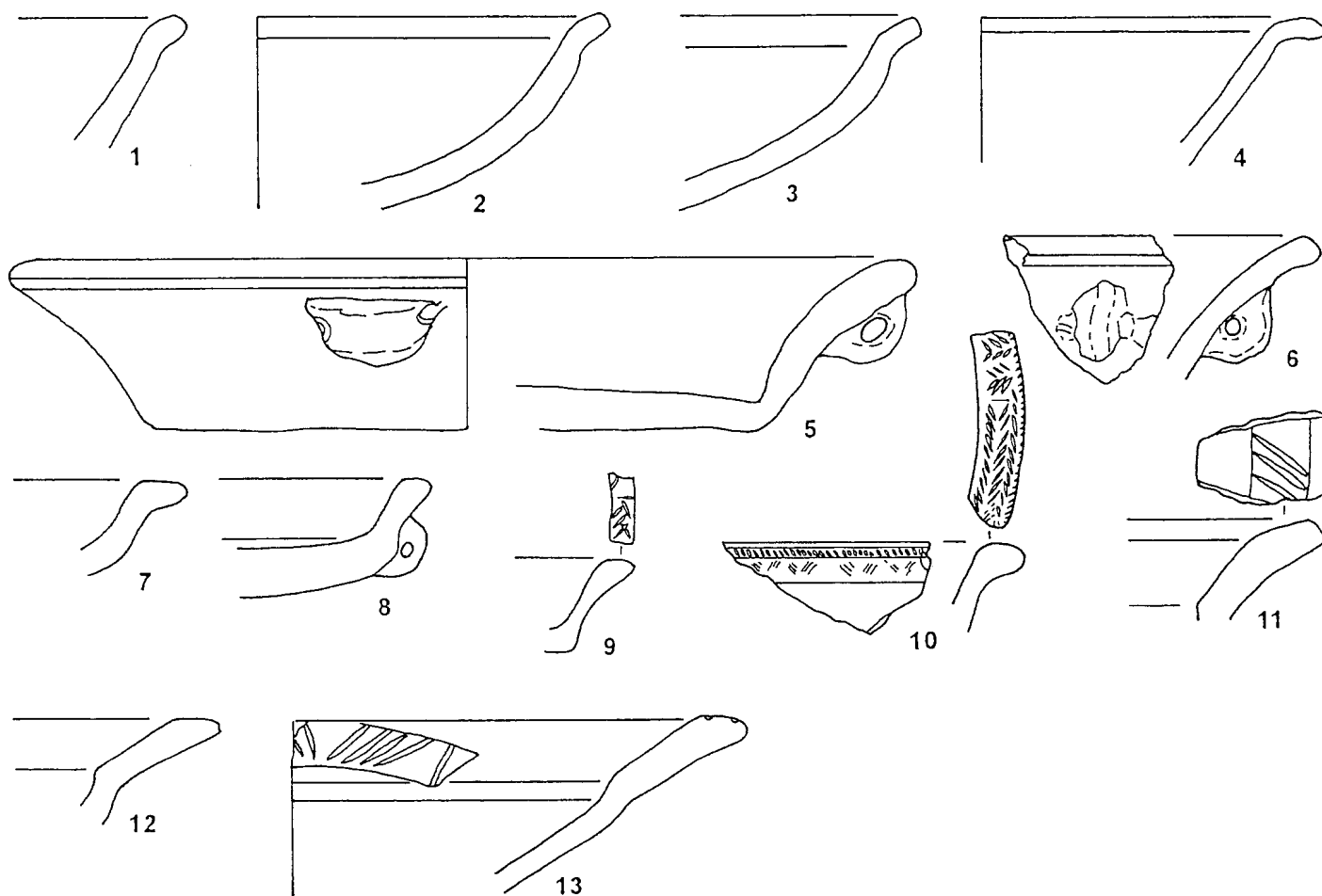


Fig. 15 Bowl Type Pottery of the Decorated Black Pottery Assemblage from Cortez and Dombrique Sites.

The rim of No. 7 has convex curve and the lip is stretched outward. No. 8 is a shallow bowl with short rim. The small ear lug is attached at the border of base and rim. The rim shape of No. 9 resembles to the one of No. 8. But the rim of No. 9 is thinner than No. 8 and at the lip top of No. 9 there are small incised lines like arrow feather. No. 10 has decoration on the rim. The lip of No. 10 has short incised lines with arrow feather design. At the exterior surface of the rim, a diagonal short incised line is set horizontally and below that, three fine incised lines are arranged alternately to reveal an inverted chevron pattern. Although I have some hesitation in including the non-decorated rim of No. 5, 6 and the decorated rim of No. 9, 10 into one type, it seems better to set these bowls together as the same type until the whole variation of bowls can be excavated.

B-4 The body of No. 11, 12 and 13 are widely everted, and have the gentle step in the wall profile where body meets rim. The position of incised design is set on the widely made inner rim. The decoration consists of three to four groups of incised diagonal thick lines forming repeating chevrons.

3-3. Comparison of Diagnostic Pottery Types of the Decorated Black Pottery Assemblage from Different Sites (Fig. 16, 17)

The rim shapes of the Jar (Fig. 16) and Bowl (Fig. 17) type pottery among three shell midden sites: Cortez, Dombrique and David, were compared. Although the excavation of three shell midden sites are limited size, it can be recognized that all types of Jars and Bowls are revealed from the three sites. B-4 Type of Bowl is excavated only from the Cortez Shell Midden Site. But recently, a rim sherd of this type of bowl was collected from the surface near the Conciso site in Catayauan Shell Midden.

4. Non-Decorated Black Pottery Assemblage (Fig. 19-22)

The shell middens of the Non-Decorated Black Pottery Phase are also mainly located on the Cagayan River Bank. The dimensions of the shell middens such as Catayauan, Santa Maria, Lal-lo Centro, Cortez, and San Lorenzo, are 500 meters to 2 km in length, 100 meters in width and 2 meters in depth. Same as other pottery phases, the shell middens of this phase also consisted purely of Cagayan River freshwater shells. These huge shell middens on the Cagayan River bank began to form during the Decorated Black Pottery Phase (2000 to 1500 years BP) and continued to accumulate up to the Non-Decorated Black Pottery Phase about 1500 to 1000 years BP until the present. In the lower Cagayan River, people continued to gather freshwater shells predominantly cabibi (Ogawa 1997).

The features found from the Non-Decorated Black Pottery Phase are the extended burials and the hearth. Open pit burials with extended supine body and head oriented towards the east or west were excavated from shell midden sites of the Non-Decorated Black Pottery Phase. Jars, bowls and beads were associated with the body in these burials. Open-pit burials were excavated in Conciso Site of the Catayauan Shell Midden (Garong 2001), Irigayen Site of the Sta. Maria Shell Midden (De la Torre 2000), and Siriban Site of the San Lorenzo Shell Midden (De la Torre 2002b, Tanaka 2003b). In these three sites, several burial pits were dug into the silt layer under the shell layer. In Conciso Site, the extended burials were found at bottom of shell layer and the surface of silt layer. In other two sites, Irigayen and Siriban, burials were found in silt layer under the shell layer. These situations are telling that the extended burials started to perform when people who made the Non-Decorated Black Pottery Assemblage began to live on the river bank. The burial pits were dug into the silt layer during the horizon of the Non-Decorated Black Pottery Phase before the shell midden formation. And even the shell middens started to form on the Cagayan River Bank, the performance of extended burials had continued in the shell layers such as Conciso Site. The excavated human bones from Irigayen and Conciso site have the AMS C14 dates of about 1500 years BP, which corresponded to the Non-Decorated Black Pottery period (Table 1).

Another feature found within the shell layer is a hearth unearthed in Irigayen Site of the Sta. Maria Shell Midden. The carved fireplace extended down to the silt layer. This has a diameter of 50 cm and the walls or surface of the hearth was coated with clay (De la Torre 2000). The fireplace was surrounded by possible postholes with a diameter of 5 cm. This suggested that a makeshift or a structure was built to cover the fireplace. Associated with the fireplace we recovered burnt shells, burnt soil, charcoal, and ash. The presence of these associated ecofacts can suggest the type of activities that early people in the site were engaged in for example shellfish cooking, shelling to extract the meat for drying or salting, and maybe production of lime.

Some technical characteristics of potteries of the Non-Decorated Black Pottery Assemblage were similar to the one of the older

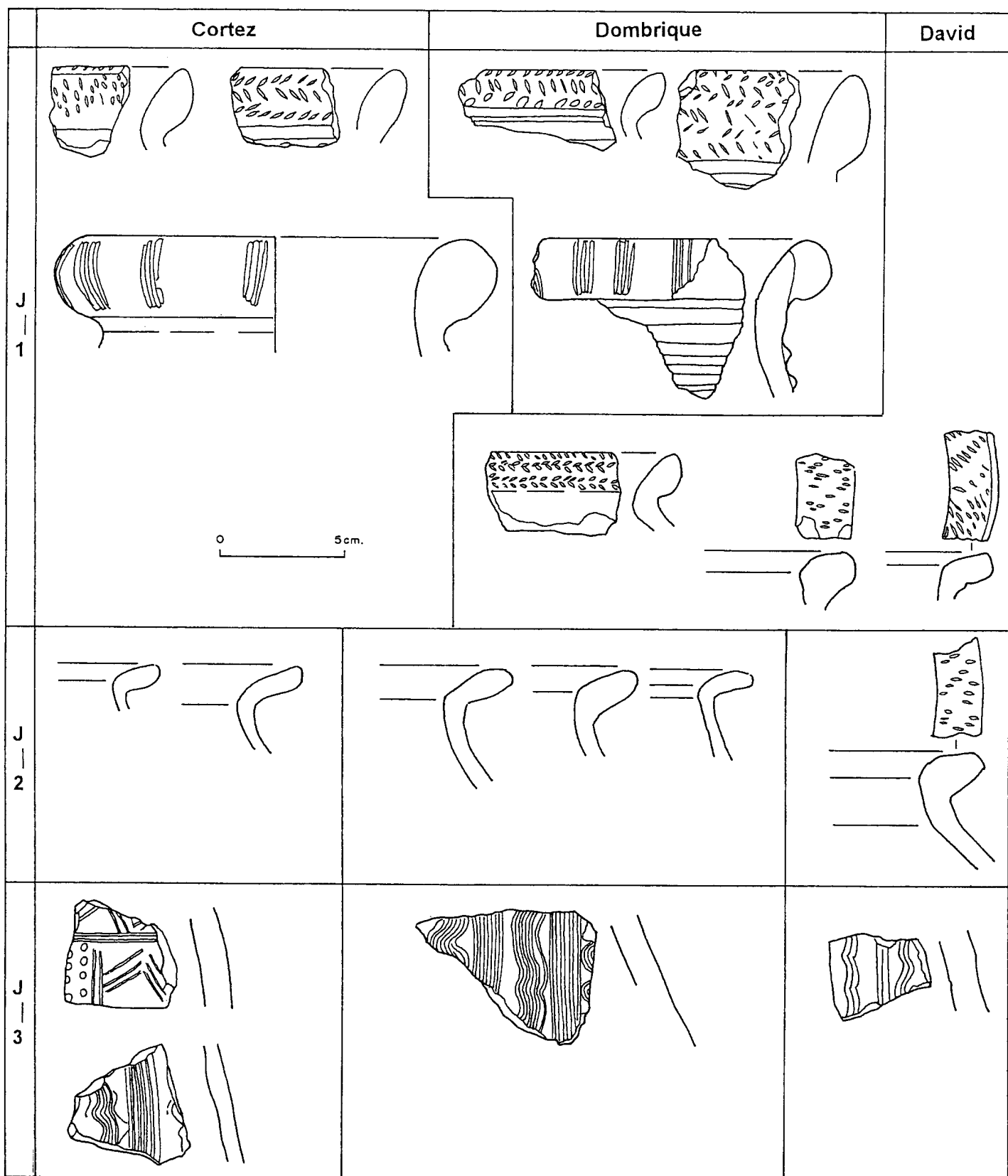


Fig. 16 Comparison of Diagnostic Jar Types of the Decorated Black Pottery Assemblage from Cortez, Dombrique, and David Sites

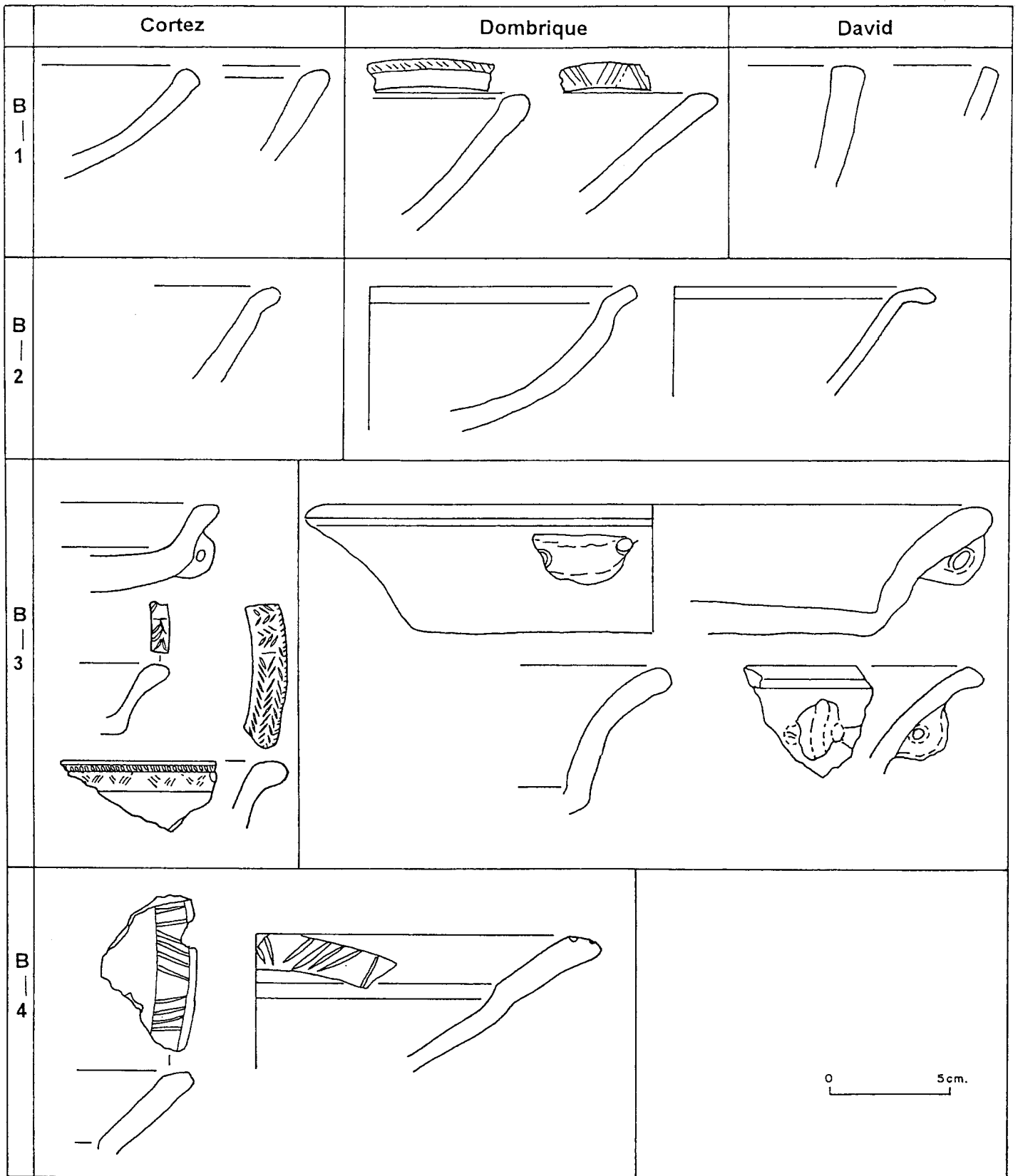
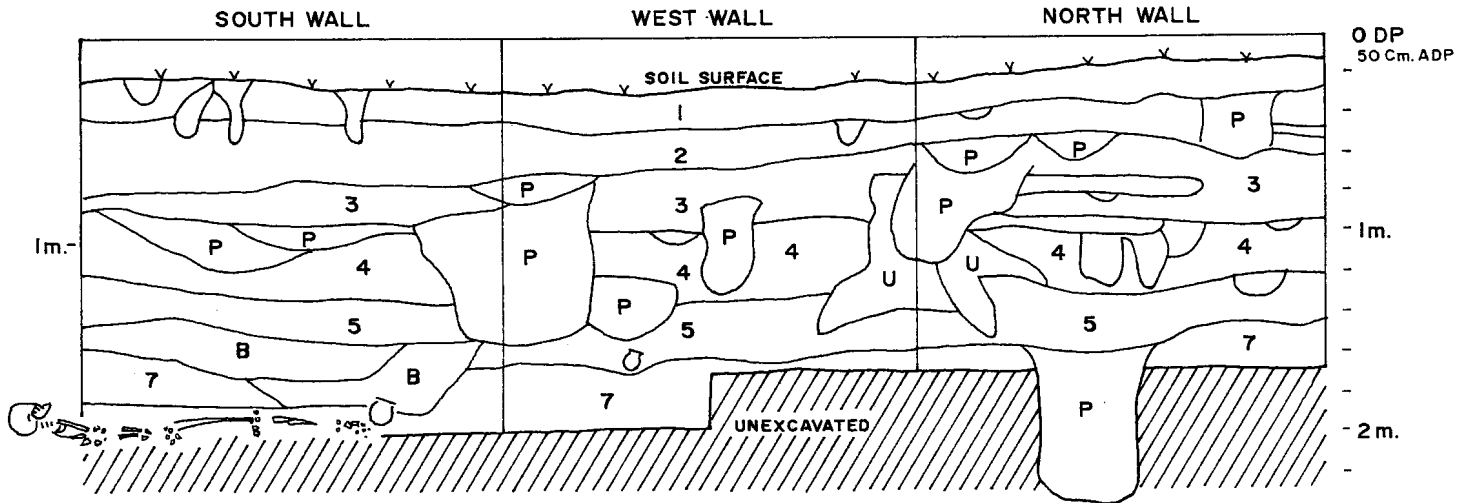


Fig. 17 Comparison of Diagnostic Bowl Types of the Decorated Black Pottery Assemblage from Cortez, Dombrique, and David Sites

Decorated Black Pottery Phase in terms of surface finishing, temper of paste and black color smudging. The abundant variations of rim shape and decoration differentiate it from the Non-Decorated Black Pottery Assemblage.

The following discussion on the Jars and Bowls of the Non-Decorated Black Pottery Assemblage is based on the excavated specimens from Conciso Site where there were plenty of variations of rim shapes, and whole pottery vessels associated with the burial, which local people collected, in Irigayen site.



- 1 : Surface Layer, whole shape and broken shell layer with blackish soil.
- 2 : Shell Layer with Blackish Soil, Chinese Porcelain and Brown colored pottery shreds
- 3 ~ 5 : Shell Layers with Blackish Brown Soil, Non-Decorated Black Pottery Phase (B2)
- 7 : Yellowish Brown Silt Layer, Non-Decorated Red-Slipped Pottery Phase (R2)
- P: Pit, U: Root

Fig. 18 Location Map and Stratigraphic Wall Profile of Conciso Site, Catayauan Shell Midden

4-1. Jar Type Pottery (Fig. 19 and 20)

J-1 to J-11 shows the variation of the types of jars of the Non-Decorated Black Pottery Assemblage.

J-1 The characteristic of this type of pottery is a rim that the lip profile is narrow or tapered (Fig. 19). The rim is curving outward from the neck. Two raised clay bands horizontally attached and surround the shoulder of No. 4. This feature resembles that of J-3 of the Decorated Black Pottery Assemblage (No. 22, Fig. 14), but is undecorated. J-11 of this Assemblage (Fig. 20) has this same characteristic of two rows of raised clay bands.

J-2 The feature of this type of pottery is that the outward swelling and flaring rim profile and it is thinning towards the lip. The inside of the rim is slightly recessed near the lip. Two whole vessels, No. 3 and 4, shows the inner surface of neck is made vertically.

J-3 The feature of this type of pottery is that the rim has a rectangular shape in profile, a uniform rim thickness and slightly thin lip.

J-4 The characteristic of this type is that the rim wall is gradually swelling in thickness from the neck towards the mouth rim. The lip is the thickest part. The difference between J-4 and J-6 is the shape of rim inner surface. The inner surface of rim of J-4 is gently convex in profile while J-6 is gently concave.

J-5 The characteristic of this type is that the rim rises from the neck in uniform thickness. But the difference between this type and J-3 is that the shape of the inner surface of rim is gently concave in profile and lacks the rectangular edge.

J-6 The feature of this type is that the rim wall is gradually swelling in thickness from the neck towards the lip, but the difference from J-4 Type is that the inner surface of the rim is gentle concave in profile. Some lips of this type protrude a little to the interior as shown in No. 3 to 6.

J-7 The feature of this type is that the inner surface of rims show the convex shape in profile and have a outward projection of the lip as shown in Fig. 20.

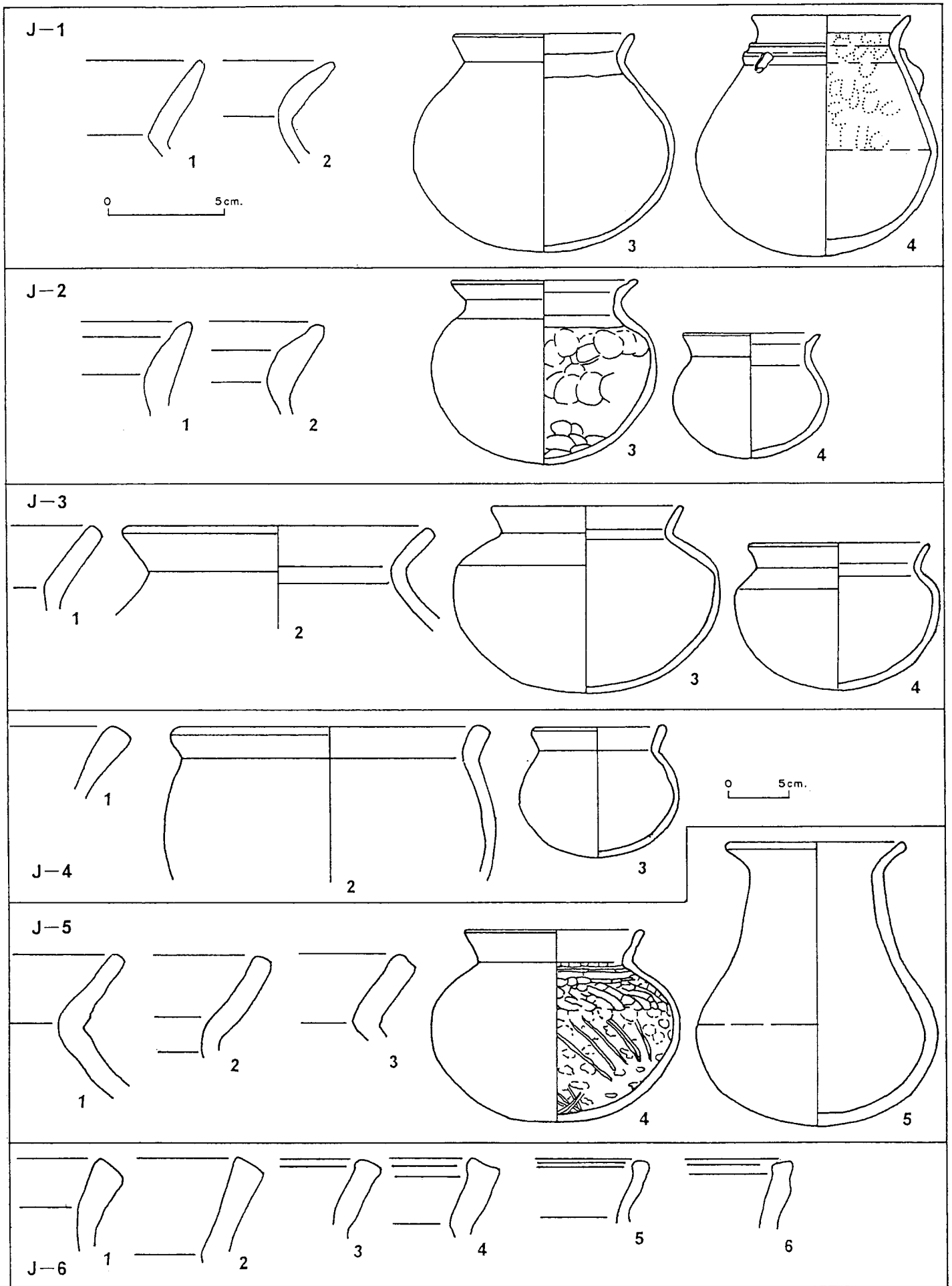


Fig. 19 Jar Type Pottery of the Non-Decorated Black Pottery Assemblage from Conciso and Irigayen Sites

J-8 The characteristics of this type of rim is that a squat, thick rim flares outward just above the shoulder. Although no other specimens of this type of rim are found until now, one type is set up for this rim.

J-9 The feature of this type is that the long neck vertically rises from the body, the rim is slightly everted outward, and the outer surface of lip is thickened. Although No. 3's rim is not thickened the outer surface of lip, but the inner surface of rim is thickened, as the rim is raised vertically from the neck, it is categorized in J-9 Type.

J-10 This type of pottery has no neck and thickened rim and the lip top is flattened.

J-11 This specimen is the surface collection of Irigayen site. The features of this rim sherd, such as the mouth rim is vertically raised, the two rows of the raised attached horizontal clay band around the shoulder and the rectangular shaped clay appliqué is attached under horizontal bands resemble to J-3 type of the Decorated Black Pottery Assemblage (No. 22, Fig. 14). The only difference is that this has no decoration. The specimen No. 4 of J-1 Type of this Assemblage also has the two rows of the horizontal clay band and the rectangular shaped clay appliqué. Based on these resemblances, one can deduce that the manufacturing technique of the Decorated Black Pottery Assemblage continued into the following cultural phase of the Non-Decorated Black Pottery Assemblage minus the decoration.

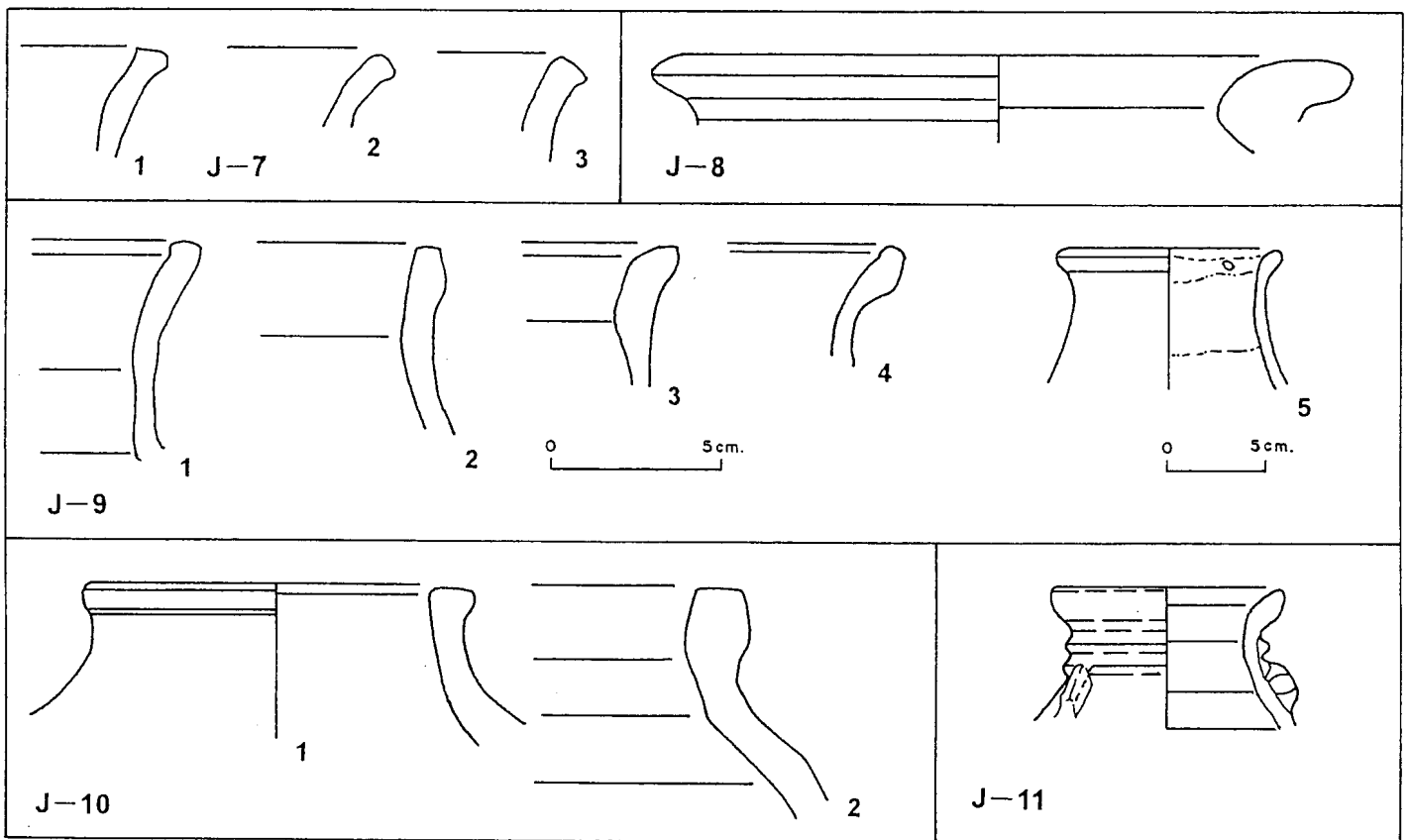


Fig. 20 Jar Type Pottery of the Non-Decorated Black Pottery Assemblage from Conciso and Irigayen Sites

4.2. Bowl Type Pottery (Fig. 21)

B-1 The characteristics of this type of bowl is that the rim flares inward. The wall rises from the body up to the mouth rim with a concave inward curve and the lip is thickened and flattened its top. The specimen No. 1 in Fig. 21 is a bowl with a short foot-ring. The foot ring has the perforated holes arranged horizontally near the jointed base part of the vessel. The rim shape of this type resembles to the one of B-1 type of the Decorated Black Pottery Assemblage. It is difficult to differentiate this type of bowl rim with B-1 type of the Decorated Black Pottery Assemblage.

B-2 The feature of this type of bowl is that the rim flares outward. The body wall curves outward from the base to the rim. The mouth rim has a gradual concave curve and the rim flares horizontally. The rim of No. 1, 2 and 3 of B-2 in Fig. 21 are slightly bent outward. The rims of No. 4 and 5 are horizontally bent outward. No. 5 has a high foot ring. The foot ring has two staggered rows of

triangular cutout designs.

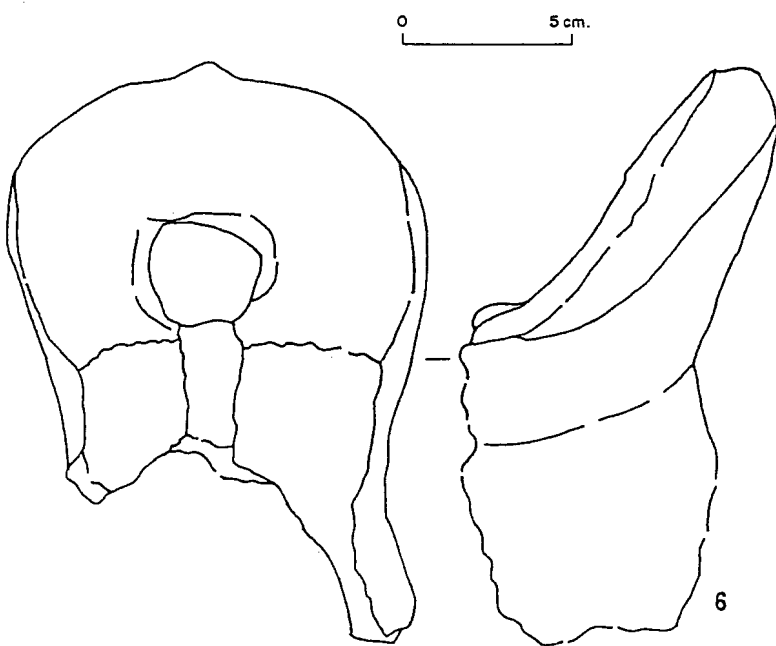
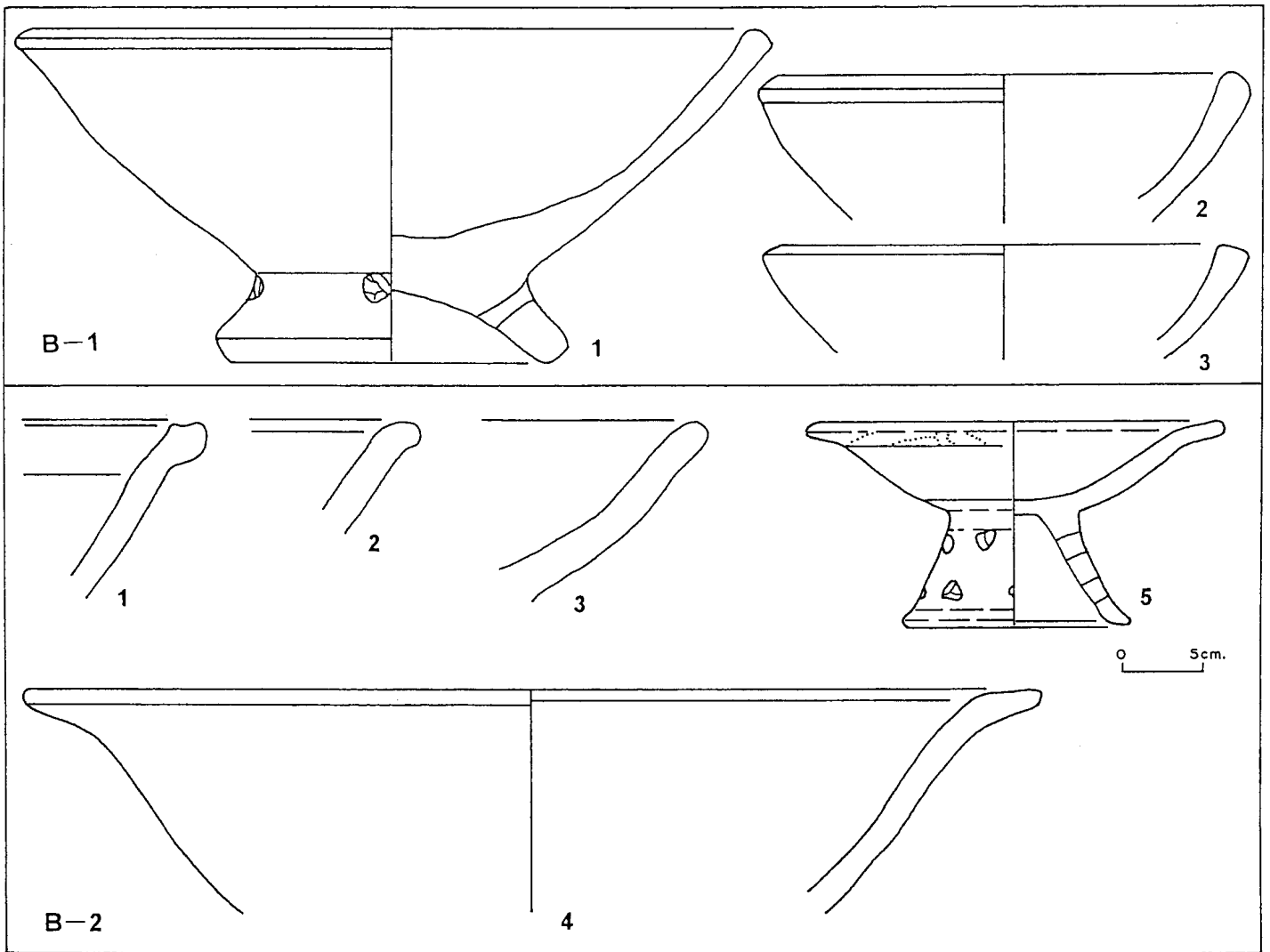


Fig. 21 Bowl Type Pottery of the Non-Decorated Black Pottery Assemblage from Conciso and Irigayen Sites

Other The specimen No. 6 in Fig. 21 is uniquely shaped earthenware. The handle like earthenware with big perforation is slightly bent outward and situated on the high foot ring. The small vertical hole, one centimeter diameters opened from the bottom of the body down to the center of interior foot ring. The surface of the earthenware is polished. The whole shape and function of the earthenware is yet unknown, but by the recent study, it is revealed that the opposite side of this ring-shaped earthenware was connected to the rectangular shaped platform like part of earthenware. This has a strange shape in that one side of the foot ring is circular with a large hole and the opposite side is inclined horizontally giving it a rectangular shape. We cannot infer the function of this specific vessel. But the sherds of this type of earthenware were found among the Non-Decorated Black Pottery Assemblage of Conciso Site, Irigayen Site and Cortez Site.

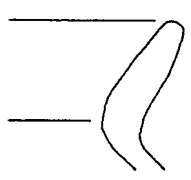

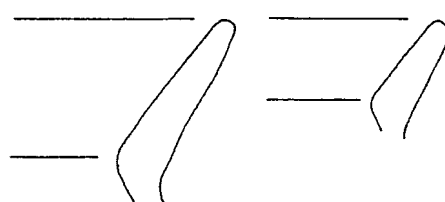
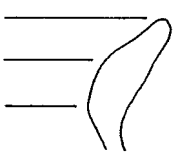
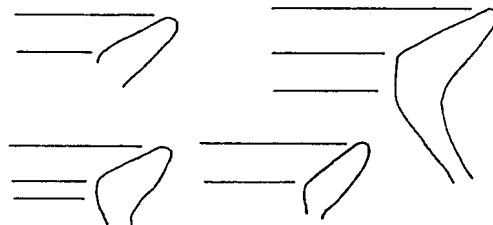
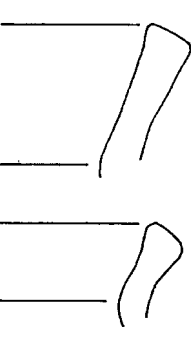
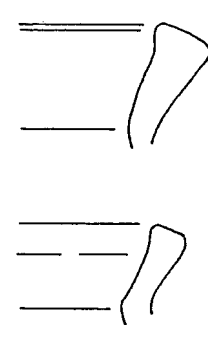
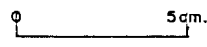
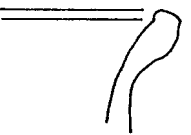
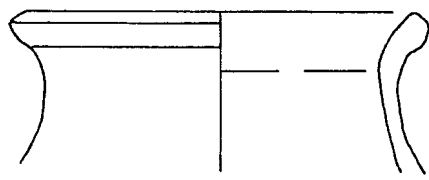
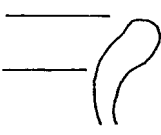
	Conciso	David	Cortez
J 1			
J 2			
J 6			
J 9			

Fig. 22 Diagnostic Comparison of Pottery Types from Different Sites (Conciso, David and Cortez) belonging to the Non-Decorated Black Pottery Phase

4-3. Comparison of Diagnostic Pottery Types of the Non-Decorated Black Pottery Assemblage from Different Sites (Fig. 22)

Fig. 22 shows a comparison of the Jar type rims of the Non-Decorated Black Pottery Assemblage to the samples excavated from other shell midden sites. Four jar types (J-1, J-2, J-6, and J-9) are found in two other shell midden sites namely, Cortez and David. Only two types of jar (J-1 and J-9) were found in Cortez Site, while in David Site, all four types of jar were excavated of the Non-Decorated Black Pottery Phase. The Bowl types could not be compared due to insufficient number of materials excavated from Cortez and David sites.

Conclusion

This article discusses and summarizes the typological features of the four pottery assemblages from the Lal-lo Shell Middens, namely: Decorated Red-Slipped Pottery Assemblage, Non-Decorated Red-Slipped Pottery Assemblage, Decorated Black Pottery Assemblage and Non-Decorated Black Pottery Assemblage. The typological features, especially represented to the mouth rims of pottery are can be used as a chronological index to relatively date the prehistoric activities of the people who had utilized and formed the archaeological artifacts and the sites. The use of rims as a chronological index was found to be effective in determining relative age confirmed by C-14 dating. It is expected that this method will facilitate in future archaeological studies to determine the age of human activities. Despite using typological features of pottery as a chronological index, there are still many questions that remained to be solved. One is the stratigraphic transition from the Decorated Red-Slipped Pottery Phase to the Non-Decorated Red-Slipped Pottery Phase. This has not been confirmed yet stratigraphically.

The continuous archaeological researches of Lal-lo Shell Middens will lead to a deeper understanding of the changing patterns of local settlement system through the time. New information on the spatial and chronological relationships of archaeological sites in Lal-lo area will either support or raise questions on the present views on the development and transformation of the Lal-lo Shell Middens (Fig. 4). Through the further researches and studies of this area, it would be able to reconstruct and explain the prehistoric interdependent relationships between the lowland farmer society and the hunter-gatherer society over a four thousand year period.

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