

Conclusion

The ceramic collection of the Brunei Museum is used for exhibition and for comparative study in research. The trade ceramics had a special role in the customs, ceremonies, domestic uses, burials, and also in the rites for worshipping the souls of family ancestors in Brunei Darussalam. ■

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Indonesian Earthenware Techno-Functional and Analogical Analysis

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The earthenware tradition is one of the oldest known to mankind and it has been produced for 10,000 years, since the beginning of agriculture in inland areas and the beginning of fishing in coastal areas (Gardner 1978: 142; Weinhold 1983: 12). Early societies needed earthenware vessels for the storage of food and liquids. Subsequently, earthenware has become an important utility in daily life. It is relatively impermeous to water and fire, so it can

be used as containers for storage and cooking.

Research has revealed that earthenware was important socially, economically, and religiously in some societies (Shepard 1965: 348-52). Socially, earthenware was used for water containers and for storage of food such as vegetables and meat. Additionally, it served as cooking vessels for food such as rice, corn, or wheat and as containers for salting and curing fish.

Earthenware also served an equally important religious function and was used for ceremonies and rituals that expressed the beliefs of the people, who had a high regard for earthenware and the properties of fired clay. In the prehistoric period, earthenware jars were often used as containers to contain the provisions of the deceased on their journey to the afterlife. They were also used as containers for bones and known universally as 'jar burials.'

The technology for producing earthenware is relatively simple. The materials to make earthenware are found in nature and are universal. The main material is clay which can be found everywhere, is easy to shape, and when exposed to heat it hardens and becomes earthenware.

The basic principles of making earthenware have hardly changed since man first made it in the Neolithic period, thousands of years ago, up to the present. The method of producing earthenware is different from other materials such as wood, bamboo, stone, and other unmouldable materials. The basic process is to form clay into a desired shape, dry it in the sun, and then fire it to render it permanent. Additional clay can be added even after it is shaped, a characteristic that is often considered an additive process.

Earthenware Classification

Earthenware in Indonesia is classified into two groups: vessels and non-vessels. The known vessel forms are: pots, bowls, plates, *kendi*, and jars (*martavan*). The non-vessel forms include terracotta statues, sewage fixtures, wall lining for wells, net weights, beads, clay tablets, etc.

Amongst the vessels, the pot is the most dominant form. The sizes can be classified into three groups: small, medium, and large. A

further classification can be made by the profile of the pot which is either round or carinated (with a sharp angle). A pot with a round body has a bulbous or ovoid form with a deep hollow interior space, and a closed and narrow mouth. The height of the form is greater than its diameter, and the diameter of the rim is smaller than that of the body. The average dimensions of a small pot are: height = 10-15 cm; diameter at the widest point of the body = 8-12 cm; and the diameter of the mouth = 5-10 cm. A medium-sized pot averages: height = 16-21 cm; diameter = 13-18 cm; and the diameter of the mouth = 6-11 cm. The dimensions of a large pot are: height = 22-27 cm; diameter = 19-24 cm; and the diameter of the mouth = 12-17 cm. A carinated pot usually has a bulbous body with a pronounced sharp edge at the shoulder. Like a round pot, it is deep with a closed and narrow mouth. The average measurements for a carinated pot are the same as for a round pot.

Besides pots, bowls also occur in both forms: round and carinated. The diameter of the mouth is greater than that of the body. A bowl usually has no neck. A round bowl has a short body and a wide mouth. A typical design on a bowl is in the shape of a semi-circle. The mouth is open and wide. The average dimensions are: height = 5-10 cm; diameter = 10-15 cm;

and the diameter of the mouth = 10-20 cm. Another type of carinated bowl has a short body and a pronounced sharp edge at the shoulder. The diameter of the mouth may be either smaller or larger than that of the body. It has a moderate capacity with the average dimensions of: height = 10-15 cm; the diameter of the carinated shoulder = 15-35 cm; the diameter of the mouth = 15-35 cm. A larger bowl is often called a basin (*pasu*) and a bowl with a foot is called in incense burner.

Special containers include the *kendi*, jars, and plates. A *kendi* is a container with a round or carinated body, a tall neck, a small, narrow mouth, and usually a flat or rounded base. It may or may not have a spout. The average dimensions of a *kendi* are: height = 15-30 cm; diameter = 13-28 cm; diameter of the mouth and neck = 2-6 cm; and the height of the neck = 5-20 cm. *Martavan* jars are the largest of the earthenware forms. A typical jar has a round body with a flat or bulbous base. The body is tall and wide with a large hollow space on the interior and a closed or narrow mouth. The walls are thick and conform in proportion to the size of the body. The average dimensions are: height = 40-100 cm; diameter = 35-95 cm; and the diameter of the rim and mouth = 20-50 cm; and the thickness of the walls = 0.8-1.5 cm. Plates have a

short but wide body with a wide, open mouth. The body is hardly noticeable because it merges with the edge and the flat or slightly round base. The average dimensions of a plate are: height = 1-2 cm; diameter of the body = 10-35 cm; and the diameter of the mouth = 11-36 cm.

Uses of Earthenware

The various earthenware vessels have different functions. The two main ones are: for daily life and utilitarian purposes, and for religious ceremonies. In daily life, earthenware vessels serve mainly as containers for storage of food and liquids and for cooking. Those used in association with the religious and animistic beliefs of the people who made them have probably existed since the prehistoric period.

The pot, bowl, *kendi*, plate and *tempayan* forms are often used for daily needs such as cooking, eating, and drinking, or as containers for serving food and water, or to collect and store water. The main use of a pot is for cooking or serving food. Because of the deep, hollow interior space and the narrow opening, it is a practical vessel for cooking food, especially for fish and those dishes that are mixed with water such as rice (Freeman 1957: 172; Solheim 1956: 255-57). Other vessels, such as plates, bowls, and *kendi*, are

used for serving, eating, or drinking food and liquids. A bowl with a footed ring from the Kalabay earthenware complex in the Philippines was most likely used for eating (Solheim 1965: 270). *Kendi*, both with a spout and a long neck without a spout, are typical vessels used for drinking water as the liquid can easily be poured directly into the mouth (Alman 1961: 600; Solheim 1965: 258).

The *tempayan* jar has a relatively large storage capacity. It is usually used as a container for storing rice or water, but it is also used for burial purposes, such as a container for the ashes of the human corpse after cremation (Bray & Trump 1976: 245) or to hold the bones of the deceased, or even the entire human corpse (Bray & Trump 1976: 117). A *tempayan* jar may also be used to store locally produced food products or drinks intended for trading or selling or for long-time storage (Solheim 1965: 255-6).

A stem cup is an example of an earthenware bowl form used for religious purposes. It usually functions as an incense burner, such as those found in the Wessex culture in England, dating to 1400 bc (Bray and Trump 1976: 112). Bowls are also used in a religious context as burial containers for food at rituals for the deceased. Evidence of this use has been found

in graves in Britain and Ireland, dating from the bronze period (c. 1600-1300 bc) (Bray and Trump 1976: 89).

The use of earthenware in burial rituals has been known in South-East Asia for at least 2,000 years. An example is the earthenware culture of Kalanay in the Philippines, which is believed to date from 750 bc to ad 4th century (Solheim 1965: 271). Other examples of earthenware in burial rituals are found in Indonesia, such as in Anyer, Melolo, Gilimanuk, Plawangan, Pasir Angin, Cipari, etc., which date from approximately 1500 bc to ad 400.

Development of the Earthenware Tradition

Earthenware has been known in Indonesia since the Neolithic period. Evidence has been found at sites such as Kendent Lembu (East Java), Kelapa Dua (DKI), Serpong (West Java). Besides earthenware of the Neolithic period, traditions from the Metal age in Indonesia have been found in Pejaten, Pasir Angin, Buni, Plawangan, Gilimanuk, Melolo, and other places. These traditions which continue today developed after the prehistoric period and drew on Hindu, Buddhist, and Islamic influences.

It is generally accepted that stone and wood served as the prototypes for the type and shape

of the earliest earthenware vessels. Later, the same forms were made from bamboo. Because of the materials that earthenware was copied from the early forms were simple, such as a vessel with a flat base and vertical walls, and round bowls. The surface was coarse and generally undecorated. It was fired at a low temperature. These characteristics of early earthenware can be seen in the Hemudu culture of Yuyao (China), dating some 7,000 years ago (Zhiyan & Wen 1984: 8-10), and in ancient American Indian cultures in the south-eastern region of America, dating approximately from 1000 to 500 bc (Griffin 1965: 105-6).

Later, the shape improved, the interior space of vessels such as pots and tempayan jars was wider and deeper. The technique of building a vessel with coils was discovered and reached a high level of development. Although a portion of the surface of a pot remained plain, the other part was decorated with a rope and combing pattern. Most of these later wares were made for daily use, such as cooking. Hardly any pieces were found in association with burials. Evidence of these characteristics of the later earthenwares was found at Guangdong, Taiwan, Fujian, Jiangsu, Zhejiang, Hunan, and Hubei of the Neolithic period in China (Zhiyan & Wen 1984: 14-5). Additional finds provide

evidence of the possibility that this type of earthenware was introduced in North America through Siberia sometime after 1500 bc (Griffin 1965: 106-7).

In Indonesia this type of earthenware was excavated in various Neolithic sites, such as Kendeng Lembu (East Java), Kepala Dua (DKI Jaya), and in Kalumpang (South Sulawesi). Earthenware from Kendeng Lembu was simple in form, such as a bulbous jar, and the surface was generally undecorated. In contrast, the finds from Kepala Dua included both round and carinated pots, bowls, and incense burners. These forms were also undecorated and of poor quality, which suggests that simple methods of production were used. Finds at Kalumpang were similar to those from Kepala Dua.

During the Metal age, various types of earthenware were developed. The main forms were pots, bowls, and tempayan jars. Some wares were plain and undecorated but others had a fine surface with various decorative motifs. Both types were used as utensils for cooking and also as burial wares. This type of earthenware was developed around 1600 bc to ad 1000. In North America this type of ware was found from the Hopewellian culture, dating from approximately 400 bc to ad 400 (Griffin 1965: 107-9). In China the same type

developed during the Shang and Zhou dynasties, after the 16th century bc (Zhiyan & Wen 1984: 16-8). In South-East Asia it was found during the Sa-huynh-Kalanay and Bau-Malayu cultures, dating from 750 bc to ad 1000 (Solheim 1967: 15-22; Soejono 1975: 247). During Indonesia's metal age, earthenware was found in burial sites such as Plawangan (Central Java), Gilimanuk in Bali, Anyer, Melolo, Cipari, and others dating between 1500 bc and ad 400. The forms found included plates, bowls, pots, *kendi* (with and without a spout), and *tempayan* jars.

At the time when writing was developed by man, earthenware continued to be produced and reached even higher levels of development, both in technology and function. Additional new forms that appeared in this period included stoves, palm oil lamps (*cuplak*), and non-vessels such as terracotta statues, walls lining wells, bricks, and other forms used for building. The quality also improved and produced wares with a fine, smooth surface, symmetrical form, mostly turned on a wheel, and some pieces were even glazed. These characteristics continued until the 14th century. In Indonesia this type of ware was developed during the period of Hindu and Buddhist influence, from about ad 400 to 1600, and has been found

at sites of the Majapahit Kingdom in Trowulan, Mojokerto (East Java), and other classical archaeological sites.

When Islamic influence penetrated Indonesia, around the 15th century, the earthenware tradition continued, both in production and use, and developed even further. Types of the same quality from the Hindu and Buddhist period were still produced but additional forms, such as plates and trays, appeared. These have been found at sites where the Islamic influence was strong and include old Banten, Serang (West Java), and others.

The tradition of producing and using earthenware continues today in several places in the world, especially in Asia and specifically in Indonesia. In some areas, earthenware has been replaced with vessels made of other materials, such as metal or plastic. In other areas, however, the original earthenware tradition is retained. Production techniques and products such as plates, bowls, cooking vessels, *kendi*, *tempayan* jars, and braziers or stoves, are still made today. Additional forms of the modern period include flowerpots, ashtrays, and decorative ornaments. The methods used to make the modern earthenwares include hand modelling, the paddle and anvil, coiling, and the potter's wheel

(both slow and fast turning). The quality of the products varies and the production employs techniques used in the Neolithic and Metalic periods as well as more advanced techniques used in the classical and Islamic periods. Present-day earthenware production centres in Indonesia are scattered throughout the country and include the villages of Balong Mulyo and Narukan (region of Rembang, Central Java), Mayong (region of Jepara, Central Java), Sadang Gentong (region of Garut, West Java), Plered (region of Purwakarta, West Java, Galo Gandang (region of Tanahdatar, West Sumatra), Pulutan (region of Minahasa, North Sulawesi), Ouw (Central Maluku), Blahbatua (region of Gianyar, Bali), and many other sites. ■

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