

Lagunbyee Old Town and the Discovery of the First Ceramic Kiln¹

This paper is an attempt to give a brief account of Lagunbyee, an old fortress town southwest of Bago (Pegu) and a personal record of the discovery of the first ceramic kiln there in 1987.

Lagunbyee old town is important for two reasons:

- (1) It was at one time a walled and moated fortress town guarding the capital Hanthawadi (modern Bago or Pegu). As one of the 32 towns surrounding Hanthawadi, the centre of the Mon kingdom in the 12th to 14th centuries AD, Lagunbyee played an important role as a military outpost.
- (2) It was in our time the place where the first ceramic cross-draft kiln was discovered in 1987 (about (16) years ago). We now know that there were at least (85) kilns in (15) sites in the Intagaw area around Lagunbyee indicating that it was once an important ceramic production centre.

The site of the old moated and walled town is located at latitude 17 degrees 10 minutes N, and longitude 96 degrees 20 minutes E, about midway between the Ayeyawady and Sittaung river systems. It is on a large plain about a mile to the northwest of the main Yangon - Bago highway near the 32nd mile post. At the present time the nearest village is Min Lwin Gon about one mile and four furlongs to the south. The name of the town is connected with the Lagunbyee or Lagunbyin creek which forms its northern boundary: the road bridge across this creek is the border between the present Yangon and Bago Districts.

The Lagunbyin creek flows eastwards into the Bago River, which in turn joins Yangon and Hlaing Rivers near Thanlyin and hence flows into the sea at the Gulf of Martaban (the Indian Ocean). In former times, before the building of motorways and railways, the rivers and streams were our connecting arteries, carrying passengers and goods on boats and ships from town to town and even to places along the Gulf of Martaban.

¹ . First published in *Ceramic Traditions in Myanmar*. Yangon: Seameo Regional Centre for History and Tradition, 2003.

The *Sittan*, revenue inquest made during the reign of King Bodawpaya (1782-1819) in 1802 has the following record for Lagunbyee at that time known as Lagun- byin Myo:

“On 10 waxing Taw-thalin of the year 1164 (6 September 1802), Nga Talut, *thu-gyì* of Lagùn-byìn *Myó*, born 6, age 70, being examined, stated:

The tract of my charge of Lagùn-byìn *Myó* is to the east bordering the land of Maw-Lon *Myó* along the course of the Than- thá- nge Stream. To the south-east bordering the land of Zwè-bon *Myó* on one side of the Pegu River as far as the mouth of the Lagùn-byìn Channel. To the south bordering the land of Ma-U *Myó* as far as the Ayein Stream. To the west bordering the land of the same *myó* as far as the Ayein Stream. To the northwest bordering the land of Mahu-ra. To the north bordering the land of Han- tha Zaing-ganein *Myó* as far as Wa-yì, Wa-gayán and the Pein-nè Forest. To the northeast bordering the land of Han- tha Zaing-ganein *Myó* as far as Wè-hlá.

Within the eight quarters thus demarcated, and not omitting a single house or hut, the total of the residents is 124 households, and an increase of 391 households of their offspring, in all 631 households. There are 57 male and 51 female adults, 43 boys and 20 girls, in all 171.

I have written and submit a detailed list.”¹

There are two Lagunbyee towns, one among the (32) towns of Hanthawadi and the other in the list of the (32) towns of Mottama (Martaban).²

The name Lagunbyee or Lagunbyin is Mon; Lagun is a Mon name or title for a brave officer, especially for a courageous commander.

According to J.S. Furnivall, who used old Mon and Myanmar sources, Lagunbyin of the (32) towns of Hanthawadi was founded by Maheindatha; Prof. Tun Aung Chain tentatively identifies this King with Atha or Asa (date of accession Sakkaraj 216 or AD 854) or with Atha’s successor Arinda (date of accession Sakkaraj 223 or AD 861).³

The Mon town of Lagunbyee near Mottama was also called Sanpanago by the Bama (Myanmar)⁴; in old records the two names were sometimes joined together as Sanpanago Lagunbyee.

Lagunbyee in Hanthawadi, some authors state as being founded by a Mon minister of Lagunbyee near Mottama who moved there with his followers.⁵

U Aye Kyaw in his paper on the Sittan of the (32) towns of Hanthawadi mentions Lagunbyee and also gives the references to the parabaik paper manuscripts in the Myanmar National Library which lists these (32) old towns including Lagunbyee.⁶

I first became interested in the old town of Lagunbyee after reading an article by the well-known writer and antiquary Hmawbi Saya Thein (1862-1942) who collected manuscripts and facts about our cultural and literary past and wrote scores of interesting articles and several books to record his findings. Saya Thein had visited this site in 1933 and written about what he saw and found out about Lagunbyee. It was first published in the *Thuriya(Sun) Magazine* of July 1933. But I read this article in the second edition of a book by Hmawbi Saya Thein entitled *Shei hpyit sardan* published in 1968, which reprinted the article on Lagunbyee.⁷

Saya Thein was the grand old man of Myanmar History and Culture who in his travels found many important manuscripts and information about old customs and history and wrote them down to be published in magazines of the colonial times. Many of the articles were later collected, some posthumously, and published in book form. He also recorded traditions and oral history and published monographs about Myanmar kings and queens, about ministers and high officials of the Royal Court and on various aspects of Myanmar history and culture.

Saya Thein wrote that when he went to explore the site of Lagunbyee, he found traces of the old brick wall about (18) feet high with a surrounding moat (100) feet wide. He saw old ruined pagodas and monasteries, old brick-lined wells which produced clear waters; all this on a raised mound, the ground strewn with broken pieces of old bricks and brittle pieces of tiles or shards.

According to Saya Thein, the great Mon King Rajadirit (AD 1385-1423) resided for a while in Lagunbyee before he went out to do battle with his arch rival, an equally great Bama king of Innwa (Ava) called Min Gaung, on a nearby plain. Rajadirit also built a Pitaka – taik Library to the west of the town.

Saya Thein estimated that the site of the old town is about two miles across from east to west (actually we later found that it is only about

a mile wide) and about half a mile north to south (which was fairly accurate).

One Myanmar source mentioned that Lagunbyee or Lagunbyin was founded around AD 1181 during the reign of the Mon King Areindakumar, on the instructions of the King, by Minister Bala Mingala Thiri and his one hundred followers. Another source gives the title of the founder as Maha Mukha Malein Raka and the year AD 1187.⁸ But Mon history gives a much earlier date saying that Lagunbyin was founded during the reign of King Maheindatha probably in the 9th century AD.⁹

I also read another article, a modern scientific essay by U Aung Myint, Conservator of Forests and a keen historian who presented some interesting facts about Lagunbyee as seen and interpreted from aerial photographs. He published his article on the 32 old towns of Hanthawadi in the Yangon University History Journal in December 1985 and it included some information on Lagunbyee.¹⁰

After reading all these interesting accounts I arranged a study tour to visit the site of Lagunbyee on 23rd May 1987; we all travelled together in the Universities Central Library's T-2000 light truck as we had to drive across the dry paddy fields just before the monsoon broke.

Our party consisted of U Maung Maung Tin and U Than Htut, Members of the Myanmar Historical Commission, U Aung Myint, Conservator of Forests and a Specialist on Aerial Photographs and some younger researchers including U Sein Myint from the Universities Historical Research Centre. Though Dr. Khin Maung Nyunt, at the time Director-General of Archaeology Department intended to come along with us, he could not make it due to other pressing work; he therefore sent one of his research officers, U Ko Ko, to accompany us.

From the Universities Central Library was U Myat Soe (later Librarian of Yangon University Library) who had already made a reconnaissance tour a few weeks before. He was our diarist and recorder because he quickly wrote an article about our visit and published it in a local Myanmar magazine called *Moe Wai* (October 1987).

When we arrived at Lagunbyee, a spectacular sight awaited us; the ground was all strewn with lovely pieces of ceramics, some greenish, some white, some blue. Near the ruined pagodas were small terra-cotta

Buddha images, which were later interred back by the monk in a newly rebuilt pagoda.

Two forest monks and an old nun with a few lay followers were practising Buddhist meditation in some tiny thatched huts. They were also trying to rebuild some of the old religious buildings which were then in ruins. There was also a small monastery called Nan-oo Chedi Kyaung presided over by U Thuriya.

For me I was more interested in the ceramic pieces; the very large number of shards meant that there was a production site nearby. We found also many of the small glazed earthenware rods used as supports for the ceramics while they were being fired in the kilns. But where were the kilns? We wanted to find one to prove that Myanmar had production sites for ceramics in earlier times.

From literature about Southeast Asian ceramics I knew that kilns were usually situated near streams which were used for transporting the products to trading centres. Also clay was abundant near the streams; wood used for the firing could be brought on boats, and the bank of the streams made ideal places for digging and building in-ground kilns.

We asked the old monk and nun and they took us to a ruined, oval shaped brick building, half buried in the bank of the Lagunbyin stream, just outside the northern town walls and moat. They had built a modern pagoda on the ruins in the shape of a Karaweik bird because they thought that the ruins being oval in shape, were an old Karaweik pagoda. But both U Myat Soe and I thought that it was really an abandoned ceramic kiln left half buried for hundreds of years. We were not sure as none of us had actually seen a ceramic kiln before. This was confirmed when I took the Australian archaeologist, Don Hein, who had excavated many kilns sites in Central Thailand, to Lagunbyee, together with Dr. Myo Than Tyn, about a year later in Jan. 1988. Don examined the ruins beneath the Karaweik Pagoda, scratched some earth away from a corner of the kiln surface and immediately confirmed that we had at last found our first cross-draft ceramic kiln in Myanmar. Earlier a small beehive shaped updraft kiln had been discovered in Bagan in 1963 and later in 1989 five more were found there. But they are all now thought to be glass furnances and not real kilns for producing ceramics.

At the instigation of Dr. Myo Than Tyn, the first excavations at Lagunbyee were started by the Myanmar Department of Archaeology and carried out from December 1998 to February 1999 by U Myo Min Kyaw, Daw Aye Aye Thinn and other archaeologists under the supervision of U Nyunt Han, Director-General of the Department and Dr. Myo Than Tyn who served as an Advisor to the Department for a few years. The site chosen was designated LGB (2), the first kiln site found, which measured approximately 120 feet in length, 70 feet in breadth, and 5 feet in height. The kiln excavated was partly under the modern Karaweik pagoda, so care had to be taken not to weaken this religious building; therefore the excavation was only partially completed. Part of the city wall and moat were also excavated. There is an unpublished brief excavation report by U Aye Ko, U Htun Aung Kyaw, U Htin Min Kyaw (later known as U Myo Min Kyaw) and U Saw Lwin.¹¹ Don Hein and Mike Barbetti from the University of Sydney, Australia joined the excavation and have written a report on their findings.

Later more excavations were carried out by the Department of Archaeology with the help of Don Hein and Dr. Myo Thant Tyn (See Appendix for extracts on the Lagunbyee findings from reports by Don Hein). Dr. Myo Thant Tyn wrote several articles in Myanmar language which were published in *Khatiya*, the Applied Science journal he had founded.

Dr. Myo Thant Tyn and I were able to report on Lagunbyee and other ceramic sites in Myanmar at the Singapore Symposium on Premodern Southeast Asian Earthenware sponsored by the Ceramic Society of Singapore and the National University of Singapore on 9-11 July 1998.¹²

Later Dr. Myo Thant Tyn and I were able to persuade the old monk for the removal of the Karaweik Pagoda from the top of the old kiln to another site. This enabled the archaeologists to excavate the whole cross-draft kiln.

Another paper on "The Excavation at Lagunbyee kiln site" was read by Daw Aye Aye Thinn¹³ at the conference on Glazed Ceramics of Southeast Asia, 20-22 Sept. 1999 in Bagan which Dr. Myo Thant Tyn organized with my help. It was supported by the Minister for Cultrure and

the Department of Archaeology. Aye Aye Thinn took a leading part in the excavations together with U Myo Min Kyaw, another senior archaeologist, (whom she married later). Unfortunately, all these papers remain unpublished including all the official excavation reports.

What is the significance of the discovery of the first ceramic kiln found in Myanmar at Lagunbyee? First, we have been able to put Myanmar on the map of ceramic production, dating back hundreds of years and continuing up to the present. Up to mid – 1980s books and research articles on Southeast Asian ceramics did not include Myanmar as a production centre for ceramics, except for mentioning the decorative glazed plaques found on the pagodas of Bagan, Bago and other places and also as a producer of Martaban, or Pegu jars. But now since 1987, mainly due to the efforts of Dr. Myo Thant Tyn and research officers from the Archaeology Department who undertook excavations, and foreign experts like Don Hein, ceramic kilns have been found in the Bago, Twantay, Myaung-mya and other areas. Even as I write, more are being discovered all the time, making Myanmar a very rich and important centre of ceramic production for many centuries.

Secondly, the discovery of a large number of kiln sites have placed a heavy responsibility on the researchers, archaeologists, historians and the authorities to preserve this rich heritage; to draw up plans for systematic excavation and preservation, to revive some of the ancient techniques and designs and to make known the ceramics that Myanmar produced for many hundreds of years.

Unfortunately, we have not been able to preserve the first ceramic kiln found in Lagunbyee, because with the building of the recent dam on Lagunbyin River, the kiln site has become inundated with flood waters.

The hundreds of other kilns found later, I hope, will be preserved as a cultural heritage of our country.

Acknowledgement

I am grateful to Dr. Don Hein of Deakin University, Melbourne, Australia, for giving me permission to reproduce extracts from his Lagunbyee Excavation Reports as an Appendix to my paper. Also for permission to use his photographs and diagrams. Thanks also to Dr. MyoThant Tyn, President of the Myanmar Ceramic Society, who has shared with me an enthusiasm for uncovering the history of Myanmar ceramics.

Endnotes

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Appendix: Extracts from Don Hein's Report on Excavations at Lagunbyee¹

Excavation area and extent of work

Survey points. A datum point (TDP 1) was established on a nearby hill feature and a secondary point (TDP 2) was fixed near the kiln. Each point was a 4 nail set in concrete inscribed "MAP DP 1 26 3.90" and "MAP March 1990 DP 2" respectively. The magnetic angle from TDP 1 to TDP 2 was 63 degrees and the distance between the two was 95.43m. The height difference was 5.45m. All excavation heights were recorded as measurement below Datum Point 2 plus the height of the theodolite (1.159m).

Excavation grid. Fifteen foot squares had been set out by the Department of Archaeology team over the kiln area as a part of the general site grid, and the square which contained part of their kiln excavation works were A2, A3, B2, B3, B4, C3, C4. Square B3 was redivided into one metre squares to suit our excavation procedures and recording processes.

Earlier excavation. Earlier work on the kiln had excavated a large hole in the centre of the kiln which had cut through the firing chamber floor near the firewall, penetrating the middle section of the firewall and part of the firebox floor, to a depth of about 1.5m below the ground surface. Also much of the outside kiln wall had been excavated. Fig. shows a plan of the excavated area prior to our participation.

As a modern monument had been built over the upper part (chimney end) of the kiln, only the firebox section of the kiln could be excavated.

Extent of excavation. Our work included re-alignment of pit walls and the further excavation within the kiln. Thirty one levels were

¹ . Don Hein. *Summary Report on Archaeological Fieldwork at Myaung Mya, Bagan, and other sites in Myanmar. Aug-Sept. 1999 . . .* [Melbourne] : Deakin University, 2003.

recorded. No further excavation was done outside the kiln but wall sections were drawn. (Fig.2) shows the one square metre grid established to continue the excavation on a reduced lateral dimension. We attended the excavation at Lagumbyee from 13th March until 5th April 1990.

Order of excavation

Preparatory work began on the 13th March. After a number of one metre squares were set out within the larger fifteen foot squares used by the Department of Archaeology, the existing state of the kiln excavation was recorded, pit walls were checked for verticality and loose material removed. Our excavation record began at the highest point of the area of the existing excavation surface within the kiln wall and proceeded for 31 levels within ten squares. Much of the collapsed kiln roof had already been removed and the remaining bricks near the right hand firebox wall were uncovered and lifted. Digging continued in that area until a shard layer on the floor of the kiln was reached. Then the firewall section within the kiln was excavated, and the area from the firewall to the firebox was examined. Finally, a small area in Square E4 was excavated to study the sediment below the floor level of the kiln. The lack of available time inhibited further excavation. After wall section drawings and sample taking were completed, the site was backfilled (with water damping to reduce settlement and damage to the site.)

Lagunbyee Results

General

Prior to excavation, the upper extant wall of the firing chamber and firebox was exposed at the ground surface and part of the firing chamber and the chimney by the monument. The Department of Archaeology digging uncovered the outside surface of the accessible walls and a hole had been dug in the middle of the kiln (Fig-.....a). Our work excavated the firewall, firebox floor, and the fire hole, but the much of the firing chamber and the chimney could not be examined because of its location under the modern monument.

Our excavation was focused on the post- operational fill contained within the kiln. The fill consisted of fallen kiln wall, earthenware and stoneware ceramic fragments deposited with sediment, and shards of faulted (mostly underfired) stoneware artifacts left in the kiln after the final firing. Many of the underfired bowl shards lying close to the firebox floor had immature glaze on the surface. On lifting the glaze separated from the shard and remained in contact with the surrounding sediment, and samples of that glaze were taken in the hope that mineral analysis could be done.

In normal archaeological practice intact structures such as floors are not disturbed except for holes, but as earlier excavation by the Department of Archaeology had already passed through the kiln floor and penetrated the sediment underlying it, limited excavation was done of that area. Cultural layers, that consisted of low temperature earthenware pottery shards, charcoal and ash, were found below the kiln floor. It appeared from the stratigraphy and the nature of those deposits that they had resulted from bonfire firing of pottery (and were not secondary deposits such as spoil from the adjacent moat). Further discussion of Lagunbyee is included in the Pegu section.

Sediments and layers

At the conclusion of the excavation the pit wall were scraped down and the outlines of the layers marked out with chalk (Fig- 67d). One metre grid lines (as too little time was available to set out the normal 20cm cotton grid) were marked to assist in the drawing of the profiles. Seven layers were identified.

Layer 1. A thin band of mid-grey fine textured topsoil, Munsell 5Y6/1, grading to a lighter coloured soil. Some brick pieces present.

Layer 2. A fine light-grey sediment, Munsell 5Y7/1. containing earthenware pottery shards and small brick rubble.

Layer 3. Left hand wall of the kiln firebox, Bricks, Munsell 7.5 YR7/6.

Layer 4. Kiln firing chamber floor of orange clay containing a few earthenware pottery shards.

- Layer 5. Mid-grey fine textured sediment, Munsell 10YR6/2, containing many earthenware pottery shards and specks of charcoal. Random orientation of shards (indicating shards were already mixed with sediment when deposited) but orientation was more horizontal in the upper part of the layer which contained a higher proportion of shards (indicating the tendency of the flat shards to adopt a horizontal position when deposited).
- Layer 6. Mostly earthenware pottery shards predominantly in horizontal position.
- Layer 7. Clay sediment, Munsell 5YR7/1, with a few earthen ware pottery shards. Some mottling of the clay in the upper half.

Kiln MLMKI

Due to the presence of a modern Buddhist monument built over Kiln#1, only the firebox and some of the right hand wall could be excavated and observed. Also the shape of the kiln was distorted to a degree by the collapse of the left hand wall, but sufficient structure could be seen to ascertain the ground plan and profile of the lower end with reasonable certainty, and enough other evidence was available to gain an idea of the general form of the kiln (Fig.5).

Compared with the rounded end of Thai kilns of the type, the firebox was somewhat pointed in plan. Also uncommon was the firebox floor which was inclined toward the firewall rather than towards the firehole. The firehole had been partly closed with bricks and rubble and heat banding suggested that closure had been in place during the last firing. Internally, the kiln measured 4.4m wide, and is estimated to have been between 10m and 11m long. The axis was 306 degrees. The height of the firewall was about a 0.5m.

The construction was unusual. The kiln had been built with large bricks of raw clay, measuring 18cm wide, 9cm thick and about 32cm long. The bricks in the extant side walls had been laid horizontally and apparently the inside and outside surfaces had been shaped (angled) after

construction to match the wall curvature. No bricks from the top of the firing chamber arch remained *in situ* and as the fallen roof had already been removed in the earlier excavation, none was available for examination. However, it is obvious that the method of brick construction described above could not have been used for all of the roof arch. Brick alignment and change of pattern at the right hand wall indicated that the upper part of the kiln had been rebuilt during its period of use. The inside face of the walls was slightly glazed. A thick layer of slag (from heat fused wall face) near the base of the kiln firewall showed that the kiln had been in use for many years before being abandoned. Only a very small area of the firing chamber floor could be seen, too little to judge the incline or see whether it had been covered with sand during use. However, the configuration of the site and the exposed right hand wall suggested the floor had been inclined (as is common with the kiln type).

The cylindrical supports found in the kiln had only slightly widened bases and their glazed surfaces indicated that they had been exposed along their full length to the firing atmosphere (i.e. not partly buried). Also, no sand was fused to the lower part of the supports indicating sand had not been used on the floor of the firing chamber (compared to many sites in Thailand the relatively raw base of the support and the adhesion of large amounts of sand above the raw section, showed the supports had been buried in sand on the floor of the firing chamber). It was assumed that the slight incline of the firing chamber floor and the use of small level depression in the floor surface, would allow the supports to stand upright.

A large number of underfired plates and tubular supports lying on the firebox floor indicated the last firing of the kiln had been used for the production of glazed bowls. The lack of medium or larger sized jar shards indicated that such jars were probably not included in the last firing load, and the infrequency of stoneware jar shards in the excavation and environs raised the question of whether jars had been made in the kiln at all. If not, it would be a most unusual circumstance. The evidence indicated that the kiln had been for firing stoneware and not earthenware, and its design would make it economically unsuitable for firing earthenware.

Kiln#1 Excavation Artefact

A total of 5,606 individual finds were recovered from the excavation and they weighed 775,0006gm(0.78 tonnes). Nearly all of the finds were ceramic. By far the greatest proportion (86%) was kiln brick from the collapsed walls. Another large group of finds was of supports used in the kiln to set the wares for firing. Apart from one large laterite stone weighing 7kg and a few bits of slag, the other finds were all remnants of either earthenware or stoneware artefacts. Only a few fine roots were found and there were no finds of shell, bone, metal objects or other material usually found in excavation of kilns.

Commonly, ceramic wares are classified into earthenware and stoneware depending on their fired state. However, in the case of underfired stoneware, the fabric state is recorded as earthenware but the class of the ware is recorded as stoneware. Where a site contains both underfired stoneware and earthenware some error in classification might be expected, especially in regard to smaller shards. That the underfired material at Lagumbyee was meant to be fired to stoneware is evident by form and design typology, and by immature glaze being found on otherwise apparent earthenware. The amount of recorded earthenware was about twice as much as stoneware but much of that earthenware was probably underfired stoneware. The limitation of time did not allow for more than a cursory examination of the fabric of many individual pieces, especially of smaller, less significant shards.

There were no signs of post-deposit disturbance to the stratigraphy.

Ceramics from the excavation

Most of the stoneware pieces were from wheel-made, shallow bowls with an everted rim and a footed base. Some of the bowls were plain but most were decorated with incised lines or grooves on the cavetto (curved inner wall). One was found with decoration on the centre (middle of the inside). Most of the decoration was composed of straight incised lines radiating around the cavetto, either as regular evenly spaced radials or in pairs or sets of three. Some examples had chevron patterns suggestive of rice plants. All of the bowls had a trimmed footed base including a well. The base was characteristic of Burmese ceramic wares. Typically, the well

was deeper nearer to the foot ring and in many cases, the middle of the well showed cord marking where it had been cut from the wheel. Two large fragments of small jars with grooves on the outside wall were found. One (RNO M58) had an opposing pair of lump lugs at the shoulder. Grooves were found only on the outside of deeper bowls and small jars. A large proportion of the ware finds were solid cylindrical supports used in kilns to support wares during firing. Most were tall, measuring about 400mm, but a few were as short as ten millimetres high. Generally the base was flared outwards, and while some were truncated at the top others had a cup-shaped end. The cylindrical supports appeared to have been handmade with some turning on an anticlockwise turning wheel to impose a twist along the axis. Cord marks on the bottom of the many supports indicated how they had been cut from the wheel. Generally, the cord marks were curved indicating the wheel had been turning when the cut was made. Depressions near the base of many supports showed how they had been lifted from the wheel. None of the supports had any deliberate incised lines or marks.

One fragment of a spurred disc support type.

Most of the earthenware recovered from the excavation appeared to be from round-bottomed cooking pots with impressed cordmarking on the outside. A few pieces had impressed stamp decoration. No large pieces were found and time did not allow for an attempt at reconstruction.

Surface finds and other artefacts

Some surface finds were collected near the excavation site. One of those was the base of a green-glazed bowl (RNO M37) with an incised lotus flower in the centre. It may have had a Myanmar or Thai provenance. Several bases of medium sized jars which were seen on the ground surface had a high, flared foot. At other kiln sites in the Lagunbyee area many shards were observed on the ground surface but not collected. Brief notes on those ceramics are included with the description of the kilns. Basically, the wares seen at other kiln sites which were not represented in the excavation typology included U-shaped bowls, bowls with particular designs techniques, models and reel-shaped supports. During the period of

the excavation, two votives were given to the Department of Archaeology by visiting monks.

Potters' marks

In the excavation only three pieces were found with potter's marks; one complete example and two large fragments. All were incised inside the well of the base of bowls. Two of the marks were on bases of a type associated with shallow, everted rim bowls (BOAR), and the other was on the base of a deeper bowl, probably a U-shaped bowl (BUS). While the marks were of the same character, they were of a different design. In two cases the designs were similar to incised decoration found on many of the bowl shards recovered from the excavation. In 1989 the base of a bowl with a potter's mark of script was shown to us by the abbot of the monastery. The piece was of the same type as the shallow bowls found in the excavation. He said it had been found near the monastery. One bowl shard with a potter's mark was found at East Wata village.

Classification

The CCS system was used to classify, record and analyse the finds. Level classification sheets were filled in by hand at the site and the data later transferred into the CCS computer database and analysed using Foxpro 2.

A total of 1,060 primary records were used to document the finds comprising 993 single line format records for simple finds and 76 full format records for more complete or more important pieces. Fifteen re-entry records were made for samples or test pieces. After deducting brick finds (1,507 pieces at 635,810gm) and one large stone (7,000gm), 4,098 ceramic finds weighing 114, 196gm remained. Of these 170 pieces weighing 69.937gm were supports, all heavily constructed cylindrical types. The remaining 3,928 finds weighing 44,259gm were pieces of ceramic wares, mainly small shards and a few complete or nearly complete objects.

Of the ceramic wares, 141 pieces weighing 13,195gm were of bowls, nearly all from two wide, shallow types. By far the most frequent bowl type was the wide shallow bowl with an everted rim and a footed, trimmed base (base type B302). Some of these (36%) had incised lines on

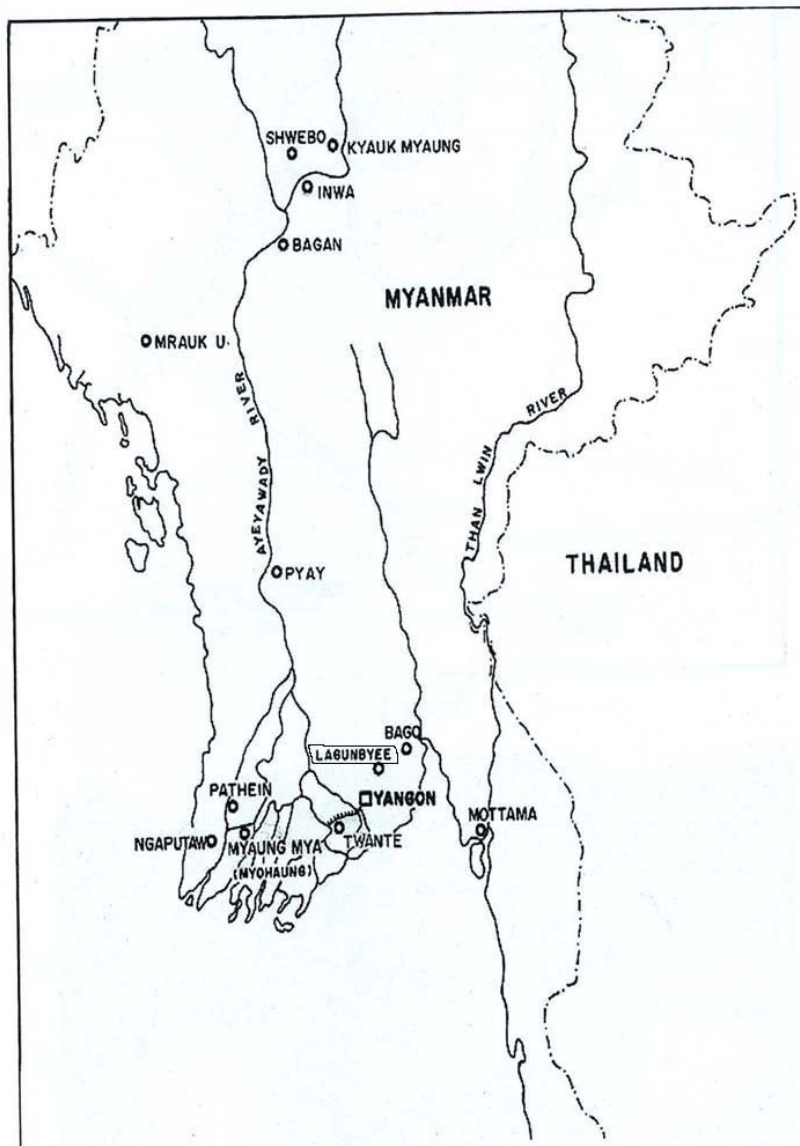
the inside surface. Two types of U-shaped bowls were identified (36 pieces weighing 880gm), one being a wide shallow type with the same base type as the outward angle rim bowls, and the other a deeper, smaller bowl. Two small shards of an S-shaped rim were found but too little to be sure the type was produced at the site. Jars amounted to 146 pieces weighing 3,232gm. 3,685 pieces weighing 31,686gm could not be identified as belonging to any particular ware type.

Decoration was identified as incised, grooved or impressed. Incised means scratching or gouging out with a tool to leave a line or narrow gouge. Grooved means gouging out with a tool to leave a wide groove. There is no clear distinction between a gouge and a groove and the arbitrary difference is established by the decoration typology. Impressed means a design made with a stamping action (rather than cutting). Cord or paddle marking is a form of impressed decoration using a bat with wrapped cord or carved design (although the purpose of padding may be more practical than decorative*). Paddling is usually used to produce an area of roughened surface, usually on earthenware cooking pots. Another form of impressed decoration is a discrete stamp used to create an individual design unit; although many examples have been found elsewhere in Myanmar (see below) none were found at Lagunbyee.

**the action of paddling helps thin and strengthen the vessel's walls and create a larger (wrinkled) surface area. When used on cooking pots, it provides more ready transfer of heat by providing a greater surface area and thinner wall thickness. The thinner wall thickness also reduces the risk of breakage due to thermal shock. When used as a water pot, the greater surface area provides more area to evaporation to occur and therefore the water is cooled to a greater degree.*

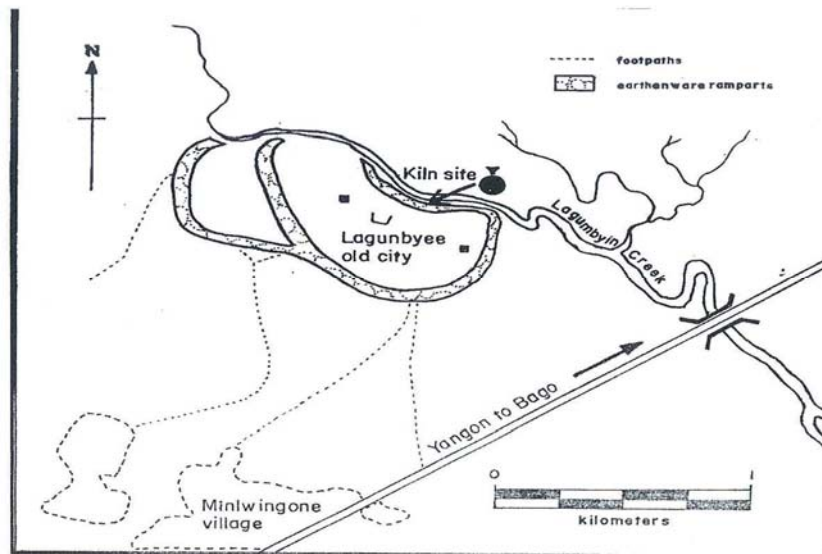
Ref: Ceramic Traditions in Myanmar. Yangon: SEAMEO Regional Centre for History and Tradition, 2003. p. 116-123.

Map of Myanmar



Map (1) Location of Lagunbye old town

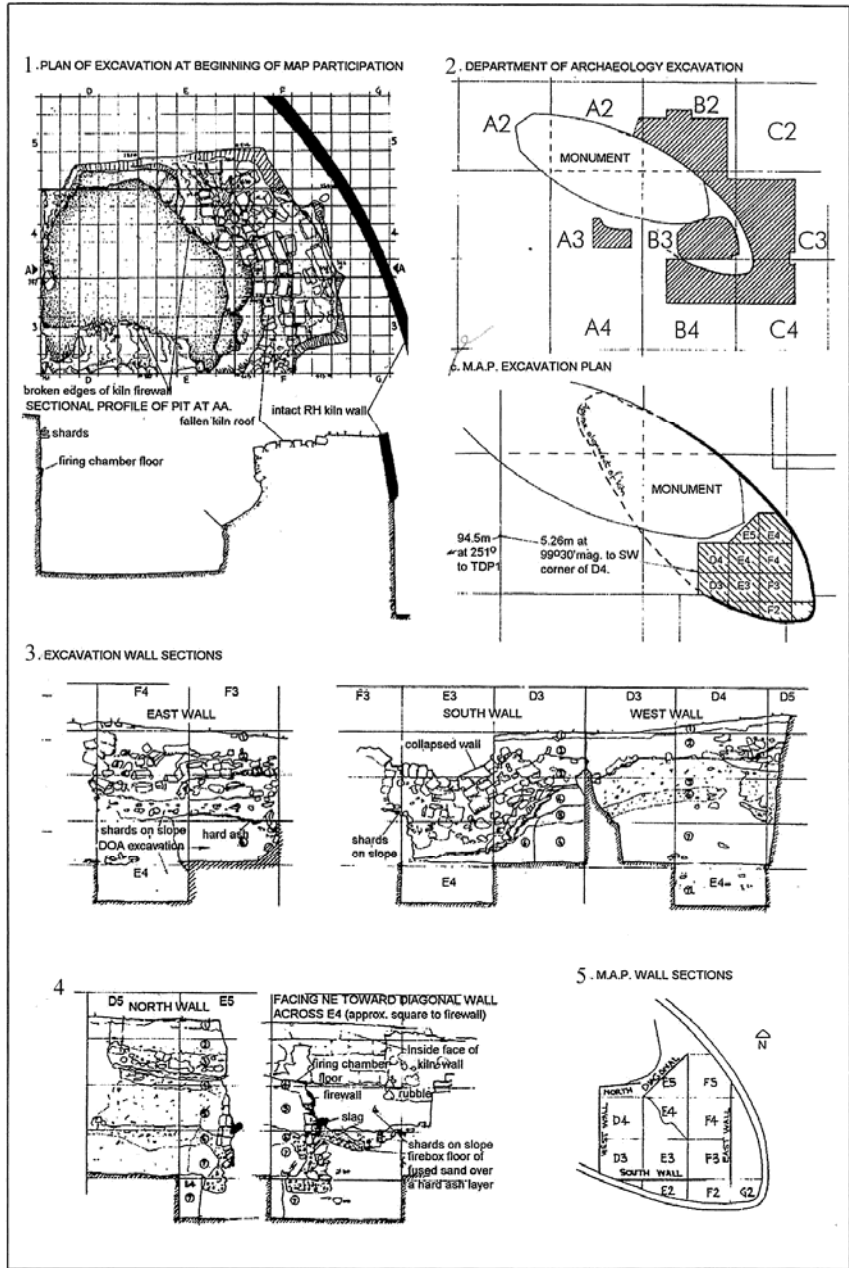
Map (2) Kiln Site at Lagunbyee



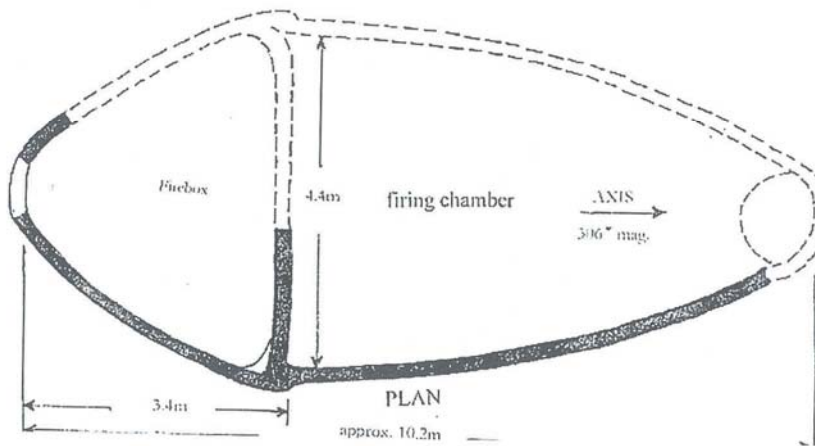
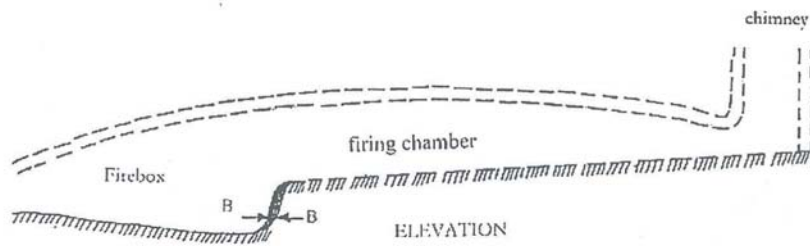
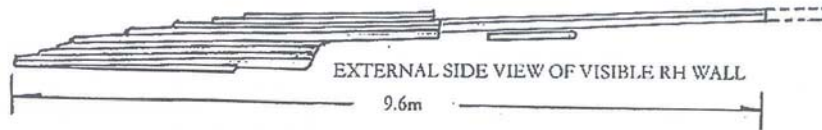
Excavated Kiln Site Partly Inundated



Excavation of Kiln#1 at Lagunbyee 1990

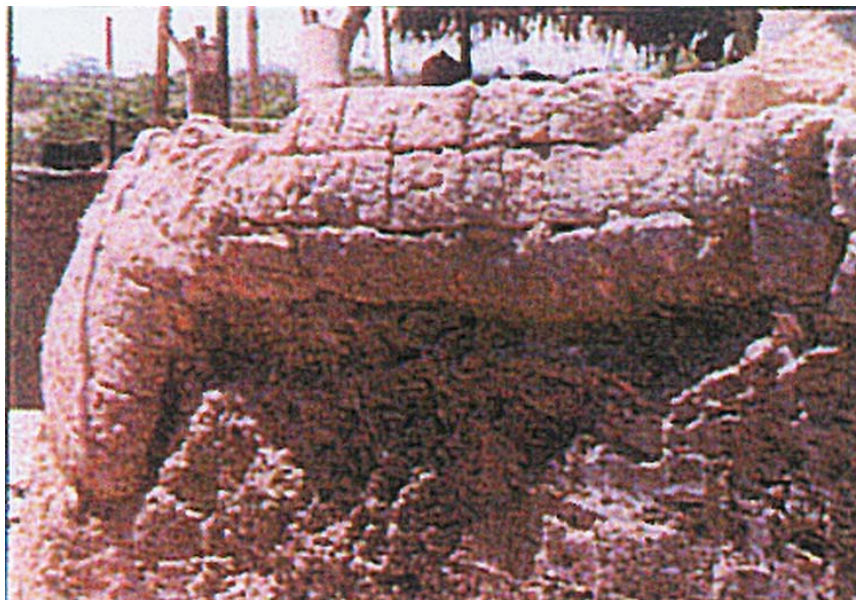


DRAWING OF LANGUNBYEE KILN

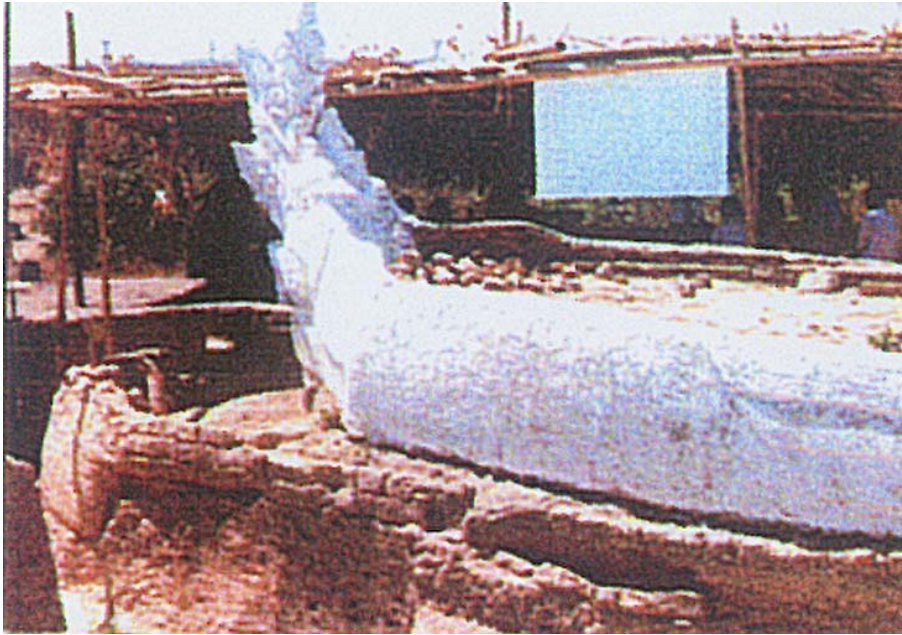


Photographic record of Lagunbyee Excavations





Kiln under the Karaweik [boat-shaped] Buddhist shrine



Shards scattered on ground surface

