Excavation of Nhơn Thành at the Hậu Giang River Reach, Southern Vietnam

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Abstract: The remains of Nhơn Thành, which are located along the main portion of the Mekong River where the Cần Thơ River reach meets the Hậu Giang wetland region, represent large-scale settlement/residency remains of the Óc Eo Culture. According to excavation results, the habitation structures or residences among these remains are located on the water level, which is higher than surrounding piled or artificially heightened soil levels, and, therefore, it can be understood that these residences were in fact piled residences (residences on stilts) constructed for specific use in this marshy region. The pottery products produced in this area can be separated into two main types: those fine potteries ranging in color from gray-white to pink and those coarse potteries with large amounts of rice grains and sand mixed into the clay. The former pottery type includes a great number of Kendi pottery as well as other products used in ceremonies, while round-bottomed, pot shaped objects make up the majority of the latter type. Other than these two kinds of pottery, stone and metal products originating from outside of the river reach area as well as several pottery objects produced in China and nothern Vietnam were also excavated at Nhơn Thành. According to the results of carbon-14 dating as well as comparisons with other artifacts, it can be deduced that these artifacts were produced and used mainly from the latter half of the 4th century until the 5th century AD.

Keywords: Lower Mekong River reach, Óc Eo Culture, Piled residence, occupation in/residences on swampy areas, Manuports

Introduction

The Óc Eo type archaeological assemblage, which is distributed in the lower reaches of the Mekong and Đồng Nai River plains of the southern part of Vietnam,

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is considered to be the material culture of the early state of Funan（扶南）. The assemblage commonly includes brick constructed monuments, kendi-type spouted jars, Hindu-Buddhist statues, linga-yoni sets and exotic or precious material artifacts (gold leaf, grass beads, precious stone ornaments, etc.). After 1975 Vietnamese archaeologists took over previous work completed on the Óc Eo culture[1] and contributed studies of a number of the brick monument sites of that culture (i.e. Gò Tháp, Bình Tả, Gò Thành, Lưu Cừ). However, up to now less research energy has been committed to study of the settlement sites. The Nhơn Thành site located on the southern bank of the Cần Thơ River (**Fig.2**), which is a tributary of the Hậu Giang River, was one of the large scale settlements in the Lower Mekong Delta during the Óc Eo Culture Period and this excavation research report is intended to provide more concrete data on the site's structure and the material culture of the region during the early half of the 1st Millennium AD.

I. The Geographical Setting

The site is located in Nhơn Thành Village (ấp), Nhơn Nghĩa Commune (xã), Phong Điền District (huyện), Cần Thơ city. At present the land surrounding the site is cultivated with rice paddy fields and orchards. Local residential housing is dispersed sporadically along the canal or river. The topographical features are quite flat, and paddy fields and orchards are usually not more than 1m higher than the mean level of the canal and river. It also should be noted that the height of the land is not more than 1m higher than sea level. Consequently this region is affected by tidal fluctuation. The soil of the sterile layer is a gray colored clay, which is composed of Holocene alluviums, and a geomorphological study[2] has confirmed that the site's surroundings belong to the back swamp region (**Fig.1**). Óc Eo and several other famous contemporary sites such as Nền Chùa and Đá Nổi are located in the same geographical range (eastern area in **Fig.2**).

A preliminary survey has tentatively confirmed that the distribution area of archaeological remains is approximately 7-80,000m^2. The small tributary Rạch Bầu Nhỏ flows through the site from the southeast to northeast and joins the canal, Kinh

1. Louis Malleret, *Archéologie du Delta du Mékong*, Tome I, II, III (Paris: Ecole française d'Extrême-Orient, 1959-1963).
2. Tạ Thi Kim Oanh et al., "Holocene Delta Evolution and Sediment Discharge of the Mekong River, Southern Vietnam," *Quaternary Science Review*, 21, pp. 1807-1819.

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Xà Nô, which connects the Cần Thơ and Cái Lớn rivers. The Cần Thơ River has a confluence with the Hậu Giang River at the south of Cần Thơ city.

II. Excavation Procedure

The site was discovered in 1990 and Hậu Giang Provincial Museum carried out small test excavations. After a short survey conducted in 1999, Cần Thơ Provincial Museum, Mr. Nguyễn Duy Tỳ and Nishimura Masanari（西村昌也） made a collaborative study of the site from the 13th to the 27th of July 2000.

The first excavation pit (NTA) was set out at the paddy field of Ms. Tứ Xe **(Fig.4, Pl.1)**. The pit is square-shaped (10×10m: grid A to E) and during the excavation a rectangular-shaped pit (8×4m: grid F to I) was added in the northeast corner to confirm the archaeological features of excavation level 2. A small square test pit (2×2m) was set out near the NTA in order to confirm the dense distribution area of the potsherd **(Pl.4)**. Later a second excavation pit (NTB: 8×5m) was set out in another rice field, which is 80m from NTA in the southeast direction.

Due to the swampy location, excavators were unable to dig by layer deposit and, instead, excavated by spit level (10cm). Since NTA is located at the eastern edge of the marsh depression and the cultural layer is thicker in the eastern part. Additional pits bordering on NTA were dug out up to spit level 2. The lowest spit level of NTA is listed as follows:

Grid number		A1-A4, B1,B2,C2	C4, C5	D1, D2, E1	E5	D3,D4, E2,E4	D5, E3
Lowest spit level	10		7	6	5	4	3

NTB was dug out up to the spit level 8.

III. Stratigraphy and Archaeological Features

A. Stratigraphy of NTA

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The stratigraphy of NTA is as follows (the eastern and northern sections are presented in **Fig.5** and **Pl.3**, the soil color descriptions in (…) follow the standard soil color chart):

①- Clay (5Y gray 4/1) of the present paddy field.
②- Clay (2.5Y yellowish gray 6/2).
③- Clay (2.5Y yellowish gray 6/1) mixed with fired clay and charcoal fragments.
④- Clay (5Y gray 6/1).
⑤- Clay (2.5Y yellowish gray 6/1) mixed with fired clay and charcoal fragments.
⑥- Clay (5Y gray 6/1) mixed with spotted clay (2.5Y dive brown 4/3).
⑦- Clay (2.5Y brownish black 3/1) mixed with many charcoal remains.
⑧- Clay (10YR grayish yellow brown 4/2) mixed with fired clay and charcoal fragments.
⑨- Clay (5Y gray 4/1) mixed with spotted clay (75YR brown 4/6).
⑩- Clay (5Y gray 4/1) mixed with much charcoal remains.
⑪- Clay (5Y grayish olive 6/2) mixed with small gravels and plant roots.
⑫- Clay (5Y gray 4/1). Sterile bed layer.

B. Stratigraphy of NTB

The stratigraphy of NTB is as follows (the northern and eastern sections are presented in **Fig. 9, Pl.5** and **Fig.10**) :

①- Clay (10YR brownish black 3/2) of the present rice field.
②- Clay (10YR brownish black 2/3) mixed with many charcoal remains.
③- Clay (10YR brownish black 4/2) mixed with a large quantity of clay (25Y yellowish gray 6/2), brick fragments and fired clay.
④- Clay (10YR brownish black 2/2) mixed with many brick fragments and fired clay.
⑤- Clay (5GY dark olive gray 4/1).
⑥- Clay (10YR brownish black 2/2) mixed with clay (5G dark greenish gray).
⑦- Clay (5GY dark olive gray 4/1).
⑧- Clay (10YR brownish black 2/2).
⑨- Clay (2.5Y black 2/1) mixed with many charcoal remains.
⑩- Clay (25Y brownish black 3/2).
⑪- Clay (2.5Y olive gray 5/1) mixed with a small quantity of the dark grey clay.

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C. Archaeological Features of NTA

At the northwest part of the excavation spit level 2 of NTA, a large amount of fired clay, brick and charcoal were found in the dense distribution **(Fig.7)** and also spread out in the extended pit (Grid F to I). This distribution corresponds to layer ⑥ and ⑦ of the eastern and northern sections. At this excavation level, several wooden pillars were unearthed in the small pits. Some pillar pits did not retain pillars but were coupled with an additional pit, which indicates that the pillar was extracted by the digging of a neighboring pit.

One common characteristic of the remaining pillars of not only this level but also lower ones is that the tops of the remaining pillars are all slightly higher than the pillar pits.

In the case of the present piled houses on the river side of this region, the lower part of the piles sunk underwater or placed in the soil are preserved better and the middle portions around the water surface level are heavily damaged. This indicates that the repeated exposure of the pillars' middle portion to open-air and water caused by fluctuating water levels brought about the decaying of the timber surface. Consequently, it is possible to infer that head of the remaining pillars roughly corresponds to the water surface level during the habitation period. This means that the archaeological features confirmed at excavation level 2 (layer ⑥) were located beneath the water's surface during habitation/settlement.

In the eastern and northern sections of NTA, layer ⑦ (approximately corresponding to excavation spit level 3) and ⑨ (corresponding to spit level 7) can be identified as the habitation layer during the construction of the pillars. For example, the pits for pillar 31 and 32 were dug out from the surface of layer ⑨ and the pit for pillar 1 was dug out from the surface of layer ⑦. Since a thick layer deposit (layer ⑧ : corresponding to spit level 4 to 6) was inserted between layer ⑦ and ⑨, there should be a gap in the time of habitation represented by layer ⑦ and ⑨. Layer ⑦ and ⑨ include a large number of artifacts like pottery and brick, which are considered to be the remains of unused or waste materials from the habitation period. But layer ⑧ might represent the remnants of the heaping of clay used to heighten habitation/settlement levels because it includes fewer artifacts and the texture of the layer is more homogeneous than that of other layers.

Consequently, we can tentatively divide these two periods into the Former and Later periods of NTA. However, we must also remember that the cross section of pillar 32 shows that it was erected in the Former period and continued to be used in the Later

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period. Thus, it is possible that the time gap between the two periods is not that great and that the dates of the two periods are close together. As the plan for the excavation of spit level 5 (**Fig.8**) shows, many pillars have retained their original position **(Pl.2)**, especially those in the northern and eastern area of the pit. From the height level of the remaining head part, some of them can be grouped in rows. Because of the flowing water, excavators were unable to confirm what pits the pillars were in and some are not at regular intervals. However, since these groups form a raw in the direction between 100°and 110° to the north, many of the pillars have large diameters (more than 15cm) and nos. 3, 4 and 6 retain joint holes, we believe these pillars to be a part of architectural structures much like the piled houses on the waterside at present.

Layer ⑩ (corresponding to the spit level 7 to 8 in the grid line A and B) also includes fewer artifacts and layer textures are quite homogeneous. It is very possible that this layer is also mainly composed of heaped clay.

Layer ③ , ④ , and ⑩ in the western area and layer ⑨ in the eastern area are also very homogeneous in their layer textures and they include fewer artifacts suggesting that they are mainly composed of heaped clay. Heaping clay was possibly conducted in order to heighten the altitude level of a settlement structure so as to create a better habitation environment in the marsh area. The lower part of layer ⑪ , corresponding to spit level 10, includes many artifacts and organic remains. Because of the altitude level and stratigraphic relations of this layer, it is considered to be composed of a mixture of marsh deposits and waste materials from the early habitation era.

D. Archaeological Recognition of NTB

Among the cultural layers of NTB, the layer ② , which approximately corresponds to excavation spit level 2, includes a great deal of charcoal and artifacts. Layers ③, ④ , ⑤, ⑥ , ⑦ and ⑧ , corresponding to excavation spit levels 3 to 8, include smaller numbers of artifacts and the texture of these layers is very homogeneous. The pilings of layers ④, ⑤, ⑥, ⑦ and ⑧ are especially different from those of the others. They retain the original square shape of the clod unit at the sections and are probably the result of the piling of soil for the purpose of raising the height of habitations/ residences. Layers ⑨ and ⑩, corresponding to excavation spit level 9, include a large number of bricks and stones as well as charcoal, wood fragments and coconut shells, but there are fewer potsherds in these layers. These layers were maybe formed in the marsh environment and include a small quantity of the earliest habitation remains at NTB. From a detailed classification of pottery typology, the pottery types from both the

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lowest level and uppermost level of NTB can be identified as those of the Later period of NTA. Consequently it is proper to conclude that at NTA the heaping of soil for the purpose of heightening was conducted during the Later period of NTA.

IV. Excavated Artifacts

Excavated artifacts include pottery, brick, metal and stone tools, wooden remains and fired clay. The classifications and descriptions of these artifacts are as follows:

A. Pottery

Pottery can be divided into fine fabric pottery, coarse fabric pottery and exotic pottery based on the fabrics used to make these potteries.

1. Fine Fabric Pottery (細質陶)

This category of pottery usually includes pottery that retains the fine texture of clay (sometimes mixed with a small quantity of sand particles or rice husks). The colors of the surfaces are yellowish white, pinkish white, bright yellow or bright orange, and the interior core is usually similar in color to the surface but sometimes retains a grayish black or dark gray hue. While most of this type of pottery is not hard and chalky, some are hard like stoneware and their outer surfaces are grayish in color, suggesting that they were fired in a deoxidized situation like in a kiln structure (i.e. NTA136: **Pl.12**). Most examples of this type of pottery have plain surfaces and are seldom decorated by incision or cord-marking.

1a. Spouted Jar (Kendi)

This type of pottery is overwhelmingly dominant in the fine fabric pottery assemblage (makes up more than 90% of fine fabric pottery). However, only one specimen (NTA-5+158: **Fig.11-12**) was fully reconstructed during the refitting study. Consequently, typological classification was instead preformed on the three important morphological parts of this kind of jar: the rim, the spout and the ring-foot.

* In this article, "fabric" refers to the materials or elements (i.e. shells, sand, etc.) which were often mixed into clay or mud during the pottery making process.

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The rim collection (MK) is divided into six major types (**Fig.11**): A (Upward projected lip), B (Slightly beaded lip), C (c-shaped everted), D (straight everted), E (Folded lip) and F (Beaded lip) and further divided into sub types by detailed morphology. Type A and B are major types in the assemblage. NTA-122 (**Fig.11-10**) is still in question as to the place it holds in the total morphology. It may belong to the spout-less jar category or to some other vessel category.

The spouts (VK) are divided into two major types (**Fig.12**): A (Beaded and lined) and B (Beaded lip) and further divided into sub-types. All of the spouts were formed separately and jointed to the body of the jar. The body surface is usually incised in a circular pattern like the wheel of a bicycle in order to join it to the spout.

Ring-foot parts (DK) are divided into three major types (**Figs.12, 13**): A (slightly outward), B (plain foot), C (low foot), D (pointed foot) and E (thick foot), based on the morphology of the cross section. Every major type is further divided into subclasses based on sectional morphology.

The inner surfaces of NTA-134 (**Fig.13-7**) retain traces of the vessel's formation. Parallel linear traces such as those seen on NTA-276 (**Fig.12-26**), NTA-134 (**Fig.13-7**) and NTA-100 (**Fig.12-28**) indicate that a potter's wheel was used to make the vessel as well as finish its surface and that the potter's wheel was running in a counter-clockwise direction. NTA-102 (**Fig.13-6**) and NTA-114 (**Fig.13-15**) retain a penetrated hole at the bottom. Judging from the color of the penetrated face, piercing was conducted prior to firing. This shows that these vessels were possibly not designed for practical purposes such as the storage of liquid.

Another different type of spouted jar – the upright spouted jar – is represented by **Fig.13-21** of NTA-281 (upright spout) and NTA-46 (body) and these incomplete pieces may belong to the same specimen.

1b. Round Pot (NHC)

There are three recognized subclasses of Round Pot. NTA-70 (**Fig.14-1**) and NTA-51 (**Fig.14-2**) belong to type 1, NTA-71 **(Fig.14-3**) belongs to type 2 and NTA-69 (**Fig.14-4**) belongs to type 3.

1c. Jar (BV)

Three subclasses of Jar (BV) are recognized: NTA-62 (**Fig.14-5**), NTA-63 **(Fig.14-6)** and NTA-47 (**Fig.14-7**). NTA-47 retains linear traces on its interior surface

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caused during its formation on the potter's wheel.

Some variations of the bodies of these jars are NTA-45 (**Fig.14-8**), NTA-52 (**Fig.14-11**), NTA-54 (**Fig.14-9**), NTA-55 (**Fig.14-10**), NTA-59 (**Fig.14-12**), NTA-53 (**Fig. 14-13**), NTA-61 (**Fig.14-14**) and NTA-44 (**Fig.14-15**). But the rim types of these jars have not been confirmed.

1d. Pedestal Cup or Bowl (BTCH)

NTA-39 (**Fig.14-16**), NTA-49 (**Fig.14-17**), NTA-50 (**Fig.14-18**), NTA-66 (**Fig.14-19**) and NTA-226 (**Fig.14-20**) are pedestal parts of pedestal cups or bowls. The upper parts of these objects are possibly cup or bowl shaped. NTA-68 (**Fig.14-21**) is the upper part of a bowl.

1e. Other Morphological Types

NTA-48 (**Fig.14-22**) is a small saucer. NTA-42 (**Fig.14-23**) is a lid or pedestal. NTA-6 (**Fig.15-1**) is mushroom-shaped with a cylindrical hole in the center. NTA-282 (**Fig.15-2**) is possibly a knob. NTA-43 (**Fig.15-4**) is an everted rim of an unconfirmed vessel type. NTA-56 (**Fig.15-3**) and NTA-74+NTA-7 (**Fig.15-5**) are probably not vessels, but they may be miniature stupas or other religious architectural models. NTA-283 (**Fig.15-6**) is cylindrical-shaped but unconfirmed in the whole morphology.

Within this category only two specimens are decorated by cord-marking. The bottom portions of both have a ring-foot (NTA-36: **Fig.13-20, Pls.15, 16** and NTA-280: **Fig.13-18**). NTA-36 is painted with red ochre on both surfaces. Only one specimen retains incised decorations (NTA-41: **Fig.15-7**).

2. Coarse Fabric Pottery（夾砂粗質陶）

The fabrics used in this category of pottery are similar to those used in pottery created during the prehistoric age. Generally the fabrics are divided into a sand-tempered type and a fiber-tempered type, but in quite a number of cases, the fabrics are both sand-tempered and fiber-tempered. Some of the fabrics belonging to the sand-tempered type also include shell fragments.

The surface color of the sand-tempered pottery is usually gray, grayish white, grayish brown or yellowish brown and its cross section is thinner than that of the fiber-tempered type. The inner fabric is usually black or dark gray.

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The round pot, stove and carinated pot represent major types of coarse fabric pottery.

2a. Round Pot (NHC)

This category includes all the pots with spherical bodies. Traces on many specimens indicate that rim or neck parts were joined to the body after the formation of the body structure. As is indicated by cord-marking, the body of the round pot was completed by use of a paddle and anvil technique. However, there are several possibilities for the ways in which the spherical shape of the round pot was formed prior to the final use of the paddling technique (i.e. clay lump and direct formation by paddle, use of cylindrical clay as well as a paddle and coil building technique to form the spherical body). NTA-180 (**Fig.16-3**), NTA-179 (**Fig.16-4**), NTA-197 (**Fig.17-9**) and NTA-291 (**Fig.19-3**) retain vertical wrinkles on the interior surface of their upper bodies. These traces probably resulted from the swelling and tightening caused when the body of the object was manufactured (see 2m. and **Fig.33**).

The morphology of rims are divided into four major types (A to D) and subdivided into further sub-types. Type A is the beaded lip type. Many of this type are undulated on both faces of the rim body. Type B is the simple everted rim type. This type of rim seems to have a thinner cross-section than others and its lower portion has been unmarked by cord-marked or paddle decorations. Type C is the rim with bent-out tip type. Type D has a constricted rim bottom combined with parallel incisions on the interior neck. Type A, C and D usually include many rice husks or fibers, but several exceptions like NTA-75 (**Fig.18-6**) and NTA-291 (**Fig.19-3**) include a lot of sand and shell pieces. Type B includes more sand particles which are sometimes mixed with shell pieces or rice husks.

2b. Carinated Pot (NVG)

This category includes round pots with carination on the shoulder or in the middle of the body. The morphological types of the rims are divided into five major types. Type A is a rim with a triangular section. Type B is a beaded rim. Type C is a rather straight and elongated rim. Type D is a plain, short rim. Generally, thinner body types retain a lot of sand and less fiber or rice husks and thicker body types retain more fiber or rice husks. Type E is a rather straight rim with bent-out tips. Variations in the decorations on these pots are quite limited. They have multi-linear incisions on

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the shoulders (NTA-164: **Fig.19-9**, NTA-3: **Fig.20-7**, NTA-189: **Fig.20-10**, NTA-171: **Fig.20-13**), slightly ridged bands (NTA-292: **Fig.19-10**, NTA-166: **Fig.20-1**, NTA-76: **Fig.21-6**) and ridged lines with impressions (NTA-252: **Fig.21-10**).

2c. Decoration of the Round Pot (HV)

While a few rim types were refitted with the body parts, many of the spherical body sherds retain decorations. Except for those cord-marked decorations caused by paddling, all of the other decorations were done on the upper part of the body by incising and ridging.

Decorations on round pots are classified into two major types: A (incised linear decorations) and B (impressions), based on decoration motifs and techniques used as well as a combination of the two. Multi-parallel incisions (HV A) include straight, zig-zag, wavy and half-compassing incisions. NTA-81 **(Fig.21-11, Pl.14)** is a large spherical-shaped round pot with a rice husk temper and it has linear incisions in the upper portion of the pot as well as cord-marking on the lower body. The exterior surface retains black dots caused by slip or paint. The interior face also shows evidence of depressions caused by an anvil. The sub-types A9 and A10 are characterized by half-concentric circle incisions created by a comb-like tool. This decoration is formed by alternatively rotating compasses in different directions and it is one of the characteristic decoration motifs in the Óc Eo Culture. Both NTA-271 (**Fig.24-5**) and NTA-285 (**Fig.25-1**) are decorated by cord-marking and the former (NTA-271) also retains traces of cord-marking on the inner face, which may have resulted from the use of a cord-marked paddle or cord-marked mold. NTA-285 retains circular incisions done freehand. Only two specimens were identified as Type B round pots. NTA-238 (**Fig.26-11**) has dotted impressions and may belong to the rim type M B1 (**Fig.26-15**) and NTA-94 retains impressions created by a shell edge (specifically, the edge of an Anadara granosa shell) (**Fig.17-4**).

2d. Saucer-shaped Lid (NPH)

All of the specimens have knobs in the center and their bodies are shaped like saucers. Many specimens show evidence of soot or are blackened especially on their lower surfaces, and this is probably due to the fact that when these items were used as cooking utensils they were placed on a hearth. Considering their size, most of them fit the rims of the round and carinated pots quite well. They usually include a lot of

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rice husks and some thinner types include quite a lot of sand particles. Using these specimens' rim morphologies, they can divided into fourteen sub-types. There are rims with parallel lines, wavy and zig-zag lines (NTA-152: **Fig.25-8**) or floral petals (NTA-4: **Fig.25-2**), and there are rims like NTA-37 (**Fig.25-3**) which are decorated with ridged lines on their inner faces. Only NTA-38 (**Fig.26-6**) is a small type. Ridged decorations like NTA-152, NTA-4 and NTA-37 were possibly created by the impression of a mould.

2e. Jar (BV)

The rim of this type of specimen is short and quite small in diameter in proportion to its shoulders. NTA-205 (**Fig.26-9**) retains straight and zig-zagged incised lines.

2f. Jar or Pot Rims (M)

Because the specimens in this category have not been refitted with their appropriate bodies, they have not been conclusively identified as pots or jars, and so have been placed in this category. NTA-238 (**Fig.26-17**) is a sand-tempered pottery type and its color and fabric are quite close to that of NTA-210 (**Fig.26-15**).

2g. Lid

A major of the lids identified are saucer-shaped lids, and only one lid of different morphology has been confirmed. NTA-255 (**Fig.26-20**) is the central knob part of a lid and its surrounding body was probably lamp shade-shaped.

2h. Bowl (BT)

NTA-160 (**Fig.27-1**) is a bowl or pedestal bowl.

2i. Spouted Jars (Kendi)

Although not many in number, there are some specimens which have been identified as spouted jars (kendi). **Figs. 27-2~8** show the rim parts, **Figs.27-10~15** show

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the bottom parts, and **Figs. 27-17~19** show examples of the spouted portions of these jars. All of these specimens retain a lot of fibers including rice husks or sand. Compared with the spouted jars of the fine fabric pottery type, the cross sections of these spouted jars are thicker, and several morphological variations within this spouted jar group are recognizable.

2j. Ring-foot

NTA-256 (**Fig.27-16**) is the bottom portion of a large vessel.

2k. Lamp Saucer

NTA-295 **(Fig.27-21, Pl.17)** is a sand-tempered pottery that is grayish brown in color. This specimen has a round saucer body with a cylindrical chimney in the center. A wick lip has been made on the rim of the saucer. Both the neighboring rim and the surface of the chimney closer to the wick lip are blackened by soot.

The identity of NTA-40 (**Fig.27-20**) within the total excavation morphology is not certain. The lower end is composed of four square-shaped stands. It seems to be a pagoda model or a vessel with a square stand.

2l. Stoves (KG)

The specimens in this type are large cooking utensils with three projections inside used to support pots above cooking fires. In the southern Vietnamese dialect they are called "karang". The morphology of the stove in the Neolithic Age[3] is a round saucer-shape, but this transformed into a square-shape in the Iron Age.[4] In this site collection, it is rather difficult to infer total morphology because most of the items found are merely fragments.

The most easily recognizable fragments are those protruded parts which were once used to support pots. All of them are concave on the central upper face and protrude inward. Other rim fragments are those of the upper body which are unrelated

3. i.e. An Sơn, see Nishimura Masanari, *Archaeological Studies of the Red River Plain and Mekong-Dong Nai River Plain* (Ph.D diss., University of Tokyo, 2006).
4. i.e. Giồng Cá Vồ, Dang Van and Vu Quoc Hien, "Excavation at Giong Ca Vo site, Can Gio District, Ho Chi Minh City," *Journal of Southeast Asian Archaeology* (Tokyo, 1997), pp. 30-44.

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to the supporting stands. Since some of these fragments (NTA-19: **Fig.28-11**, NTA-23: **Fig.29-5**) seem like they may belong to the corner part of the stove body, this probably shows that they are of a square-shaped morphological type. Many of the upper rims are impressed with geometric patterns or shell edges and the lower outer surfaces are cord-marked (NTA-13B: **Fig.28-8**, NTA-16: **Fig.29-1**, NTA-20: **Fig.29-2**, NTA-33: **Fig.30-2**). Generally, the clay/pottery material used to form this type of specimen includes a lot of rice husks and fewer sand particles.

2m. Reconstructed Process of Pottery Making by Paddle and Anvil Technique

Based on several observations of pottery specimens we have reconstructed the manufacturing process of round pots by the use of the paddle and anvil technique (**Fig. 33**):

1. Coil was built up to form the cylinder for the middle and lower parts of the body. The vessels usually do not retain traces of coil-building because these traces were afterward flattened out by paddles and anvils. But some fine fabric potteries retain traces of coil-building (**Figs.12-26**, **13-7**, **14-7**).
2. The cylinder formed with the coil was expanded in the middle and made smaller at the upper and lower end through the use of paddles and anvils. This can be inferred from the traces of wrinkles left inside the bodies of round pots (**Figs.16-3**, **16-4**, **17-9 and 19-3**).
3. Rims and upper shoulder pieces, which may have been formed using the above-mentioned technique, were joined to the lower part of the pot bodies. Traces of this joining process can usually be observed on the interior faces of the round pots (**Figs.16-1**, **19-1**, **19-2**). In some cases the bottom parts of the pots were decorated with a cord-marked paddle.

3. Exotic Pottery

This category includes that pottery which is not similar to the above-mentioned categories whether in terms of fabric or appearance. Only three specimens were confirmed as belonging to this category. The most easily discerned piece is NTA-73 (**Fig.15-9**), the fabric of which is gray in color with a thin, crackled grayish-green glaze. Two small handles with rectangular sections are attached to the shoulder. Both

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the outer and interior surfaces are smoothed. It is very appropriate to conclude that this is a Chinese glazed jar. NTA-290 (**Fig.15-8**) is also the shoulder fragment of a jar with the end of its handle protruding from the surface. The fabric used is similar to that of NTA-73. NTA-77 (**Fig.15-10**) is the lower part of a jar. The pottery fabric of both the exterior and interior surfaces retains a thin layer of gray color and its surface is crackled. This gray color was not the result of surface color change caused by firing, but rather, was the result of the deliberate use of painted slip. The dripped lines of the slip can be seen on the outer surface of the specimen and the slip layer is not glaze but adhered rather hard to the surface. Judging by its outer appearance and color, it may be an iron slip. The inner fabric of the pottery is pink or gray in color, and the pottery has the texture of fine clay mixed with sand particles, but it is not kneaded well and is not very hard. The cross section of this pottery shows signs that coil building was used during the creation of the vessel. From the morphology as well as fabric, slip and color used, we can deduce that this specimen did not originate locally, but that it also cannot be classified in the so called "Chinese ceramic" category. The most appropriate place of origin of this specimen is possibly what is now known as northern Vietnam. Similar fabric specimens are often observed in contemporary unglazed ceramic collections from this region and several iron slipped ceramics have also been unearthed in this area.[5]

4. Distribution of the Pottery Types in the Excavated Spit Level

In order to understand typological changes in pottery from this site, we collected statistics about every excavation spit level and grid line based on the above-mentioned detailed classifications.

As the excavation revealed, the habitation/settlement period of this site can be divided into at least two periods. Consequently, it may be possible to find some typological differences among the classifications of pottery within the upper and lower layer deposits.

However, due to many reasons (i.e. heaping soil from the lower to upper layers, disturbances by treasure hunters and excavation carried out by spit level not by archaeological layer), a number of the potsherds were possibly moved from the lower

5. i.e. Lũng Khê citadel in Bac Ninh, see Nishimura Masanari et al., "Cuộc khai quật khảo cổ di tích văn hóa Óc Eo ở ấp Nhơn Thành, xã Nhơn Nghĩa, huyện Châu Thành, tỉnh Cần Thơ," *Những Phát Hiện mới về khảo cổ học Việt Nam năm 2001*(*New Discoveries of Vietnamese Archaeology in 2001*) (Hà Nội, 2001), pp. 754-756.

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to the upper layers. Also, as only a small number of some classified specimens were collected, there are not enough of these specimens to define which period they belong to. Therefore it is rather difficult to specify the classified types as to whether they belong to the Former or the Later period.

But here we will still attempt to present several representative morphological types of the Former period, which appear in the lower levels or both lower and upper levels, and Later period, which appear only in the upper levels (**Fig.34**). From a general study of both groups it may be possible to point out several minor morphological changes between them. As cross section studies of NTA indicate, it is also possible to conclude that the time gap between the two periods may have been quite small.

B. Brick

A large number of brick fragments were unearthed. They are rectangular-shaped ranging from 6.5cm to 8cm in thickness, and they possess various fabrics and tempers like the simple-fine clay type, the fiber and rice husk tempered type, the sand-tempered type and a mixture of the sand and fiber tempered type. The colors of these bricks range from gray to grayish white to brown to grayish red. A small number of them are quite hard like stoneware **(Pl. 9)**. This indicates that the firing of these bricks was done in a closed chamber room like a kiln.

C. Fired Clay

A large number of fired clay was also unearthed. The clay is irregular-shaped and includes various types of tempered materials like fibers, rice husks and sand. These were possibly used as tempering materials in the production of pottery after grinding as present ethnographic parallels indicates.

D. Metal Artifacts

It is possible that the metal artifacts which have been excavated are not made from bronze because no verdigris is seen, they are softer than bronze and they are blackish in color. They are probably mainly composed of tin. However, this theory needs to be verified by a composition analysis. The collections amassed by locals living around the site include molds used for the making of metal ornaments, ingots,

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decorated slit earrings and bronze wares with a high tin content. This last type (i.e. bronze wares with a high tin content) has also been unearthed in Thailand quite frequently **(Pls. 20, 21)**.

1. Earring

Both NTA-325 **(Fig.30-6)** and NTA-324 **(Fig.30-7)** were originally thick, wire-shaped and bent in a circle.

2. Lamp Stand

NTA-326 **(Fig.30-5, Pl.18)** is composed of an upper saucer and a lower cylindrical stand. The bottom rim of the stand has a protrusion like that of a wick lip. An item similar to this one (excepting for the fact that it is made of bronze) **(Pl.22)** was unearthed at a Champa tower site at the Phú Điền commune, Phú Vang district, Thừa Thiên Huế province on the central coast of Vietnam (Collection of Thừa Thiên Huế Provincial Museum).

E. Stone Artifacts

Because of the deltaic geomorphology at the site there are no lithic resources in the surrounding area and all stone materials must have been imported from other regions. The nearest possible stone resources are limestone towers and monad rocks in the neighboring Kiên Giang and An Giang provinces to the north. However, limestone is used less in these stone artifacts than are other lithic materials such as sedimentary rocks and granite as well as other volcanic and metamorphic rocks. Among local folk collections that have been amassed several semi-precious stones (i.e. agate: **Pl.20**) are present, but stones of this type were not found during this excavation.

1. Crystal Bead

NTA-322 (**Fig.30-8**) is made from transparent crystal and both ends of the object are flattened. Its diameter is 2.9cm. The upper face of the object retains small circular traces probably caused by grinding.

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2. Square-shaped Tables

Square-shaped tables are made of dark gray sedimentary rock. All of the faces are carefully ground. NTA-320 (**Fig.30-9**) and NTA-318 (**Fig.30-10**) retain a decorative band with a checkered pattern.

Because many fragments of unfinished square-shaped tables were unearthed from NTA this demonstrates that these tables were probably originally produced around the NTA site. NTA-319 (**Fig.30-11**) is an example of a completed table, but, because it is not decorated, it is likely that it is still an unfinished product.

3.Mortar

NTA-317 (**Fig.30-12**) is the base part of a cone-shaped mortar.

4. Pestles

Pestle remains are cylindrical in shape and their cylindrical faces are glossy due to grinding. Table quern and pestle remains must have been used together as a set. NTA-310 (**Fig.30-13**) retains marks and nicks at the lower end which were probably caused by its use in pounding and grinding processes.

5. Table Querns (pesani)

This type of artifact is widely seen in India and Indian influenced regions. The grinding surface is flat like a table and one end is pointed with rectangular stands/ legs at the bottom. Both NTA-308 (**Fig.30-15**) and NTA-307 (**Fig.30-14**) are parts of the rectangular stand. NTA-308 is an example of a back stand part and NTA-307 is an example of a front stand. Compared with table querns from the earlier period, the stands in these later remains are taller in terms of the total proportions of the table.

6. Fine-grained Grinding Stones

Grinding stones are made of fine-grained stone. Most of them are small in size and flat like NTA-314 (**Fig.31-1**), NTA-315 (**Fig.31-2**) and NTA-316 (**Fig.31-3**). But there are also several morphological exceptions. NTA-301 (**Fig.31-6**) is shaped like a

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boulder and has some grinding faces. The upper face retains bruised marks probably caused by hammering. NTA-302 (**Fig.31-7**) retains bruised marks and small flaked scars in the area around its flat, elongated grinding surfaces. It was probably used like a wedge after it was used as a grinding stone. NTA-303 (**Fig.31-8**) is semi-circle shaped and the upper face was used for grinding. NTA-309 **(Fig.31-9, Pl.19)** is the largest of the fine-grained grinding stones.

7. Coarse-grained Grinding Stones

This type of grinding stone is made of coarse-grained stone. Generally, these grinding stones are thicker and are shaped like boulders such as NTA-312 (**Fig.31-4**) and NTA-313 (**Fig.31-5**).

8. Cobbles with Polished Faces

NTA-304 (**Fig.31-10**) and NTA-305 (**Fig.31-11**) are small cobbles with polished, flat faces. They were probably used for polishing the surfaces of pottery during its production.

9. Worked Cobbles

NTA-306 (**Fig.31-13**) is a large cobble with a bifacial, flaked working-edge like that of a chopping tool. NTA-311 (**Fig.31-14**) is a spherical cobble which retains a worked face caused by hammering or striking.

10. Worked Stone Plates

NTA-321 (**Fig.31-12**) is a large stone plate with one edge-like end.

F. Bone

A large number of bone remains were unearthed especially from the middle excavation spit levels. A preliminary examination conducted by Dr. Vũ Thế Long confirmed that water buffalo bone is dominant among the bones found. However, no bone-made artifacts have been confirmed except for one specimen, NTA-323, (**Fig.32-**

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3) which shows evidence of vertical incision on both elongated surfaces.

G. Wooden Remains

Except for coconut shells, most of the wood remains found have been tentatively identified as mangrove (*Rhyzophora*), water palm (*Nypa*) and betel nut (*Areca catechu*). The former two are common flora in the swampy or waterfront environment of the brackish water region. Their presence in the excavation sample may reflect the palaeo-environment in the vicinity of the site.

1. Worked Wooden Fragments with Square Joint Holes

Both NTA-327 **(Fig.32-1, Pl.8)** and NTA-328 (**Fig.32-2**) retain square holes in their centers created by chiseling, and the holes may have functioned as a way to connect the wood piece with another square piece of timber. Since both the upper and lower ends of the two specimens were cut rather roughly, they were possibly cut out from the original timber with joint holes for the architecture.

2. Pillars

All of the pillars have pointed ends **(Fig. 32-4, Pls. 6, 7)**. Traces on the pillars indicate that sharp metal blade-like tools like axe-adzes or hatchets were used to construct or modify the pillars. The upper portions of the pillars retain square joint holes. The diameter ranges from approximately 10cm to 20cm.

3. Coconut Shells

A large number of coconut shells were unearthed especially from the lower excavation layers in the eastern area of NTA. Since some of them have been cut in half, they were possibly used as utensils much like local folk use them today.

V. Radiocarbon Dating

One pillar fragment and one coconut shell were processed at the Radiocarbon Dating Laboratory, University of Waikato, New Zealand and the results are as follows (here we also attach calibrated dates by CalPal Online managed by Radiocarbon

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Laboratory, Köln University, Germany):

1. Wooden pillar No. 32 from NTA-E5-Level 1
Uncalibrated date: 1660±50BP (Wk-9079), calibrated date: 331-483 AD
2. Coconut shell from NTA-A4-Level 9
Uncalibrated date: 1600±50BP (WK-9080), calibrated date: 409-524AD

In previous studies conducted at the Nhơn Thành site, 4 radiocarbon dates were processed from the wooden artifacts found there.[6] Even though the unearthed context of these artifacts and their locations are not clear, their radiocarbon dates may be useful for dating the duration of settlement and habitation at the site.

1. 1675±50BP (wooden sculpture)
2. 1625±45BP (wooden sculpture)
3. 1750±55BP (wooden pillar)
4. 1630±50BP (wooden pillar)

Conclusion

Based on the excavation of Nhơn Thành at the Hậu Giang River reach as well as the arrangement of the artifacts found there, we have concluded the following:

1. The excavated area is a part of a habitation/settlement site belonging to the Óc Eo Culture. The pillar remains and site environment indicate that inhabitants resided in piled houses on the water face or waterfront. At both NTA and NTB excavation pits clay was heaped in order to raise the height of the settlement or habitation area. This has also been confirmed by the recent excavation at the Gò Minh Sư location of the Gò Tháp site, Đồng Tháp province (Lê Thi Liên and Nishimura n.d.) and may have been a common way of adapting to living/settling in the low marshy regions of the lower Mekong and Đông Nai River reach.

2. Both pottery classification and radiocarbon dating show that the duration of

6. Uncalibrated, Nguyễn Duy Tỳ và Nguyễn Phụng Anh, *Những hiện vật văn hóa Óc Eo ở tỉnh Cần Thơ*, Bảo tàng tỉnh Cần Thơ.
7. Nishimura Maranari, "Nhận thức bước đầu về đồ gốm địa điểm Chân Gò Minh Sư (Gò Tháp – Đồng Tháp)," *Những Phát Hiện mới về khảo cổ học Việt Nam năm 2003* (*New Discoveries of Vietnamese Archaeology in 2003*) (Hà Nội, 2004), pp. 740-745.
8. Bennet Bronson, "Excavation at Chansen and the Cultural Chronology of Protohistoric Central Thailand" (Ph.D diss., University of Pennsylvania, 1976).

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habitation/settlement was not long. It is appropriate to infer that the main habitation period was during the late 4th or 5th Century AD. A similar assemblage of pottery can be observed in the collection at the Gò Minh Sư location of the Gò Tháp site.[7] Furthermore, it is also possible to find typological similarities with several pottery types (like the spouted jar and carinated pot) belonging to Period III of Chansen[8] in central Thailand. The uncalibrated 6 radiocarbon dates of Period III of Chansen range from 1595±52BP to 1491±27BP, and this also implies an overlap in chronologies of the two artifact groups.

3. That the excavation area was formerly the site of production activities and that the completion of square-shaped tables was probably conducted at NTA has also been confirmed. The appearance of stone and metal artifacts indicates a local exchange or trade network between the Mekong delta, which lacked lithic and metal resources, and other regions. The excavation of exotic pottery also implies that a trade network was established with northern regions like China and northern Vietnam.

(Revised by Jessica Marinaccio, 王淑津)

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Table 1. Artifact frequencies by excavated spit level at NTB

Level	Fine fabric pottery	Coarse fabric pottery	Coconut shell	Worked wood with joint hall	Wooden fragment	Fired clay	Fine grained-Grinding stone	Coarse grained grinding stone	Pestle	Flaked cobble	Table quern	Stone plate	Mortar	Cobble	Preform of square shaped	Square shaped table	Stone	Brick	Bone
LM	88	1				3		1			3								
L1-A	60	200			4		1							1	2		1	2	
L1-B	7	82				3		1									4	1	
L1-C	143	209				4	1				2				1		3	1	
L1-D	132	221				7	1	1	1		3			2	1	2	3	13	2
L1-E	67	232				7					1			3	1		6	11	
L1-F	65	73				38												8	
L1-G	198	299				84		1									6	4	
L1-H	106	291				76											6	3	9
L1-I	63	430				47											1	4	
L2-A	99	5			1	2			1		1			2	1		2	12	
L2-B	271	251				7	1	3		1	1			1	1	1	8	13	21
L2-C	231	380				11	3	1	1		1	1		1	1		10	14	1
L2-D	119	226				4		2			4			1	1		5	19	1
L2-E	46	129							1		3		1				1	6	
L2-F		76									2						1	1	
L2-G	12	83																	
L2-H	52	276				11											1		2
L2-I	56	262				112					1								13
L3-A	217	408				3					1						2	14	
L3-B	149	302	10g		1	8	3				1						3	13	7
L3-C	31	201			5	4												7	353
L3-D	24	162			5	7	1				1							7	22
L3-E	18	89				2												4	10
L4-A	13	197			3	4					1						2	5	
L4-B	57	84			1	3											10	3	1
L4-C	17	149			2	2												2	8
L4-D	11	16			5	11												4	99
L4-E	4		20g		1													1	
L5-A	33	8									1								
L5-B	24	84			5	2											2	3	5
L5-C	32	149	10g		3	1					1						8	4	
L5-D																			
L5-E	5	16			1												2		
L6-A	8	39			1													1	
L6-B	10	58																1	
L6-C	10	50	10g		8												1	1	1
L6-D	2	1																	
L6-E		30																	
L7-A	3	17		2	3														
L7-B	13	58	20g		3			1			1							2	1
L7-C	14	39			2												3		
L8-A	2	11	20g		1														
L8-B	22	41	40g		5												1	8	1
L9-A	60	193	140g		36	15								1			2	7	2
L9-B	34	74	140g		10						1						3	2	4
L10-A	78	78	150g		35	8		2									1	6	5
L10-B	9	34	10g		9	3													
Tổng số	2715	6314		2	150	489	11	13	4	1	30	1	1	13	9	3	98	207	568

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Table 2. Artifact frequencies by excavated spit level at NTB

Level	Fine fabric pottery	Coarse fabric pottery	Wooden frgament	Coconut shell	Brick 1	Fired clay	Stone
LM-A					19	27	
LM-B		1			11	10	
LM-C		1				4	
L1-A		14			24	42	
L1-B		1			28	52	1
L1-C					21	30	1
L2-A	5	10			33	39	2
L2-B		16			71	173	
L2-C	3				16		1
L3-A	1	5			21	16	2
L3-B		11	4		57	87	4
L3-C		2			42	53	
L4-A		3			20	18	2
L4-B		1	2		73	89	
L4-C					17	29	1
L5-A		5			22	20	
L5-B		5	3		48	55	3
L5-C		2			41	54	1
L6-A					55	11	4
L6-B	1	1	2	60g	49	105	1
L6-C					57	8	7
L7-A					5		2
L7-B					77		2
L7-C					50	4	4
L8-A					2		
L8-B					78	12	4
L8-C							
Tổng số	10	18	11	60g	937	938	42

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Pl. 1 Before excavation at NTA
Pl. 2 Distribution of the pillars at NTA
Pl. 3 East section at NTA
Pl. 4 Dense distribution of the artifacts
Pl. 5 East section at NTB
Pl. 6 Pillars (No. 2, 24, 17, 1)
Pl. 7 Pillars (No. 14, 21, 30, 15, 16)
Pl. 8 Worked wood with square hole
Pl. 9 Hard brick like stoneware
Pl. 10 NTA-77 (outer surface)
Pl. 11 NTA-77 (inner surface)
Pl. 12 NTA-136 (outer bottom)
Pl. 13 Glazed ceramic jar (NTA-73)
Pl. 14 Painted or slipped pottery (NTA-81)
Pl. 15 Red slipped pottery (NTA-36)
Pl. 16 Outer surface of NTA-36
Pl. 17 Lamp saucer (NTA-295)
Pl. 18 Land stand (NTA-326)
Pl. 19 Grinding stone (NTA-309)
Pl. 20 Ingot, earring and bead artifacts
Pl. 21 High tin bronze vessel (Local Collection)
Pl. 22 Lamp stand (Phu Dien, Thua Thien Hue)

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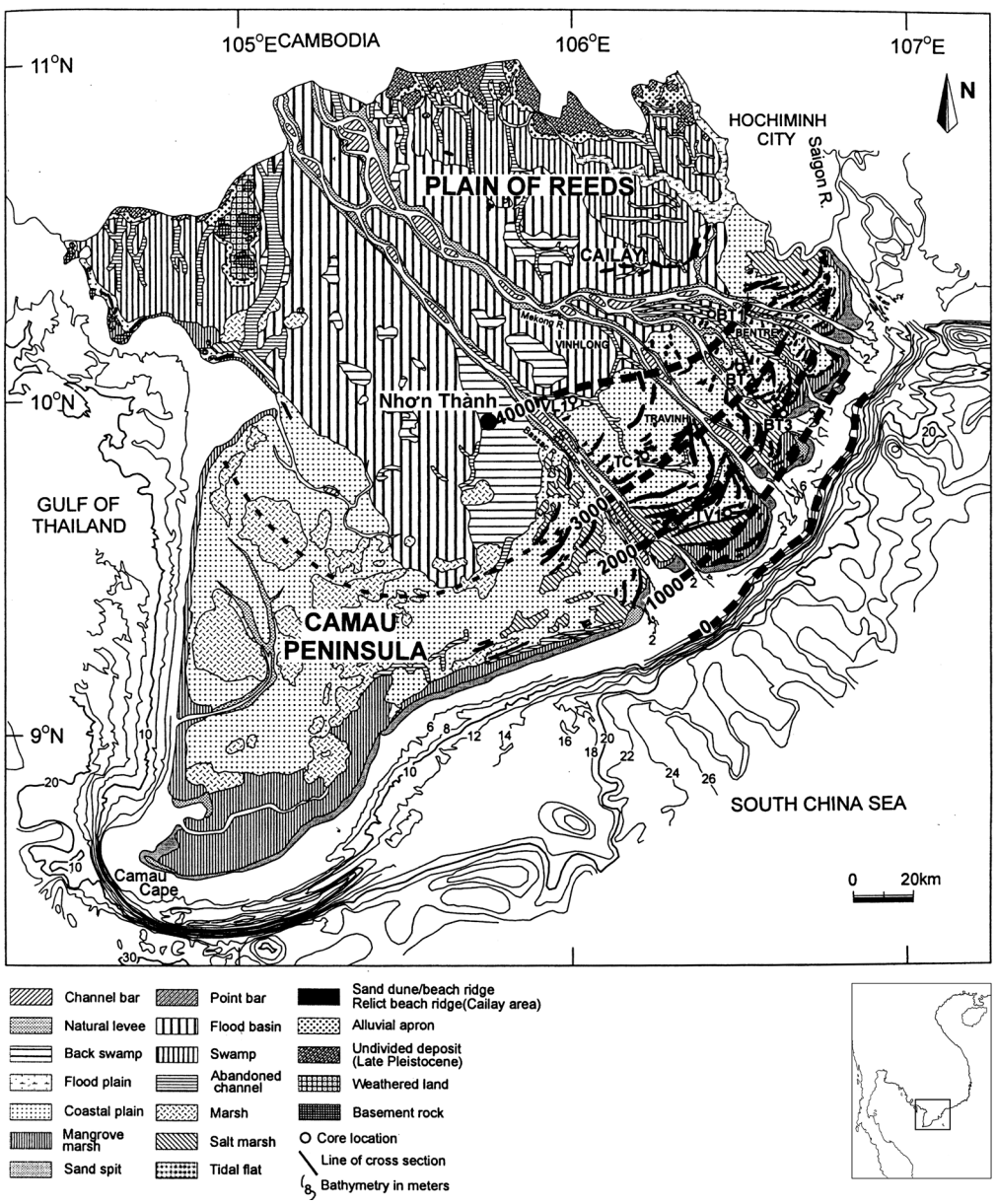


Fig.1 Geomorphological map of the Mekong Delta (after Ta T.K.O.et al.2002)

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Fig.2 Location of Nhơn Thành site and the surrounding

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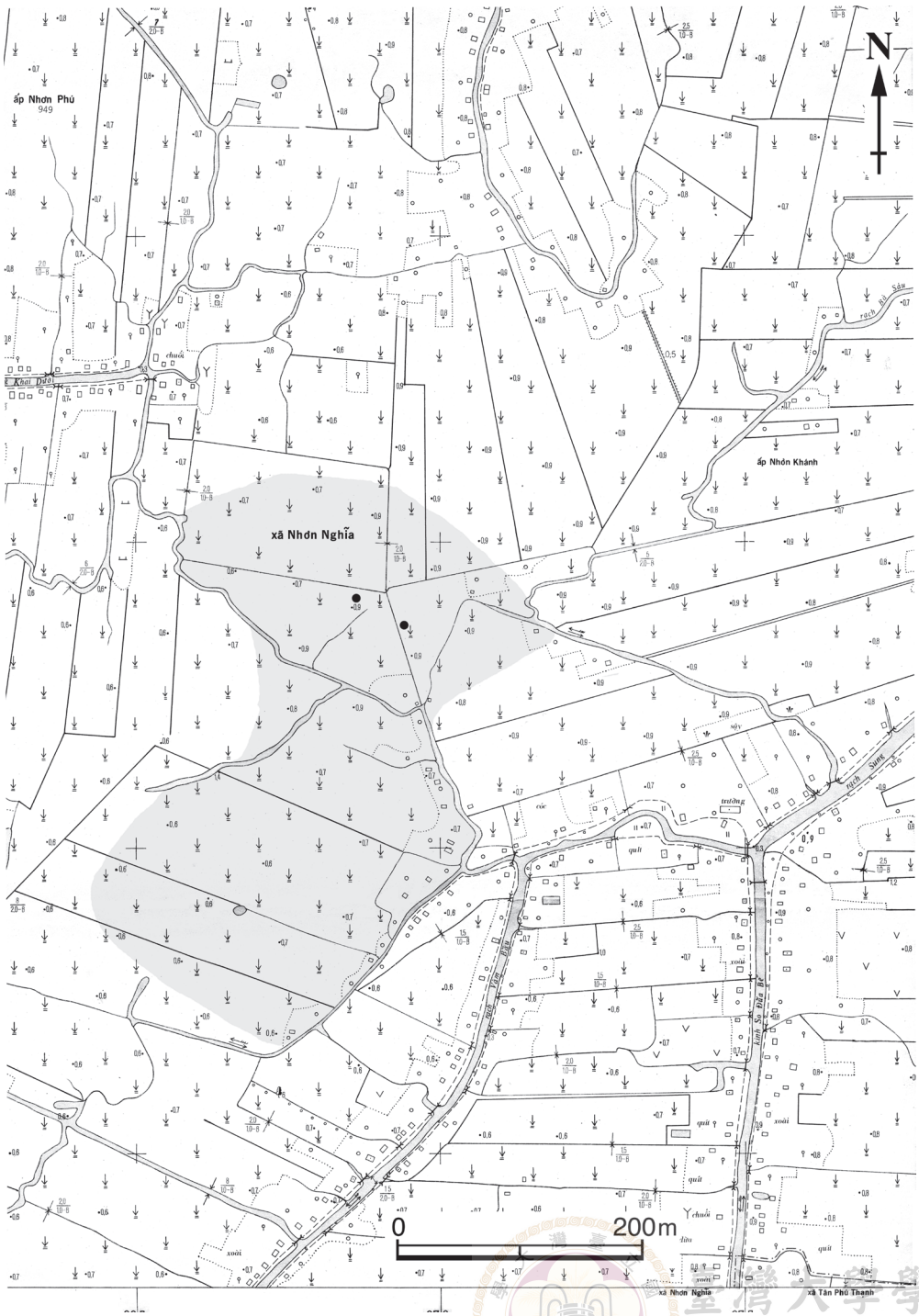


Fig.3 Pottery distribution area of Nhơn Thành site

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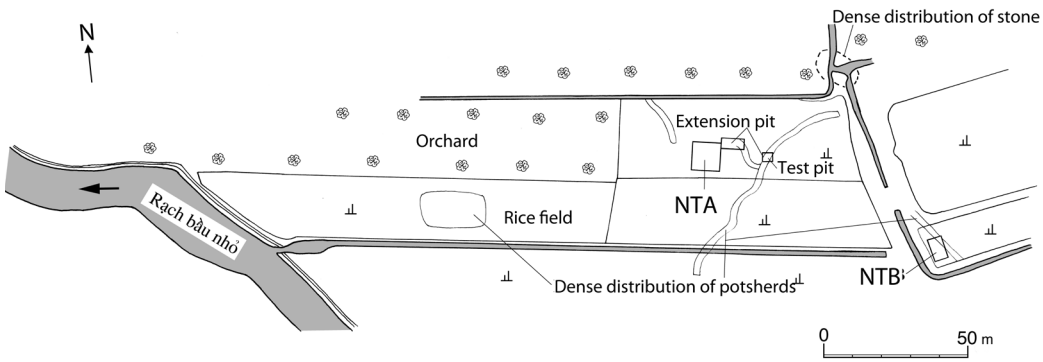


Fig.4 The Surrounding of the excavation pits

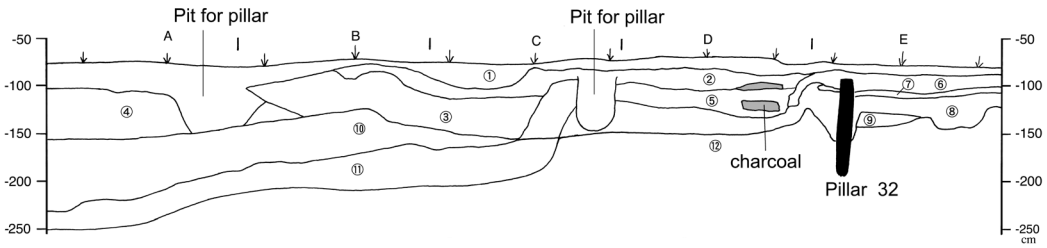


Fig.5 North section of NTA

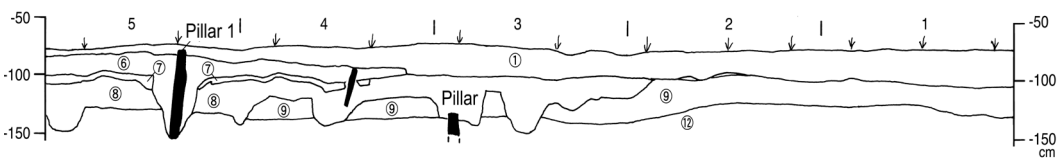


Fig.6 East section of NTA

臺灣大學學術期刊資料庫

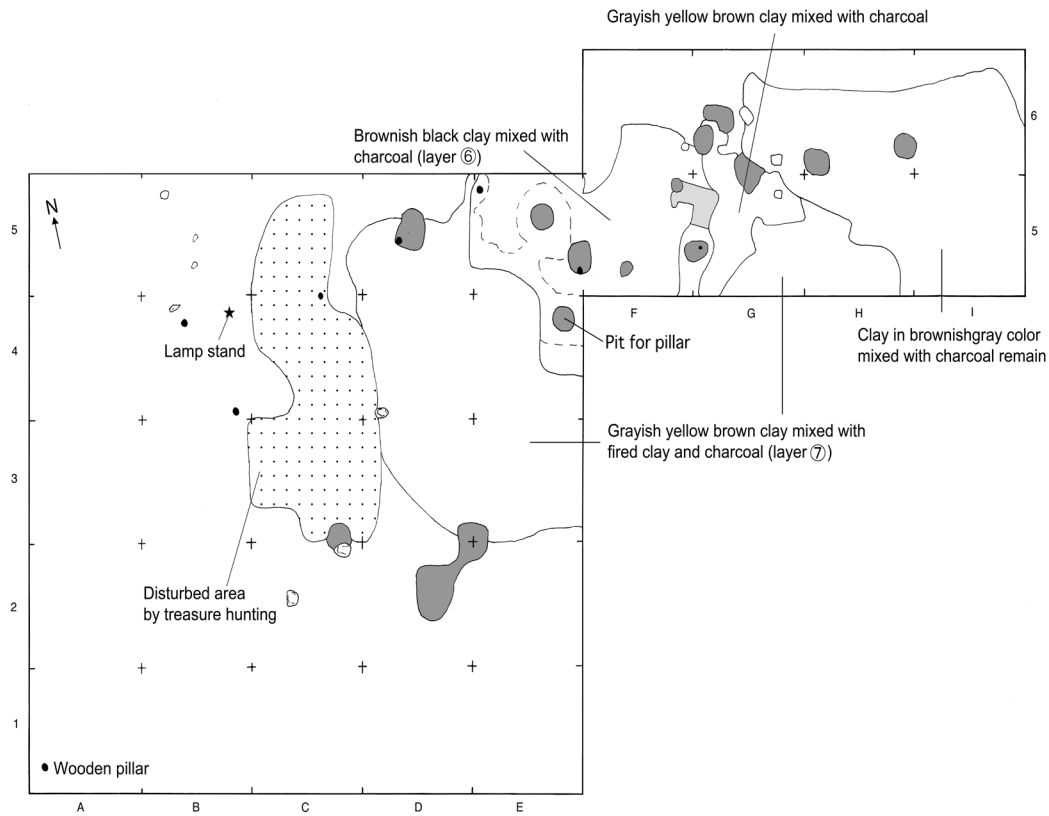


Fig.7 Excavation spit level 2 at NTA

臺灣大學學術期刊資料庫

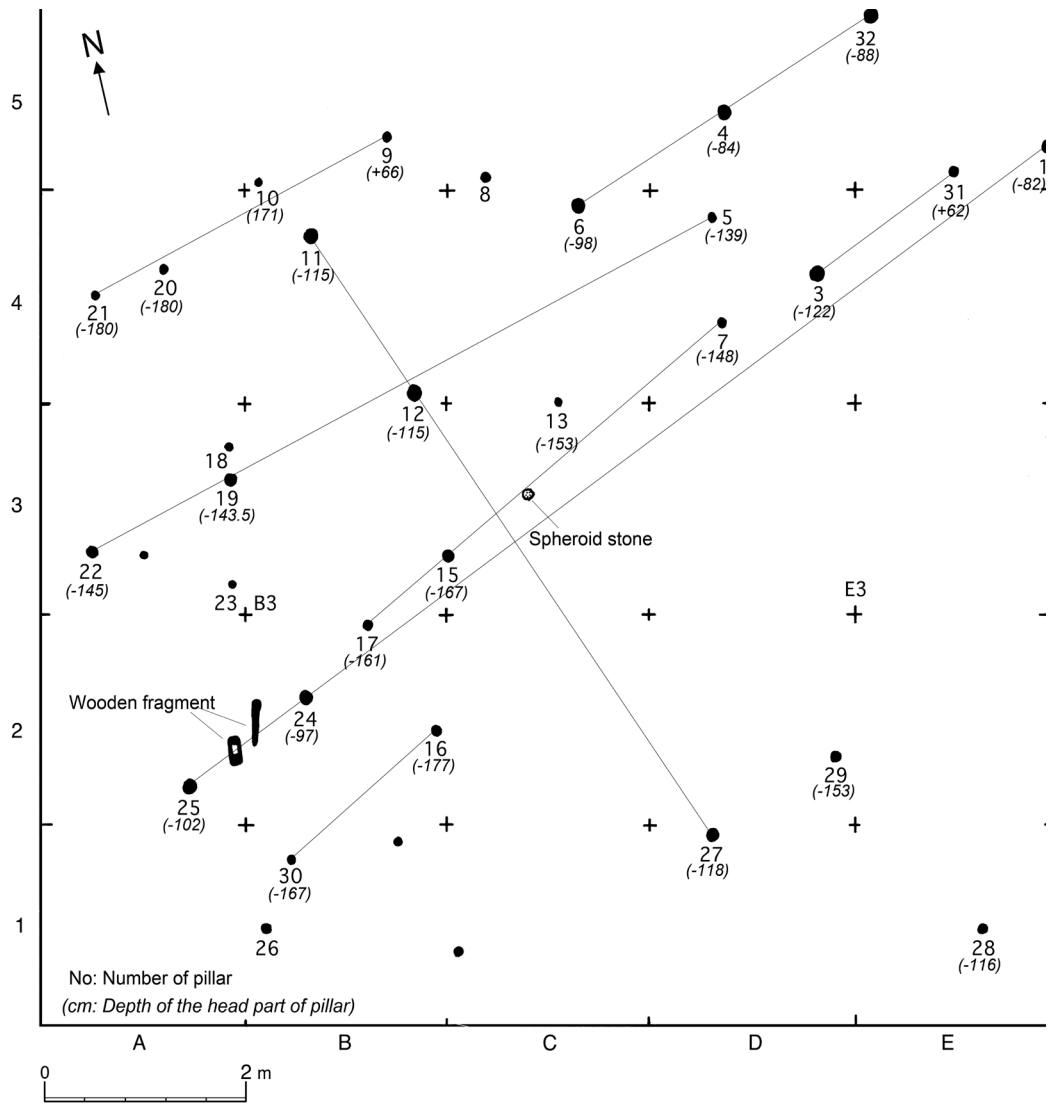


Fig.8 Excavation spit level 5 at NTA

臺灣大學學術期刊資料庫

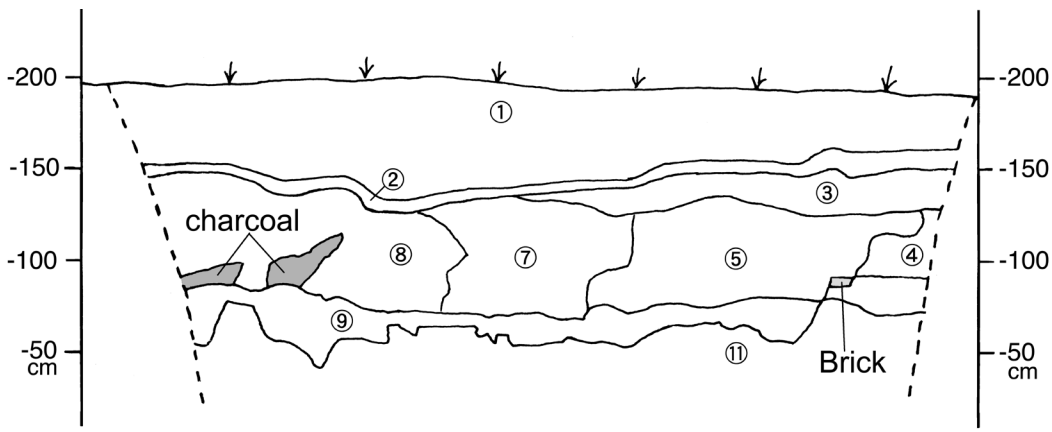


Fig.9 North section of NTB

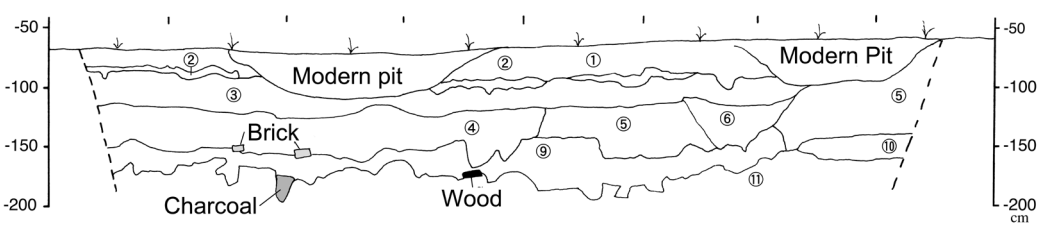


Fig.10 East section of NTB

臺灣大學學術期刊資料庫

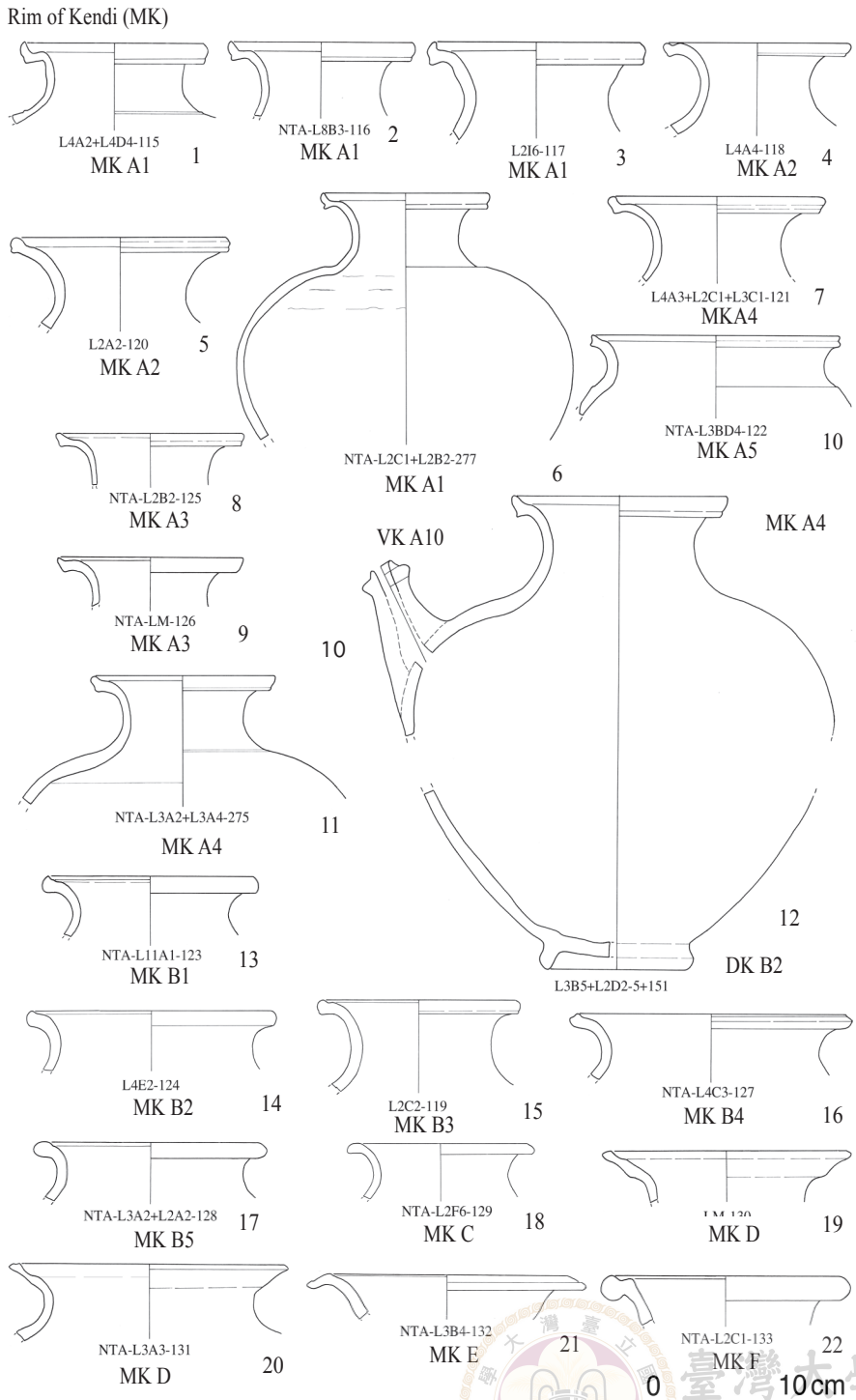


Fig.11 Fine fabric pottery (1)

臺灣大學學術期刊資料庫

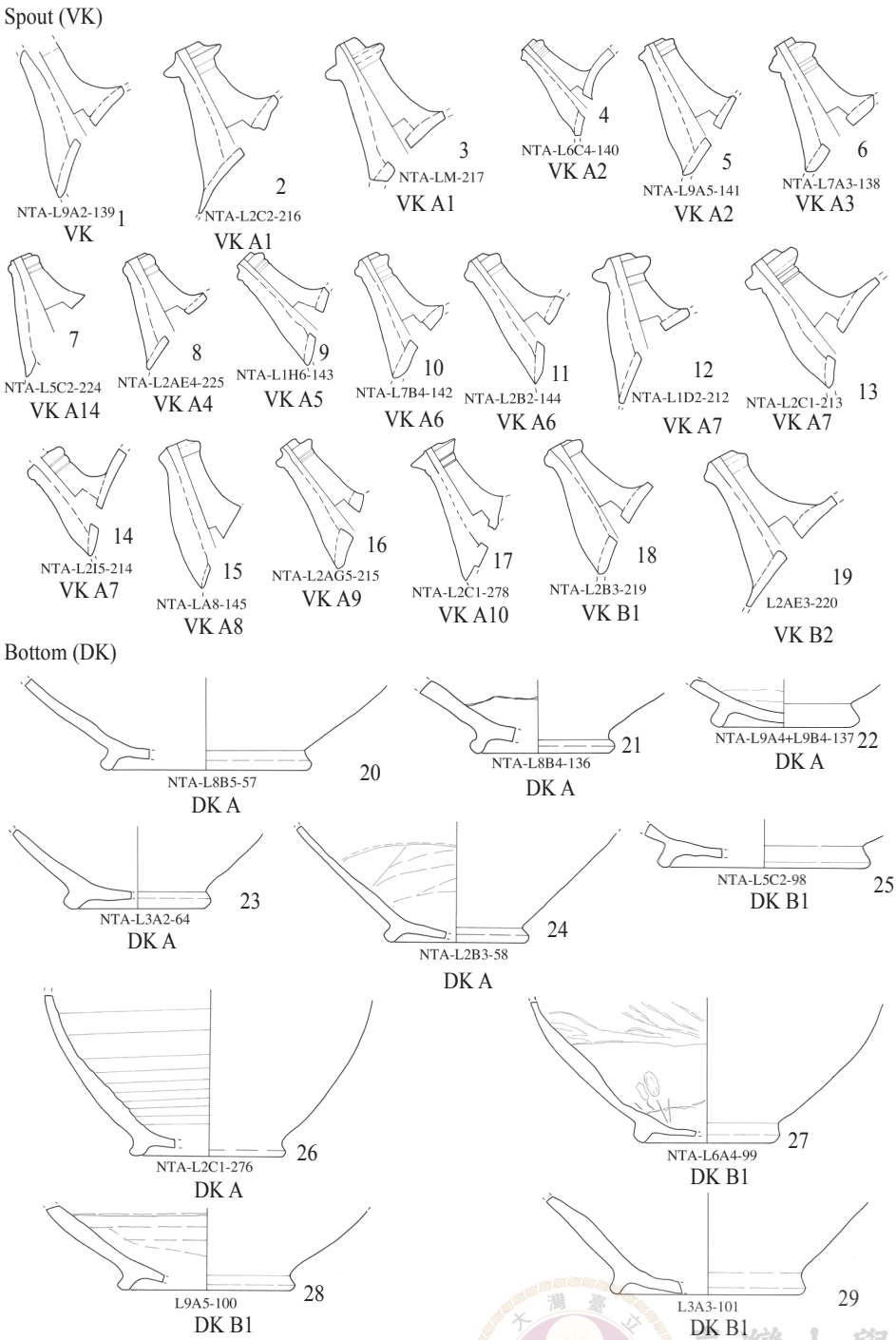


Fig.12 Fine fabric pottery (2)

臺灣大學學術期刊資料庫

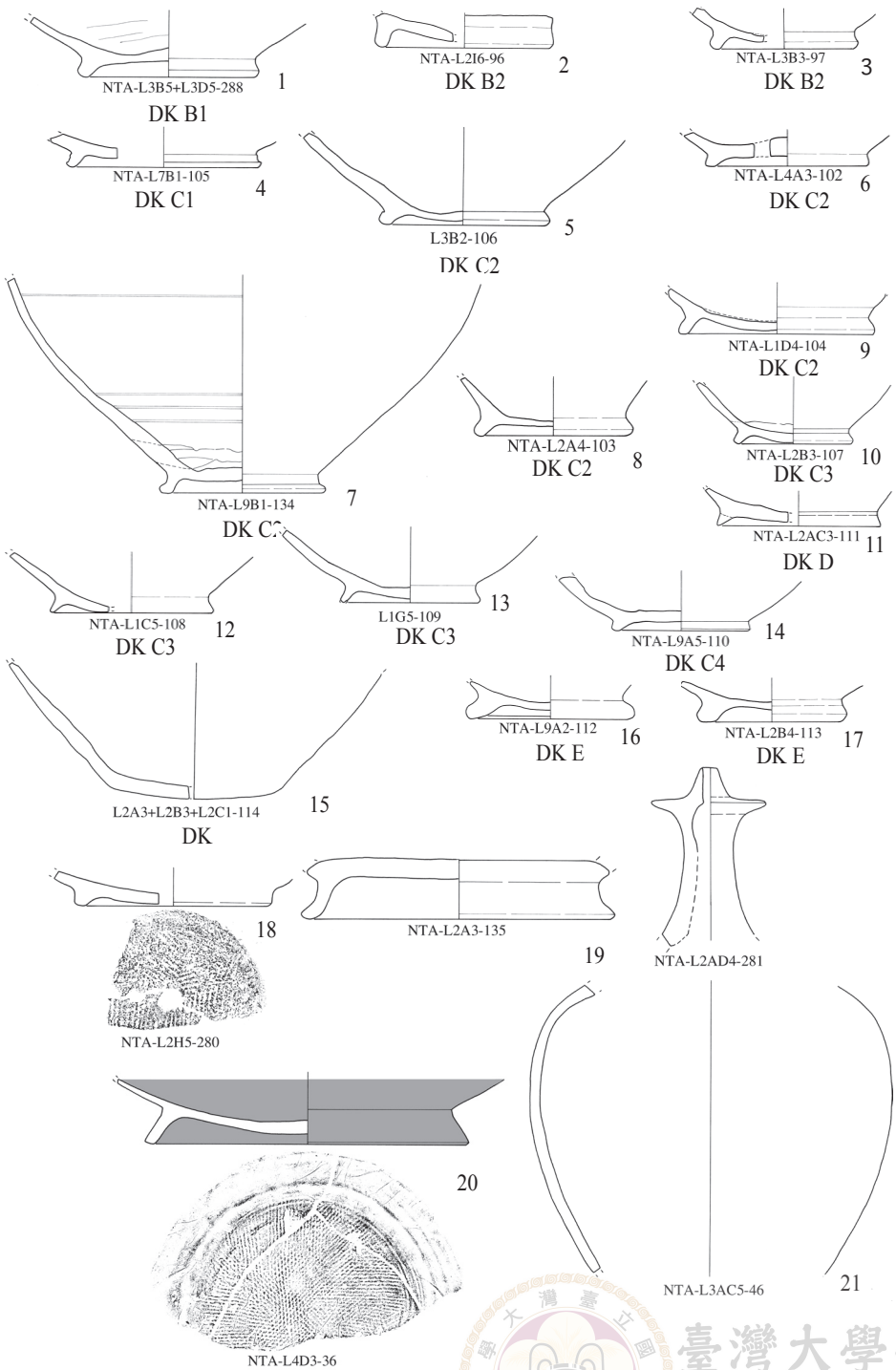


Fig.13 Fine fabric pottery (3)

臺灣大學學術期刊資料庫

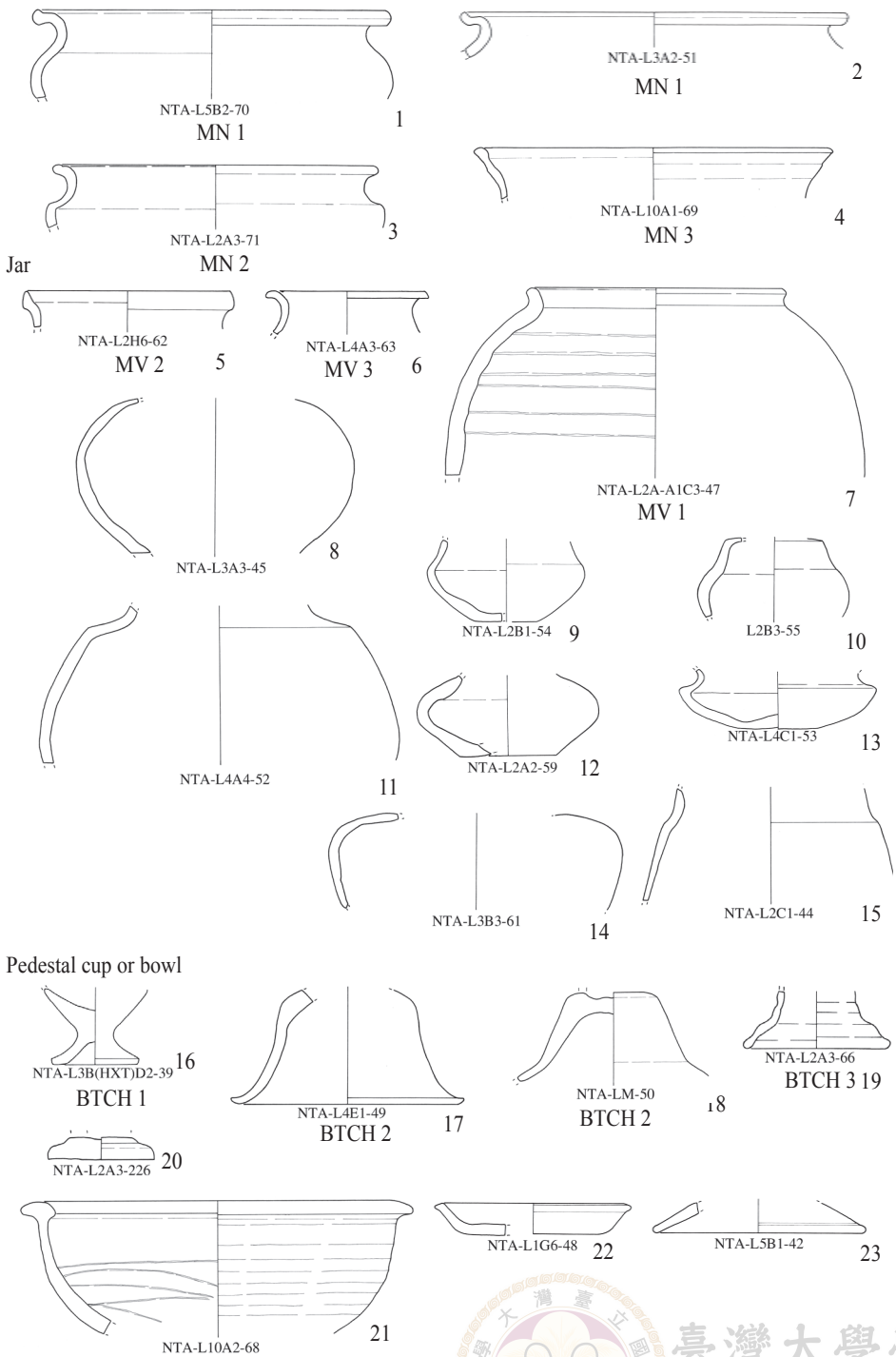
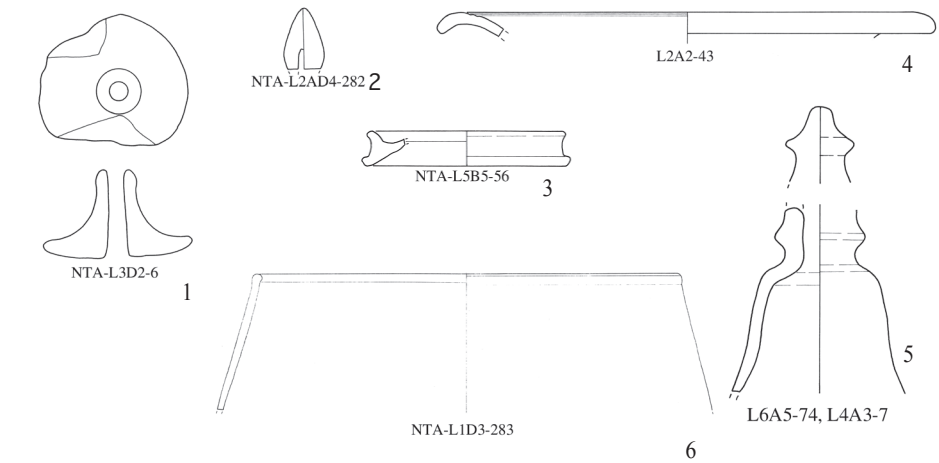


Fig.14 Fine fabric pottery (4)

臺灣大學學術期刊資料庫



Exotic pottery

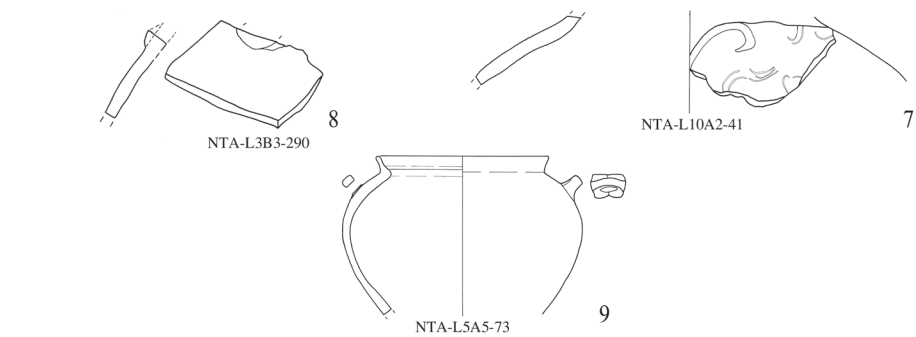




Fig.15 Fine fabric pottery (5) and exotic pottery

臺灣大學學術期刊資料庫

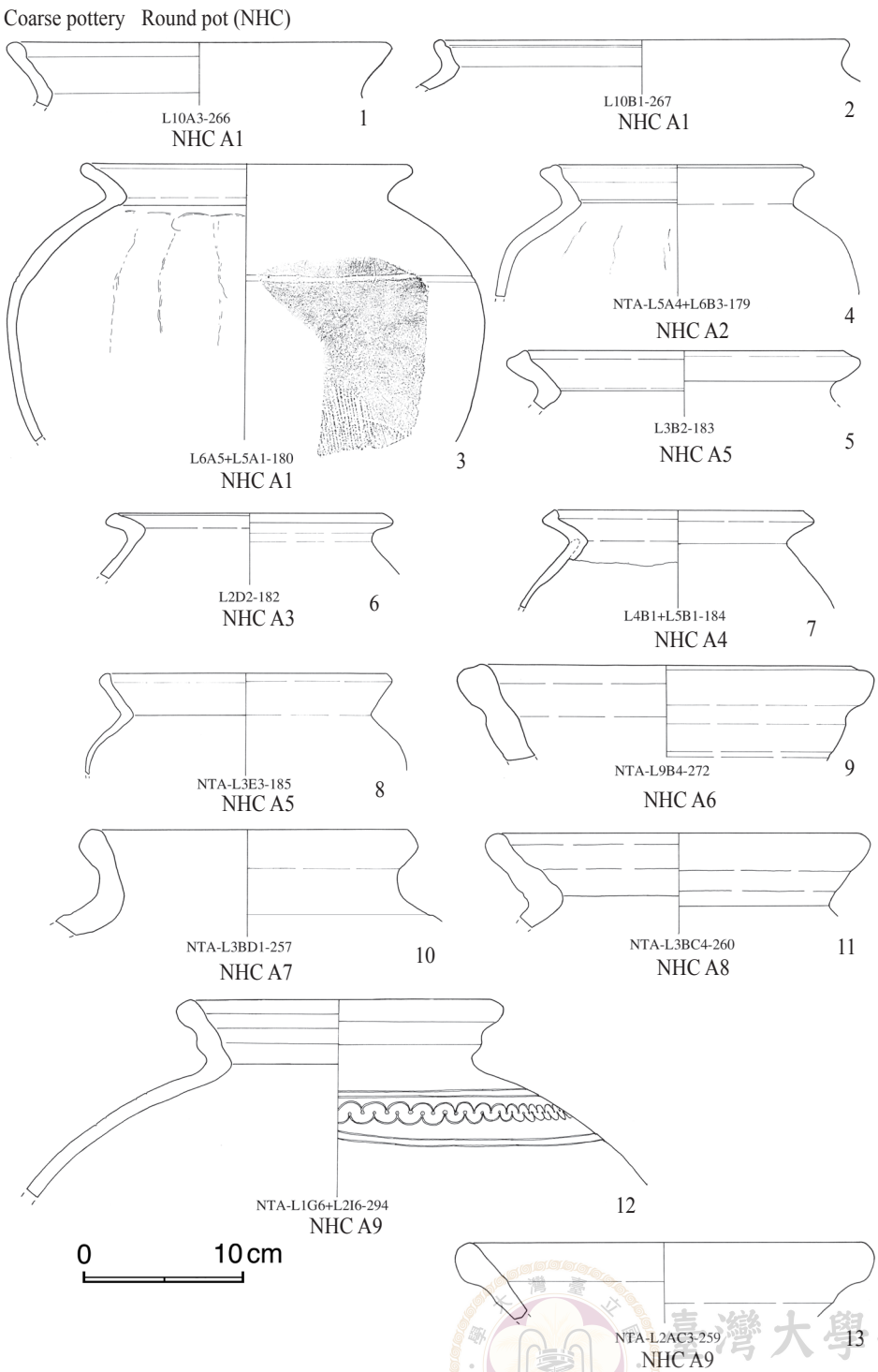


Fig.16 Coarse fabric pottery (1)

臺灣大學學術期刊資料庫

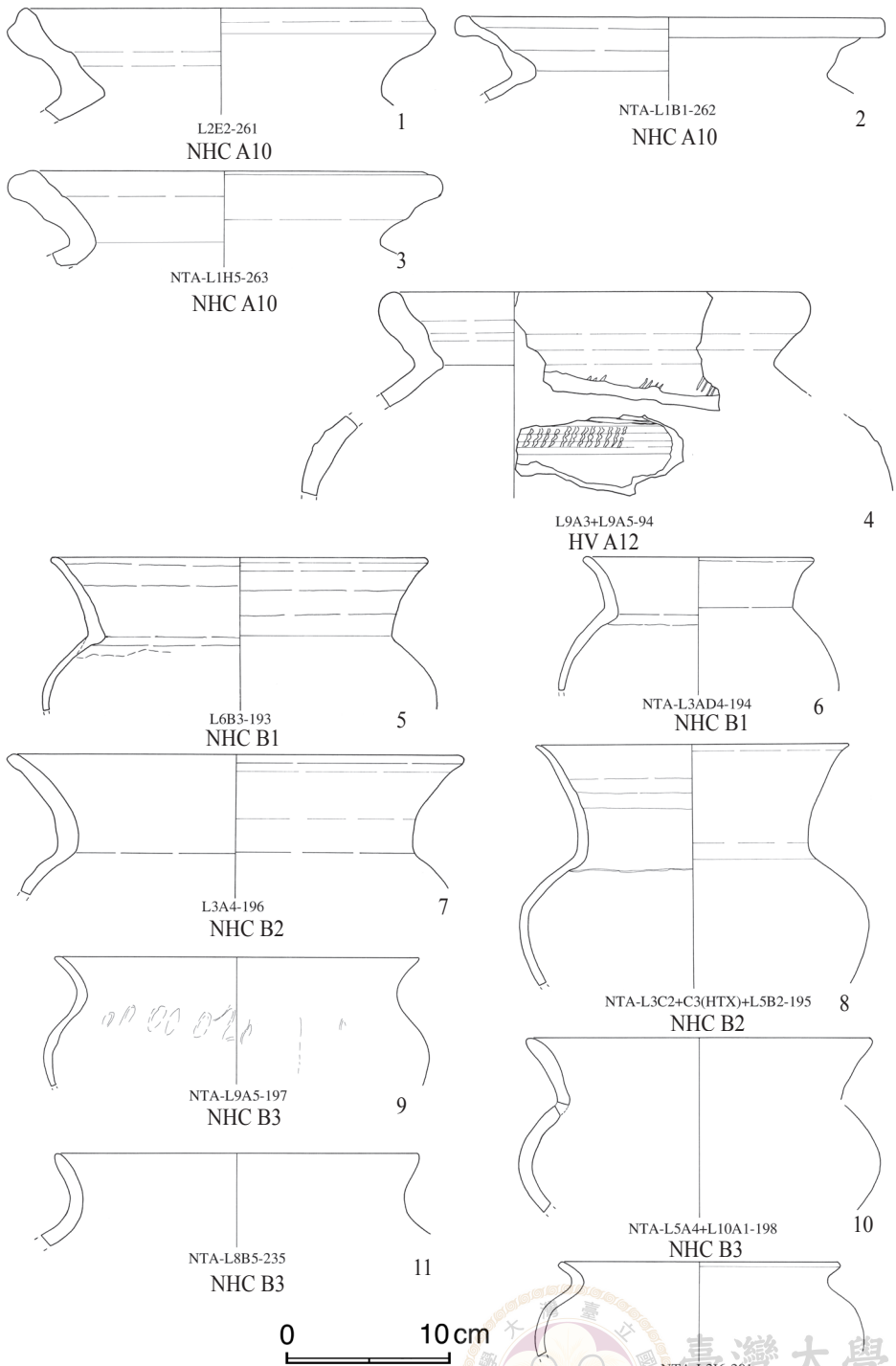


Fig.17 Coarse fabric pottery (2)

臺灣大學學術期刊資料庫

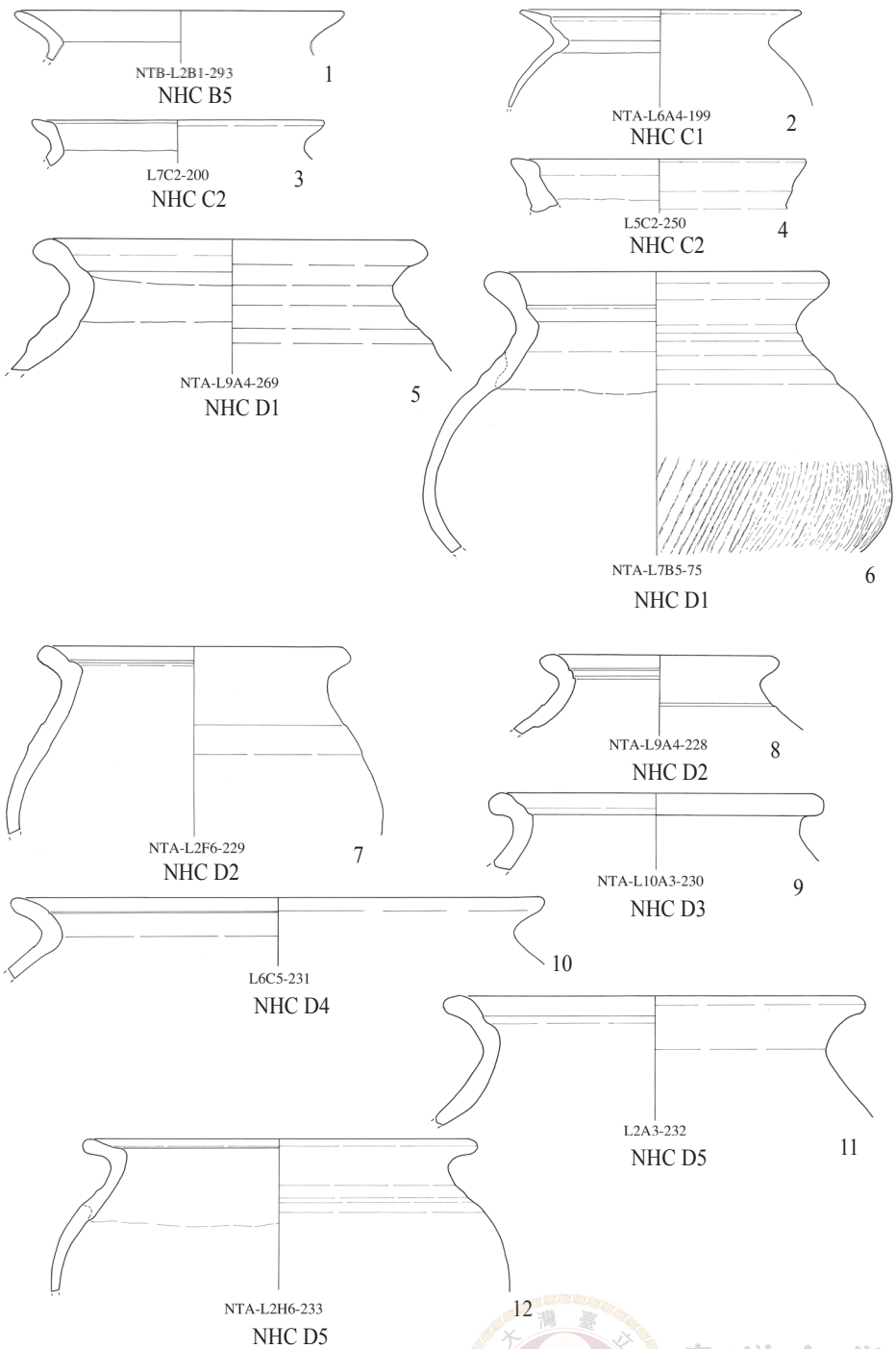


Fig.18 Coarse fabric pottery (3)

臺灣大學學術期刊資料庫

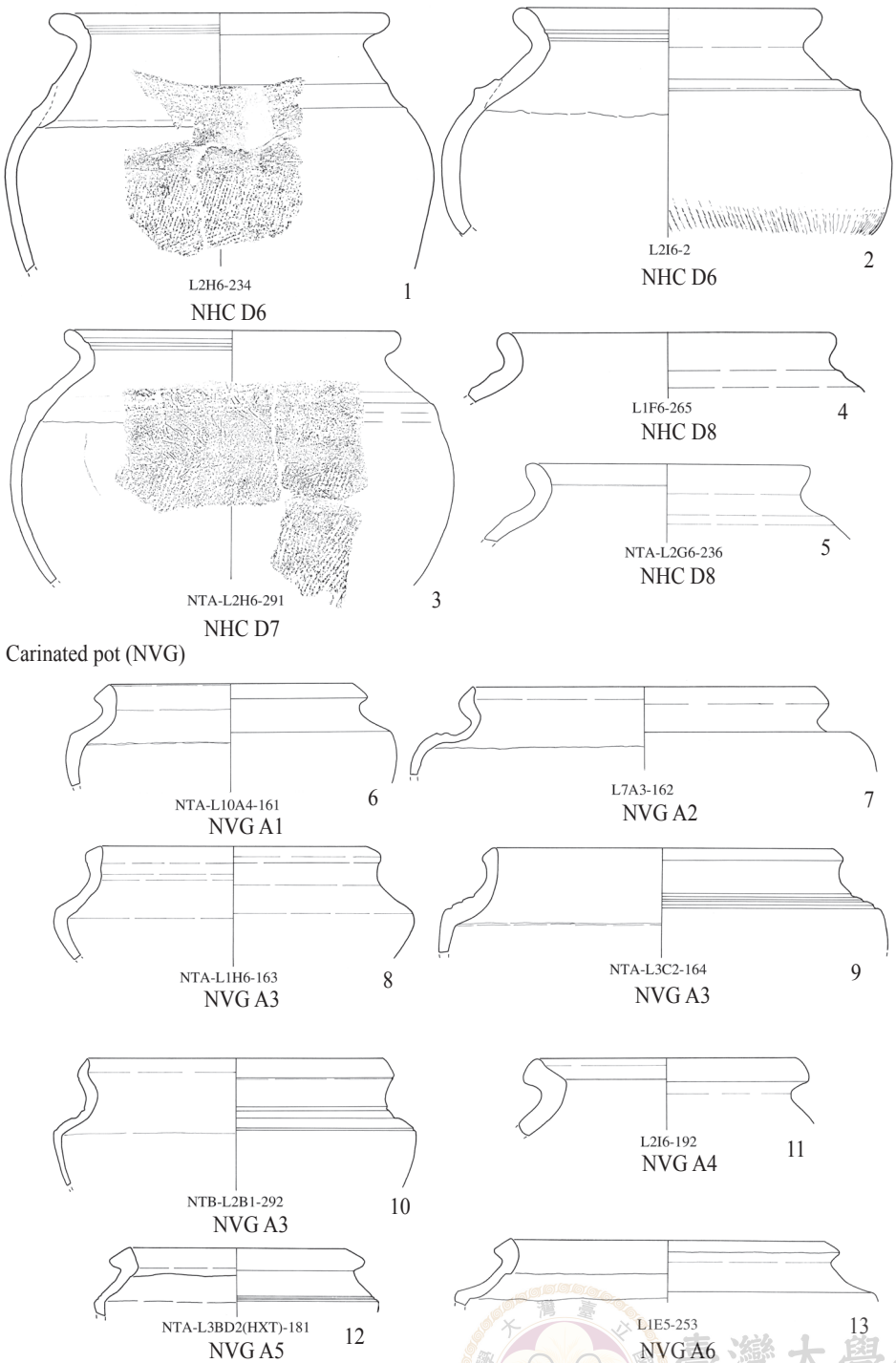


Fig.19 Coarse fabric pottery (4)

臺灣大學學術期刊資料庫

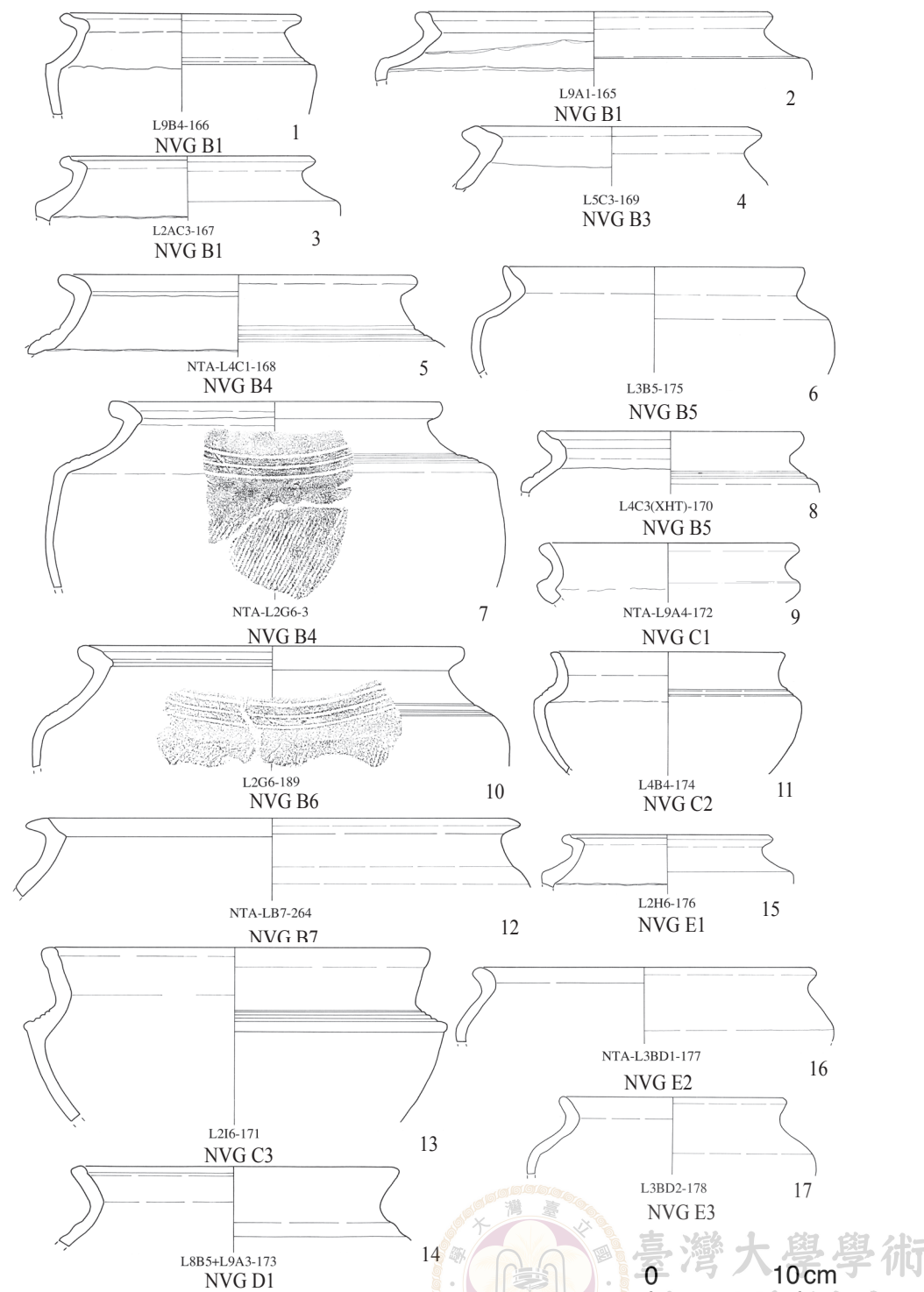
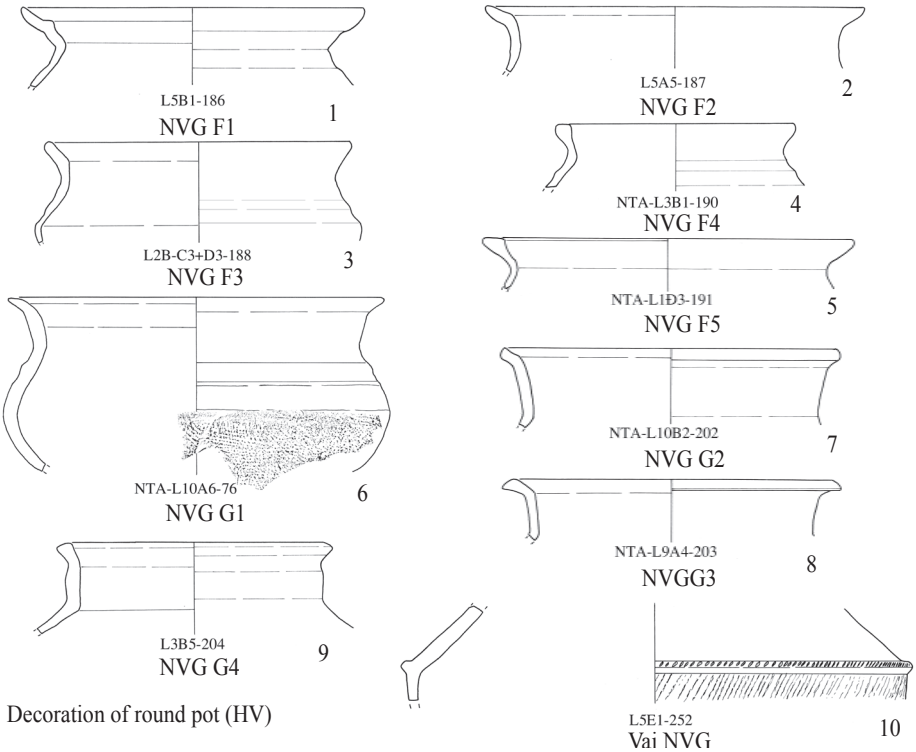


Fig.20 Coarse fabric pottery (5)

臺灣大學學術期刊資料庫



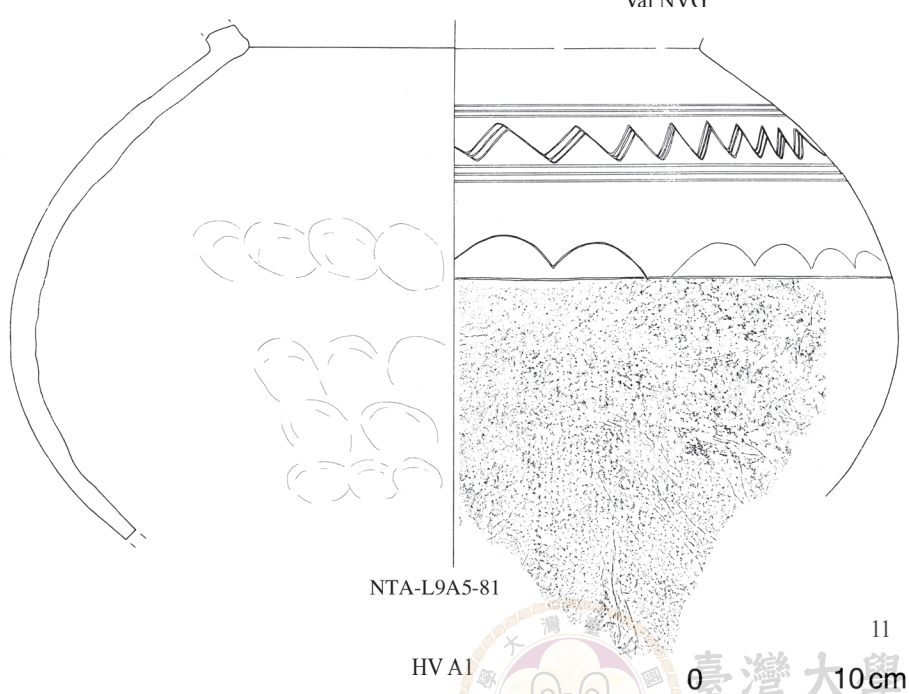


Fig.21 Coarse fabric pottery (6)

臺灣大學學術期刊資料庫

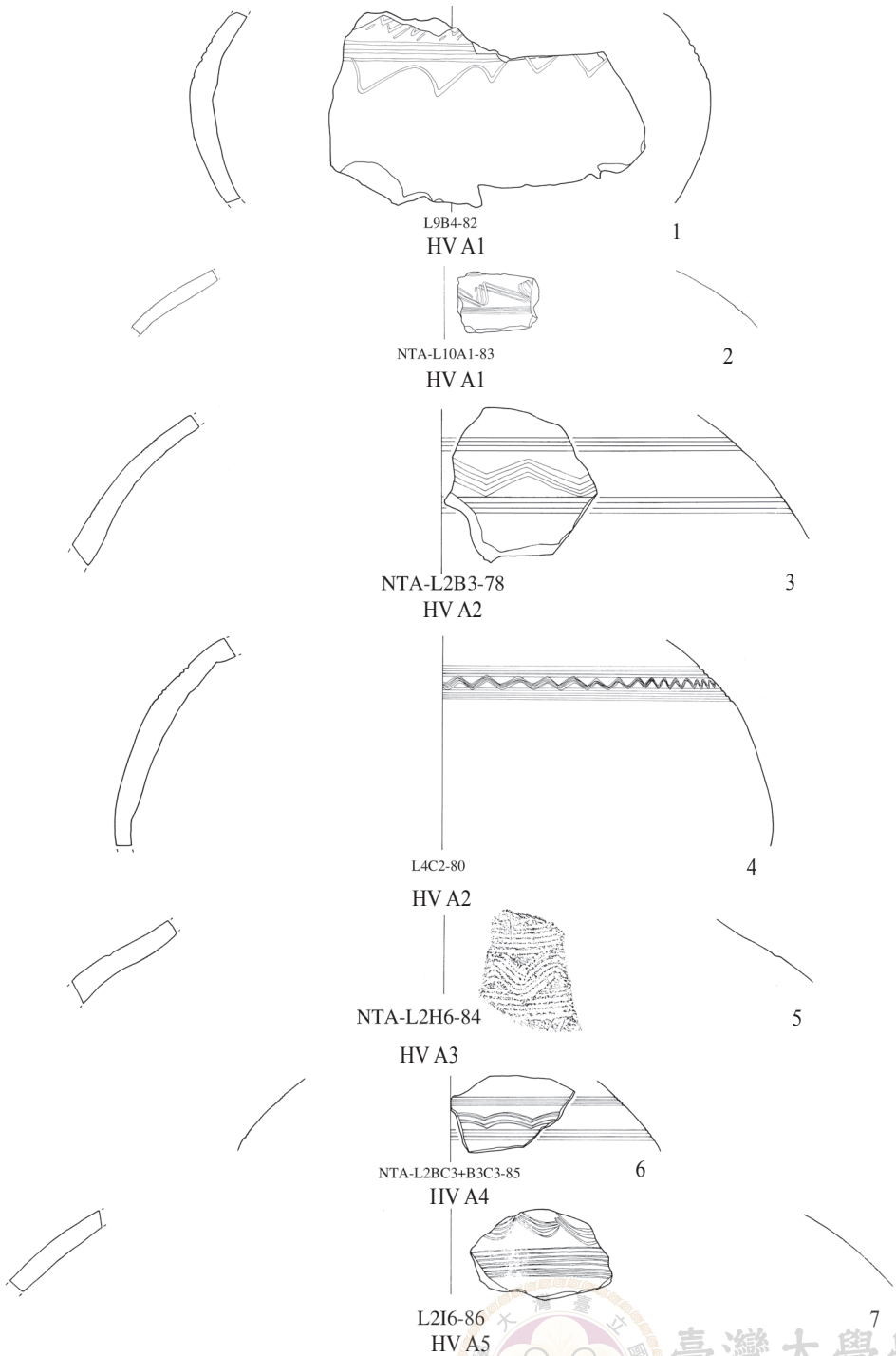


Fig.22 Coarse fabric pottery (7)

臺灣大學學術期刊資料庫

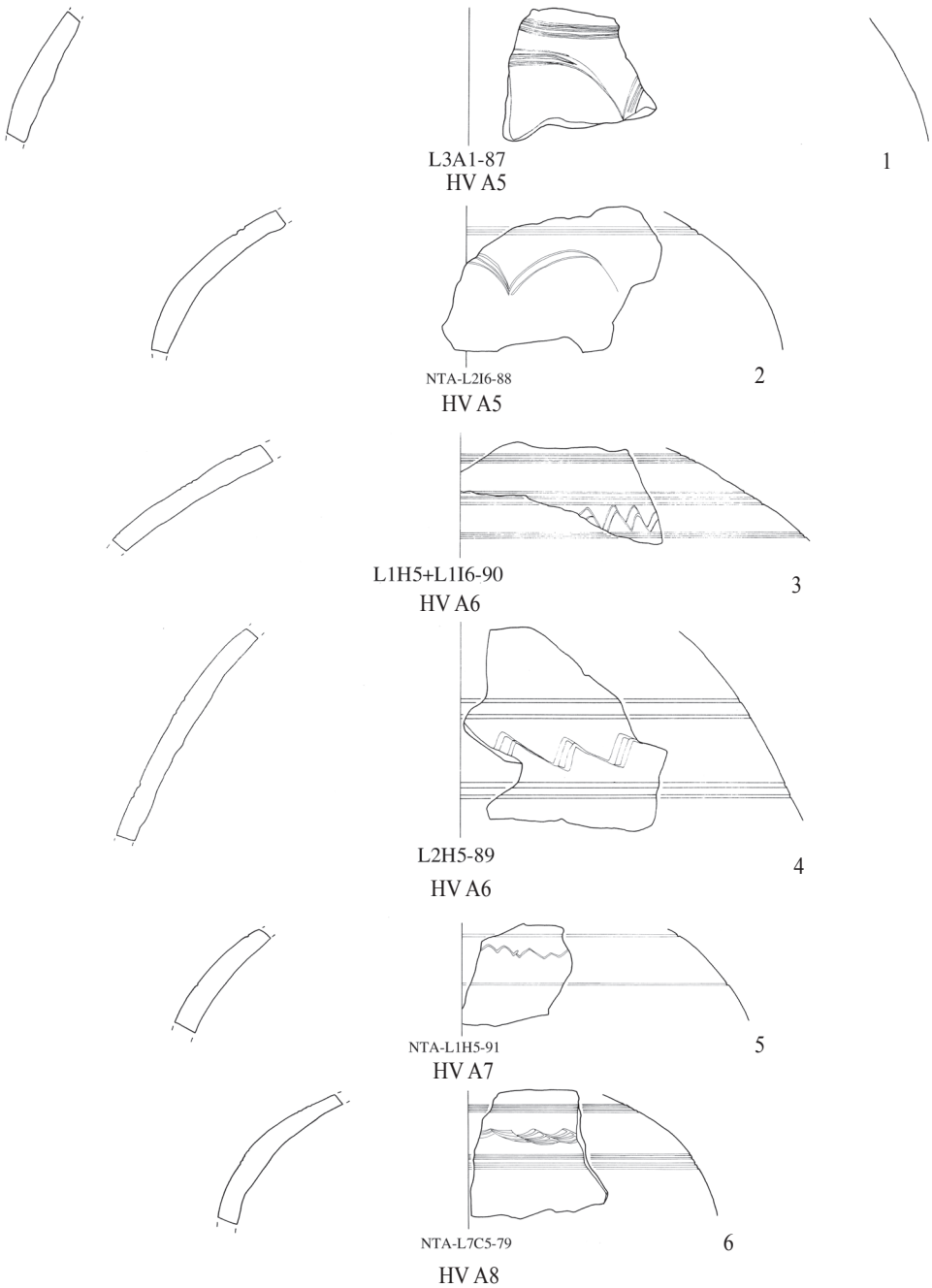


Fig.23 Coarse fabric pottery (8)

臺灣大學學術期刊資料庫

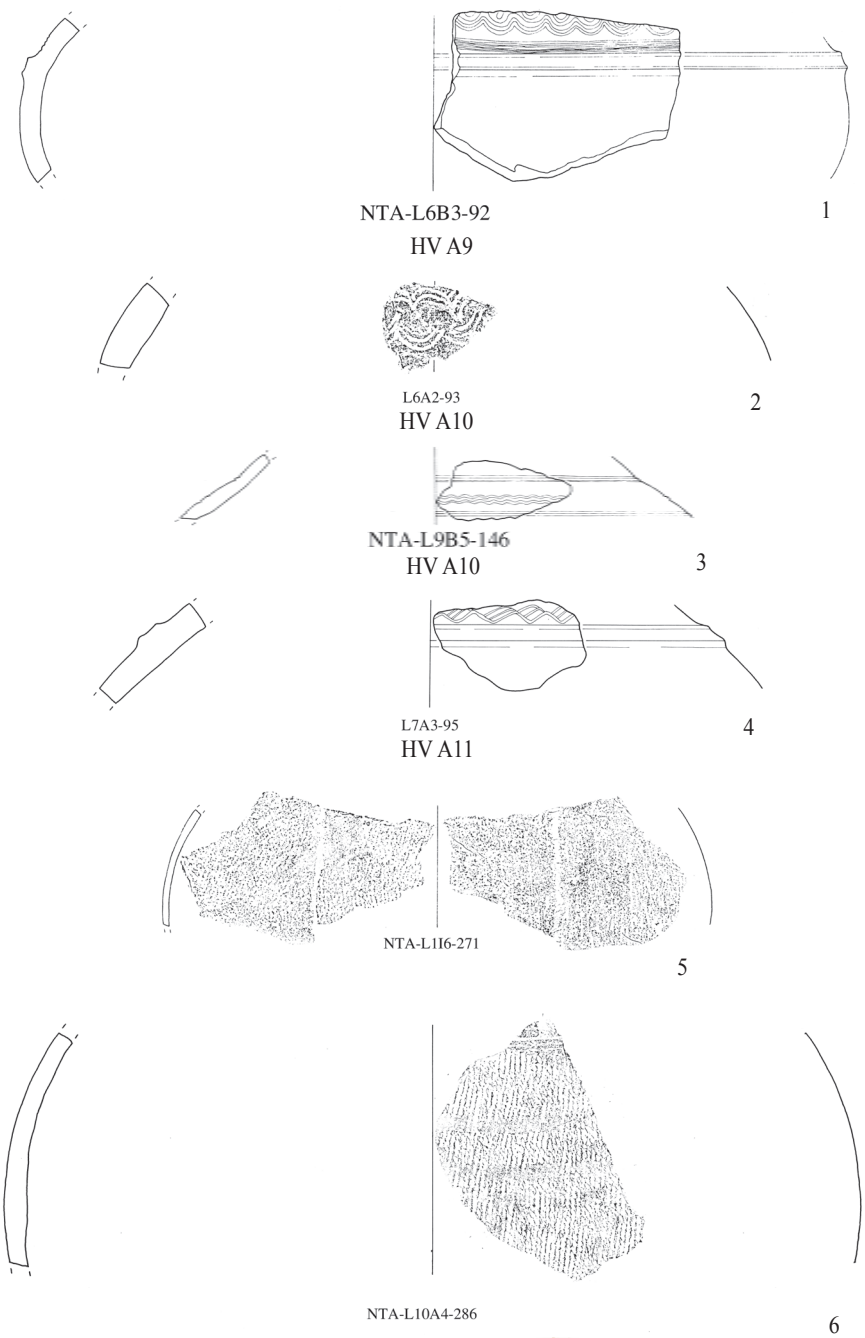


Fig.24 Coarse fabric pottery (9)

臺灣大學學術期刊資料庫

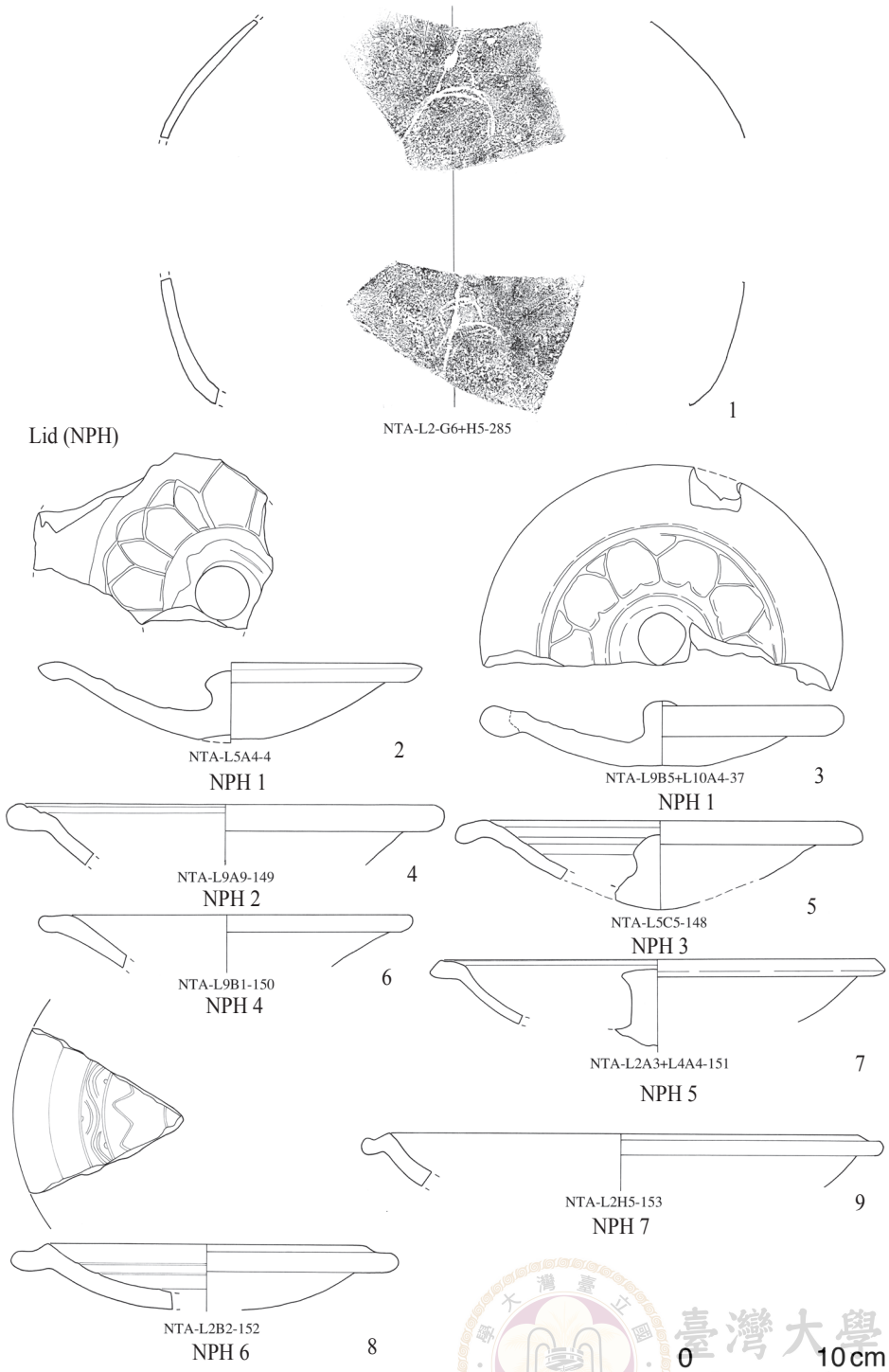


Fig.25 Coarse fabric pottery (10)

臺灣大學學術期刊資料庫

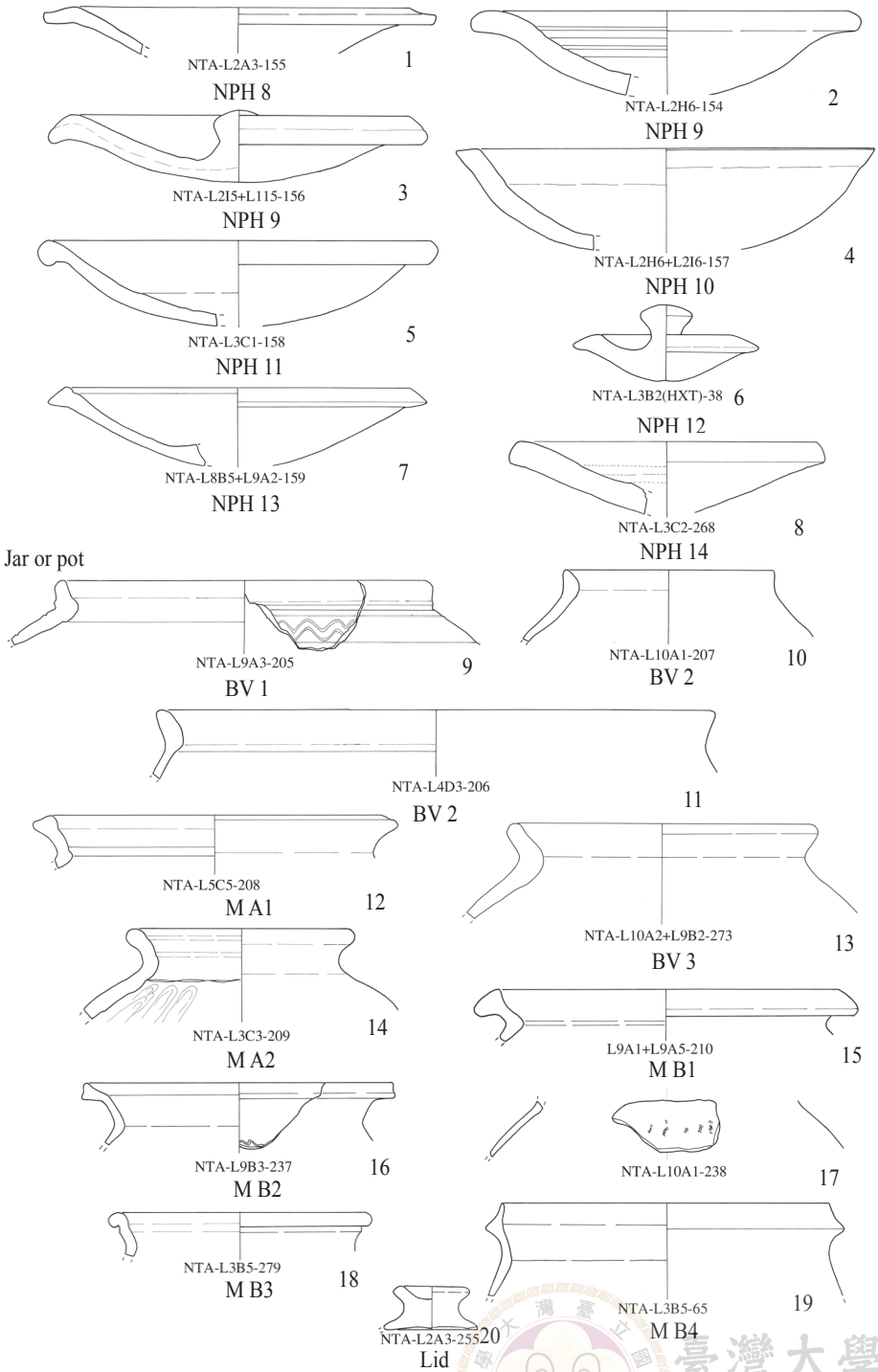


Fig.26 Coarse fabric pottery (11)

臺灣大學學術期刊資料庫

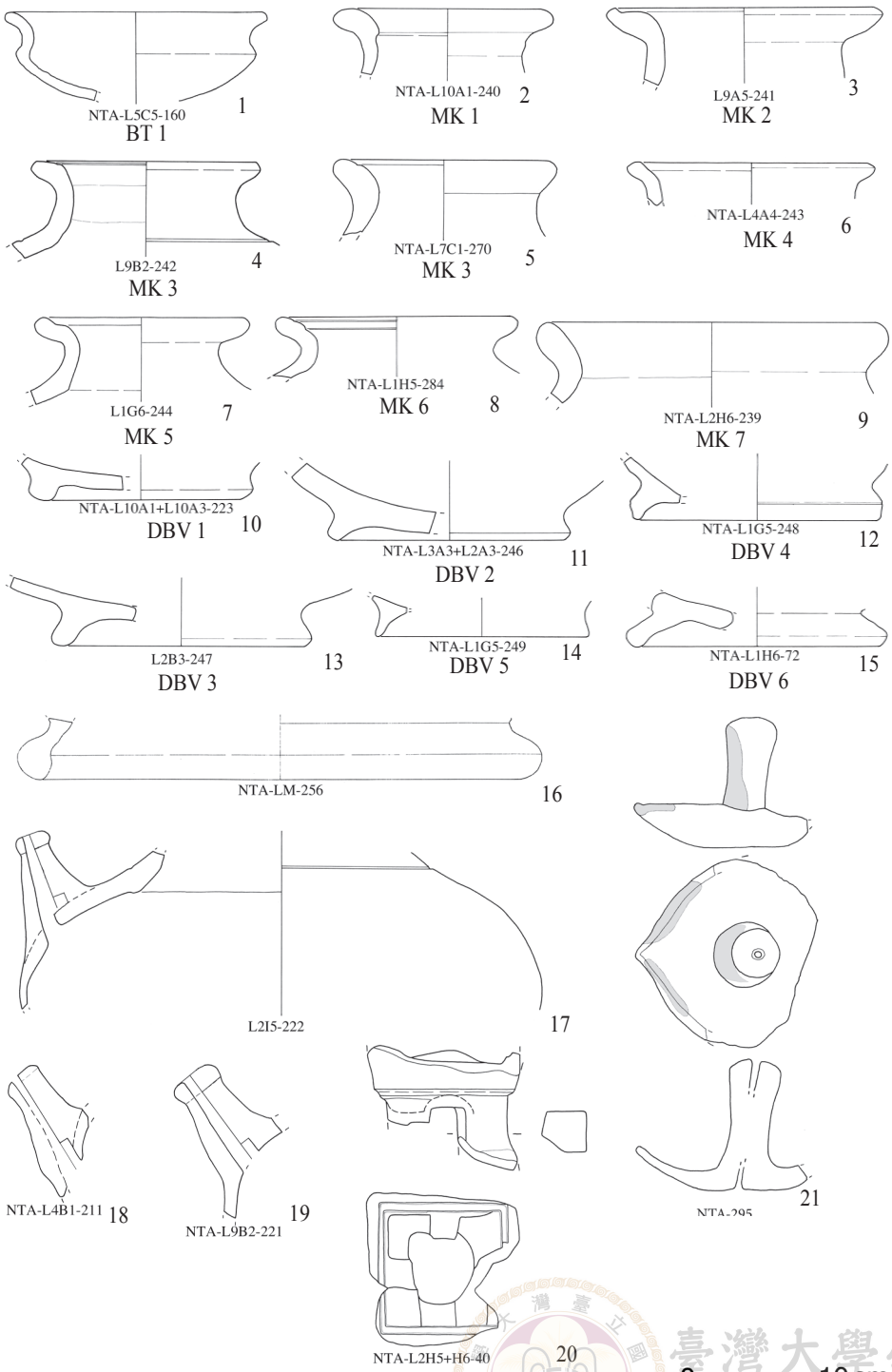


Fig.27 Coarse fabric pottery (12)

臺灣大學學術期刊資料庫

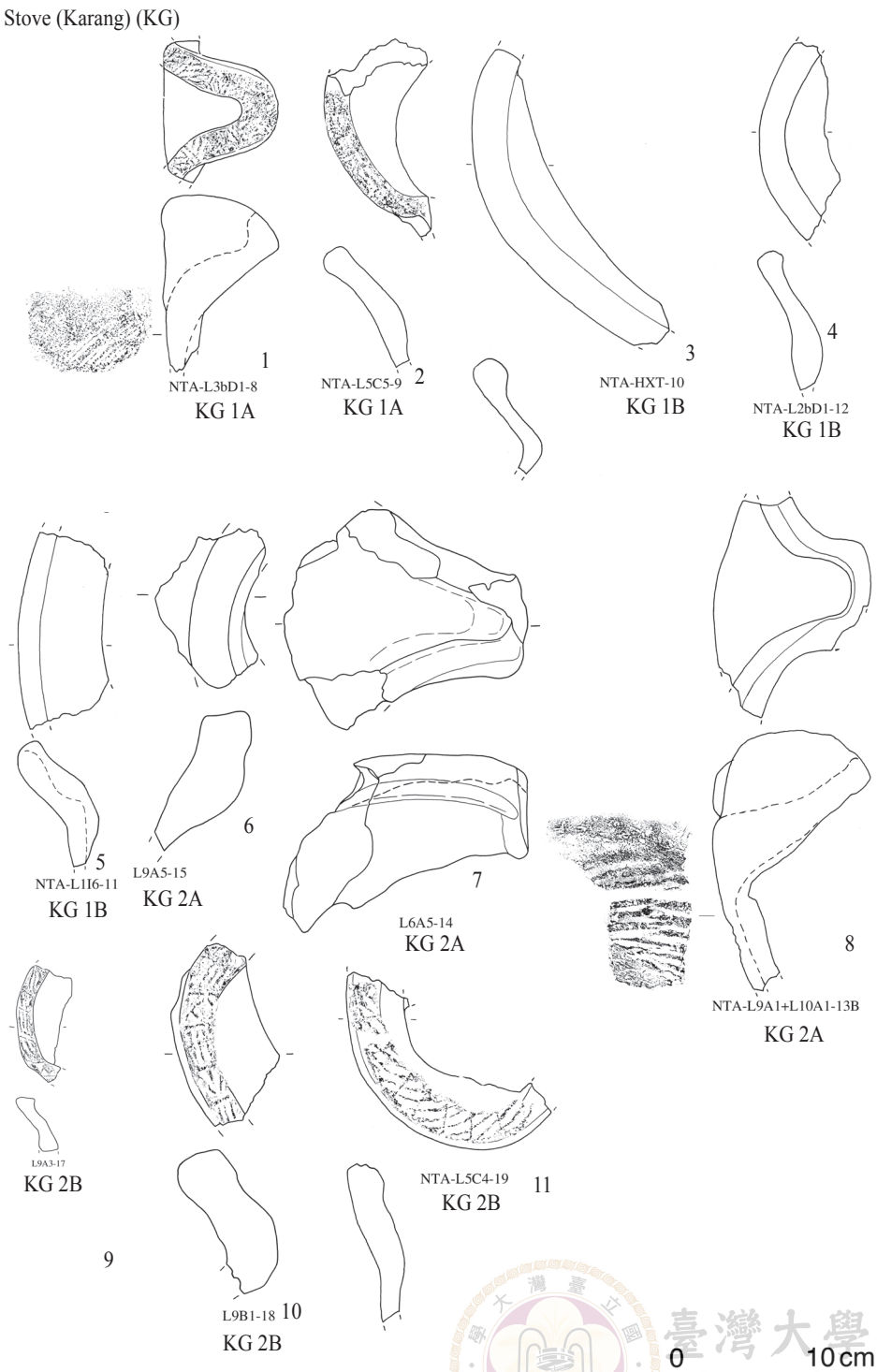


Fig.28 Coarse fabric pottery (13)

臺灣大學學術期刊資料庫

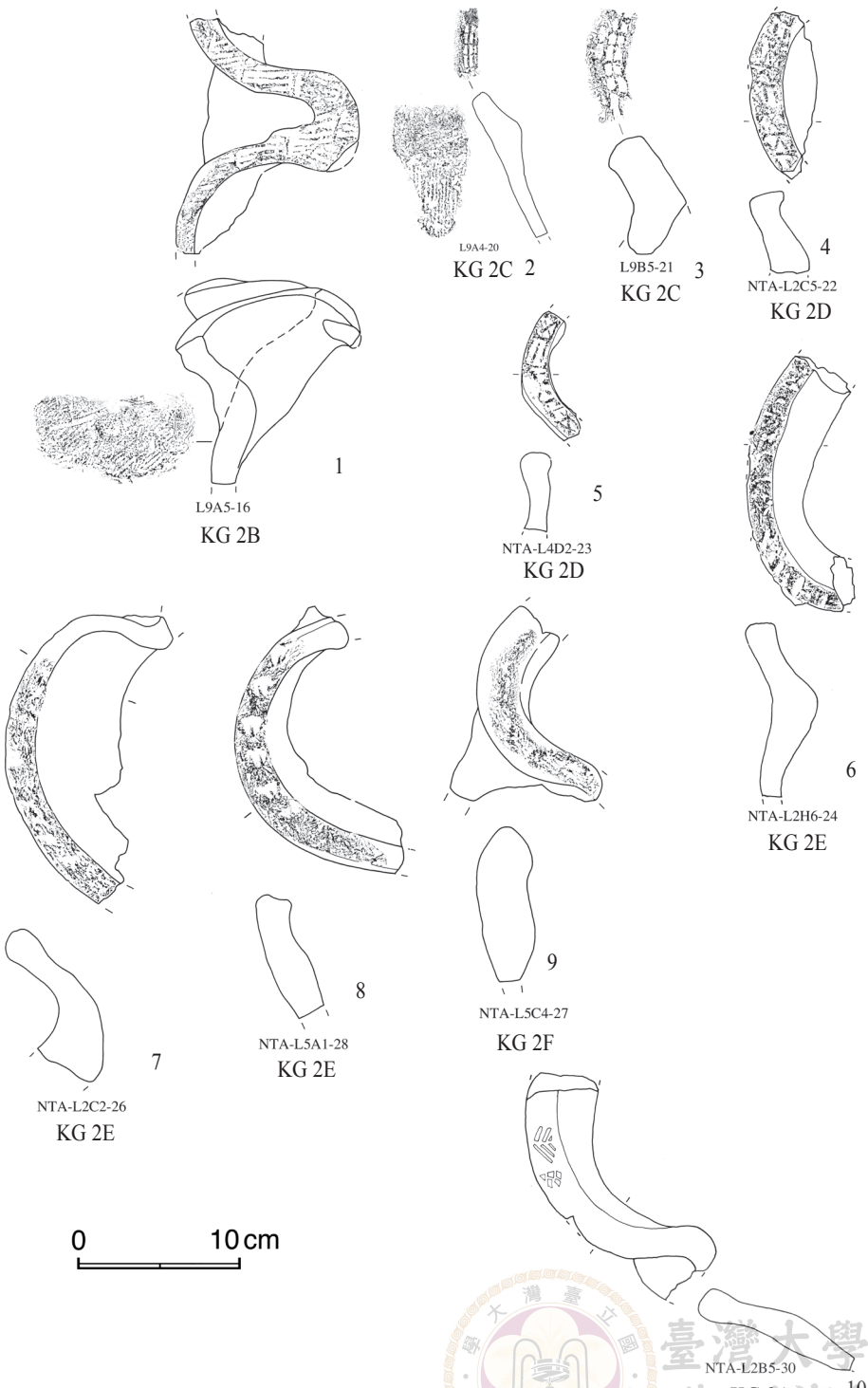


Fig.29 Coarse fabric pottery (14)

臺灣大學學術期刊資料庫

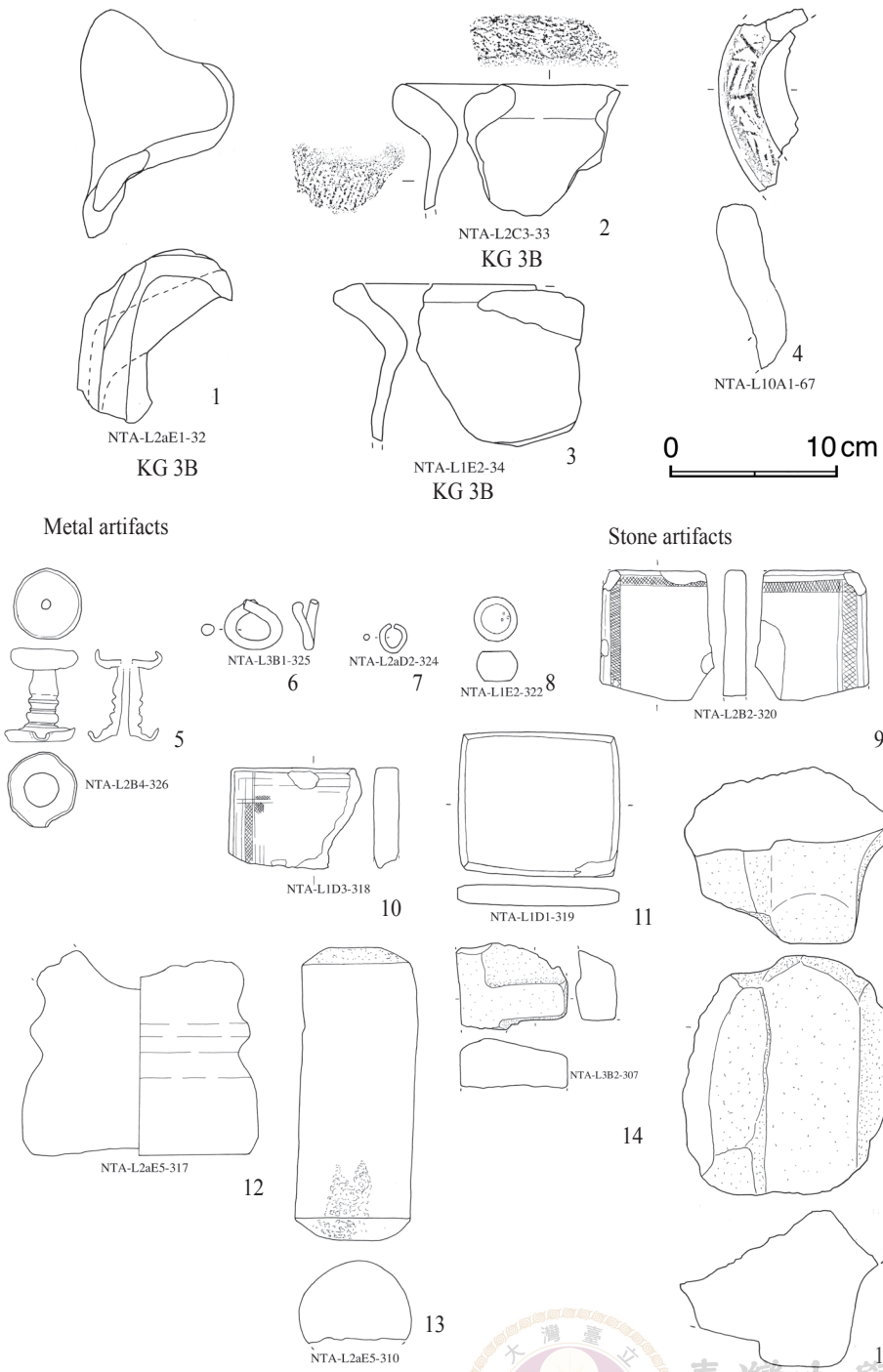


Fig.30 Coarse fabric pottery (15), metal and stone artifacts (1)

臺灣大學學術期刊資料庫

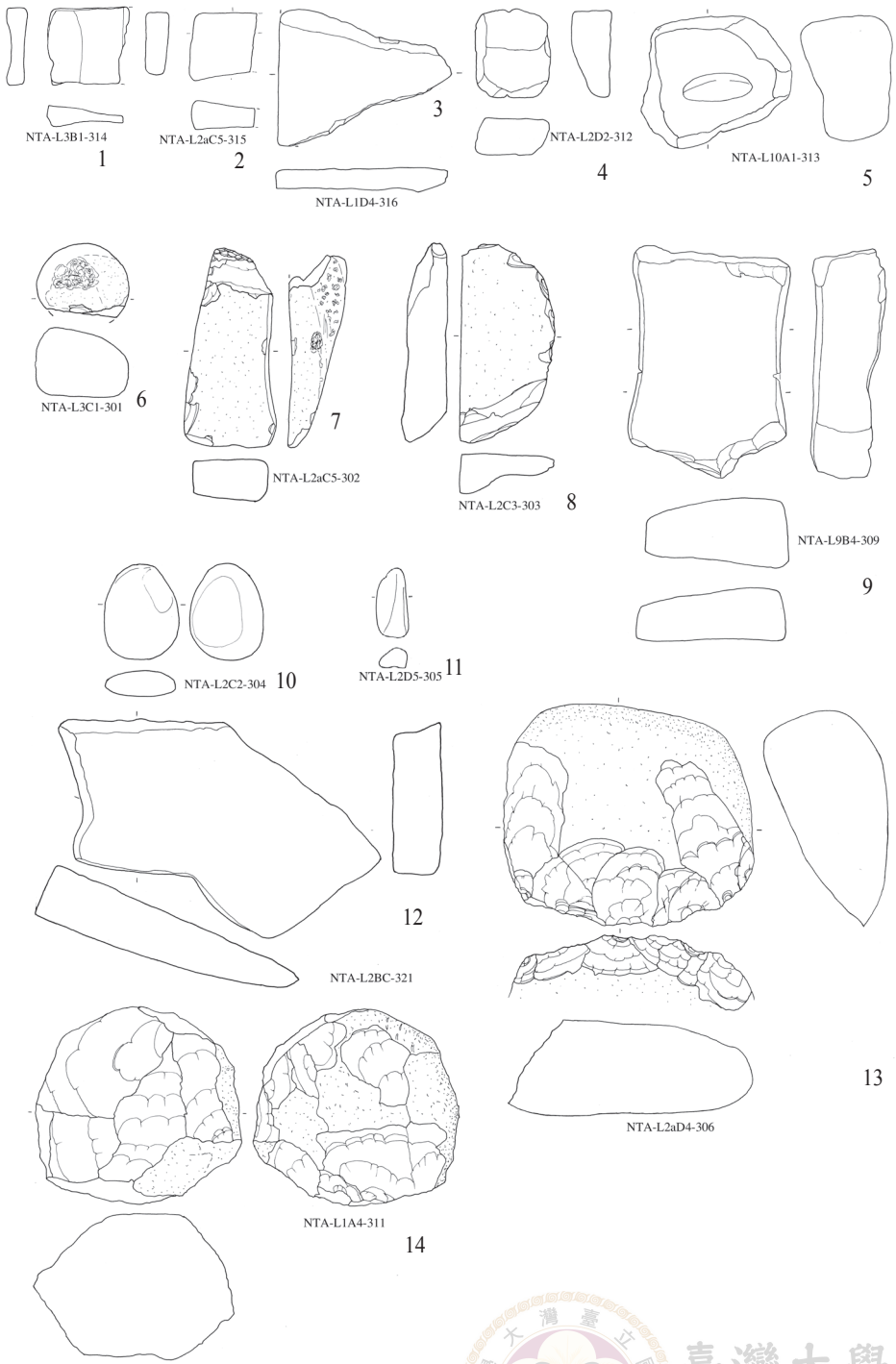


Fig.31 Stone artifacts (2)

臺灣大學學術期刊資料庫

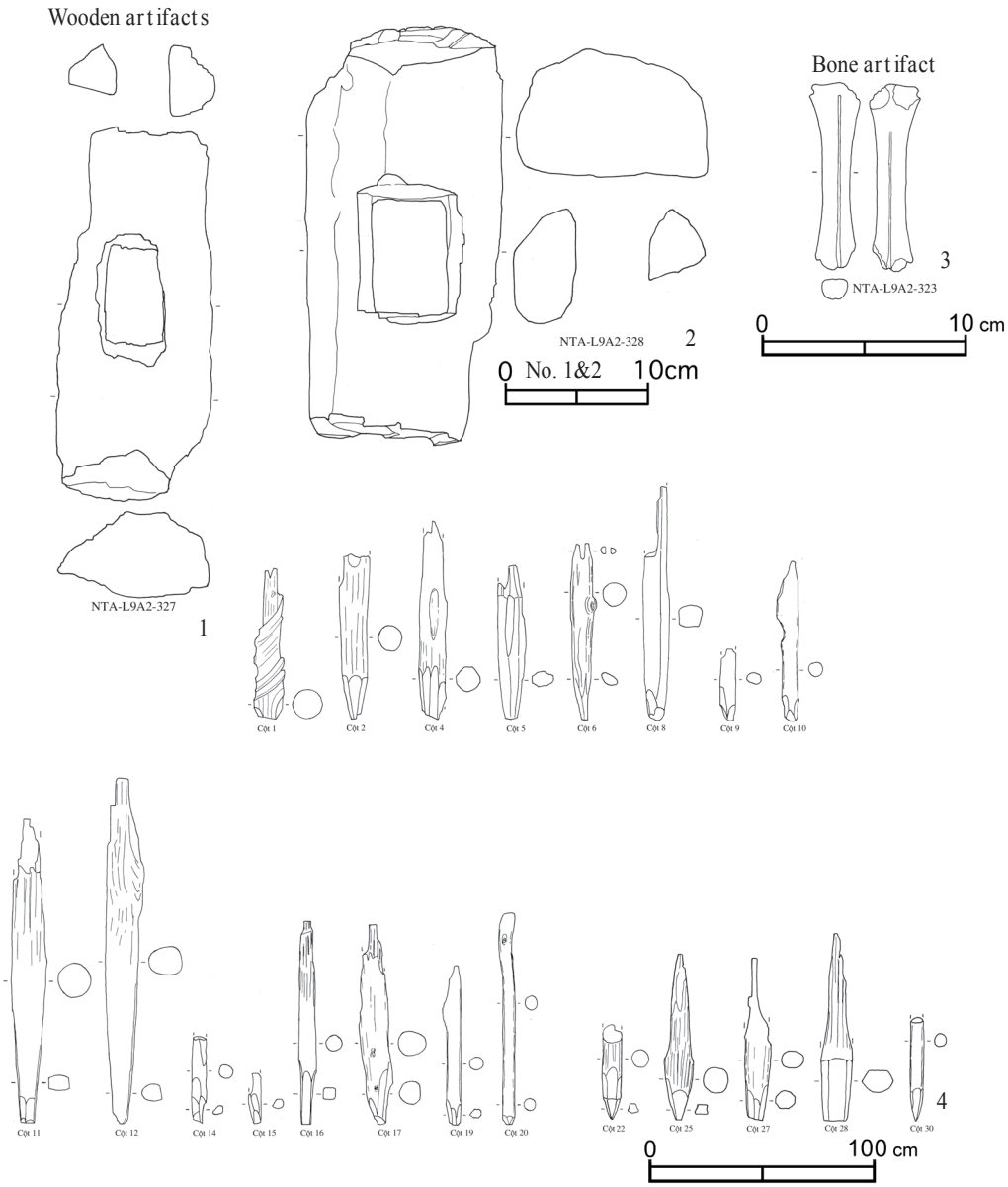
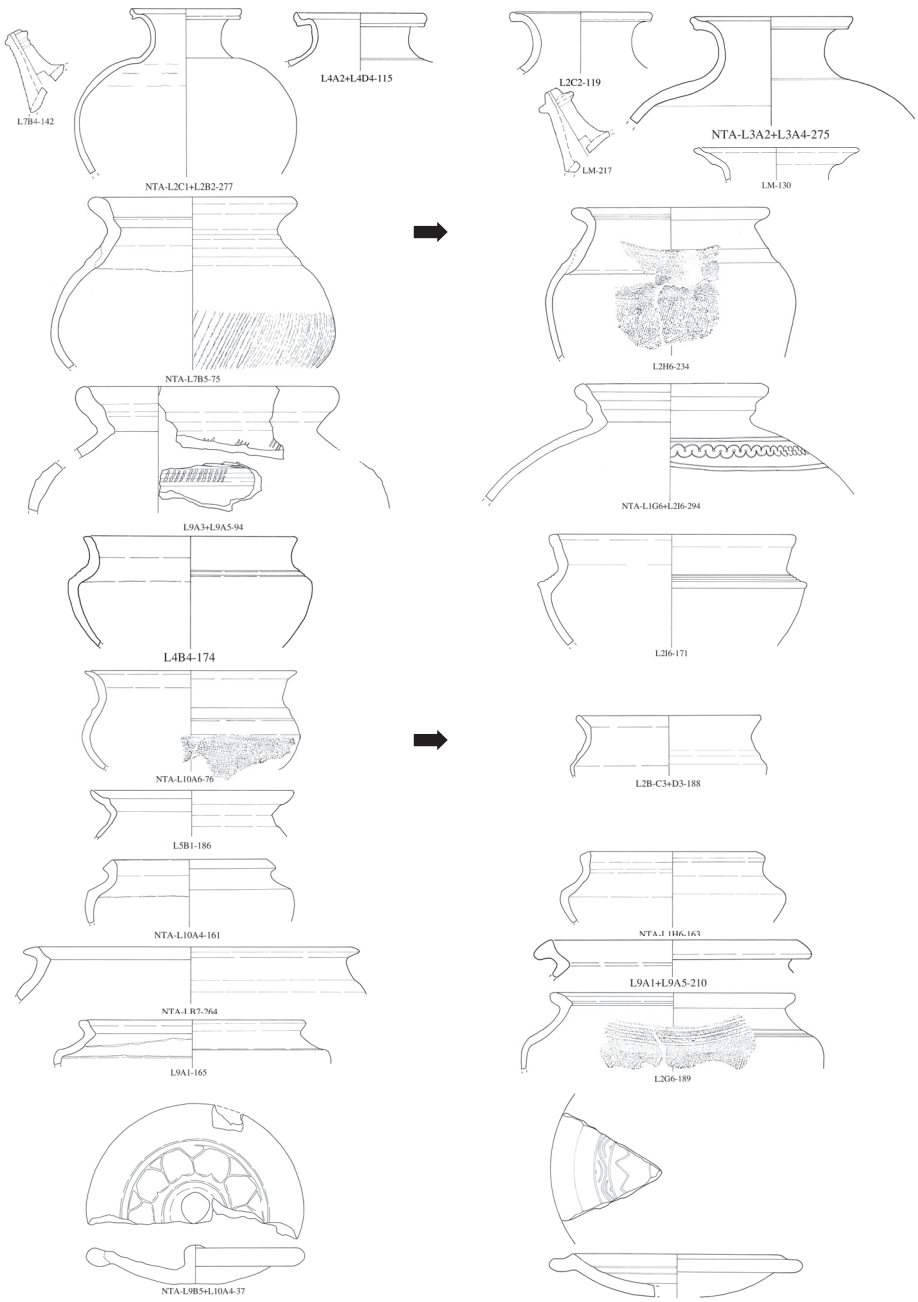


Fig.32 Woden and bone artifact



Fig.33 Reconstructed process of pottery making at Nhơn Thành

臺灣大學學術期刊資料庫



Former Period　　Later Period

Fig.34 Typological change of the vessel types from the Former to Later period

臺灣大學學術期刊資料庫



Pl.1 Before excavation at NTA

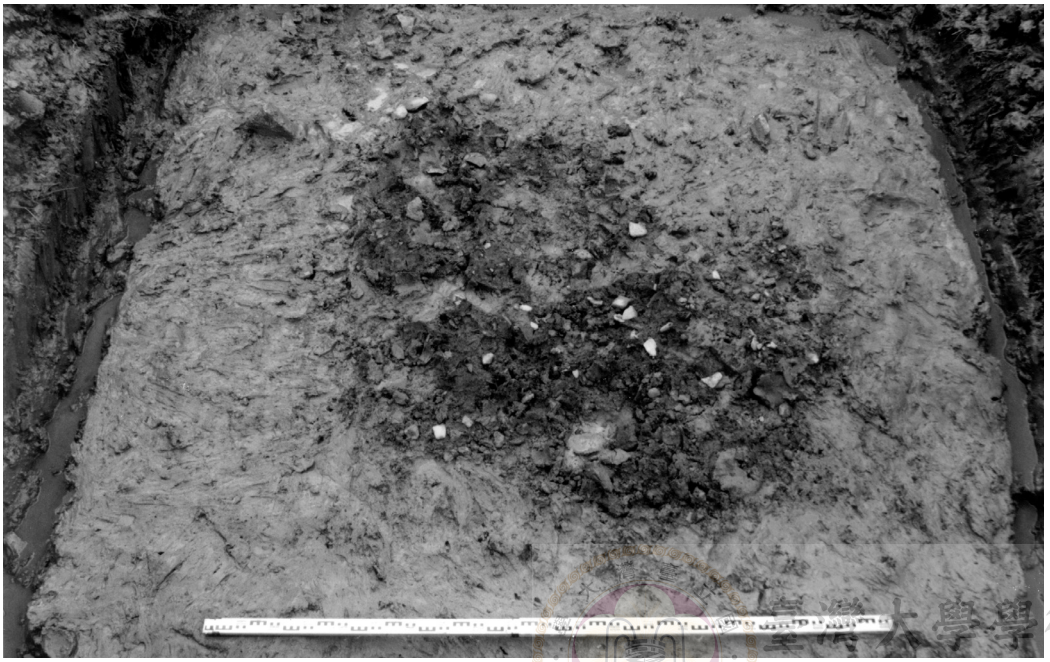


Pl.2 Distribution of the pillars at NTA

藝術 期刊資料庫



Pl.3 East section at NTA



Pl.4 Dense distribution of the artifacts

臺灣大學學術期刊資料庫



Pl.5 East section at NTB

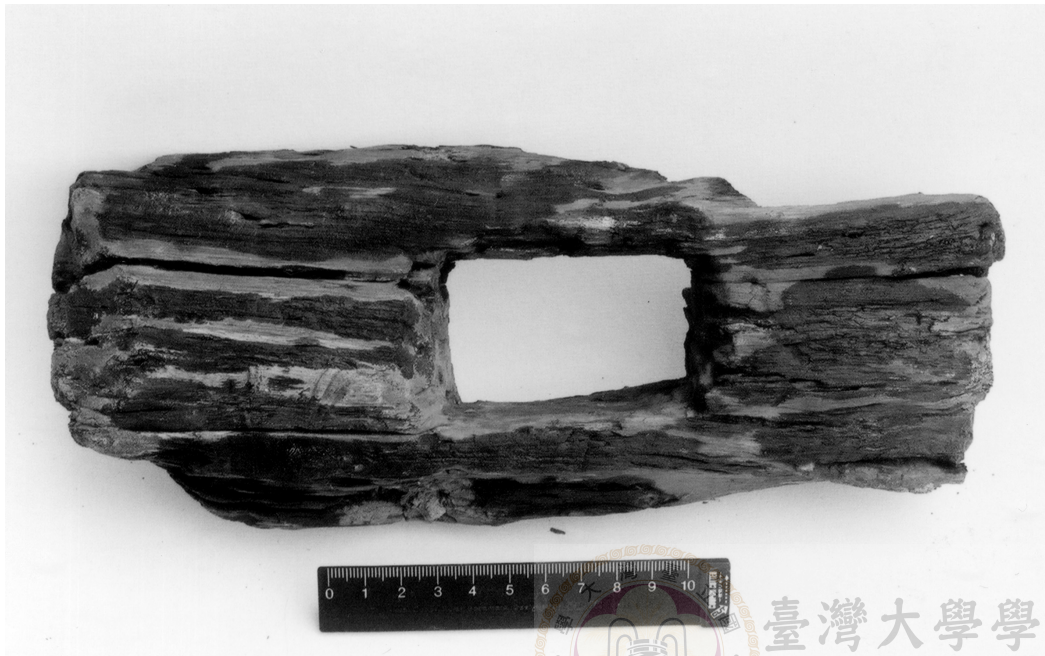


Pl.6 Pillars (No.2,24,17,1)

臺灣大學學術期刊資料庫



Pl.7 Pillars (No.14,21,30,15,16)



Pl.8 Worked wood with square hole

臺灣大學學術期刊資料庫

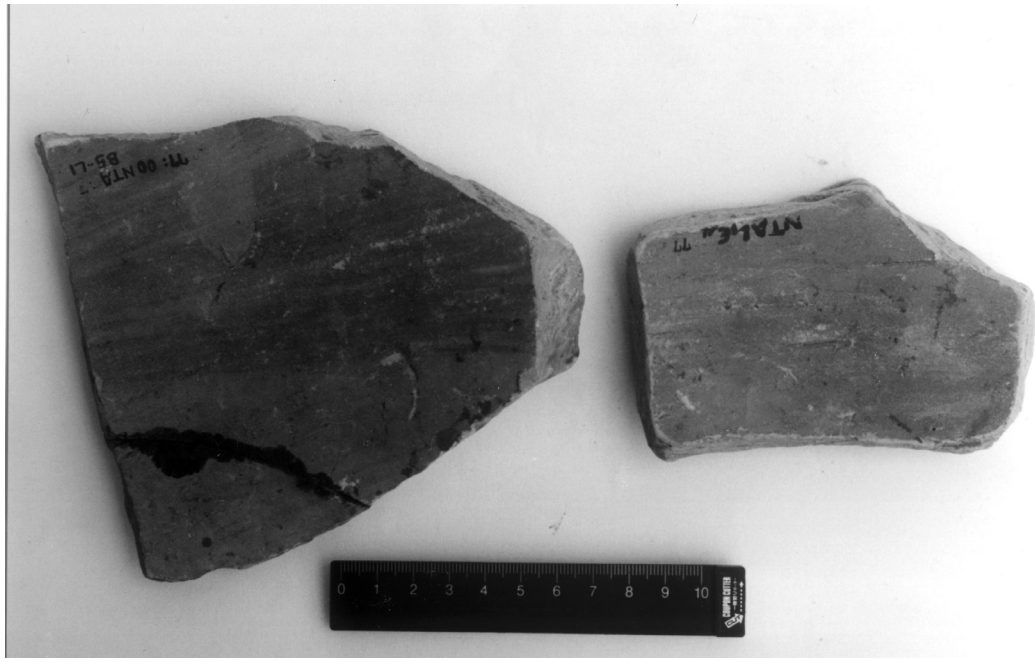


Pl.9 Hard brick like stoneware



Pl.10 NTA-77 (outer surface)

臺灣大學學術期刊資料庫



Pl.11 NTA-77 (inner surface)



Pl.12 NTA-136 (outer bottom)

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Pl.13 Glazed ceramic jar (NTA-73)



Pl.14 Painted or slipped pottery (NTA-81)

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Pl.15 Red slipped pottery (NTA-36)



Pl.16 Outer surface of NTA-36

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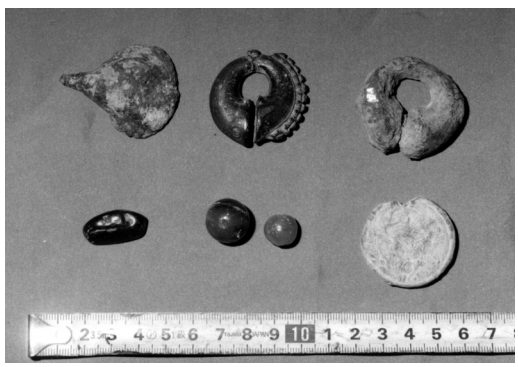
Pl.17 Lamp saucer (NTA-295)



Pl.18 Lamp stand (NTA-326)

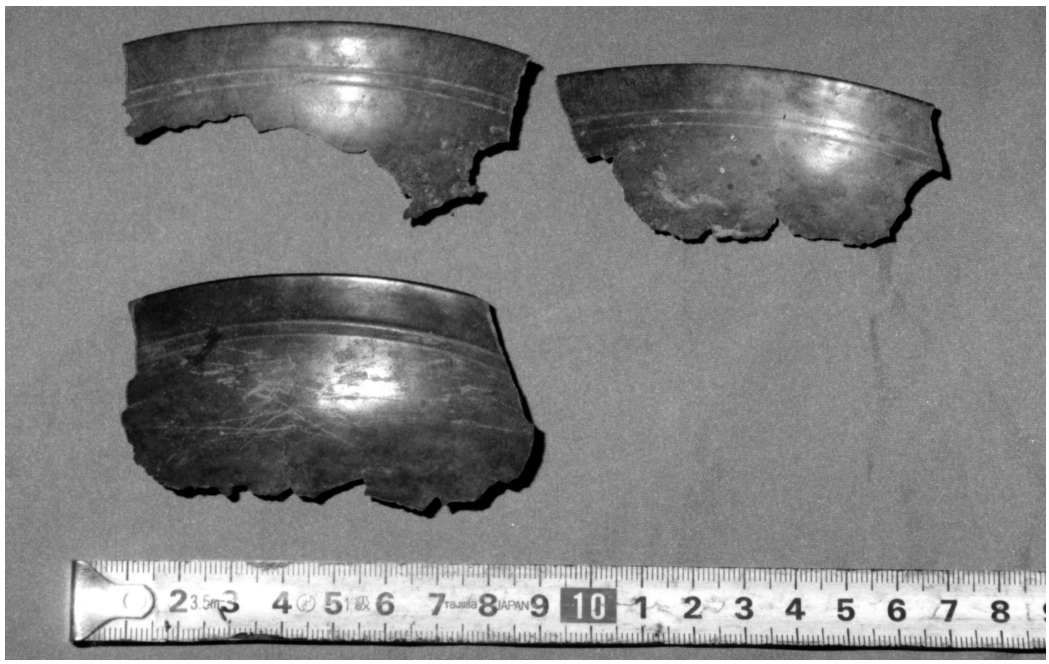


Pl.19 Grinding stone (NTA-309)



Pl.20 Ingot, earring and bead artifacts

臺灣大學學術期刊資料庫



Pl.21 High tin bronze vessel (Local Collection)



Pl.22 Lamp stand (Phu Dien, Thua Thien Hue)

臺灣大學學術期刊資料庫