

Myanmar Historic Earthenware*

Earthenware in various forms, both unglazed and glazed has played a very important part in the lives of Myanmar people from the prehistoric period to historic and modern times. Earthenware has been used for storing food and drink, for ceremonial and religious purposes and also for decorating houses, palaces, and shrines. From birth to death, earthenware has a significant role in Myanmar, and in many cases earthenware have been buried in the grave supposedly to accompany the dead to other existences.

For the historian pottery and ceramics are important relics useful for interpreting the lives and times of people of the past.

Scope

Our paper focuses on Myanmar earthenware in historic times. We are, therefore, limiting the scope of our paper to cover the history of earthenware found in Myanmar from the first and second centuries A D to the closing years of the nineteenth century when the Myanmar Kingdom was annexed by the British.

We will summarize Myanmar earthenware found in perhistoric times, especially at the Padah-lin caves and a site near Taung-tha-man Inn (Lake) in Amarapura. We will also mention briefly pottery found at a Bronze Age Site recently discovered in central Myanmar, in January 1998.

In the main part of our paper we highlight recent discoveries, especially of ceramic kilns in Lagunbyee, Bago Myaungmya, and Bagan. Chemical analyses of the glazes, and the techniques used for making earthenware will also be discussed.

Earthenware continues to be used right up to the present, especially in the villages of Myanmar and even in the cities, though their

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role has decreased with the use of aluminium, plastics and other more durable materials.

Our paper focusses mainly on earthenware made by the Bama (Burmese) and Mon, with some references to those made by the Shan and Rakhine ethnic groups. It does not cover earthenware of other various ethnic tribes who continue to use earthenware to the present day.

Prehistoric Earthenware

We are giving only a short summary of prehistoric earthenware in Myanmar as it is outside the scope of our paper.

Earthenware sherds of cord-marked pottery were discovered at such Stone Age sites as Mong Tawa Gu caves on the Shan Plateau, as early as 1937-1938¹ by the American South-East Asiatic Expedition for Early Man led by Dr. Hellmut de Terra and Prof. Hallam L. Movius. But the expedition did not conduct any excavation in these caves².

In 1960 a Myanmar geologist discovered prehistoric paintings in one of the caves of Padah-lin in the area between Nyaunggyat and Yebok villages in the Ywa-ngan (or Yengan) Township in the Taunggyi District of the Southern Shan State.

Systematic exploration and excavation in these caves was undertaken only in January 1969.

Fragments of earthenware pottery were found together with stone implements. U Aung Thaw, the late Director-General of Archaeology and Member of the Myanmar Historical Commission, who led the excavation team pointed out the occurrence of potsherds which he said "characterizes the neolithic pattern of culture"³. U Aung Thaw also pointed out that fragments of Neolithic pottery occur in certain caves of the Shan State region, for example in those near Mong Pawn, Nawngwe and Tongta⁴.

1. Htan Hlaing. *Myanma O*, Yangon : Sarpay Beikman, 1993. p.30.

2. De Terra, H. and H.L. Movius, Jr. "Research on early man in Burma," *Transactions of the American Philosophical Society*, vol. 32, pt. 3, (1943) p. 265-393.

3. Aung Thaw, U. "The Neolithic Culture of the Padah-lin Caves," *JBRS*, vol.52, pt. 1 (June 1969) p. 13.

4. *Ibid.* p. 16.

Eminent Myanmar historian and senior member of the Myanmar Historical Commission, Dr. Than Tun, wrote that the stone implements and pottery sherds found in the Padah-lin caves are earlier than Neolithic and that they are from the late Palaeolithic Age¹. His theory is supported by other historians². Radio carbon dating also confirms this theory as it defines the Padah-lin culture as being over 11,000 years old³. We can therefore say that earthenware had been in use in Myanmar from the late Palaeolithic Era.

Earthenware from the Neolithic Age was also discovered by a University of Yangon lecturer in 1973 at Theingon near In-te village in Taungtha Township, Myingyan District.⁴ Earthenware pots with human bone fragments and ashes and also beads were found buried in Theingon (a place name which means Hill of the Sima, Buddhist Ordination Hall). No excavation has been undertaken in this area.

The most extensive find of earthenware from the late Neolithic in Myanmar is from the west bank of lake Taung-tha-man, in the old capital of Amarapura, south of Mandalay. The area where the finds were made is located between the famous Maha Gander-yon monastery and the Aung-gyin Shitpar monastery. The Department of Archaeology excavated there twice in February 1971 and January 1972, but no excavation report has been published. The finds were reported by Dr. Than Tun in 1973, then Professor of History in Mandalay, in a research paper entitled "Pottery in Burma" which is not only the earliest systematic survey of Myanmar

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1. Than Tun, Dr. "Myanmar akyo thamaing" [The Prehistory of Myanmar], *Tetkatho Pyinnya Padetha (Waikza) Sarsaung*, vol. 8, pt. 4 (Dec. 1973) p. 104.
 2. Kyaw, U "Padah-lin gu hma twe ya thaw o-kwe hnint kyauk letnet mya", *Tetkatho Pyinnya Padetha Sarsaung*, vol. 13, pt. 4 (July 1979) p. 43-50.
 3. Than Tun, Dr. "Myanmar akyo thamaing" ... (1973). p. 108.
 4. Sein Tun, U "Thein-gon detha kyauk-khit-hnaung yin-kye-hmu [the Neolithic Culture of Thein-gon area]," *Tetkatho Pyinnya Padetha*, vol. 13, pt. 4 (July 1979) p. 51-61.
Also Htan Hlaing. *Myanmar O...* 1993. p. 32-33 (p.32 is wrongly numbered 23).

earthenware but also the best historical account in English so far by a Myanmar researcher¹.

There was probably a big Neolithic village on this flat, well-watered plain near the Ayeyawady River. Human skeletons were found buried with pots which were usually placed around, or between the legs of the body. It was probably a burial site dating back to about 460 B. C.

Dr. Than Tun classifies the earthenware pots into nine categories, and states that most were turned out by using the potters' wheel². There were also ceramics and terracotta and stone beads. Sylvia Fraser-Lu has given a good description of the pottery found in Taung-tha-man.

"Much of the pottery recovered was plain and undecorated, being formed by coiling and paddling a fine-grained clay tempered with river sand which had turned a buff colour on firing. Forms comprise a variety of bowls with inverted, everted, and perforated rims and rounded, ringed, and tripod bases. A few have perforated lugs on the body while others are set on flaring foot-rims. Such bowls probably served as oil-lamps and receptacles for food, water and flower for both ritual and domestic purposes. An elegant "Champagne" type of pedestal bowl made in two parts has also been found in association with more affluent burials. Its delicacy suggests that use was in all probability confined to ritual.³"

Until early 1998 there was no concrete evidence that a Bronze Age culture also flourished in Myanmar. On 30th January 1998, the Archaeology Department Branch in Mandalay with the help of an army unit started excavating a site of an ancient cemetery in Nyaunggan Village in Budalin Township, Sagaing Division which had been discovered earlier by some members of the Myanmar Historical Commission, namely U Maung Maung Tin and U Win Maung. On 19th Feb. 1998 the University of Yangon, Department of Archaeology scholars and staff joined the

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1. . Than Tun, Dr. "Pottery in Burma," *Mandalay Arts and Science University Annual* (1972-73) p. 199-231. Reprinted in *Spectrum*. There is now an expanded new version entitled "Pottery in Myanmar: a Historical Survey", by Than Tun in *Ceramic Traditions in Myanmar*. Yangon: Seameo Centre for History and Tradition, 2003. p. 1-22
 2. Than Tun, Dr. "Pottery in Burma," ... (1973) p.202.
 3. Fraser-Lu, Sylvia. *Burmese crafts past and present*. Kuala Lumpur: Oxford Univ. Press, 1994. p. 187. Also Janice Stargardt. *The Ancient Pyu of Burma* . Vol.1 1991. p. 15, 21-22.

excavating team. They systematically dug up 15 square feet sections of a total area 400 feet by 200 feet (100 x 60 metres). They found many Bronze Age artifacts including some earthenware objects, *viz.* earthen pipes, a number of earthenware beads, 23 pieces of broken earthenware pots, three earthen bowl oil lamps. In the ancient cemetery many human skeletons, some buried together with earthen pots and bronze axes, spearheads, etc. were found.¹ The excavation reports have yet to appear, but we now know that earthenware continued to flourish during the late Bronze Age in Myanmar.

Historic Period

Pyu Earthenware

The Pyu civilization flourished in Myanmar from the early years of the first century AD to about the ninth century AD. Bagan itself was reputedly a Pyu town before it became the capital of a unified Myanmar in the eleventh century. The Pyu were still in Bagan as late as AD 1113 as the Pyu script formed one of the four faces in four languages (Mon, Pali, Myanmar and Pyu) of the inscription set up by Prince Rajakumar, the son of King Kyanzittha in dedicating the Gubyaukgyi temple at Myinkaba in Bagan. The Pyu later merged with the Myanmar and died out as a separate ethnic identity.

Earthenware played an important role in Pyu culture. It was used for:

- (1) Storing food and water
- (2) Ceremonial, ritualistic and religious purposes
- (3) Decoration
- (4) Toys for children
- (5) Accompanying the dead, and to store cremated bones and ashes.

Short accounts of earthenware found in the three main Pyu sites is

1. Thein Htut .”Ancient finds prove Myanmar’s Bronze Age Civilization”, *The New Light of Myanmar* (daily newspaper)Sunday Supplement,(26 Apr. 1998) p.C. See also *Proceedings of the Work-shop on Bronze Age Culture in Myanmar* (Yangon, 7 January 1999). Yangon : Universities Historical Research Centre, 1999.

given below.

1. Beikthano

Beikthano (first to fifth century AD. 12 miles west of Taungdwingyi in Magway Division). U Aung Thaw, who led the archaeological team when Beikthano was first excavated during the years 1959-1963, reports that a considerable number of the inhabitants were engaged in pottery-making. Many burial urns, domestic pottery including large storage vessels, shallow bowls, lamps or cups, cooking vessels, miniature pots, bottle necks, spouts and spouted pots and sherds, many with decorations were found. U Aung Thaw gave a full list together with illustrations in the excavation report.¹ This list of pottery found is the first one available for an ancient site in Myanmar.

U Aung Thaw points out that the pottery is generally well-baked except in a few instances when the pot-makers had imperfect control of firing. About 90% of jars, bowls and urns were of the common red ware of medium fabric and texture, whose surfaces were rarely covered with slip or wash. Other bowls, sprinter vessels and miniature pots were made of finely evigated clay and finished with red slip.² During the excavations 708 beads were found, out of which 669 are terracotta. One site (KKG 17) alone yielded 588 terracotta beads, so it was probably a bead-making workshop.³

Among the terracotta objects were two very interesting finds. One was a circular seal made of unbaked clay bearing two impressions of a seal with letters in Brahmi script of the second century AD. The reading of the letters was "Samgha siri", a title in Prakrit of either a religious personage or a donor of the building. The other interesting object found was a clay figurine of a feminine head and upper body, probably a *kinnari*, mythical half-human and half-bird figure.⁴

1. Aung Thaw, U. *Report on Excavations at Beikthano*. Rangoon: Ministry of Union Culture, 1968. p. 28-48, 107-147. (total 220p. 65 plates)

2. Ibid. p. 28.

3. Ibid. p. 49.

4. Ibid. p. 51.

Many bricks, some with markings were found. Stucco decorative fragments of a later period, probably from the eleventh century were also unearthed during the excavations.¹

In addition to Dr. Than Tun research on Beikthano pottery² archaeologists and scholars from UK and USA have made further studies of the Beikthano pottery/ceramics, using and the praising the detailed listing and comprehensive pottery drawings made by U Aung Thaw and his team.³ Janice Stargardt of Cambridge, U.K. has made detailed typological study of these pottery and interpreted the function and chronological associations of the different ceramic types, their significant distribution patterns and their external affinities. Stargardt has classified the pottery of Beikthano into

- (1) Funerary ceramics, the burial urns (p. 229-250)
- (2) Secular and votive pottery (p.250-254)

She has further divided the pottery into

- (i) Locally made ceramics (p. 254-264) and
- (ii) Imported votive ceramics (p. 264-278)
(Romano-Indian earthenwares).

2. Hanlin

This fourth to ninth century AD site is eleven miles (eighteen km) southeast of Shwebo in Upper Myanmar. This Pyu site, contemporary with Beikthano, was superficially explored in 1904-1905 and a few excavations were made in 1929-1930.⁴ But it was only in the period 1962 to 1967 that systematic excavations were carried out at this ancient site.⁵ U Myint Aung, Senior Archaeologist at the time wrote a detailed research article reporting the excavations in 1965-1966 which he directed. This

1. Ibid. p. 56.

2. Than Tun, Dr. "Pottery in Burma,"... (1973). p205-208.

3. Stargardt, Janice. *The Ancient Pyu of Burma*. Vol. One. Early Pyu cities in a man-made landscape. Cambridge: PACSEA and Singapore: ISEAS, 1990. p.229.

4. Aung Thaw, U. "Hanlin" *in* *Historical sites in Burma*. Yangon: Ministry of Union Culture, 1972. p. 11-15, This ref. p.11.

5. Ibid. p. 12.

article contains a study of the earthenware found at Hanlin: 15,000 sherds classified into ten categories. No glazed ware was found¹.

Dr. Than Tun groups the Hanlin pottery into five categories: (1) funeral urns, (2) storage jars, (3) cooking pots, (4) drinking cups, and (5) lamps². Some of the funeral urns with exquisite designs and shapes were probably for the bones and ashes of the dignitaries and rich people. An interesting urn cover shaped like a late Myanmar stupa was also found³. One hundred and ninety-five earthenware beads were recovered. Another interesting find was a broken front part of an earthenware toy cow, complete with a decorated neck band (collar). We, therefore, know that the Pyu used earthenware not only for the household and the kitchen, but also as decoration, toys and funeral urns.

3. Thayekhittaya (Srikshetra)

This third to tenth century AD site is four miles(6.5 km) to the southeast of Pyay (Prome) and about 180 miles(288 km) northwest of Yangon. This is the largest and most well-known Pyu site in Myanmar. There are still some remnants of a high massive wall of large baked bricks standing to a height of 15 feet (4.5m) and 8.5 miles (13 km) in circumference.⁴ This ancient Pyu site, a few hours drive from Yangon, has seen some of the most extensive diggings from 1907 and from about 1964 to the present but since it covers such an extensive area, further excavations are still needed.

Pottery whose shapes and designs were similar, but not superior to those of Beikthano and Hanlin were found in Thayekhittaya. In this site the distinctive feature is the finding of large stone and bronze funeral urns, apart from the earthenware urns as in the previous two sites. This is also the first time that inscriptions have been found on the better quality

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1. Myint Aung, U. "Hanlin Myo-haung [Hanlin old town]," *Tetkatho Pyinnya Padetha Sarsaung*, v. 3, pt. 3 (July 1968) p.157-197. Earthenware pottery beads, etc. on p. 179-184 with many illus. Also Than Tun, Dr. "Pottery in Burma" ... (1973) p. 209.
 2. Than Tun., Dr. "Pottery in Burma" ... (1973) p. 209.
 3. Myint Aung, U. "Hanlin Myo-haung". . . (1968) p. 181; fig. 10.
 4. Aung Thaw, U. *Historical Sites in Burma* . . . 1972. p.17.

urns.¹ Dr.Than Tun assumes that the potter's art reached the zenith of its excellence in the fourth century AD at Beikthano and that there were no improvements in technique from then to the fall of Thayekhittaya in the tenth century AD².

Another distinguishing development was the making of clay votive tablets and terracotta plaques which had inscriptions at the back, usually extracts from the Buddhist scriptures³.

Although Prof.G.H.Luce⁴ in his translation of the old Chinese chronicle entitled *Manchu* described the walls of Thayekhittaya as being covered by a fine glaze, this has now been criticized as a wrong translation of the original Chinese text. U Yi Sein (Mr.Chan Yi Sein), a Chinese language expert and a former member of the Myanmar Historical Commission and Prof. G. H. Luce's collaborator in translating the *Manchu* chronicle, has written that the Chinese word "Ch'ou" does not mean "glazed tile" or "glazed brick", but only "brick"⁵. This is supported by the fact that no glazed ware or potsherds have been found at Thayekhittaya up to now⁶, and the remnants of the huge walls do not have any glazed brick or tile.

Glazed Ceramics

The Myanmar glazed ceramics tradition could go as far back as the seventh century AD. The name *Kalathapura* meaning "pot-making region" was found in more than four places of a fragmentary inscription excavated at Thayekhittaya (Srikshestra). Many scholars think that this Kalathapura was a town situated on the delta of either the Ayeyawady or the Thanlwin (Salween) rivers. In recent years we have found a sizeable number of ancient glazed ceramic kilns in the delta region of the Ayeyawady in the Bago (Pegu) area, namely at Lagunbyee, Shaukpinsho,

1. Than Tun, Dr. "Pottery in Burma."....(1973).p.209.

2. Ibid .p. 210.

3. Sein Maung U,U. "Thayekhittaya myo haung (Old town of Thayekhittaya)," *Tetkatho Pyinnya Padetha Sarsaung*, vol.3,pt.1(Jan.1968)p.180.

4. Luce, Gordon.H. "Ancient Pyu", *JBR* vol. 27, pt. 3, (Dec. 1937). p.250.

5. Chan Yi Sein , " Kharit nhit 9 yazu Pyu Naing-gan i yeibuya achay anay (The general condition of the Pyu nation in Christian Era 9th century)", *Thamaing Jarnai*,vol.5, pt.1(1988)p.115.

6. Than Tun ,Dr. "Pottery in Burma." . . . (1973). p.209.

Gaungbosh, Ingani, Matapitu and Inhla lakes area, Baganpho village, Wanetkon village, Thazinpan village, etc. Ancient kilns were also found at Myaungmya (Old Myanmar city, Konthaya village, Kanyin Creek area, etc.) and around Twantay (Mulaman Creek area).

Although glazed ceramics have not been found at Srikshetra, the largest Pyu site in Myanmar, ancient glazed bricks, (plaques) and decorated tiles can be seen on a number of *ceti* (solid stupas) and *guphaya* (hollow temples) of Bagan, the eleventh to fourteenth century capital of Myanmar. As solid proof that glazed ware existed before the eleventh century, the Nga-Kwe-nadaung pagoda at Bagan, which is believed to date from the eighth or ninth century, is laid with various types and shapes of glazed bricks. This pagoda is shaped like a Pyu stupa and though only about half of its original structure remains, the glazed bricks can clearly be seen today. This pagoda is probably the largest, the oldest and the only pagoda completely laid with glazed bricks in the world.

There are altogether 26 monuments in Bagan where various types of glazed bricks, tiles and plaques can be seen. Of these the oldest is the Nga-kwe-nadaung; from the eleventh century is the Shwe-zigon Ceti, Ananda temple, Shwe-san-daw and Naga-yon Ceti; from the 12th century Sint* Ceti, Sulamani, Dhammayazaka, Sint-kwet Ceti, Shwe-gu-gyi, Gayocho, Gawdaw-palin, Hnahtat Ceti, Somingyi monastery, Man-aung, Sinpyagu, Guphaya (west of Bule-the) and Taung-ta-wet; from the thirteenth century is Hti-lo-min-lo, Mingala Ceti and the Tayoke-pyay pagoda; and from the seventeenth century after the collapse of the Bagan Kingdom is the Thayet-kyin, Phut Ceti, Hman** (Myinkaba) and another Hman Pagoda at Pwasaw in the Bagan area.

Some scholars in earlier times argued that these glazed bricks and decorative artifacts laid on the Bagan monuments could have been imported. However in 1963 an ancient glazed ceramic kiln was first discovered in Bagan, followed by discoveries of six more ceramic kilns. This proves that the glazed ware were made in the area and not imported.

* *Sint* means glaze in Myanmar, so this pagoda is called the "Glaze Pagoda."

** *Hman* means glass in Myanmar. There are two pagodas called Glass Pagoda in the Bagan area.

The first kiln found in Bagan, i.e. kiln no.1 was discovered by U Kyaw Nyein and Sergio Dello Strologo. It was a vertical up-draft kiln of the bee-hive shape with an internal base diameter of 5 feet (1.5m) and 10 feet. (3m) in height. It was a low-temperature fired kiln and the maximum kiln temperature could probably reach up to 950C to 1050C. Some glazed sherds were found inside the kilns during the excavations, most of which were covered with glazes on both sides ranging from clear transparent to olive green, brown, turquoise and green. Some of these sherds were analysed; the main ingredients were silica and alumina with colouring oxides (copper oxide, tin oxide, iron oxide, manganese oxide and vanadium oxide). There were also fluxes (potassium oxide, sodium oxide and lead oxide). It is generally presumed that this kiln was capable of producing some of the glazed plaques and artifacts found on the pagodas of Bagan.

Other kilns found in Bagan were smaller than kiln no. 1. As these kilns are not large enough to efficiently manufacture the huge quantities of decorative plaques found on Bagan pagodas, Don Hein thinks that there are other kilns in this area¹, possibly larger ones, which are as yet undiscovered. The plaques are all presumed to have been produced locally in the Bagan area so larger kilns will probably be found at a later date. Due to their small size and because there is evidence of glass deposit on top of some of the kilns, Don Hein suggested that these smaller Bagan kilns, other than kiln no. 1, are glass furnaces. If they are glass furnaces there is one possible connection with to the glaze tradition of that period.

Basically glaze is the glass layer laid on the surface of ceramic ware. Glaze is made either by grinding the individual ingredients into powder, or by grinding the frit. Frit is made by grinding finely the raw material (sand or quartz, lead and other oxides); they are then mixed and placed in an unglazed earthen pot which is heated in a kiln for several hours until the mass has melted into a clear glass. The molten glass is then poured into a pit filled with cold water. The quenching broke the molten glass into granules and thus obtained frits. The tradition of making

1. Hein, Don. "Ceramic Production in Myanmar : Further Evidence on Old Traditions ... 1995. p. 185.

frit in a pottery kiln, to be used for glazing is an ancient one¹. Therefore, it is possible that some of the smaller kilns of Bagan could have been used for making frit which was in turn used for producing the glazed artifacts which can be seen on the Bagan pagodas. This hypothesis should be further tested and confirmed by chemical analysis of the glasswaste.

Bago (Pegu)

The first cross-draft kiln of large size was found at Lagunbyee about 20 miles south of Bago. A team of researchers led and organized by U Thaw Kaung visited this site on 23rd May 1987 after receiving reports that ceramic sherds could be seen on the surface of this old circular site which is nearly two miles (3.2 km) in diameter. The research team comprised members of the Myanmar Historical Commission, Universities Historical Research Centre, the Archaeology Dept. the Universities Central Library and the History Dept. of the University of Yangon (Rangoon). U Thaw Kaung was able to take along on the field trip, U Aung Myint, the expert on aerial photography who had identified many ancient historical sites for historians and archaeologists. He had written about ancient sites in this area as interpreted from aerial photographs, though he had never been to Lagunbyee himself. The Director-General of Archaeology was also invited to join the field trip; at the last moment he could not come due to other pressing work, but he sent a Senior Archaeologist with us.

We found many surface finds: sherds of blue, white and green; many terracotta Buddha image plaques at an old pagoda which had collapsed; and a big Martaban jar in one of the monasteries on the site. We found a place which looked like a ceramic kiln. This field trip was reported by U Myat Soe of the Universities Central Library in his article

1. Al-Biruni, Abul Rayhan (AD 1050) remarked that a pottery kiln was used for preparing the frit which was to be used for glazing. *Islamic Technology*. p. 166. See also Laufer, *The Beginnings of Porcelain in China* . . . 1917. Laufer refers to Chinese Records of importation of cakes of frit called “*liu li* “ from Cambodia, Annam and India around 200 to 300 AD. He says that these were ground up to make glaze.

published in a popular Myanmar magazine¹. U Thaw Kaung went back for a second trip in January 1988 with Dr. Myo Than Tyn and Don Hein and identified the ceramic kiln partly covered by a modern boat-shaped Karaweik pagoda².

We had to wait nearly three years for the first excavation, undertaken in February 1990 by the Department of Archaeology in collaboration with a team from the University of Sydney headed by Don Hein and Mike Barbetti³. The kiln was discovered to be a large cross-draft kiln capable of manufacturing high-temperature green glaze.

Along the Lagunbyee creek system at Kainpinsan-sho, Taungthone-lone, Hton-panna Inn-hla, Inn-patee and its environs (such as Shaukpin-sho, Kaungpho-sho, Baganpho village, Wanet-kone village, Thazinpan village, Ingani, Mata petu-inn, Inn-hlya-inn, Kyaikdaypa, etc.) a total over a hundred kiln sites were later discovered. The kilns were similar to those of Lagunbyee in general; large, cross-draft kilns.

In one kiln from Shaukpin-sho two peculiar holes were found; one in the base of the chimney which is rectangular, about 7" x 8" (17.5cm x 20cm) wide tapered towards the inside, and the other about five feet (1.5m) from the chimney, about 2' x 2' (5cm x 5cm) wide. The first hole on the base of the chimney could have been used for draft control and the other hole away from the chimney could have been used for removal of test samples. (See fig.). Since these two holes seem to be part of the original design rather than having been added later, this could represent a new discovery concerning the design of ancient cross-draft kilns of Southeast Asia, depending on the dating of these kilns.

Lagunbyee was an ancient town with two areas enclosed by curved earthen walls. As the use of curved walls is an indication of Pyu culture, the walls imply that Lagunbyee might be a very old Pyu town

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1. Myat Soe, U. "Lagunbyee Myo hlo-hwet chet mya"[The Secrets of Lagunbyee Town], *Moe Wai Magazine*, no. 233 (Oct. 1987) p. 82-86.
 2. Thaw Kaung, "Lagunbyee Old Town and the Discovery of the First Ceramic Kiln", in *Ceramic Traditions in Myanmar*. Yangon: Seameo Regional Centre for History and Tradition, 2003.p.120.
 3. Myanmar . Department of Archaeology. *A Study on Lagunbyee and its Environs* (in Myanmar), by U Aye Ko and others. Yangon : The Dept., 1990. Unpublished.

from two different periods. If we could possibly relate the kilns of Lagunbyee to the period of old Lagunbyee town, the date of the kilns might go as far back as the Pyu period (first to ninth century AD). If this can be proved the ancient city called “Kalathapura” might well have been around this Lagunbyee site.

Another datum which could be used for dating Lagunbyee’s kilns is the Shwegugyi Pagoda built by the Mon King Dhammaceti (1462-1492 AD). In this pagoda complex, about ten miles to the north of Lagunbyee, are many glazed plaques depicting demons and the daughters of Mara; these plaques were placed on the walls of the central temple and the walls surrounding the Ajapala tree. These plaques are generally dated circa AD.1479. As the Lagunbyee kilns which were capable of producing these plaques are very close to the Shwegugyi Pagoda of King Dhammaceti, they could date from about the fifteenth century. However, exact dates can be confirmed only when the results of the scientific dating initiated by Mike Barbetti in 1990 are available.

Myaung Mya

The kiln site is about seven miles (11 km) southwest of Myaung Mya, a town on the Ayeyawady Delta. The site is known as Myo Haung, or the old town of Myaung Mya. Myo Haung lies on the bank of the Peinhne- kone Creek leading to the Pathein (Bassein) River where the ancient port of Pathein once existed.

In early 1989 Dr. Myo Than Tyn identified kilns at this site. Different types of cross-draft kilns are scattered in groups. One group consisting of eleven in-ground kilns is situated northeast of Tattant-Oo Pagoda. These kilns were constructed by cutting large blocks of laterite from the soil. The firing chamber is rectangular in cross-section and the chimney also has rectangular cross-section with a flat rear face. These features are not known elsewhere in Myanmar.

Another group of in-ground cross-draft kilns with chimneys circular in cross-section was found in the Buddhist monastery compound of Myo Haung. They were dug into the slope of the bank of a creek. In Myo Haung village near Man-sa-khwe’s house there is a large cross-draft kiln built of baked bricks, similar in type to that of the excavated

Lagunbyee kiln. About three miles away from Myo Haung are several kilns of in-ground cross-draft type, situated near the bank of Ka-nyin Creek.

Technological and typological differences between each group of kilns at Myaung Mya lead to the assumption that technology evolved in stages, each group belonging to a different period. Hein suggested that the kilns are similar to types found in fourteenth to fifteenth century Thailand. This suggestion was supported by the discovery of a lightly-glazed and heavily-potted jar found at Myo Haung site which bears in Myanmar script a date 724 Myanmar Era equivalent to AD 1362.

Apart from the glazed ceramic sherds of green and white wares, circular platforms and rollers were also found scattered near the kilns (Fig.). These platforms and rollers are believed to have been used as firing supports and were not products manufactured in the kilns as Hein suggested.

Twantay

Twantay (Twante) is a town about 20 miles (32 km) to the southwest of Yangon famous for its ancient earthenware tradition. The name of the old town was Tala or Dala¹. Various terracotta tablets bearing the seal of King Anawrahta (1044-1077 AD), the founder of the Bagan Kingdom, were found during the excavation of the Maung De stupa, a Bagan Period site near Twantay. It was also recorded that traces of kilns were discovered in 1873 at Twantay.

Along the tributary stream of the Mulaman Creek near Twantay and on the banks of the Twantay Canal are layers of ceramic sherds spread all over the ground. Some specimens are shown in (Fig.). Due to the presence of ceramic surface finds and because of its long ceramic tradition, scholars believe that ancient kilns would be found around Twantay if systematic exploration and excavation are carried out.²

1. The present-day town of Dala is opposite Yangon on the southern bank of the Yangon River.

2. This has now been proven true because hundreds of ceramic kiln-sites have been found; some have already been excavated from 1999 onwards..

Mrauk-U

In this ancient capital of Rakhine founded in AD 1430, several religious buildings such as Pharaouk, Koethaung and Laungbwannbrauk pagodas were decorated with glazed wall and floor tiles of either opaque monochrome colours, or with painted designs. There are also glazed tiles made of sandstones similar to that of Bagan. The Mrauk-U Archaeological Museum exhibits some glazed domestic wares and decorated jars.

Recently Don Hein reported that at least six kilns of in-ground cross-draft type similar in shape to the kilns of Lagunbyee were identified near the sloping ground of Shwekra Thein leading to the Waze Chaung (of Aungdatt Creek). Some triangular supports and waster sherds were found on the surface and also in profiles. These kilns (and other similar kilns at Mrauk-U) are believed to have been used for the monuments of Mrauk-U.

Myanmar Glaze Tradition

The contribution of Myanmar in the tradition of Southeast Asian glazed ceramic production has been rather obscure, although there was historical evidence of glazed ceramic artifacts on the pagodas of Bagan and Bago, and also some literary evidence describes ancient storage jars or “Martabans”. Due to finds of green-and- white glazed wares in 1984 from Tak Province near the Thai- Myanmar border, historians of Southeast Asian glazed ceramics started to pay some attention to the glazed ceramic tradition of Myanmar because the finds from Tak were gradually confirmed as originating from Myanmar. Isotopic studies of Tak-finds in comparison with the glazed plaques from Bago in Myanmar suggested that the Tak white-glazed wares were all made in Myanmar.¹ Chemical constituents show that the Tak finds are tin-glazed wares distinctly different from those of Thailand but very similar to that of Myanmar. Myanmar glazed wares are mostly tin-based, and because of this tin tradition, most researchers tend to believe that the glazing technology was introduced into Myanmar (possibly earlier than 9th century

1. Yamasaki, K., Murozumi, M., Shaw, J. C. ,and George, A.R., *J. Siam Soc.* vol. 77, no. 2 (1989) p. 43-48.

A. D) from the Middle East probably through India. Since evidence of tin-glazed ceramic tradition is rare in China, Thailand, Vietnam and Cambodia, it is now suggested that Myanmar glazed ceramic technology was not of Chinese origin as previously believed¹. Other evidence that Myanmar glazed ceramics are not of Chinese origin is that in China phosphates were used for the manufacture of glaze during the Song and Ming Dynasties². However, so far no phosphate compound has been detected in Myanmar glazed wares.

In conclusion, it is necessary to note that much research needs to be done to illuminate Myanmar's historic earthenware tradition. We need to excavate some of the kilns discovered in Myaung Mya and Mrauk-U and also carry out further excavations in the Lagunbyee area.

Research on Myanmar earthenware will illuminate the important role of Myanmar in the history of Southeast Asian earthenware traditions. This will in turn enrich the history of our region and the world.

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