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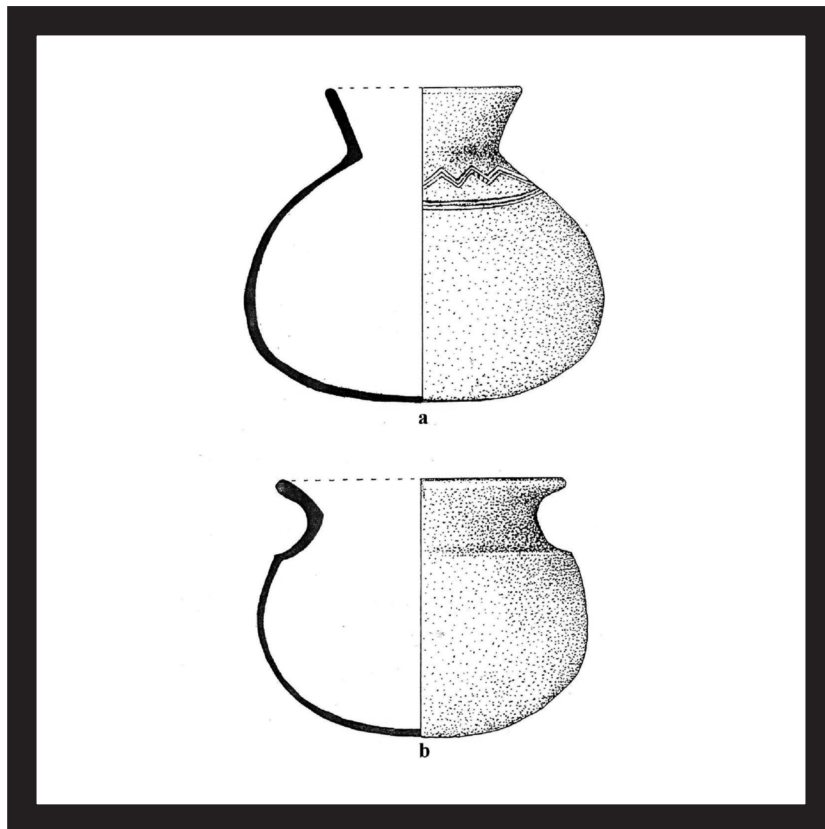
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## REPORT SERIES

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Archaeological Research  
at the Blanjong Site, Sanur,  
Bali

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**I WAYAN ARDIKA & THE ARCHAEOLOGY STUDY PROGRAM TEAM, UNUD**

Translation and foreword by John N. Miksic

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Professor Dr. I Wayan Ardika is a Professor in Archaeology, Faculty of Letters, Udayana University, Indonesia. He earned his MA and PhD in Prehistory from the Australian National University. He recently served as Dean of Faculty of Letters from 2003–2011; Head of the Postgraduate Program in Tourism from 2002–2003; and Head of the Postgraduate Program in Cultural Studies, 1996–1999. Prof. Ardika has published numerous high impact articles in top journals with an emphasis on Bali vis-a-vis local and regional dynamics as well as extra-regional influences and interactions from South to East Asia. Prof. Ardika's approach is team oriented, broad spectrum and experiential. The Archaeological Team is equally credited for their efforts. The program mission and vision integrates academic studies, research, applied and academic projects, professional skills building, curation, conservation, tourism, interdisciplinary and international efforts, entrepreneurship, innovation, critical thinking, and consideration of all stakeholders.

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## SENIOR GUEST EDITOR'S FOREWORD

Despite Bali's status as an early historic kingdom with a unique and widely-admired culture, archaeological research on the island has been limited. However, the significant archaeological potential of Bali has been underscored by Dr. I Wayan Ardika's research, especially his research at the site of Sembiran on the north coast of Bali (Ardika 1991; Ardika 2003; Ardika and Bellwood 1991; Ardika et al. 1993; Ardika et al 1997). Furthermore, his discoveries at Sembiran have shown that Balinese civilization was not limited to the southern part of the island where the majority of the important monumental sites are located.

The Sembiran site is one of the oldest port sites in Southeast Asia. Remains date back to the beginning of the first millennium CE. Archaeological assemblages include abundant evidence of contact with India, including Romano-Indian rouletted ware pottery and the skeleton of an individual whose DNA has been identified as South Asian. One pottery sherd was inscribed with Kharoshthi characters. Another sherd belonged to a type found at Arikamedu, an early port site in southeastern India. Hundreds of glass beads are another form of evidence for early and relatively intensive trade with India. Of interest, a fragment of a mold for casting a bronze drum of the Pejeng type found at the site indicates that Sembiran was also an important centre of local craftsmanship. The Sembiran area continued to function as an important seaport for over a thousand years. Inscriptions from the 10th through 12th centuries mention a market in Julah (located near or within Sembiran) where a guild of foreign traders resided (Ardika 1991, 2011; Ardika and Bellwood 1991; Ardika et al. 1997; Ardika and Beratha 2008).

The oldest Balinese record of a king is found, however, in the south in an inscription discovered at the site of Blanjong.<sup>1</sup> The king used the title Adhipatih and called himself Sri Kesari Varmma. He named his palace Singhadvala or Singharccala (epigraphers Stutterheim and Damais differed on their reading of this word). The inscription refers to Bali as Walidvipa and is unique in history because of its mixture of languages and scripts. It is partly written in Old Balinese script with a mixture of Sanskrit and Old Balinese language; the rest is written in Early Nagari script, which is usually used for Sanskrit but here was used for Old Balinese.

There is some uncertainty over the precise date of the Blanjong inscription. W.F. Stutterheim (1934:126–182) read a chronogram as śake khecara wahni murti ganite which yields the date of 839 Śaka (917 CE). He also stated that the inscription demonstrated north Indian influence in Bali in the 10th century because of the use of pre-Nagari script and Sanskrit. He concluded that Blanjong was a port where Indian ships frequented.

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<sup>1</sup> We know very little about the connections and relations between north and south Bali. We do not have enough evidence from habitation or other non-religious sites of the historic period to draw any inferences on these questions. No further evidence may ever become available. That is why this particular excavation at Blanjong is important: because it may provide the only archaeological context which we are likely to have for the inscription. The fact that north and south Bali had ports and were engaged in local and extra-local trade with the added component of some form of direct or indirect influence from South Asia (and East Asia regarding the Chinese ceramics), allows for various types of comparative analysis, however.

Blanjong is located in Sanur; a popular tourist and hotel location. Hotel building and other construction activities have undoubtedly impacted many archaeological sites.

Alternatively, Damais (1947–1950:121–140) in his rereading of the Blanjong inscription changed the chronogram to śaka 'bde sara wahnimurti ganite or 835 Śaka, 27 February 914; Damais also changed Stutterheim's reading of Kraton Singhadwala to Singharccala.

Apart from the status of Blanjong/Sanur site as a port, Bernet Kempers placed greater emphasis on Raja Kesari Warmadewa's subjugation of enemies at Gurun and Suwal at the end of the 10th century (Kempers 1956:26).

The early 10th century was an interesting time in Bali. In 905 a Javanese king, Balitung, claimed to have sent a force to invade Bali. Sometime between 919 and 929 the capital of Java moved from central to east Java in response to a pralaya (disaster), the nature of which is unknown.

Balinese are not generally thought of as seafarers. Some of them are fishermen, but most prefer to focus their endeavors on terrestrial activities. The existence of the port in Sembiran however suggests that this may not always have been the case.

Dr. I Wayan Ardika's research has focused on the functions of the Blanjong site which he considered to have been a probable ancient port. He conducted the first systematic research at Blanjong in 1981: a terrestrial survey and gridding. Finds included: a Ganesha, portrait statue, a terracotta figurine, an animal statue, a statue backrest, a statuary fragment of a foot, a lingga, architectural fragments (pillar base-umpak, rooftop pinnacle decoration- kemuncak, makara, miniature candi-candi miniatur), and local and foreign potsherds (Chinese, Vietnamese, European). The pottery scatter was centered 200 m southwest of the Blanjong inscription.<sup>2</sup> The pottery suggests dates between the 10th and 13th centuries. The statuary and architectural remains were assigned to the Majapahit period (13th-15th centuries) and indicated that the site had a religious function. The sherds were interpreted as remains of settlement (Ardika 1981:10–29).

I Gusti Putu Darsana and colleagues conducted further research at the site's environs in 1984 that included a survey of an area 400–800 m southwest of the Blanjong inscription (Darsana et al. 1984). They identified dense concentrations of local pottery sherds from cooking pots, containers, kendi, lids, and jars. Foreign ceramics included bowls, plates, storage jars, cups, flowerpots, and bottles from China, Vietnam, and Europe. The artifacts indicate a timespan ranging from the 10th to 18th centuries. Local pottery was obtained from Ubung and Blahbatuh whereas the foreign pottery probably came through the local port which would have thus functioned from the 10th to 18th centuries (Darsana et al. 1984:10–21).

The next excavations at Blanjong were conducted in 2006, 250 m southwest of the inscription<sup>3</sup> when the site was chosen for a training excavation by the Archaeology Department of the Faculty of Letters, Universitas Udayana, for students taking a course in archaeological practice. The site was selected in order to revive excavations related to Sanur which had been dormant for over 20 years. New data discovered included a structure of coral and andesite believed to be related to the Blanjong inscription because

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<sup>2</sup> Because the inscription was found near the excavated site and some of the artifact assemblage clearly falls within a comparable period, the inscription and site remains are likely connected. The inscription suggests that the Blanjong area was a port or near one for several centuries. The area excavated is probably part of a larger multi-component site, but the other components may have been destroyed by development.

<sup>3</sup> The inscription is now kept in Pura Blanjong.

its proximity. Other finds included earthenware, stoneware, clay discs, seashells, ulekan, fragments of teeth and bones, all assigned to the 9–13th centuries (Tim Jurusan Arkeologi-UNUD 2006: 22–40; see also Tim Jurusan Arkeologi-UNUD 2007 for additional data).

The Nalanda-Sriwijaya Centre is honored to have been involved in enabling Dr. I Wayan Ardika to continue research on this important site. As he notes in this report, the site continues to be seriously threatened by modern development. It is hoped that future research will continue before any remaining possibility of understanding this aspect of early Balinese culture and history is permanently destroyed.

#### SENIOR GUEST EDITOR'S BIO

Dr. John N. Miksic is Professor at the National University of Singapore. He is a widely-published author with key works including: *Singapore & The Silk Road of the Sea: 1300–1800* (2013); *Borobudur: Golden tales of the Buddhas* (1990); *Old Javanese Gold* (2010); *Earthenware in Southeast Asia* (2003); *Early Singapore 1300s–1819: Evidence in maps, texts and artefacts* (ed. with Cheryl-Ann Low) (2004); and *the Historical Dictionary of Ancient Southeast Asia* (2007). His interests include early Buddhist artifacts and monuments; ceramics of China and Southeast Asia; gold; urbanization; and maritime trade. He was the first Head of the NSC Archaeology Unit between July 2011 to June 2014.

# Archaeological Research at the Blanjong Site, Sanur, Bali

## ABSTRACT

*Bali is not known as an important link in ancient maritime trade, but the site of Sembiran on Bali's north coast is one of the oldest known ports in Southeast Asia. Sembiran was important for over 1,000 years, until the 12th century. The author of this report has studied inscriptions and conducted archaeological excavations there. One important inscription has been found at Blanjong, on the southeast coast of Bali. It contains the first record of a Balinese king. It is written in both Early Nagari script and Sanskrit language, and Old Balinese script and language, indicating a sophisticated literary culture. Archaeological research at the site began in 1981 and continued at intervals under the direction of the author of this report. This publication contains the first English language summary of this research. It contributes significant new information to our knowledge of early maritime trade in early Southeast Asia. Blanjong could be a multicomponent site, i.e a port, religious, burial, and settlement site which dated from 9-13th century AD*

Key words: Blanjong, inscription, multicomponent site

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## 1: INTRODUCTION

### 1.1: Background

Since the first half of the 20th century, the Blanjong (Belanjong) site has attracted the attention of experts in archaeology. This site is located on the south coast of the island of Bali. It is inevitably mentioned in connection with the Blanjong Inscription, issued by Raja Sri Kesari Warmmadewa in the year 839 Śaka (917 CE). This inscription commemorates the victory of Raja Kesari Warmmadewa over his enemies in the districts of Gurun and Swal.

The inscription consists of two scripts, Devanagari and Kawi, and two languages, Sanskrit and Old Balinese. Based on the palaeography of the scripts and types of languages used, W.F. Stutterheim concluded that north Indian influence was present in Bali during the 10th century. The Blanjong site was believed to be an ancient harbour where vessels of Indian merchants anchored (Stutterheim, 1934:126–182). L.-C. Damais revised the dating of the inscription as 835 Śaka (914 CE) (Damais 1947–1950:121–140).

In 1981, I Wayan Ardika conducted research in the form of surface surveys to determine the distribution and density of artifacts at the Blanjong site with Pura Blanjong (Blanjong Temple) as his reference point. The survey indicated that the southwest sector of the site exhibited the densest concentration of pottery sherds and was therefore the most important area to investigate (Ardika 1981:10–29). The discovery was followed up by Darsana who conducted more extensive research that yielded earthenware pottery (cooking pots, containers, kendi, lids, and jars) and fragments of glazed ware ceramics (bowls, plates, jars, flowerpots, and bottles) dating from the 10th through 18th centuries (Darsana et al. 1984:10–21).

In 2006, a team from the Department of Archaeology, Udayana University, carried out research south of Pura Blanjong and succeeded in uncovering a 1.0 m thick coral structure believed to be connected with the Blanjong inscription. Besides the remains of a structure, they also found earthenware and glazed ware pottery, ceramic disks, teeth, and bones with an estimated date range from the 9th through 13th centuries (Tim Jurusan arkeologi-UNUD, 2006:22–40).

The team continued excavations in 2007 and 2008 at a location approximately 100 m west of Pura Blanjong. This location was chosen because of the higher density of finds in previous research, and, because house and villa construction was increasing at the Blanjong Site. Thus it necessitated a rescue excavation to maximize data recovery before site destruction.

The 2007 excavation season opened three units designated BLJ V, BLJ VI, and BLJ VII. In general finds were highly varied. Some were in situ while others were recovered from disturbed deposits. The most common finds were earthenware vessels. Based on the analysis of rims, these included bowls, cooking pots, kendi, jars, lids, and lamps. Other finds included glazed ware pottery estimated to have been made during the Tang and Song periods dating from the 7th through 13th centuries. Ecofacts included animal bones and shells. Many bones exhibited cutmarks indicating human activity (e.g., food preparation, butchery, eating, offerings, etc.). Other interesting finds included coins, gacuk (clay disks) with holes, and damar (resin). Damar is commonly found in Sumatra and was a trade commodity during the period of the Sriwijaya Kingdom between the 7th and 13th

centuries. It was often used as an ingredient in glaze (or a surface sealant) for ceramics, furniture polish, and hard wax (Tim Jurusan Arkeologi-UNUD 2007:38).

The 2008 field research season expanded the excavation area with four new squares: BLJ VI (a continuation of the previous field season's excavation), BLJ VII, BLJ VIII and BLJ IX. General finds included earthenware, glazed ware, coins, iron fragments, animal bones, teeth, shell, and human skeletal remains. The most common finds were earthenware fragments of jars, pans, cooking pots, containers, kendi, bowls, stoves, plates, and lids. Glazed ware was divided among six types: bowls, plates, jars, covered boxes, vases, and kendi dating to the Tang, Song, and Yuan periods from the 7th to 14th centuries.

Some finds associated with the skeleton in Square BLJ VIII and BLJ IX were burial offerings. The skeleton was identified as that of a male who was buried in an extended position with his feet bent over his knees (Tim Jurusan Arkeologi 2008: 23–42).

This brief introduction summarizes the nature of archaeological work conducted at Blanjong. The remaining report will add further details and explore additional implications.

## 1.2: Research Questions

Although several surveys and excavations were conducted, many uncertainties about the site remained. What was the total area covered by the artifact scatter? What was the size of the site? What was the nature or character of the site? What are the implications? Landowners were busy constructing houses and commercial structures to support the tourism industry. Thus, mitigation through rescue archaeology was also a priority. This subsequently affected the nature of the research approach.

## 2: OBJECTIVES AND BENEFITS OF THE EXCAVATIONS

### 2.1: Objectives

Following the known history of the Blanjong site and the identification of information and knowledge gaps, the excavations were conducted in order to learn more about the distribution and variety of artifacts, the character or functions of the site, and to rescue as much data as possible before continued development completely obliterated any chance of further investigation.

### 2.2: Benefits

The research was designed to obtain more accurate information regarding the distribution and types of artifacts and the areal extent and character of the site. The artifacts and other data as well as successful rescue approaches could be used as reference material and lessons in order to plan and conduct future rescue excavations.

### 3: LITERATURE REVIEW

Dr W. F. Stutterheim was the first foreigner to devote a special study to the Sanur area and the Blanjong Inscription. He recorded his results in his article "A Newly Discovered Pre-Nagari Inscription on Bali." (1934). He concluded that the king who issued the inscription was Sri Kesari Warmma (dewa) whose palace lay at Singhadwala, and that he had defeated his enemies at Gurun and Suwal. He identified Gurun as Nusa Penida, and speculated that although the location of Suwal was not certain, it might have been Kutaraja. A chronogram in the inscription reads "...sake khecara wahnimurti ganite..." which yielded a date of 839 Śaka or 917 CE. Stutterheim also inferred that influence from north India reached Bali in the 10th century as indicated by the use of pre-Nagari script and Sanskrit language. Furthermore, he was of the opinion that the Blanjong Site was an ancient port where Indian ships anchored (Stutterheim 1934:126–182).

When Damais restudied the inscription, he corrected the chronogram to "saka'bde sara wahnimurti ganite" which would yield the value 835 Śaka or the period between 29 January and 27 February 914 CE. He corrected Stutterheim's reading of Keraton Singhadwala to Singharccala (Damais 1947–1950:121–140). Damais did not try to indicate the locations of Gurun and Suwal.

The Blanjong Inscription was also reread by R. Goris who included it in his book *Prasasti Bali I*. He identified Gurun as a place outside of Bali, possibly Lombok (Goris 1954a:64–65; 1954b:243). He identified Suwal with Ketewel, a place south of Sukawati (Sukarto 1977:155). Kempers placed greater emphasis on the subjection of the enemies in Gurun and Suwal by Raja Kesari Warmadewa around the 10th century, without references to the Blanjong-Sanur site as an ancient port or habitation site (Kempers 1956:26).

Using the existence of the Blanjong Inscription as a point of departure, Ardika was motivated to conduct systematic excavations at Blanjong. This research was carried out in 1981 using the method of surface survey (terrestrial survey) with a grid system. Using the Blanjong Inscription as a reference point, the finds included a statue of Ganesha, portrait statue, terracotta figurine, statue of an animal, base of a statue, fragments of a statue's feet, a lingga, elements of a structure (pillar base [umpak], roof peak decoration [kemuncak], makara, miniature temple [candi miniatur]), and sherds of pottery both local and foreign (China, north Vietnam, and Europe). The center of the distribution of artifacts lay southwest of the site of the Blanjong Inscription. The finds were dated to the 10th to 13th centuries. During that period the Blanjong-Sanur site was one of the important archaeological sites in Bali. The sculpture and architecture yielded a suggestive date for the Majapahit period (13th–15th centuries) and provided an indication that the site had functioned as a sacred sanctuary. This inference has been supported by pottery finds which are interpreted as evidence of a settlement site (Ardika 1981:10–29).

I Gusti Putu Darsana and his team continued the research in 1984 using the same methods (surface survey) in an area which had not yet been covered before: the southwest quadrant at a distance of 400–800 m from the location of the Blanjong Inscription. Finds included local earthenware with morphologies indicating containers, cooking pots, lids, kendi, and jars. Non-local ceramics included bowls, plates, jars, cups, flowerpots, and bottles. The discovery of ceramics from China, North Vietnam, and Europe indicated a relative chronology between the 10th to 18th centuries. It was thought that the local earthenware had come from nearby (Ubung and Blahbatuh) whereas the foreign ceramics

arrived via the trade routes. Thus, it was concluded that the Blanjong-Sanur site was a port between the 10th and 18th centuries (Darsana et al., 1984:10–21).

In 2006, the Archaeology Team of the Faculty of Arts, Udayana University, carried out research south of the Blanjong Inscription. This research yielded a part of a structure (1 m thick) of coral and andesite. It was speculated to be closely related to the Blanjong inscription. Aside from the structural remains, finds included earthenware, glazed ware, tiles, seashells, animal teeth, and bones estimated to date from the 9th–13th centuries (Tim Jurusan Arkeologi-UNUD 2006:22–40).

Excavations in 2007 and 2008 conducted by the Archaeology Department Team recovered Tang pottery and resin. These finds provided an indication that Blanjong had begun to develop in the 7th century; before the Blanjong Inscription which was carved in the 9th century. The area had likely been a prominent commercial zone or port at the time. One unique find consisted of glazed ceramic with a knife motif of unknown origin (Tim Jurusan Arkeologi-UNUD 2007:39; 2008:43).

#### 4: RESEARCH METHODOLOGY

##### 4.1: Data Collection

###### 4.1.1: *Library Research*

Library research began with the search for and collection of data from written sources on the Blanjong-Sanur site or by gathering similar data which was thought to be beneficial in support of this activity. Resources used included books, journals, research reports, and internet sites. There are few publications, although it is fortunate to have early reports beginning with Stutterheim in the 1930s. The results of previous research projects were seen as very valuable sources of information about the site.

###### 4.1.2: *Surface Survey of the Site*

A surface survey was conducted prior to the excavation in order to obtain an impression of the site's potential to yield archaeological data from specific sectors. The survey procedure was meant to observe the environment, the site potential and distribution of finds, as well as topography. Finds and the provenience data were recorded photographically and textually (written descriptions). Observations of soil types, surface soil conditions, and existing flora and fauna found around the site were also carried out in order to obtain archaeological data and relevant complementary depositional, geological and soil data in the context of current environmental conditions.

#### 4.1.3: Excavation

Excavation through systematic digging was conducted to collect further subsurface data. Recovered artifacts and ecofacts yielded important information regarding provenience (three-dimensional spatial data), shapes/morphologies of finds, relations between finds, their stratigraphic position, their chronological connection, the behavior of their makers and users, and post-depositional events. Systematic excavation allows for tighter control of spatial data (i.e., provenience)—critically important to evaluate relations among finds.

#### 4.2: Data Processing and Analysis

After excavation and recovery of the artifacts and ecofacts, data were analyzed using both quantitative and qualitative methods. Quantitative analysis involved counting and weighing finds per spit or natural layer. Qualitative analysis included identification of artifacts and organic remains. Contextual analysis consisting of observations of the relationship between finds was also conducted. The concluding process is the interpretation of the analysis in order to derive inferences.

### 5: RESULTS AND DISCUSSION

#### 5.1: Site Location and Environmental Conditions

Administratively, the site is located in Banjar Blanjong, Desa Sanur Kauh, Kecamatan South Denpasar. The excavation activity was located at approximately 08°42'36.2" South Latitude, 115°15'25.6" east Longitude, and 6 m above mean sea level (amsl) according to available map data. The site is easily reached by road from the By Pass Ngurah Rai – Sanur to the east via Jalan Danau Poso in the direction of Semawang. The site is located on a plot of land in the middle of a housing area with the following boundaries. On the north are houses and a road leading the Semawang Beach; on the east are houses, on the south more houses, and on the west is Jalan Wanasari leading to Merta Sari Beach (see Illustrations 1 and 2).

Geographically Banjar Blanjong or Sanur is located in the coastal zone at an elevation of 5–7 m amsl. The district has been primarily zoned for upper-class residential housing, although some locations have plots for dry land cultivation.

The coastal character of the site is reflected by the types of flora and fauna found there. Some types of beach vegetation still exist, including mangrove, coconut, banyan, waru, and others. Some are cultivated food plants including trees such as coconut and mango; and a wide variety of fruits and vegetables such as banana, papaya, chili, beans, watermelon, cucumber, and others. Blanjong is a fertile area suitable for orchards as well as habitation, which explains the local description of Blanjong as *mmel*. This term is found in several Old Balinese inscriptions, where it means “orchard near a house” (see Goris 1954a).

Several types of fauna are still found around Blanjong Site including domesticated mammals such as cattle, dogs, pigs, and cats. Fowl include cranes and other beach species, as well as domesticated species such as chickens, ducks, and geese. Some of the species were already raised in Old Balinese times such as cattle (*sampi*), dog (*asu*), pig (*celeng*), duck (*itik*), chicken (*hayam*) and several others (see Goris 1954a).

Soil deposition still accumulates at several locations in Desa Sanur, including Blanjong. Specifically at Blanjong, the soil deposition occurs mainly on the southern and eastern parts of the site. A 1980 topographic map indicates that the beach on the east of Blanjong, Semawang Beach, has prograded between 2.0 m and 2.5 m every year; whereas towards the south, at Mertasari Beach, progradation occurs at the rate of 2.5 to 3.5 m per year. In addition to deposition, some erosion has also taken place.

When the geological evidence is considered vis-à-vis the erection of the Blanjong Inscription at approximately the 10th century, the beach area found around the inscription and the Pura Blanjong itself would have been much further inland than today, i.e., near the inscription and the temple. We are also able to surmise that people lived near the inscription because household utensils—such as earthenware, Chinese ceramics, etc.—were found in radius of 300 m from the Blanjong Inscription (Ardika et al. 1981:8–9). Overall, the beach was initially closer to the 10th century site and the associated settlement area.

## 5.2: Excavation Results

As previously noted, the Blanjong Site excavation reported here consisted of test pits to confirm the archaeological nature of the site; that the distribution of finds are representative of cultural activities of the past. Test Pit 1 of Blanjong Site was located due east of square BLJ V (2007 excavation) and north of square BLJ VII (2007 excavation), with code numbers BLJ X and BLJ XI (see Appendix A, Illustration 2). This location was chosen because dense remains were found on the surface and in the surrounding area. The density of the remains indicated that former activities were concentrated there. The texture and structure of the soil surface at this location consisted of sandy loam. The two squares had identical dimensions of 2.0 x 2.0 m, which are the same size as the previous excavation pits at the site. The technique of excavation was also uniform with the use of spits or 10 cm arbitrary levels—with the exception of spit 1, which was 15 cm deep. This system was used to simplify the observation and recording of finds. The range of finds in each spit was similar, consisting of earthenware, glazed ware, fishing hook floats, net floats, glass shards, beads, kepeng coins, charcoal, and ecofacts such as animal bone and remains marine fauna. The quantity and types of finds in each test pit are described below.

### 5.2.1: *Blanjong Square X (BLJ X)*

BLJ Square X consisted of 15 excavated spits to a total depth of 150 cm beneath the surface level (155 cm beneath the guide string—string level). Excavation was stopped after spit 14 at 140 cm as the soil was sterile (i.e., natural and devoid of anthropogenic evidence or archaeological material).

Based on visual observation of the four soil profiles of the square that the soil structure for BLJ X was different than that of the nearest square, BLJ V, where only three soil strata could be found. Instead the soil structure for BLJ X was almost identical to that



of square BLJ VII where four soil strata were identified. There was however a difference in the archaeological assemblages, both in quantity and quality. The four strata of square BLJ X consisted of the following soil structure:

- Stratum a consisted of a dark greenish gray gley 2 4/1 (Munsell color chart) layer of humus, which reached 10 cm below ground surface. The soil texture and structure consisted of fine particles originating from sedimentary deposition mixed with fine sand.
- Stratum b consisted of dark grey (7.5 YR 4/1) sandy loam, with a thickness ranging from 35–50 cm. Its texture consisted of rather coarse particles with sticky texture mixed with coarse sand.
- Stratum c consisted of dark grey (7.5 YR 4/1) sandy loam, a dense amount of artifacts, with a layer thickness ranging from 10–55 cm. The texture and soil structure was rather compact.
- Stratum d consisted of loose sandy layer (6.5 YR 6/8) mixed with coral. Soil texture and structure were rather sticky with coarse sand grains mixed with coral. This layer first appeared at 60 cm in depth and extended until the sterile soil (see illustration 4).

The consistency of finds in square BLJ X both in terms of artifacts and ecofacts consisted of scattered finds and concentrations beginning from spit 6 in the northeast quadrant, spit 7 in the northwest quadrant, and spit 9 in the southeast quadrant. There were scattered finds which appeared from the surface down to spit 13 which amounted to 2,612 objects. These included 338 rims, 113 necks, 40 carinations (carinated sherds), 2,073 body sherds, 48 bases, 8 spouts and 1 small bowl. The distribution of finds are detailed in Table 1.

TABLE 1: DISTRIBUTION OF SCATTERED FINDS OF EARTHENWARE IN BLJ X, SECTOR 1

Layer	Spit	Fragments (sherds)						Small Bowl	Total	
		Rim	Neck	Carination	Body		Base			Spout
					Plain	Decorated				
a	P	9	3	--	51	--	1	--	64	
	1	51	10	--	307	--	9	--	378	
b	2	37	10	--	154	--	4	--	205	
	3	31	5	4	151	--	5	3	199	
	4	31	16	--	189	--	9	--	245	
	5	31	15	--	195	--	6	1	248	
c	6	110	36	26	705	1	12	4	894	
	7	30	12	9	184	1	2	--	238	
	8	4	1	1	67	--	--	--	73	
	9	4	5	--	27	--	--	--	36	
	10	--	--	--	37	--	--	--	37	
	11	--	--	--	5	--	--	--	5	
d	12	--	--	--	5	--	--	--	5	
	13	--	--	--	4	--	--	--	4	
	14-15	--	--	--	--	--	--	--	--	
<b>Total</b>		<b>338</b>	<b>113</b>	<b>40</b>	<b>2,071</b>	<b>2</b>	<b>48</b>	<b>8</b>	<b>1</b>	<b>2,621</b>

Fifty glazed sherds were found from the surface to spit 8. These included 9 rims, 2 necks, 31 body sherds, and 8 bases (Table 2)

TABLE 2: DISTRIBUTION OF GLAZED SHERDS IN BLJ X, SECTOR 1

Layer	Spit	Fragments (sherds)				Total
		Rim	Neck	Body	Base	
a	P	--	--	1	1	2
	1	3	2	--	1	6
b	2	--	--	4	1	5
	3	--	--	4	1	5
	4	2	--	2	--	4
	5	--	--	2	1	3
c	6	2	--	15	3	20
	7	2	--	2	--	4
	8	--	--	1	--	1
	9	--	--	--	--	--
<b>Total</b>		<b>9</b>	<b>2</b>	<b>31</b>	<b>8</b>	<b>50</b>

Beyond these items, other significant finds from the excavation included a metal ring weighing 65 g in spit 1, a fishhook float weighing 5 g in spit 3, a net float weighing 20 g in spit 5, a shard of glass weighing 1 g in spit 14, charcoal weighing 20 g in spit 2, and a cluster of charcoal weighing 1 g in spit 14 (Table 3).

TABLE 3: DISTRIBUTION OF SIGNIFICANT FINDS IN BLJ X, SECTOR 1

Layer	Spit	Significant Finds					Mass (grams)
		Ring	Fishhook Float	Net Float	Glass	Charcoal	
a	1	1	--	--	--	--	65
b	2	--	--	--	--	*	20
	3	--	1	--	--	--	5
	5	--	--	1	--	--	20
d	14	--	--	--	1	*	1
<b>Total</b>		<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>*</b>	<b>111</b>

Along with the aforementioned artifacts, remains of marine biota were commonly found in square BLJ X. This included 1,012 shells from the *gastropod* family weighing approximately 7,545 g; 417 from the *pelecypoda* category weighing 3,306 g; and 41 lumps of coral weighing 2,285 g (Table 4).

TABLE 4: DISTRIBUTION OF MARINE ORGANISMS FROM BLJ X, SECTOR 1

Layer	Spit	Shell				Coral Fragments	
		<i>Gastropoda</i>		<i>Pelecypoda</i>		Total	Mass (grams)
		Total	Weight (grams)	Total	Mass (grams)		
a	P	8	50	3	20	--	--
	1	32	170	4	10	--	--
b	2	20	140	7	50	--	--
	3	44	340	5	60	--	--
	4	52	500	3	25	--	--
	5	159	2030	38	470	--	--
c	6	204	2080	65	510	--	--
	7	72	840	37	190	--	--
	8	76	310	127	670	--	---
	9	29	180	41	250	--	--
	10	18	30	19	160	11	560
	11	54	50	32	70	9	500
d	12	87	155	18	35	7	510
	13	61	125	9	15	5	330
	14	60	25	7	10	4	230
	15	36	20	2	1	5	155
<b>Total</b>		<b>1,012</b>	<b>7,545</b>	<b>417</b>	<b>3,306</b>	<b>41</b>	<b>2,285</b>

Other faunal remains (Table 5) in addition to marine biota were found in several spits. For example, spit 3 contained a bone fragment; spit 4 contained a badly decayed bone fragment which weighed 20 grams; spit 5 contained eight bone fragments: two fragments of *sus* mandible (lower jaw of a pig); two *carapala* (tortoise vertebrae); a *bos* metacarpal (cow footbone); one *aves* tibia (bird bone); and a fishbone in spit 6. A *bos* femur (cow leg) and a fragment of unidentifiable bone were recovered in spit 7. A rib of unknown mammalian species was found in spit 8. In spit 9, finds included another rib, a scapula, and a goat bone. Fishbone was found in spit 12.

TABLE 5: BONE DISTRIBUTION IN BLJ X, SECTOR 1

Layer	Spit	<i>Sus</i> Mandible	<i>Carapala</i>	Rib	<i>Bos</i> Meta-carpal	Scapula	<i>Bos</i> Femur	Tibia		Fish bone	Misc bone fragments
								<i>Ovis</i>	<i>Aves</i>		
a	3	--	--	--	--	--	--	--	--	--	1
	4	--	--	--	--	--	--	--	--	--	*-20 grm
	5	--	--	--	--	--	--	--	--	--	8
c	6	2	2	--	1	--	--	--	1	1	--
	7	--	--	--	--	--	1	--	--	--	1
	8	--	--	1	--	--	--	--	--	--	--
	9	--	--	1	--	1	--	1	--	--	--
d	12	--	--	--	--	--	--	--	--	1	--
<b>Total</b>		<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>10 + 20 grm</b>

It was mentioned previously that aside from scattered fragments, the concentrations of finds appeared in the northeast quadrant of spit 6; the northwest and southwest quadrant of spit 7; and in the northeast quadrant of spit 9. The concentration in the northeast quadrant of spit 6 consisted of artifacts and faunal remains: earthenware, glazed pottery, bone, one piece of bone from a goose, and seashell. The concentration in spit 7 northwest quadrant consisted uniformly of earthenware. The concentration in the southwest corner contained earthenware and shell. Finally, the concentration in the northeast quadrant of spit 9 only contained earthenware. Please refer to Table 6 for a summary.

TABLE 6: CONCENTRATION OF FINDS IN BLJ X, SECTOR 1

La- yer	Spit	Earthenware						Glazed Pottery		Bone			Shell		Quad- rant
		Rim	Neck	Cari- nation	Body	Base	Handle/ Lid	Rim	Body	Goose	Meta- carpal Ovis	Hume- rus Ovis	Gastro- poda	Pelecyc- poda	
c	6	15	5	2	75	1	1	1	1	1 ind	2	1	3	2	NE
	7	10	--	5	23	--	--	--	--	--	--	--	--	--	NW
	7	7	--	--	16	--	--	--	--	--	--	--	3	1	SW
	9	4	5	2	31	--	--	--	--	--	--	--	--	--	NE
<b>Total</b>		<b>36</b>	<b>10</b>	<b>9</b>	<b>145</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1 ind</b>	<b>2</b>	<b>1</b>	<b>6</b>	<b>3</b>	

### 5.2.2 Blanjong XI (BLJ XI)

BLJ XI was excavated to spit 9, reaching a depth of 95 cm below the surface level (105 cm below the guide string). Excavation was halted as the time allocated to the research had expired. Based on the observations of the four square soil profiles, the soil conditions were almost the same as square BLJ X where four strata were identified. However, the artifact content were different in terms of both quantity and type. The four strata in square BLJ XI are described as follows:

- Stratum a consisted of dark greenish gray gley 2 4/1 humus, with a depth of 10–30 cm from surface. The soil texture and structure consisted of fine particles from the deposition of humus mixed with fine sand.
- Stratum b consisted of sandy loam, dark grey (7.5 YR 4/1), with a thickness of 15–30 cm. The soil texture consisted of rather coarse particles with sticky structure mixed with coarse sand.
- Stratum c consisted of dark grey colored (7.5 YR 4/1) sandy loam and contained a dense amount of artifacts found between 25–40 cm from the soil surface. Soil texture and structure were compact.
- Stratum d consisted of loose sand mixed with coral (6.5 YR 6/8). Soil texture and structure were loose and comprised of coarse particles mixed with coarse sand. The thickness of this stratum is unknown as the bottom not reached (refer to illustration 5 in Appendix A).

Various types of finds were found in each stratum. There was no obvious association between the artifacts in the various strata. Nevertheless a concentration of artifacts was noted in spit 3 in the southeast quadrant. Scattered finds in square BLJ XI

included 3,232 earthenware sherds. These included 525 rims, 219 necks, 169 carinations, 2,247 body sherds, 61 bases, and 11 spouts (Table 7).

TABLE 7: DISTRIBUTION OF SCATTERED FINDS OF EARTHENWARE IN SQUARE XI, SECTOR 1

Layer	Spit	Fragments (sherds)								Total
		Rims		Neck	Carination	Body		Base	Spout	
		Plain	Decorated			Plain	Decorated			
a	1	48	--	8	--	163	--	5	--	224
b	2	62	--	18	25	213	--	10	--	328
	3	56	--	26	26	267		17	1	393
	4	59	--	29	26	306	--	2	1	425
c	5	48	--	33	14	182	--	4	4	285
	6	132	1	64	45	664	1	16	2	925
	7	45	--	33	16	266	--	7	--	367
	8	47	--	--	14	108	2	--	2	173
d	9	19	--	8	3	74	1	--	1	106
<b>Total</b>		<b>524</b>	<b>1</b>	<b>219</b>	<b>169</b>	<b>2,243</b>	<b>4</b>	<b>61</b>	<b>11</b>	<b>3,232</b>

Glazed ceramics amounted to 89 sherds which were found in all spits. They included 12 rims, 1 carination, 2 necks, 58 body sherds, and 16 bases (Table 8).

TABLE 8: DISTRIBUTION OF SCATTERED GLAZED WARE IN SQUARE XI, SECTOR 1

Layer	Spit	Fragments (sherds)					Total
		Rim	Carination	Neck	Body	Base	
a	P	--	--	--	--	--	--
	1	--	--	--	8	3	11
b	2	3	--	--	10	4	17
	3	--	--	--	1	--	1
	4	--	--	--	1	1	2
c	5	--	--	--	4	3	7
	6	5	1	2	10	2	20
	7	1	--	--	2	1	4
	8	2	--	--	3	2	7
d	9	1	--	--	19	--	20
<b>Total</b>		<b>12</b>	<b>1</b>	<b>2</b>	<b>58</b>	<b>16</b>	<b>89</b>

In addition to pottery, BLJ XI also yielded significant finds made of other materials. These appeared in spit 7 in the form of a bead (weighing 2 g) and a kepeng (Chinese coin; weighing 5 g).

Similar to square BLJ X, BLJ XI also yielded fragments of marine biota (Table 9). These included 561 *gastropoda* shells (7,915 g); 105 *pelecypoda* (2,235 g); and 1 coral fragment (70 g).

TABLE 9: DISTRIBUTION OF MARINE BIOTA IN SQUARE XI, SECTOR 1

Layer	Spit	Shell				Coral Fragments	
		<i>Gastropoda</i>		<i>Pelecypoda</i>		Number	Mass (grams)
		Number	Mass (grams)	Total	Mass (grams)		
a	1	36	450	9	160	--	--
b	2	46	525	11	145	--	--
	3	37	875	6	250	--	--
	4	126	1220	14	390	--	--
c	5	65	1440	19	500	--	--
	6	135	2460	18	490	1	70
	7	66	580	4	30	--	--
	8	41	190	12	125	--	--
d	9	9	175	12	115	--	--
<b>Total</b>		<b>561</b>	<b>7,915</b>	<b>105</b>	<b>2,235</b>	<b>1</b>	<b>70</b>

Besides maritime biota, other faunal material (Table 10) included a number of animal bones such as one fragment of *bos* metacarpal (front foot bone of a cow); a fragment of *bos* tibia (shin bone of a cow); eight unidentifiable bone fragments found in spit 2; two cow's teeth, one fragment of an *ovis* femur (thigh bone of a goat), a *bos* metatarsal fragment (rear foot bone of a cow), and 23 unidentifiable bone fragments from spit 3. Spit 4 yielded a fragmentary rodent, *ovis* radius (foreleg of a goat) and two *bos* tibia (cow shin bones) as well as 24 unidentifiable fragments. Spit 5 yielded a fragmentary vertebra of a cow, two fish bones, and seven unidentifiable fragments. Spit 6 yielded two fragments of *ovis* mandibula (lower jaw of a goat), a rodent bone, a cow's tooth, a shin bone from a goat, a fish bone, and 16 unidentifiable bone fragments. In spit 7, finds included a scapula and nine unidentifiable fragments. In spit 8, finds included seven unidentified bones. Spit 9 yielded three bone fragments.

TABLE 10: DISTRIBUTION OF BONE FRAGMENTS EXCAVATED IN SQUARE XI, SECTOR 1

Layer	Spit	Mandibula		Cow Teeth	<i>Bos</i> Vertebrae	<i>Ovis</i> Radius	<i>Bos</i> Metacarpal	Scapula	Femur	Tibia			<i>Bos</i> Metatarsal	Fish bone	Unknown bone Fragments
		<i>Ovis</i>	<i>Rodentia</i>						<i>Ovis</i>	<i>Bos</i>	<i>Ovis</i>				
b	2	--	--	--	--	--	1	--	--	1	--	--	--	8	
	3	--	--	2	--	--	--	--	1	--	--	1	--	23	
	4	--	1	--	--	1	--	--	--	2	--	--	--	24	
c	5	--	--	--	--	--	1	--	--	--	--	--	2	7	
	6	2	1	1	--	--	--	--	--	--	1	--	1	16	
	7	--	--	--	--	--	--	1	--	--	--	--	--	9	
	8	--	--	--	--	--	--	--	--	--	--	--	--	7	
d	9	--	--	--	--	--	--	--	--	--	--	--	--	3	
<b>Total</b>		<b>2</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>97</b>	

In square BLJ XI a dense concentration of finds was recovered in spit 3; southeast quadrant. Artifacts in the concentration included earthenware sherds consisting of 9 rims, 11 necks, 10 carinations, 31 body sherds, and 1 lid. Organic remains included 11 bone fragments, six *gastropoda* shells and one *pelecypoda*.

In the vicinity of squares BLJ X and BLJ XI, other remains were found while foundations were being dug for real estate construction. These remains included two earthenware cooking pots (see photos 14–15) and other sherds. The glazed ware remains included a Song Dynasty bowl, a bottle, and a net weight (see photo 16).

### 5.3: Results of Analysis

#### 5.3.1: Earthenware

For every survey and excavation at the Blanjong site, earthenware pottery fragments have always been identified. In fact, earthenware composes the majority of finds. This observation is also applicable to almost all other sites in Bali as well as other parts of Indonesia, whether a habitation site or whether the site might bear a religious character. Thus, some experts consider earthenware fragments to be universal finds (Ardika 1997: 23). Earthenware in Indonesia are often referred to as “local ceramics”, *gerabah*, “clay ceramics”, and *tembikar* (Wahyudi 2012). Most function as containers and are considered basic utensils. Earthenware ceramics are formed by shaping plastic clay through various techniques (e.g., molding, slab building, coiling, rotating, etc.) and firing them to 500 degree Celsius or above, generally in an open fire rather than a kiln. Earthenware can come in many shapes, sizes, and types depending on their functions. Pottery can function in a number of cultural subsystems, which include utilitarian, ceremonial, funerary, and for worship (Wahyudi 2012:5).

Thomas (in Ardika [1997:24]) stated that earthenware has been known to humans as a container for daily needs since they began to become sedentary and engage in agriculture. Actually we now know that some pottery was made in Japan and China during the late Palaeolithic period, before people began to domesticate plants and animals. They had become semi-sedentary due to the abundance of wild food sources in certain ecosystems. The first use of earthenware in Bali is unknown. Furthermore, the Blanjong site clearly falls within a period of heavy domestication, agriculture and sedentism which had long been established. The trade, exchange and ancient port locations in Bali adds another dimension to earthenware studies. We must consider if earthenware was used as commodity containers used in shipping, or, transshipped commodities themselves. These possibilities add further considerations needed to understand the diversity of finds.

Earthenware fragments in Blanjong were found in the 2007 and 2008 excavations of sector 1 squares VI, VII, VIII, IX. An analysis of 87 lips, 684 rims, 138 necks, 5,177 body sherds, 8 handles, 86 carinations, 118 bases, 14 spouts and 3 lids have enabled us to reconstruct a number of shapes, including jars, cooking pots, frying pans, vases, bowls, kendi, plates, lids, covered boxes or lamps, and stoves (Tim Jurusan Arkeologi-UNUD, 2008:26–29).

As with previous excavations, the excavations of two test pits (squares BLJ X and BLJ XI), yielded an abundance of earthenware fragments (Table 11). They dominated other types of material. The number of scattered earthenware fragments in square BLJ X

amounted to 2,621 pieces, consisting of 338 rims, 113 necks, 40 carinations, 2,073 body sherds, 48 bases, 8 spouts and one small bowl; while earthenware fragments in concentration areas (dense concentrations or features) amounted to 2,002 pieces, including 36 rims, 10 necks, 9 carinations, 1,145 body sherds, one base and one lid. Scattered earthenware sherds in square BLJ XI amounted to 3,232 sherds and included 525 rims, 219 necks, 169 carinations, 2,247 body sherds, 61 bases and 11 spouts; while earthenware sherds in concentration areas (denser features) amounted to 62 pieces, consisting of a total of 62 including 9 rims, 11 necks, 10 carinations, 31 body sherds, and a spout.

TABLE 11: SUMMARY OF SCATTERED EARTHENWARE SHERD FINDS IN SQUARES X AND XI, SECTOR 1

Square	Context	Fragments (Sherds)									Small Bowl	Number
		Rim		Neck	Carination	Body		Base	Spout	Lid		
		Plain	Decorated			Plain	Decorated					
X	Scatter	338	--	113	40	2,071	2	48	8	--	1	2,621
	Concentration	36	--	10	9	145		1	--	1	--	202
XI	Scatter	524	1	219	169	2,243	4	61	11	--	--	3,232
	Concentration	9	--	11	10	31	--	--	--	1	--	62
<b>Total</b>		<b>907</b>	<b>1</b>	<b>353</b>	<b>228</b>	<b>4,490</b>	<b>6</b>	<b>110</b>	<b>19</b>	<b>2</b>	<b>1</b>	<b>6,117</b>

Based on the earthenware rims and base sherds found in squares X and XI, it is possible to provisionally reconstruct several shape types:

1. *Pasu* (cooking pot): this shape comprises two subtypes and are distinguished by their rims. Type (a) has a slender profile with inverted rim, and measures approximately 24 cm in diameter. The base or foot is convex. Type (b) has everted rims and a diameter of about 30 cm, with a flat foot or base (see Illustration 6).
2. Storage vessels (*periuk*): this type was reconstructed from several rim fragments with indirect everted rims. The storage vessel types which were reconstructed include:
  - a. Storage vessels (*periuk*) with indirect everted rims, which had a diameter of approximately 10 cm and formed an angle of 110° at the neck. The upper part of the vessel below the neck were decorated with incised straight lines combined with *tumpal* (triangular) motifs and had rounded bases (see Illustration 7).
  - b. *Periuk* with indirect everted rims, with diameters of approximately 18 cm, which had the neck of the vessel bending inwards to a carination on the upper body of the vessel, and somewhat convex bases.
  - c. Three types of *periuk* with indirect everted rims, with neck diameters and angles of 40°–15 cm; 70°–18 cm; and 50°–14 cm respectively.
  - d. *Periuk* with direct everted rims, and curving necks, measuring 14 cm in diameter (b, c, d; see Illustration 8)
3. *Kendi* (ewer), identified by fragmentary spouts measuring 1 cm in diameter and 3–5 cm long. Such fragments were rare at the Blanjong Sanur site.



Based on these forms, it can be inferred that much of the earthenware were used as household utensils to contain water or food. Some fragments with decoration may have been used for sacred activities, or constituted luxury items more valuable than normal earthenware. They may have functioned as status symbols.

### 5.3.2: Glazed Ceramics

Glazed pottery can be characterized by its higher kaolin content and higher firing temperature. Glazes, which are often composed of silica, fluxes, and metallic oxides can produce special aesthetic effects when fired, producing a glass-like surface. Glazed ware is often found throughout Indonesia including Bali. Glazed pottery found in archaeological contexts in Bali have been imported from China or other parts of Asia. Glazed wares from the Blanjong Site have low variety variety. Most come from China. Glazed wares found in squares BLJ X and BLJ XI are listed in Table 12.

TABLE 12: SUMMARY OF GLAZED CERAMICS FOUND IN SQUARES BLJ X & BLJ XI, SECTOR 1

Square	Context	Number					Total
		Rims	Necks	Carination	Body sherds	Bases	
X	Scattered	9	2	--	31	8	50
	Concentrated	1			1	--	2
XI	Scattered	12	2	1	58	16	89
	Concentrated	--	--	--	--	--	--
<b>Total</b>		<b>22</b>	<b>4</b>	<b>1</b>	<b>90</b>	<b>24</b>	<b>141</b>

Glazed wares were found in less numerous quantities than earthenware sherds. Table 12 highlights that most of the glazed sherds were recovered in square BLJ XI (89 fragments) and BLJ X (52 fragments).

An analysis of glazed ware forms has identified 22 rims and a few other fragments which were found useful in reconstructing the shape of vessels. The data indicates that the glazed forms represented are as follows:

1. Bowls which are classified into two types: bowls with direct everted rims, and variable diameters of 8 cm, 22 cm and 24 cm; bowls with indirect everted rims, and diameters of 12 and 24 cm. These are the most common type found in every excavation at Blanjong thus far.
2. Plates which are classified into two types: one consists of plates with direct everted rims and variable diameters of 14 cm, 20 cm, and 30 cm; while the other form has indirect everted rims with diameters of 24 cm and 28 cm.
3. Vases which have direct everted rims of 20 cm in diameter.

The limited number of fragments of glazed ware indicates that they were not likely a common household utensils. Rather, they may have represented valuable objects which could have functioned in religious contexts. The raw material, its color, the decorative motifs, glaze color and firing traces all indicate a date of production in the Song Dynasty (960–1279), Ming (15th century). Possible Vietnamese pottery would date around the 14th–16th centuries.

### 5.3.3: Marine Biota

Shells were found in every excavation thus far at Blanjong (BLJ). There were two types of shells: *gastropoda* and *pelecypoda*. *Gastropoda* are monovalves, while *pelecypoda* are bivalves. It is likely that the shells came from Sanur Beach. Shells of *gastropoda* and *pelecypoda* were divided into a variety of species. The main use of shellfish by humans is for food, but sometimes they have been used as utensils in the household, and sometimes for decorative purposes. Another type of marine organism often found is coral. Several types of coral have been used by humans for building material. The distribution of shellfish and coral in the excavation is summarized in Table 13.

TABLE 13: SUMMARY OF MARINE ORGANISMS FOUND IN BLJ X & BLJ XI, SECTOR 1

Square		Shellfish				Coral Fragments	
		<i>Gastropoda</i>		<i>Pelecypoda</i>		Number	Mass (grams)
		Number	Mass (grams)	Number	Mass (grams)		
X	Scattered	1,012	7,545	417	3,306	41	2,285
	Concentrations	6	126	3	70	--	--
XI	Scattered	561	7,915	105	2,235	1	70
	Concentrations	6	90	1	23	--	--
<b>Total</b>		<b>1,585</b>	<b>15,676</b>	<b>526</b>	<b>5,634</b>	<b>41</b>	<b>2,355</b>

Table 13 demonstrates that the most numerous and highest mass of finds for the two types of shellfish came from square BLJ X. The *gastropoda* in this square amounted to 1,018 pieces weighing 7.67 kg, while 420 *pelecypoda* shells weight 3.38 kg. Coral fragments amounted to 41 pieces and weighed 2.29 kg. In square XI, 567 *gastropoda* shells weighed 8.01 kg, while 106 *pelecypoda* pieces weighed 2.26 kg. However, only one fragment of coral weighing 700 g was recovered. The difference in weight is greatly influenced by the different sizes of the individual species in each group.

### 5.3.4: Faunal Remains

Based on the analysis of faunal remains (bone fragments and teeth) several species have been identified (especially units BLJ X and BLJ XI). They included cattle, sheep/goats, pigs, tortoise, geese, and fish. It is quite likely that more species had also lived in or were exploited by the inhabitants of the site because there are a number of bone fragments which have not yet been identified. The presence of cow is evidenced by fragments of the front foot (*bos*; metacarpal) and thigh (*bos*; femur) found in square BLJ X. In square XI, three cattle teeth were found, a fragment of *bos* vertebrae, two fragments of the front foot (*bos*; metacarpal), three fragments of shin bone (*bos*; tibia), and a fragment of a hind foot

(*bos*; metatarsal). Goat/sheep are represented by several fragments of *ovis*, such as a shin bone found in BLJ X, while in BLJ XII goat/sheep remains included two fragments of a lower jaw (*ovis*; mandible), a forelimb (*ovis*; radius), a thigh (*ovis*; femur), and a shin bone (*ovis*; tibia). Pigs are represented by two lower jaw fragments (*sus*; mandible) found in square BLJ X. Rodents are indicated by two lower jaw bones (*rodentia*; mandible) in square BLJ XI. Some type of fowl (possibly goose) was also present; indicated by a fragment of a shin bone and a bone from square X. A type of tortoise is represented by two fragments of a *carapace*, found in square X. Fish finds include a single bone found in square BLJ X and three bones in square XI. Unidentifiable bone fragments include 10 specimens weighting 20 g from square X and 97 fragments from square XI.

When one compares these finds with the present condition of the site and its environs, it is likely that many of these species were domesticated animals or traded commodities (such as fish), with the exception of the rodents (although they could also have been seen as part of a spectrum of wild game animals which were caught and eaten). Human interaction with these species have been recorded in several inscriptions in Old Balinese which were issued by kings and officials during the pre-modern era. The inscriptions mention that cattle (Old Balinese: *sampi*) and water buffalo (*karambu*) were domesticated and reared at that time; they were useful animals for work as well as food. The same observation was applicable to goat/sheep (Old Balinese: *wedus*), pig (Old Balinese: *celeng/culung*), fowl species such as chicken, ducks, and geese.

### 5.3.5: Significant Discoveries

We have used the term “significant discoveries” for artifacts that do not fit the categories above. They could be either artifacts or ecofacts (e.g., unusual artifacts, ecofacts or indicators such as traces of the use of fire as indicated by charcoal concentrations). Specific examples include a ring/bracelet found in spit 1 of BLJ X; a float for a fishhook found in spit 3 of BLJ X; a net float found in spit 5 of BLJ X; a shard of glass found in spit 14 of BLJ X; a bead and a coin from spit 7 of BLJ XI; charcoal weighing 20 grams from spit 2 of BLJ X; one 1 gram of glass found in spit 14 square BLJ X. Table 14 lists the significant finds.

TABLE 14: LIST OF SIGNIFICANT FINDS, SECTOR 1

Square	Layer	Spit	Type of Find							Mass (grams)
			Ring Fragment	Fishhook Float	Net Float	Glass	Bead	Coin	Charcoal	
X	a	1	1	--	--	--	--	--	--	65
	b	2	--	--	--	--	--	--	present	20
		3	--	1	--	--	--	--	--	5
		5	--	--	1	--	--	--	--	20
	d	14	--	--	--	1	--	--	present	1
XI	c	7	--	--	--	--	1	1	--/ 5	
<b>Total</b>			<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>present</b>	

The fragmentary ring found in spit 1 square BLJ X was metal, but the condition of the artifact was so poor that it was impossible to determine its diameter and shape. Its outer surface was covered by a green patina (i.e., oxidized metal indicative of copper and

bronze objects). The same observation was applicable to a coin found in spit 7 of BLJ XI. There was an inscription on both sides of the coin, but it could not be read due to its poor condition. The fishing equipment (floats for fishhook and net) suggested that the people who lived at the site were well-acquainted with fishing as a source of livelihood.

## 6: CONCLUSION

### 6.1: Inferences

As stated at the beginning of this paper, the objective of this excavation was to obtain a clearer and more complete picture of the variety and density of subsurface finds through systematic archaeological excavation. The types of artifacts, ecofacts, concentrations (features), densities, spatial distribution and other data would assist determining the nature of the site activities and post-depositional processes.

The assemblage data has significant contributions to understanding the site and history; also providing a complement to historical data and research concerning Bali (and regional trade; as well as extra-regional trade as indicated by Chinese pottery). The rich faunal remains also assist with understanding local ecology as well as possible diets.

We also wanted to determine the depth and nature of cultural layers as well as the types of soil strata at this site. This will contribute to geoarchaeological, geomorphological, environmental and ecological analyses.

The test pits in this exercise yielded a number of finds of different types, including earthenware cooking pots and storage vessels; glazed ceramic bowls and vases from China [the Song (10th to 13th centuries) and Ming (15th century) dynasties], and Vietnam (16th century); marine biota (such as *gastropoda*, *pelecypoda*, and coral); and terrestrial faunal remains (such as bones from cattle, goat/sheep, pig, fowl, and fish).

These discoveries have enabled us to reinforce the previous inference that the Blanjong site was a habitation settlement site. The finds have reflected several facets of daily life of the inhabitants.

### 6.2: Recommendations

The results of the excavations indicate that the archaeological remains at the site are relatively dense. The data are quite diverse, useful and meaningful. Stratigraphic and spatial variability deserves further attention as well. Furthermore, more detailed data on the size, dating, and range of activities conducted at the site would enable archaeologists to arrive at a better understanding of the role of maritime trade in the formation of early Balinese culture.

The archaeological treatment at the site will require greater attention from relevant organizations to include further excavation. Further excavation is required to elucidate a more holistic impression of ancient human activity at the Blanjong site. The opportunity is quickly diminishing. Modern development continues to encroach on the site. It will destroy in situ deposits and assemblages. A rescue/salvage excavation is in order to minimize the disturbance and loss of archaeological data. It would be a useful mitigation strategy, save non-renewable data and artifacts, and be a useful exercise/lesson in rescue

archaeology. Construction on and around the site related to private housing estates and tourism-related activities will continue to be an issue.



Illustration 2: Site map of Blanjong

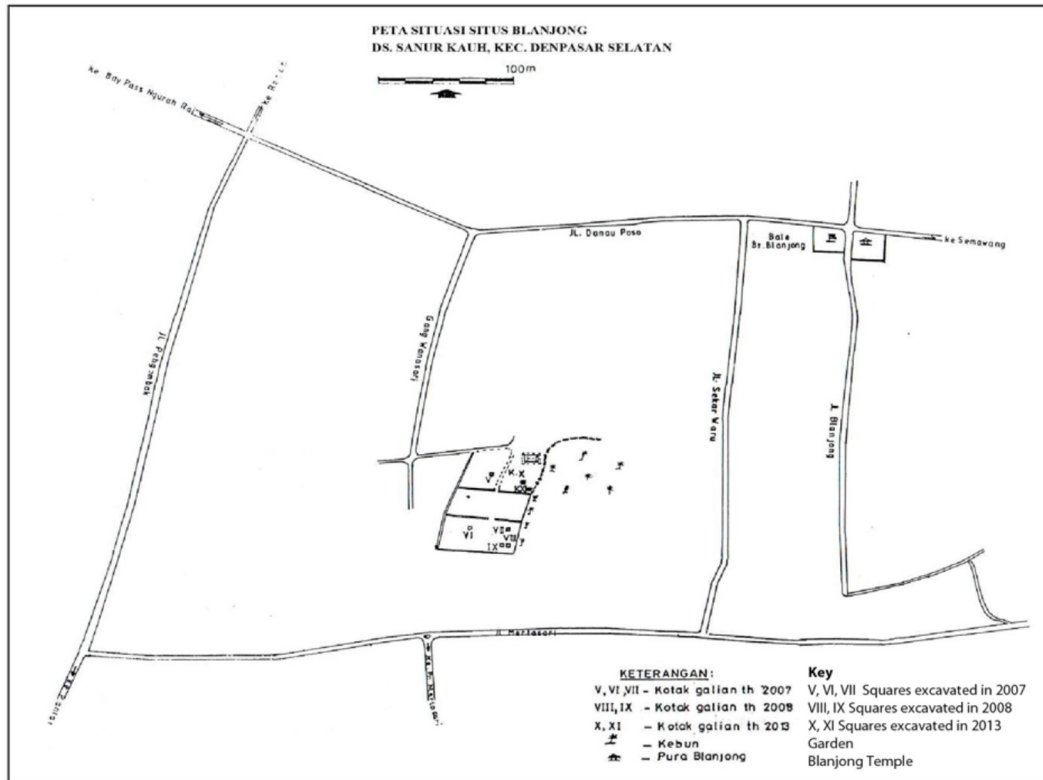
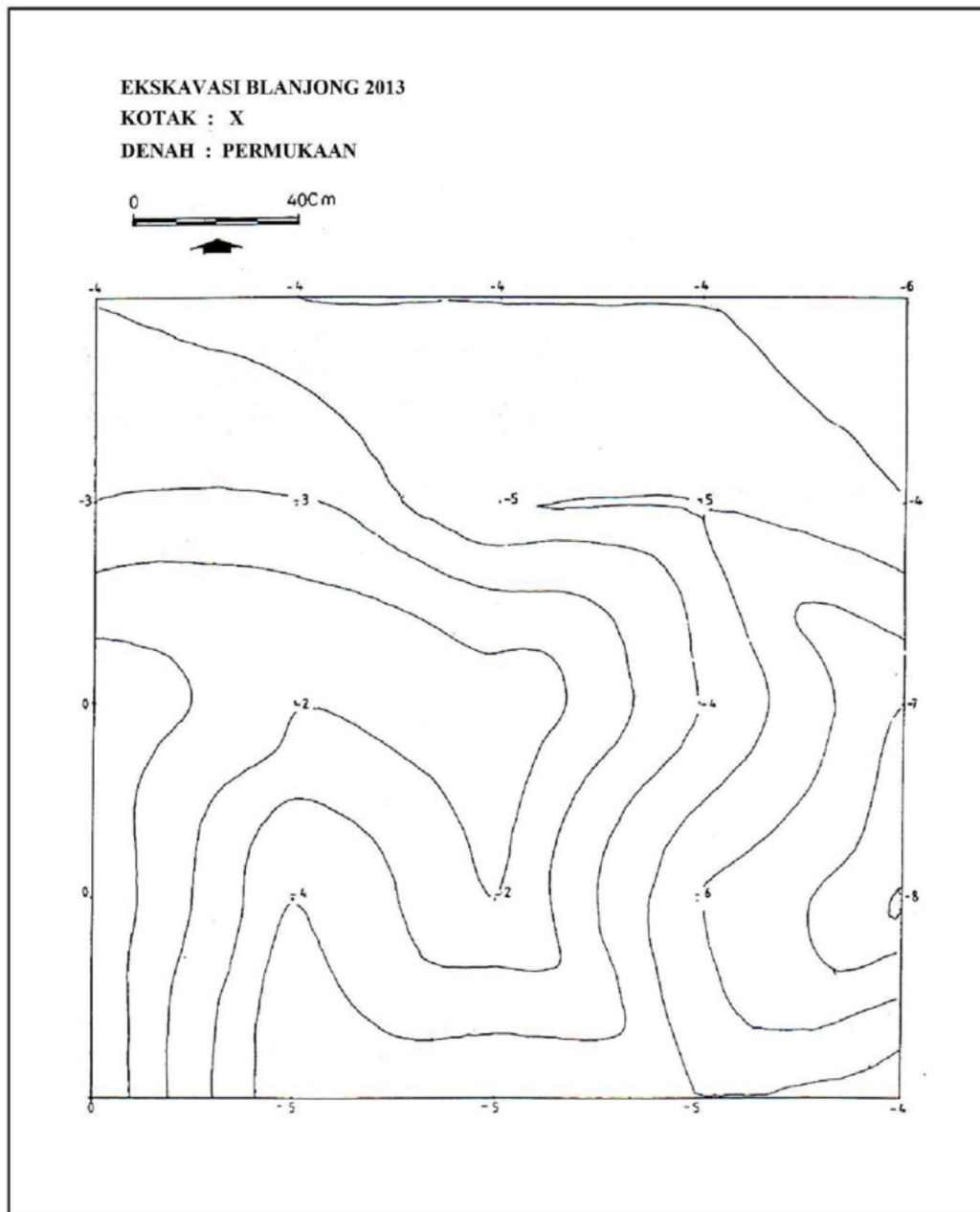
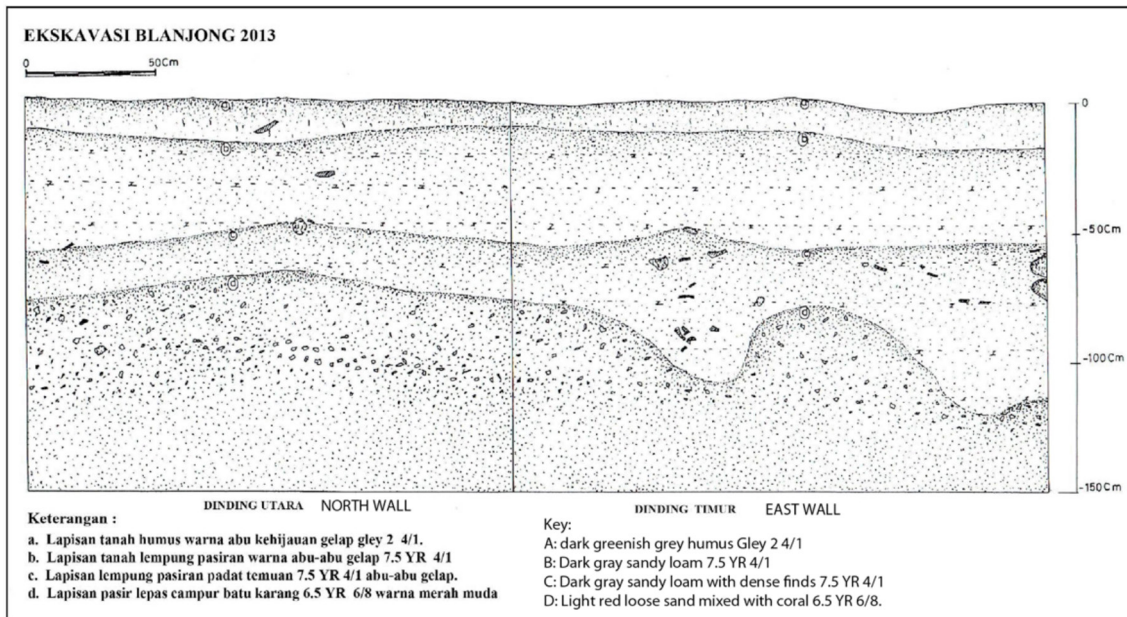


Illustration 3: Topography of Blanjong Site, BLJ X, 2013





**Illustration 4:** Stratigraphic profile of BLJ X, north and east faces



**Illustration 5:** Stratigraphic Profile of BLJ XI, south face/west face

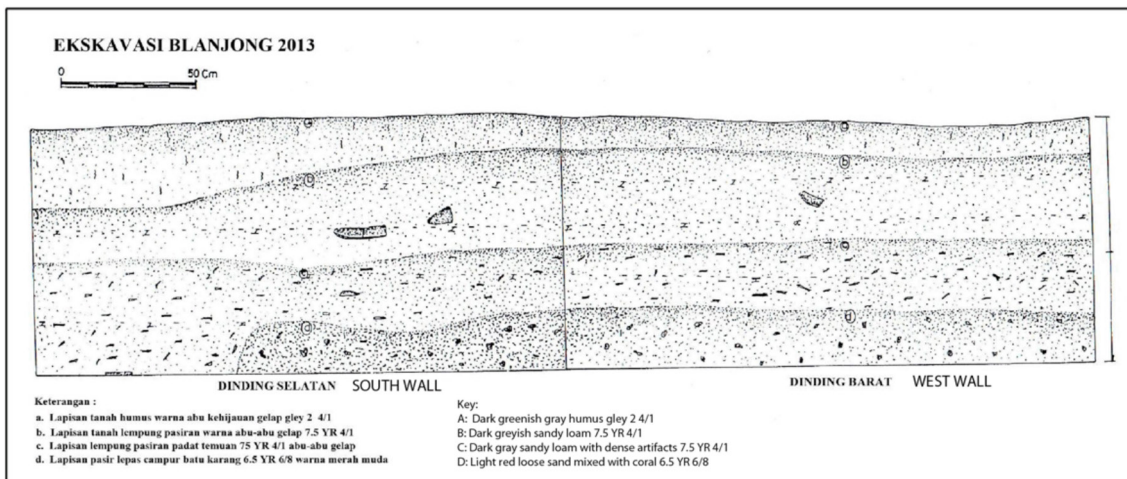


Illustration 6: Earthenware containers with restricted rims

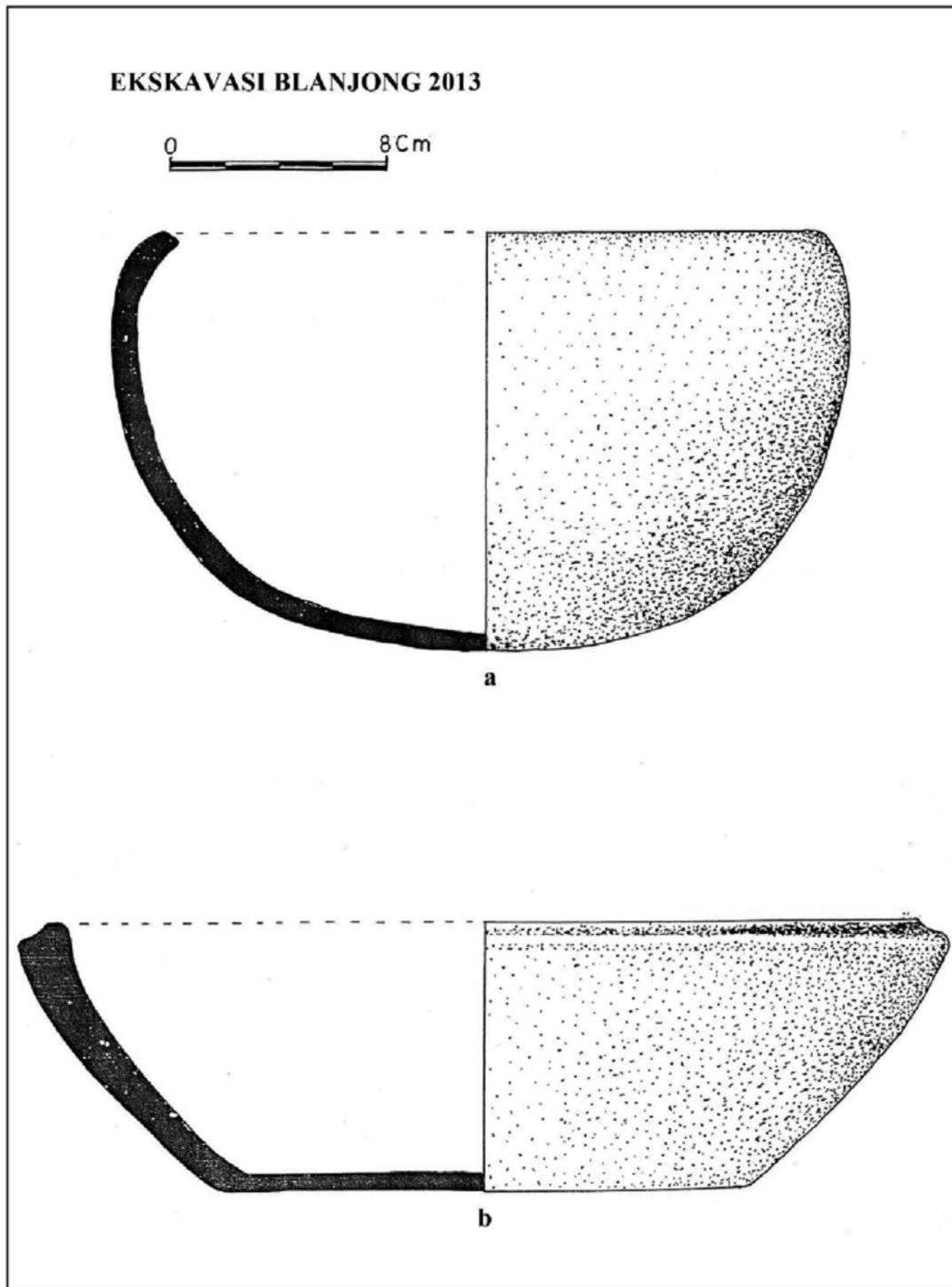


Illustration 7: Container with indirect everted rims

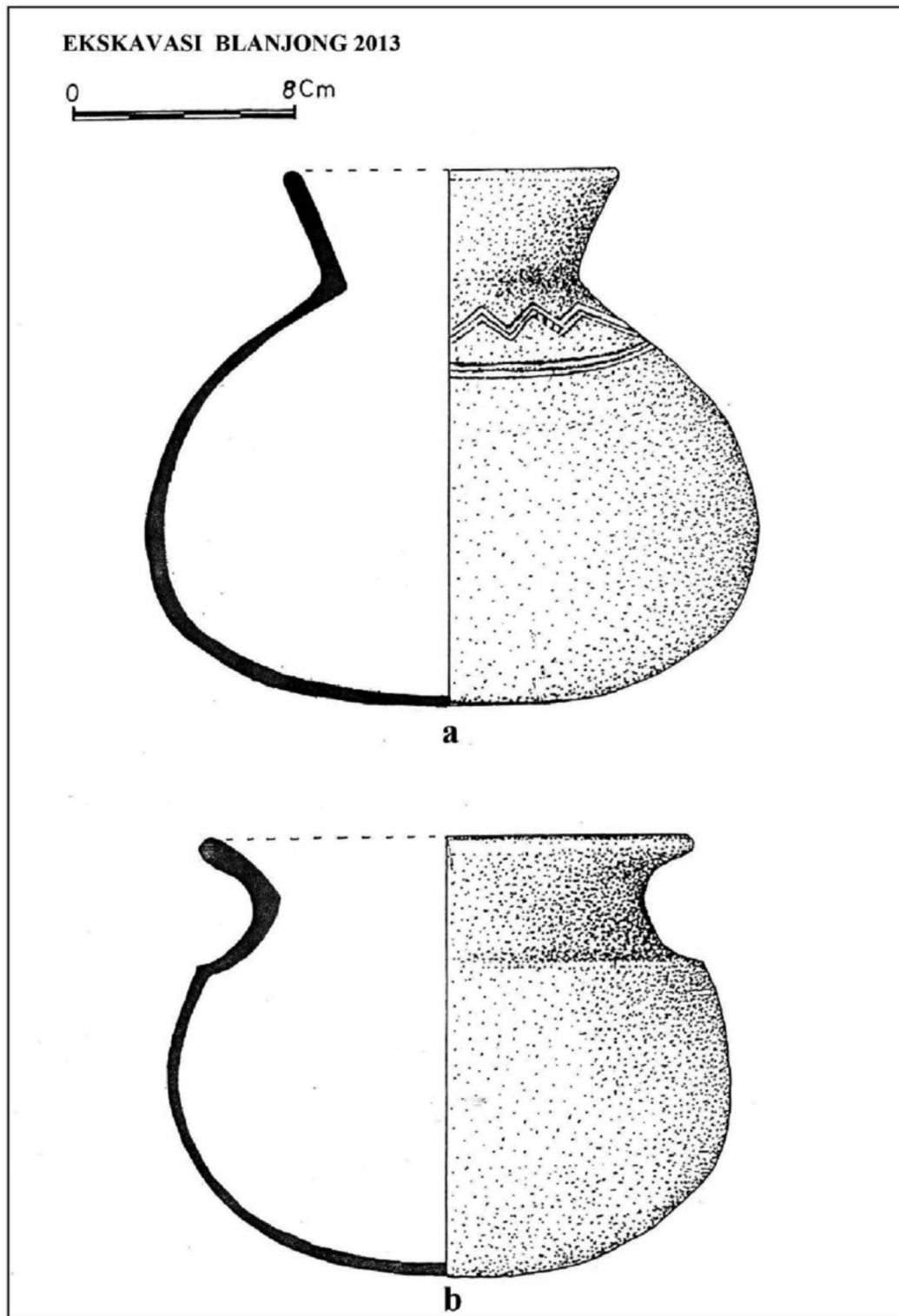


Illustration 8: Indirect everted rims from cooking pot and jar

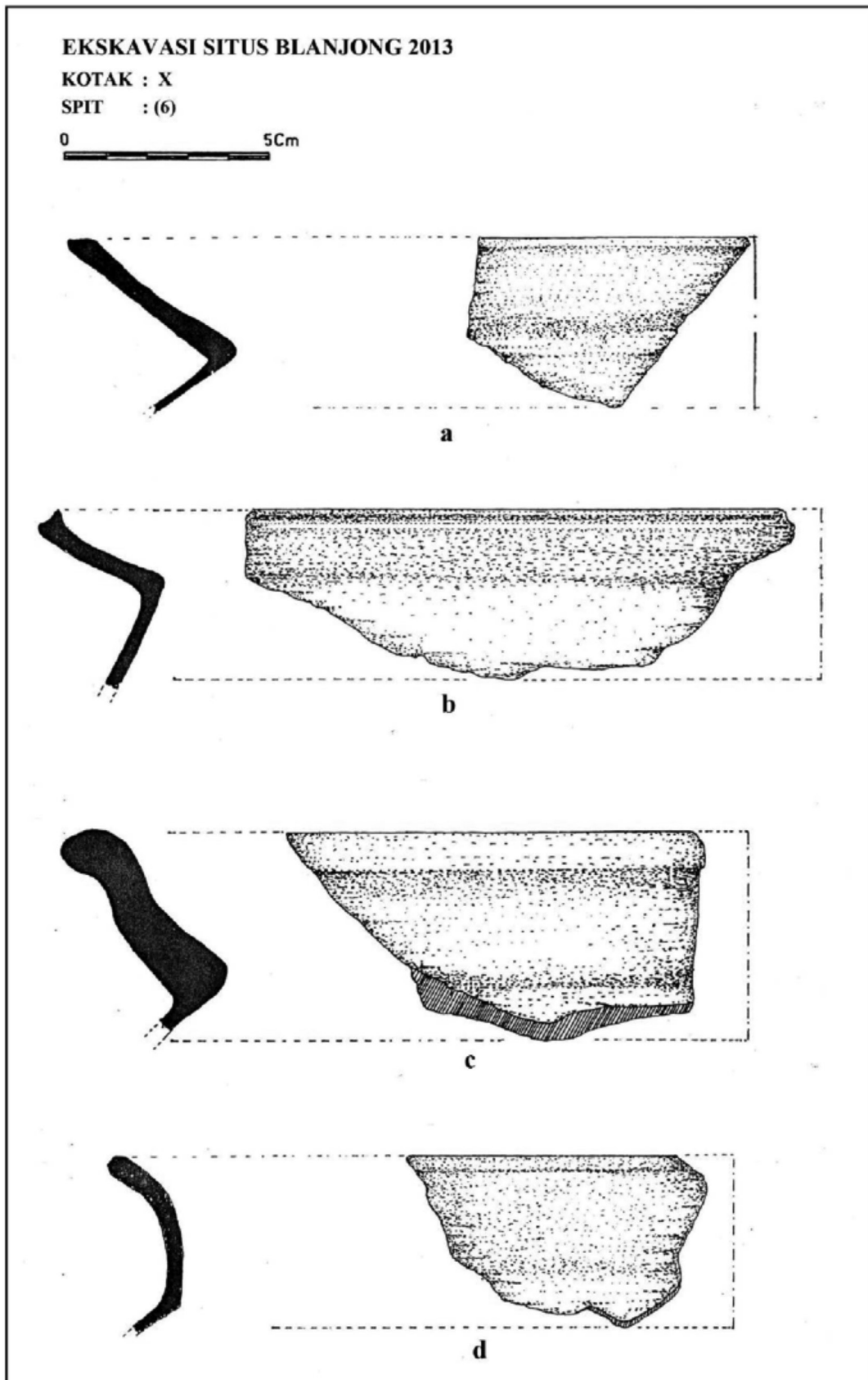


Illustration 9: Concentrations of finds for BLJ X, spit 6

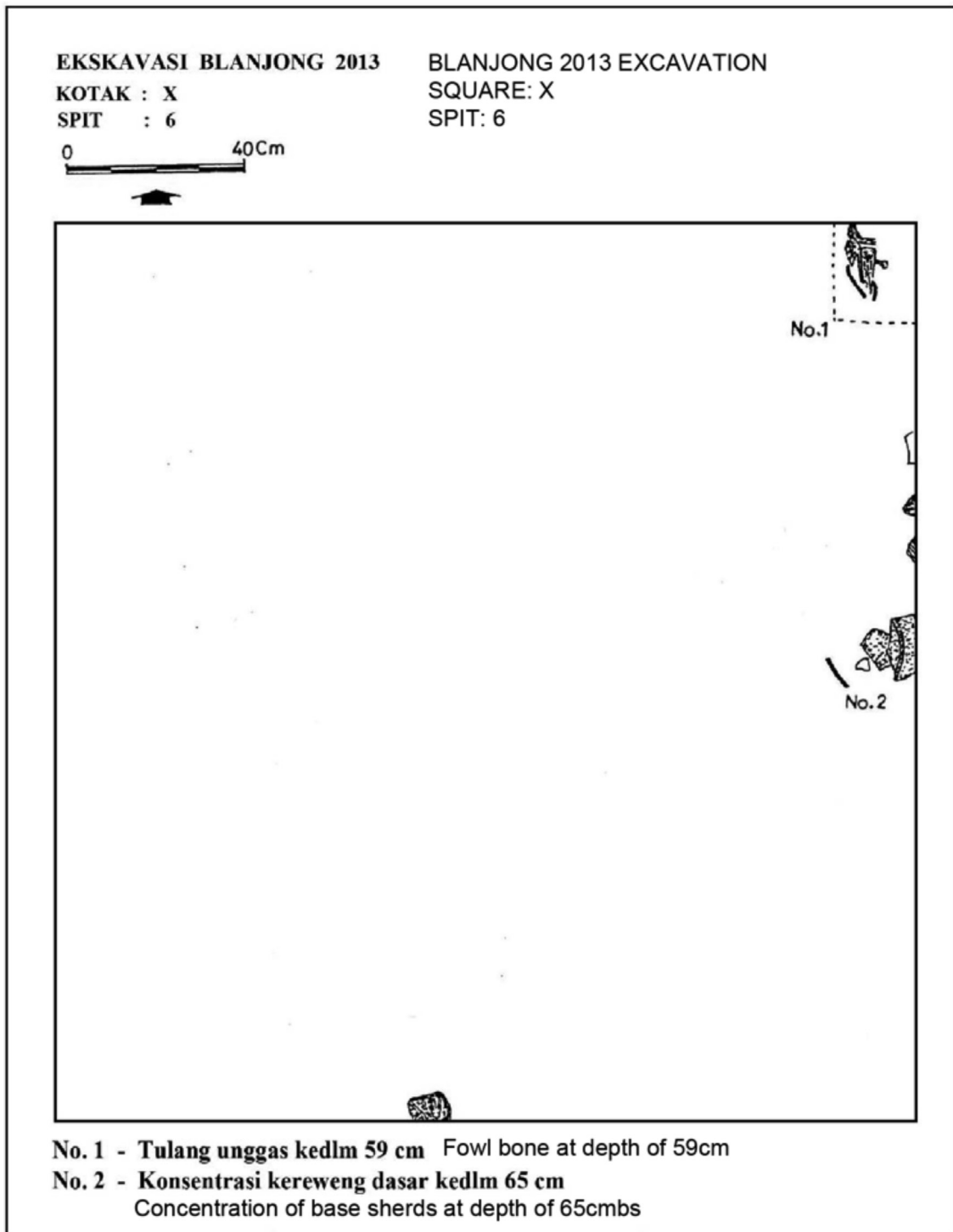
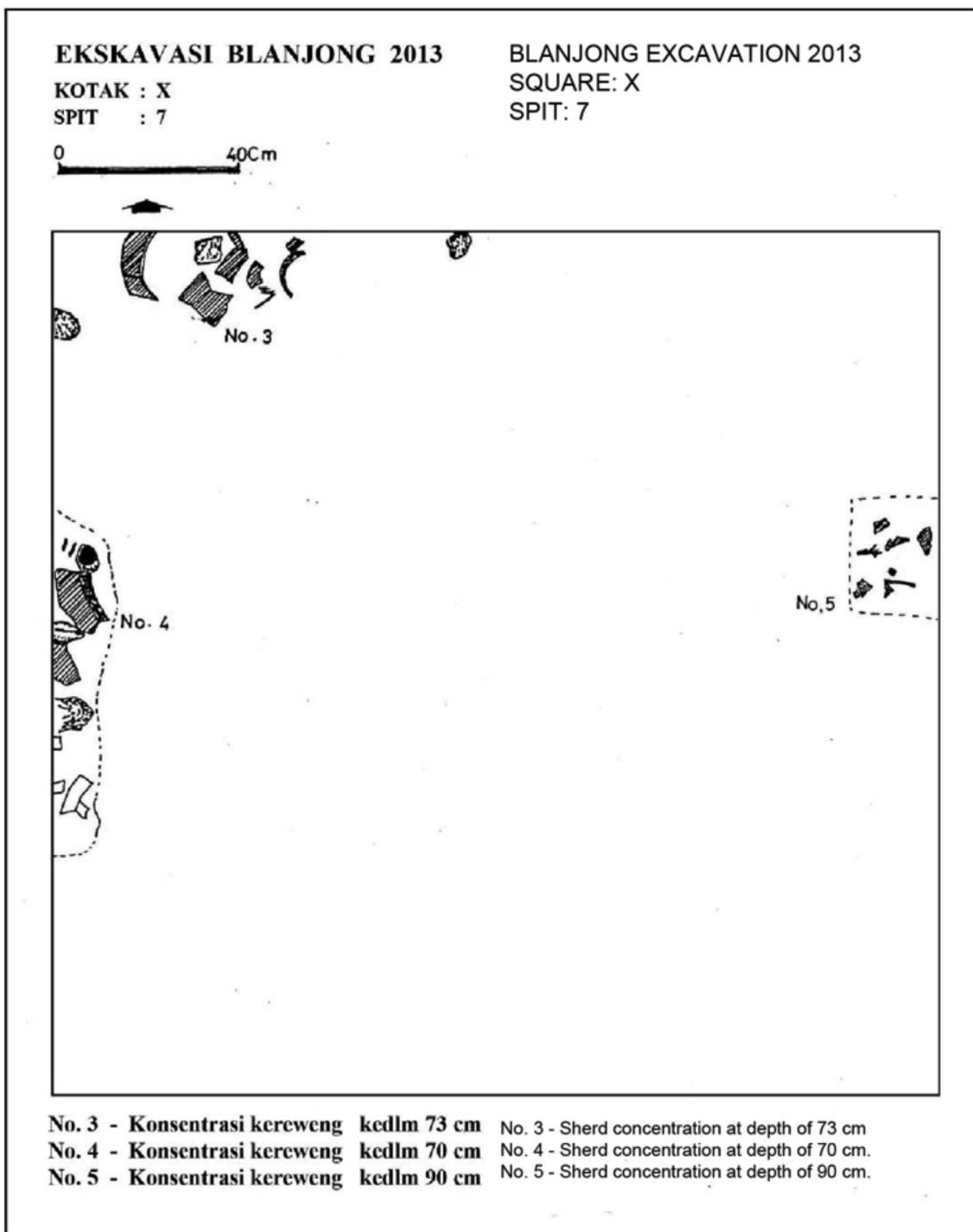


Illustration 10: Concentrations of Finds for BLJ X, spit 7



**Illustration 11:** Concentration of Finds for BLJ XI, spit 3

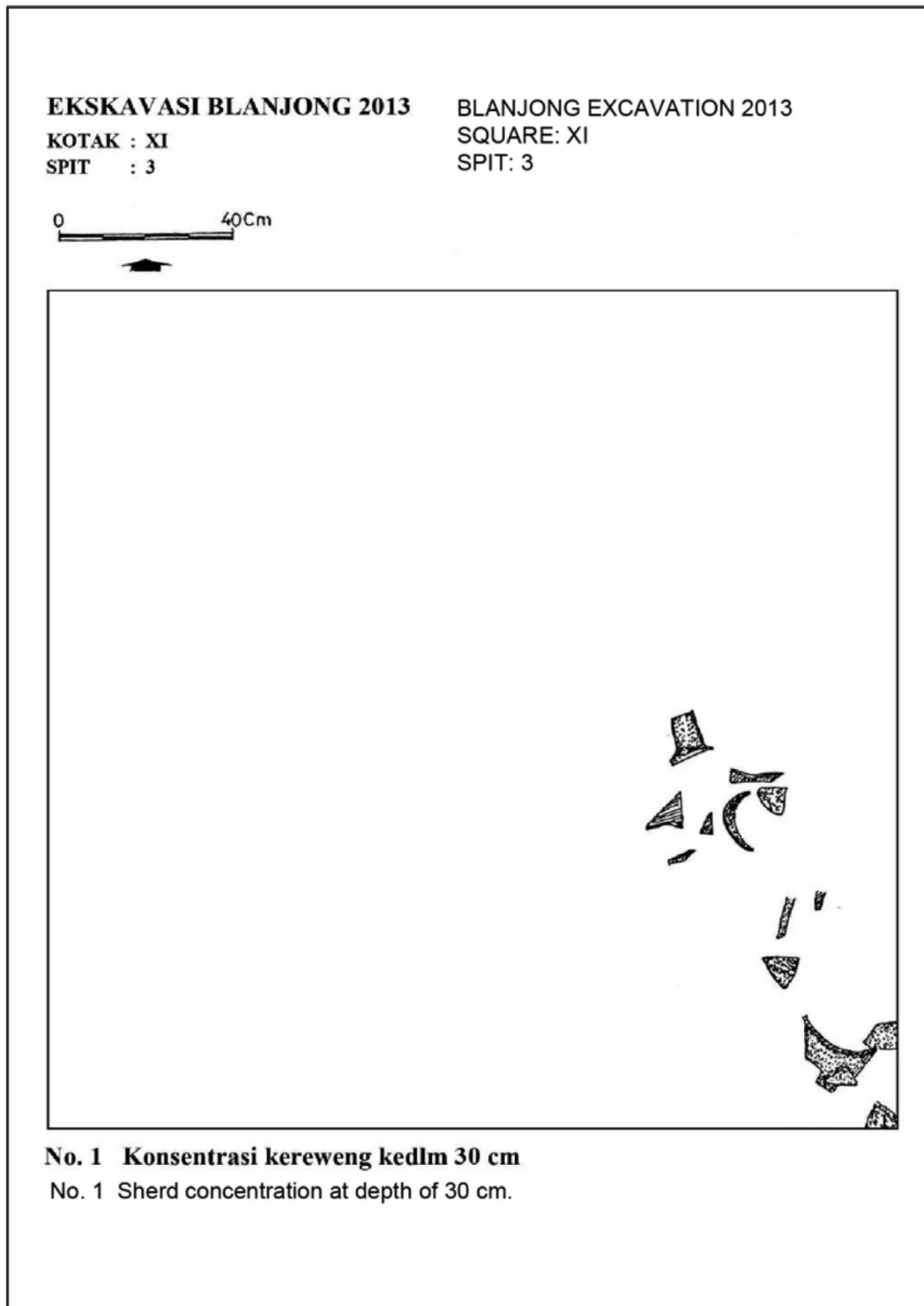
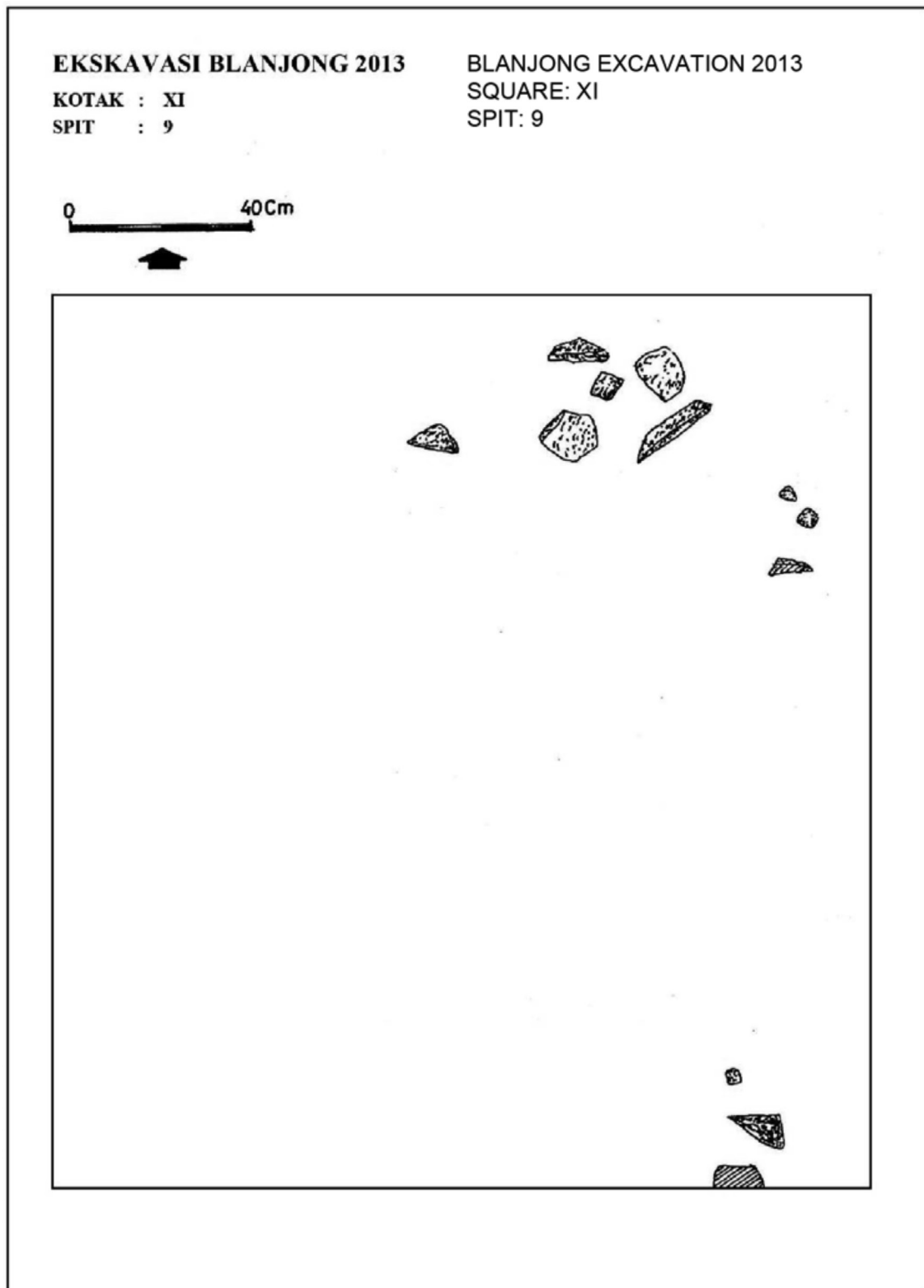


Illustration 12: Concentration of Finds for BLJ XI, spit 9





APPENDIX B: PHOTOGRAPHS

Photograph 1: Square BLJ X, spit 2



Photograph 2: Skeleton of fowl (goose) from BLJ X, spit 6



**Photograph 3:** Concentration of finds in BLJ X, spit 7



**Photograph 4:** Situation and concentration of finds, BLJ X, spit 8



**Photograph 5:** Earthenware sherds from BLJ X



**Photograph 6:** Spout fragments from BLJ X



**Photograph 7:** Rims of plates from BLJ X



**Photograph 8:** *Gastropoda*, from BLJ X and BLJ XI



**Photograph 9:** BLJ XI, spit 5



**Photograph 10:** BLJ XI, spit 9



**Photograph 11:** Earthenware container rims, BLJ XI



**Photograph 12:** Glazed sherds, bowl rims, BLJ XI



**Photograph 13:** *Pelecypoda* shells, from BLJ X and BLJ XI



**Photograph 14:** Bowl found while digging a foundation in the vicinity of the site



**Photograph 15:** Bowl found while excavating a foundation near the site



**Photograph 16:** Bowl, net weight, and bottle found during building foundation construction near the site





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