
A Study of Pottery and Terracotta Objects from Excavations at Cotton College (1990 - 1992) in Guwahati, Assam

Manjil Hazarika¹, Jonali Devi², Y. S. Wunglengton³, Y. S. Sanathana¹, Jutimala Misra¹, Shreya Sarmah⁴, Ankita Kalita¹, Bhuvanjoy Langthasa¹, Bijoy Lakshmi Bora¹, Darshana Deka¹, Dhiraj Das¹, Jayanta Roy¹, Kouchuki Bora¹, Kasturi Bora¹, Kristi Bora¹, Kritee Kumar Sarma¹ and Sudarshina Borah¹

- ¹. Department of Archaeology, Cotton University, Panbazar, Guwahati, Kamrup Metro, Assam – 781 001, India (Email: hazarikam@gmail.com; sanathan284@gmail.com; jutimmisra13@gmail.com)
- ². Department of Anthropology, Cotton University, Panbazar, Guwahati, Kamrup Metro, Assam – 781 001, India (Email: jonalidevi26@gmail.com)
- ³. Director, Assam State Museum, GNB Road, near Dighalipukhuri, Mawhati, Ambari, Guwahati, Assam – 781 001, India (Email: assamstatemuseum@gmail.com)
- ⁴. Department of Ancient Indian History, Culture and Archaeology, Deccan College Postgraduate and Research Institute, Pune, Maharashtra - 411 006, India (Email: sharmashreya7055@gmail.com)

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Abstract: This paper presents the results of the documentation and analysis of the pottery and terracotta collections from the excavations conducted at Cotton College in Guwahati during 1990-1992 by the Directorate of Archaeology, Govt. of Assam. The collection is presently housed at the Assam State Museum and Anthropological Museum of Cotton University. Although the archaeological digging was conducted for two seasons, the excavations have brought to light some important archaeological vestiges in the form of brick structures, pottery, terracotta sculptures, stone architectural pieces and other clay and stone objects. Considering the similarity of the pottery in terms of types, shapes, decorations and technological features and other archaeological remains of stone architectural pieces and brick structures, the archaeological site at Cotton College Campus can be considered as an extension of the Ambari archaeological site.

Keywords: Excavations, Ambari, Pottery, Kaolin Ware, Cotton College, Terracotta Sculptures, Brahmaputra Valley

Introduction

Cotton College, the premier seat of higher learning in Northeast India, unequivocally occupies an esteemed status for having contributed significantly to the academic and

cultural life of the region. The College came into existence on 27th May 1901 as a result of the untiring efforts of a section of Assamese intelligentsia in the last quarter of the nineteenth century to mobilising public opinion in favour of establishing the first college in the region (Banerjee 2004). The most vocal among them was Manik Chandra Baruah, who in 1899 submitted a memorandum to the British government justifying the need to open a college in Assam. However, had it not been for the unreserved support of the then Chief Commissioner of Assam Province, Sir Henry Stedman Cotton, the institution perhaps would not have seen the light.

Earlier affiliated to Calcutta and Gauhati universities respectively, the College has been upgraded to a full-fledged university named Cotton College State University in 2011 (Act XIX, 2011). Later, under the Cotton University Act 2017 of the Assam Legislative Assembly, erstwhile Cotton College and Cotton College State University were merged to form the Cotton University.

The campus of this institute is located in Panbazar area of Guwahati (Figure 1) which is an area of historical importance. The academic departments are spread across a large area surrounded by historical Dighali Pukhuri (tank) and Ambari archaeological site to the east, river Brahmaputra to the north, Vishnu Janardan rock-cut complex, Sukreswar temple and Panbazar book market to the west and the Reserve Bank of India along with the Guwahati Railway Station to the south. The area can be considered as one of the most important locations in terms of archaeological remains in the city of Guwahati.

Guwahati, the largest urban centre of present-day Northeast India is situated on the south bank of the river Brahmaputra within the modern administrative boundary of Kamrup Metropolitan district of Assam. The area on the northern bank is known as North Guwahati that falls under the Kamrup Rural district. Based on epigraphic evidence, modern Guwahati has been identified as Pragjyotishapura, the capital of the ancient Pragjyotisha kingdom (Choudhury 1959, Dhavalikar 1973). ‘Prag’ means eastern whereas ‘jyotisha’ denotes ‘shining’ or ‘astrology’ (Gait 1926). So the word Pragjyotisha indicates ‘The city of Eastern Astrology’. The Kalika Purana, compiled around the tenth century CE states that it was the city where Brahma sat and gave life to the stars. The text also compares Pragjyotisha or the ‘city of the first light’ with the city of Indra.

The name Guwahati, on the other hand, came from two Sanskrit words ‘guwa’ and ‘hat/hati’ referring to areca nuts and a local market place respectively. Hence Guwahati was a market of areca nuts. The Nagaon and Hawraghat inscriptions of Balavarman of Kamarupa too refer to the presence of a large number of areca nut trees entwined with beetle vines in the region (Das 2007: 9-10). Guwahati has been referred to in many of the *Burajnis* (chronicles of the Ahom kingdom in the Medieval Assam) as an important seat of political power (Gait 1926). Significance of Guwahati in the history and civilisation of the Brahmaputra valley and the development of art, architecture and

sculpture has been discussed in several notable publications (Barpujari 1990, Barua 1933, Choudhury 1959, R.D. Choudhury 1985, N.D. Choudhury 1985, Dutta 1990, Sarma 1988, Singh and Sengupta 1991).

In recent years, the city has expanded tremendously. There are frequent reports of valuable materials of archaeological and historical significance being unearthed in different locations of the city. These, most commonly, come up while digging and levelling of soils for construction and road expansion. The archaeological potential of Guwahati came to limelight for the first time through the chance discovery of pottery, sculptures and brick structures while digging for laying the foundation for the Reserve Bank of India at Ambari in the year 1968-69 (Ansari and Dhavalikar 1970, Dhavalikar 1973). Since then, a series of excavations (Dhavalikar 1973, Dutta 2006) were conducted by several agencies like the Department of Anthropology, Gauhati University; the Directorate of Archaeology and Museums, Government of Assam; and the Archaeological Survey of India, Government of India resulting in the growth of cultures starting from the beginning of the Common Era. Based on the findings made during the most recent excavation in 2008-09, the following chronology (*IAR* 2008-09: 17) for the site has been proposed:

Period I	:	Sunga-Kushana, c. 2 nd BCE to 3 rd century CE
Period II (Phase I)	:	c. 7 th century to 10 th century CE
Period II (Phase II)	:	c. 11 th century to 14 th century CE
Period III	:	Medieval, c. 15 th century to 17 th century CE
Period IV	:	Modern, c. 18 th century to 19 th century CE

Interestingly, according to the excavators, this particular excavation has yielded some structures of bricks of identical size and shape with the ones found at Bangarh in West Bengal, Kausambi and Hulas in Uttar Pradesh and Sanghol in Punjab from the Sunga-Kushana levels (*IAR* 2008-09: 12). Moreover, the discovery of a terracotta figurine with Sunga-Kushana features has pushed back the antiquity of the site to second-first century BCE to the third century CE (*IAR* 2008-09: 10-21). The site has also produced the evidence of Arretine and Rouletted ware belonging to the 1st to 2nd century CE supporting the above chronological framework.

Apart from the one at Ambari, there are several other archaeological sites of historical importance in Guwahati (including North Guwahati) containing habitation deposits, religious monuments, sculptures, rock inscriptions, engravings, forts and fortifications, tanks, roads and bridges of ancient as well as early and late medieval periods (Sanathana and Hazarika. 2019, Hazarika *et al.* 2020 in press). Several stone sculptures recovered from the Uzanbazar and Chandmari area are now housed in the Assam State Museum. Recently, a stone sculpture of Surya was recovered from the Cotton University campus (Sanathana and Hazarika 2020, in press) while digging for construction of the proposed new administrative building on 22nd January 2020. These discoveries suggest the cultural development in Guwahati area in the bygone days

which was not only confined to the well-known site of Ambari but a much larger area in different periods. Besides, there are a good number of structures built during the colonial period which are either secular or religious. Vaishnavite *Satras* (monasteries) and *Namghars* (prayer halls) also form part of the cultural landscape of Guwahati including the northern part of it (Sanathana and Hazarika 2019). However, except Ambari, there is no systematic excavation conducted in any locations in the greater Guwahati area.

The Excavations at Cotton College

In the year 1990 during the digging of soil for the construction of an Indoor Stadium (presently known as Dr. T. Ao Indoor Stadium) at Cotton College in the area next to Principal's Residence, a considerable amount of archaeological materials were unearthed. It was as unexpected as the uncovering of the Ambari archaeological site (Figure 1). Upon this chance discovery of potsherds, bricks and stone sculptures, Krishnamurti Baruah of the Brahmaputra Upatyaka Samiti, intimated the Directorate of Archaeology, Government of Assam, following which, the Director of the Directorate, Gunindra Nath Bhuyan and his colleagues examined and recognised the area as an archaeological site (Choudhury, N.P. 1991, 1993). Accordingly, the site was immediately planned for excavation as the Indoor Stadium was to be built there. The Directorate started systematic excavation on 27th February 1990 under the guidance of Nishipada Choudhury of the Directorate for two seasons 1990-91 and 1991-92. It was aimed at conducting the excavation scientifically with the objectives of identifying the habitation layers in chronological order, tracing the archaeological remains and correlate with the ancient Pragjyotishpura narratives, and to find out the historicity of the kings of ancient Assam like Naraka and Bhagadutta.

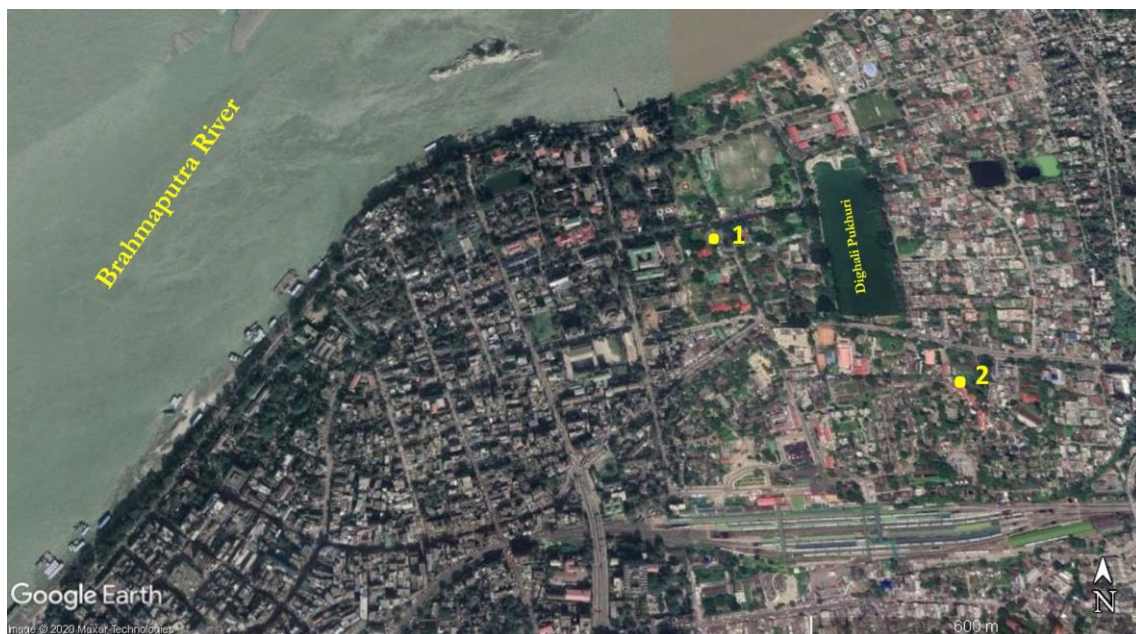


Figure 1: Google Earth Map showing the locations of 1) the excavations at Cotton College in 1990-92 and 2) Ambari Archaeological Site in Guwahati



Figure 2: Excavations in progress at Cotton College Campus During 1990-92
(After Choudhury 1992)

The area selected for excavation (Figure 2) was cleared and six trenches of 7×7 m (named as GCC I, II, III, IV, V and VI) were measured and dug leaving 0.5 m as baulk in between the trenches. The baulks were also excavated later which made all the six trenches into one large trench measuring 21×14 m. The excavator has identified a total of 11 layers at the site, however, details of these layers are not known from the available publications. A general chronology of the site starting from ninth to the nineteenth century has been estimated by the excavator based on the excavated materials (Choudhury, N.P. 1991, 1993).

In the first season, three trenches were laid at the site which resulted in the discovery of a great wealth of archaeological remains. However, the excavation was stopped due to pouring of rainwater and penetration of groundwater in the trenches. In the southern part of the first trench, a brick wall was discovered lying down in the east-west direction. North side of the trench was formed with loose clay where some pit holes were found. After digging of 1.60 m, the excavators observed the presence of water. Materials collected from this trench are potsherds, bricks and terracotta remains. On the second trench, remains of the brick wall were found that continued from the first trench. The trench II was dug up to 2.70 m. The material remains collected from the trench are potsherds, stone blocks, and terracotta remains. In the southern part of the trench, presence of a large number of terracotta indicates that the inhabitants might have preferred terracotta for building their house floor. Again in the south-west corner, several terracotta sculptures, pottery, sling balls, terracotta toys, earthen lamp, lamp

stand, and bricks were found. On the southern edge of the second trench, the area of the third trench starts. A stone foundation was unearthed on the eastern part of the trench. The stone used for making the foundation might have been used in some earlier construction and reused for this foundation later. In the centre of the trench, a small stone sculpture was found. On the north-west, the excavation has revealed terracotta *Apsara* figurines. Besides, terracotta human figures and toys, utensils such as vessels, spouted jars, *ghot*, large-sized dish or plates, fry pan and *soru* for cooking were discovered throughout the excavation. The whitish pottery made of Kaolin clay found in the excavation is typically known in Assam as the Ambari ware. The eastern side of trench number GCC I and II, the boundary of trench number IV and V started. Excavations were reported to be somewhat difficult in these two trenches due to rain. In one of these trenches, the excavators collected some terracotta toys along with a broken head of a terracotta horse and several bricks (Choudhury, N.P. 1991, 1993).

The excavations have revealed a brick wall running east-west in the northern part of the trench. Postholes are also visible in this brick wall. From the wall, a brick-built courtyard is noticed spreading and slanting towards the south which is joined by another slanting courtyard coming from the south. In the joints of both these courtyards, a water channel is made with concave terracotta tiles. In the courtyard, a foundation was noticed that might have used parts of the temple remains like portions of the lintel, the *amalaka*, decorated pieces etc. The rectangular foundation is found parallel to the brick wall. Two ring wells were also recorded at the site. Interestingly, the excavation have yielded terracotta and stone sculptures, pottery, terracotta toys, copper coins of East India Company, and beads. Based on the archaeological remains, the excavator has proposed three distinct archaeological layers. Accordingly, the first covers a period between the ninth and the twelfth century, the second period begins from the twelfth-thirteenth century and continued till the fifteenth century, and the third or the topmost layer is dated between the sixteenth to the nineteenth centuries. However, as mentioned earlier, details of the individual layers belonging to the above mentioned archaeological periods and the associated artifacts are not clearly known from the available published records. After two seasons, the excavation was put on a halt due to lack of financial support as noted by the excavator (Choudhury, N.P. 1991, 1993). The archaeological materials collected during the excavation have been presently housed at the Assam State Museum. Some pottery and terracotta sculptures are also displayed at the Anthropological Museum of Cotton University.

Ceramic Assemblages and Artefacts

As mentioned above, the excavation at the campus of Cotton College was carried out some three decades back. Bearing in mind the significance of the excavated materials, the authors of this paper have attempted to document the collection and analyse them typo-technologically to understand the ceramic tradition in the historical city of Guwahati. The excavated materials displayed in the Assam State Museum and Anthropological Museum of Cotton University have also been taken into consideration for this task. The currently available collection at the Assam State Museum includes as

many as 135 cannon or sling balls, 8 net-sinkers, 1 terracotta animal figurine, 62 undecorated terracotta bricks, several terracotta sculptures and plaques (complete and broken), 4 stone saddle querns, and 14 stone architectural members besides a large number of pottery and ceramic objects.

One of the major challenges faced during the present study has been the problem of stratigraphic information of the objects. There are several numbers written on the potsherds, terracotta and stone objects. As these numbers were marked directly on the surface of the potsherds and terracotta objects, many of the numbers are now faded away. The information written on these include the trench number (GCC I to VII), years of excavation (1990 to 1992) and two other numbers which possibly denote a serial find number and the layer from which these objects were recovered. In many cases, all of the numerical information are not found on the assemblage for trench and layer-wise documentation and classification. Hence, detailed quantification of the types, wares and technological attributes in terms of stratigraphy and chronology could not be exercised. However, the present study has been envisaged to have an understanding of the ceramic and terracotta repertoire in the region from a typo-technological perspective. A comparison with the pottery from neighbouring site of Ambari would be further beneficial. Below are discussed some of the terracotta objects recovered from the excavation at Cotton College.

Cannon and Sling Balls: A good amount of terracotta and stone balls were recovered during excavation. Considering the strategic importance of the area on the south bank of river Brahmaputra which is well known for naval warfare in the past, these balls (Figure 3) can be classified as either cannon balls (*bortopor guli*) or sling balls (*batlu guti*). These are of various sizes and some of them bear incised designs with dot marks forming one or two concentric lines. Parallel groove marks all over the balls are also visible on some of them. Sling balls are used with catapult or bow as a weapon to shoot birds, squirrels and other small animals. Cannon balls are frequently encountered and recovered in and around Guwahati area. The historical ramparts (*garh*) in these areas also signify the importance of these balls in ancient combats throughout different phases of the history of the city. Ambari excavation has also yielded terracotta balls (Sharma 2006: 42). Some of these spheroid balls with vertical grooves from Ambari are considered as gamesman (Sen and Sharma 2006: 59, pl. XX).



Figure 3: Plain and Decorated Sling Balls from Excavations at Cotton College

Net Sinkers and Terracotta Beads: A net sinker or a net weight is a piece of perforated stone or terracotta used to keep a grill net vertical in the water. The small hollow net-sinkers, locally known as *jalor gura* are cylindrical in shape and were possibly used for the purpose of sinking or stabilising the fishing nets. These long and short barrel shaped terracotta objects recovered from the excavation at Cotton College (Figure 4) may also be considered as beads. Similar ones are also reported at Ambari excavation.

Terracotta Animal Figurine: A terracotta animal figurine (Figure 4), supposedly of a horse was unearthed during the excavation. The animal looks like a toy used for an amusement purpose.



Figure 4: Terracotta Net-sinkers and Animal Figurine from Cotton College

Stone Saddle Querns: Locally known as '*silor potaguti*', saddle querns is a set of a smooth round stone, rolled or rubbed on a flat stone surface for milling an pounding grains and other spices. A few of such artifacts are found during the excavation.

Undecorated Terracotta Bricks: As mentioned above, the excavation has yielded brick walls. The bricks are mostly undecorated, used for the construction of houses and other structures.

Stone Architectural Members: Besides the terracotta bricks, several pieces of stone blocks, and architectural members are unearthed during the excavation, which were most probably parts of some temple ruins and later reused construction of the stone foundation. There are several dressed stone pieces and architectural members lying in the Cotton Campus. One of them is the base of a door jamb, having mythical lion figure and *kalasha* motif.

Terracotta Sculpture or Plaques: The excavation has also yielded a good number of terracotta sculptures, locally known as '*matir bhaskarjya*'. Among these, eleven near complete and ten broken pieces of terracotta plaques have been documented so far during the study. All the plaques are stylistically symmetrical and contain an exclusive

design with lotus petal like motifs on top and bottom of the frame. In one of the plaques, well adorned Indra (Figure 5) is shown riding on his elephant *Airavat*. On his right hand, *vajrayudh* is shown; however attribute in the left hand is unrecognizable due to the weathering. Two *vidhyadhars* are shown flanking from either side of the deity. Another plaque depicting Kartikeya (Figure 5) riding on the peacock is partially damaged. He is shown holding *sula* in left hand and accompanied by a *vidhyadhara*. Two identical images of Vidhyadharas (Figure 7) in flying mode carrying a sword in the right and a lotus in left have been exhumed during the excavation. However, one of the images is broken and the head portion is missing. A damaged plaque shows a stout male figure in standing posture while holding a bow in his left hand (Figure 7). On the lower left corner of this plaque a female figure can be seen holding a parrot. This can be assumed as Kamdev and Rati as parrot is considered to be their mount.



Figure 5: Terracotta Sculptures of Indra and Kartikeya from Cotton College

A female figure in dancing pose (Figure 6) accompanied by two musicians on either side is another noteworthy intact image. Additionally, a plaque containing the portrayal of a Yogi in meditation stance, a couple of identical plaques with a Shaivite devotee worshipping a *linga* (Figure 7), and an image of stout potbellied male figure in dancing mode along with an attendant (Figure 7) have been found in the excavation. One of the Shaivite devotee worshipping *linga* sculptures is displayed presently at the Anthropological Museum of Cotton University. A broken image of an *Apsara* is also

found during the digging and presently kept in the same museum. There are some broken pieces of terracotta plaques containing attributes like Indra's attribute *vajra*, Shiva's trident, Ganesha's mount mouse and depiction of a devotee in folded hands.



Figure 6: Terracotta Sculptures of Kamdev and a Female Figure from Cotton College

Das (2018) has reported similar plaques from Bhaitbari, Hedyatpur and Chenikuti. A skeletal image in dancing mode with similar plaque style can be observed in Village Museum and Research Centre at Mayong in Morigaon district of Assam. Discovery of the above mentioned plaques along with stone sculptures at the Cotton College site indicate the existence of a shrine at the area. Das (2018: 41) mentions about an exposure of stone base of a temple and she opines that these terracotta plaques were once a part of the shrine existed in the site.

The Pottery Collection

Ceramics are one of the most durable archaeological remains which give us valuable insights on our remote past. Pottery in Assam draws its origin in the prehistoric period (Sharma 1967), particularly the cord-impressed variety, which is widely recorded in Assam and other parts of Northeast India (Dikshit and Hazarika 2012a, 2012b, Hazarika 2006, 2013, 2017, 2019, Jamir and Hazarika 2014, Chauley and Hazarika 2020). Sites like Daojali Hading (Sharma 1967), Sarutaru (Rao 1977), and Bambooti (Ashraf and Gogoi Duarah 2014) have provided evidence of handmade pottery in the Neolithic

context of Assam. In certain cluster areas of Northeast India, there are potters' communities whose pottery resembles well with the cord-impressed ware found in archaeological contexts (Hazarika 2013, 2019). Roy (2004) studied the ceramic traditions of Northeast India from Neolithic to Medieval period including pottery from the well-known site of Daojali Hading, sites of Garo Hills and the site of Ambari. Pottery has been continuing in its existence down to the present day, occasionally undergoing some changes in course of time (Roy 2004). Ethnographically, the potters of Assam can be classified into two groups who have been traditionally making pottery from generations. The Hiras manufacture pots with hands and without wheel, whereas the Kumars make pottery with wheel (Sarmah and Hazarika 2018).



Figure 7: Terracotta Sculptures of *Vidhyadhara* and Broken Images from Cotton College

Unlike Ambari, which is the most extensively excavated site in the Brahmaputra valley, the adjacent Cotton College Indoor Stadium site was excavated only for two seasons, which somewhat contributed towards a vague underestimation of the potential of the

site, comparing to the site at Ambari. As discussed earlier, apart from other findings, a considerable number of potteries was discovered which constitutes the largest of archaeological materials recovered from the excavation. The ceramics are systematically documented and categorised based on their forms (Table 1) and decorations. The types of the pottery suggest that a large variety of ceramics is present in the assemblage such as the Red ware, Kaolin ware, Grey ware, and a small quantity of Glazed ware (Figure 8) which are described below.



Figure 8: Different Wares Found at the Cotton College: a) Red Ware, b) Kaolin Ware, c) Grey Ware and d) Glazed Ware

Red ware: The highest reported ceramics in the excavations at Cotton College was what is known as the 'Red ware' (Figure 8a). In most of the potsherds, the fabric is coarse and devoid of much of surface treatment. This variety is made of the clay with high hematite content which is red-brown solid and is reflected in the colour of the clay (Lambert *et al.* 1990). Hematite is one of the most concentrated colouring materials and even its minor presence is enough to make the pottery reddish. Occasionally, the red colour is also achieved during firing when air is allowed at a higher temperature which enables the oxidization of iron compounds formed during reduced atmosphere (Ravishankar *et al.* 2011). Generally, the utensils for regular usage were of Red ware variety. At the Ambari site, as Dhavalikar (1973) pointed out, the vessels with wide flaring mouth and ribbed body belong to this ware group.



Figure 11: Different Pottery Forms from Cotton College Excavation



Figure 12: a) Plate (perforated), b) Spouted vessel, c) Incense Burner and d) Tripod Vessel

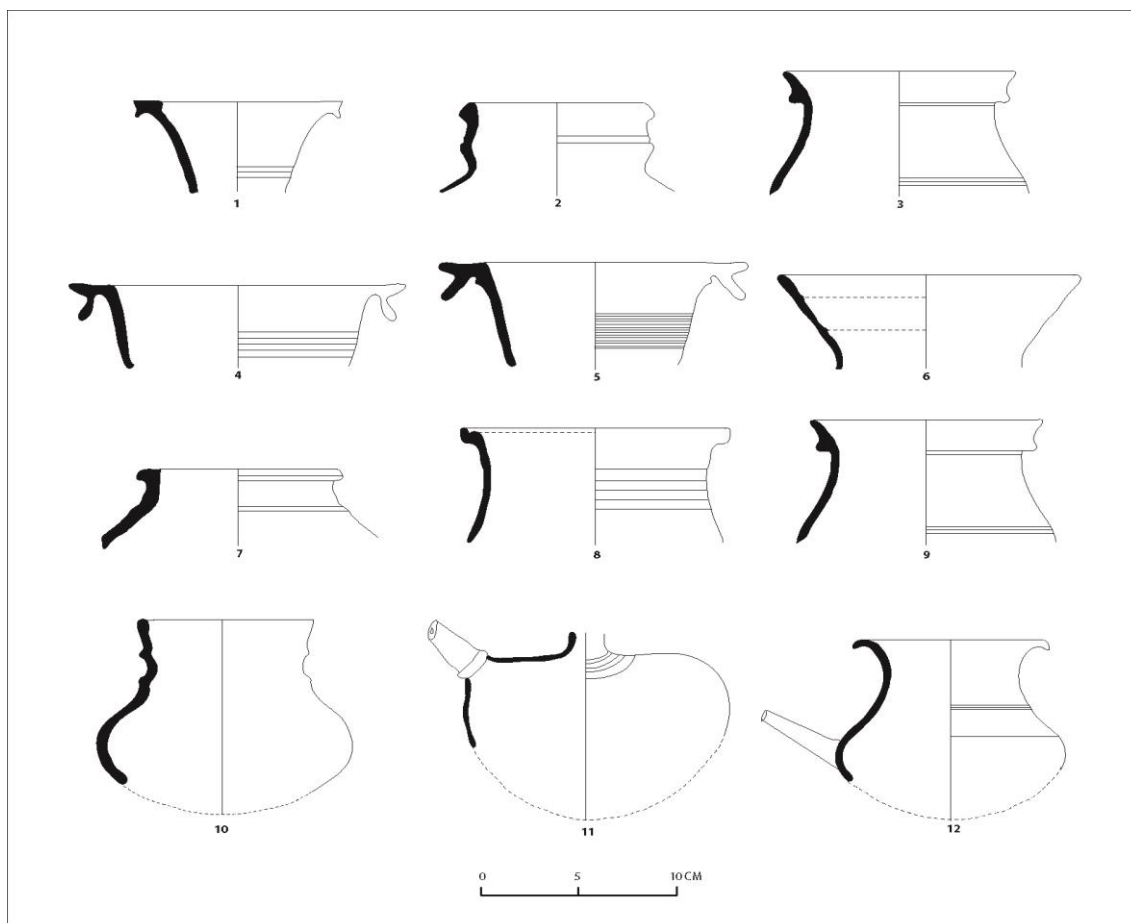


Figure 13: Various Forms of Pitchers (1-10) and Spouted Vessels (11-12)

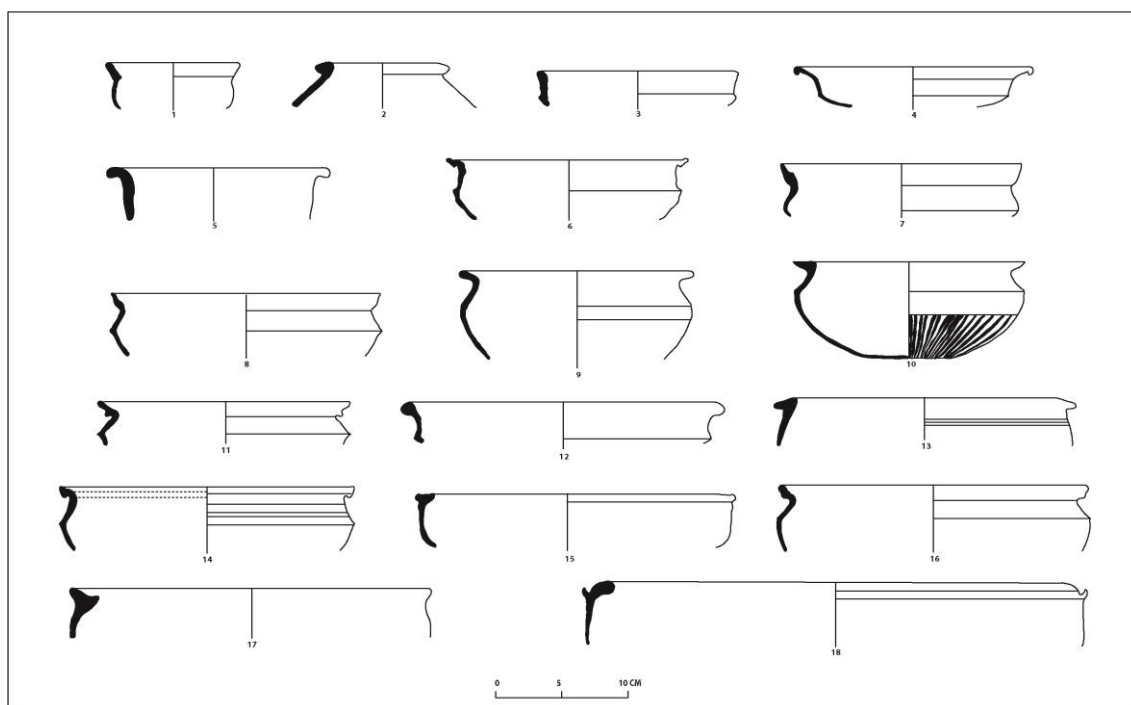


Figure 14: Variety of Wide-mouthed Short-necked Globular Bowls (Deep and Shallow)

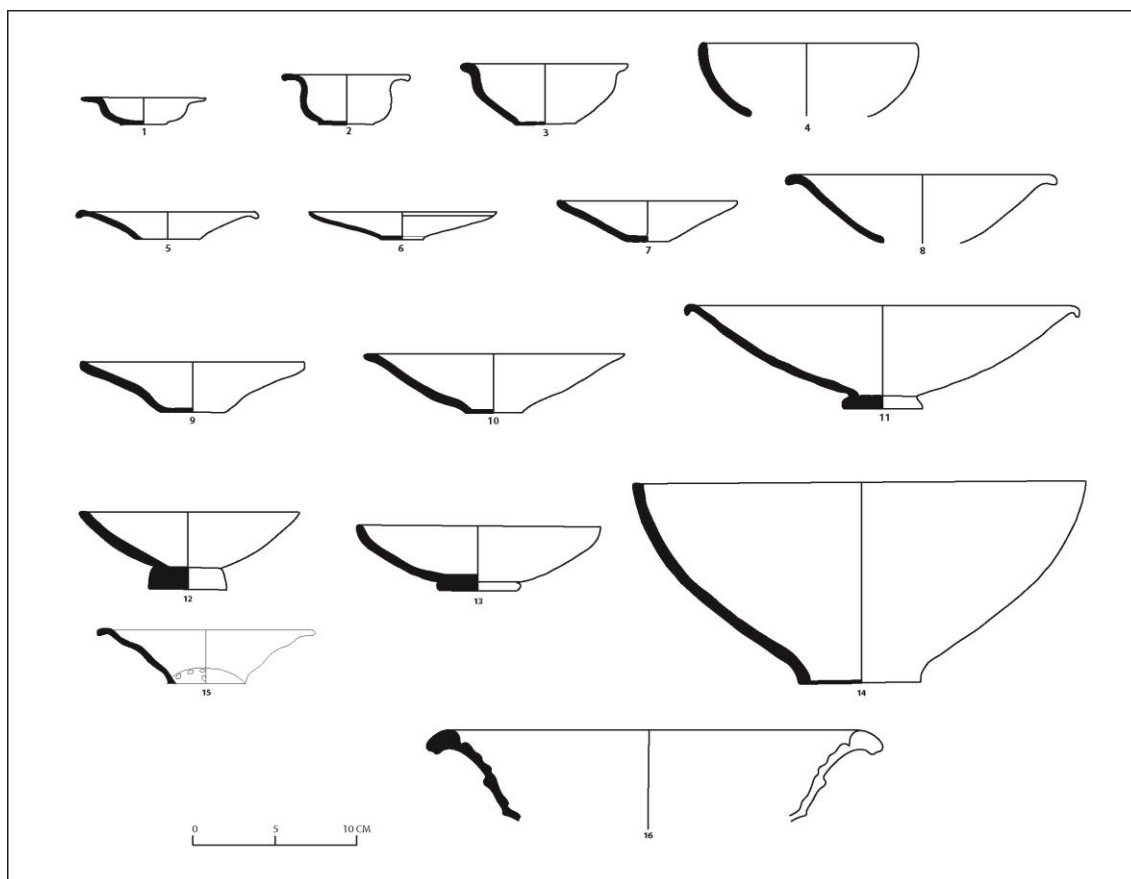


Figure 15: Bowls and Plates (1-15) and Large Vessel having Appliqué Decoration (16)

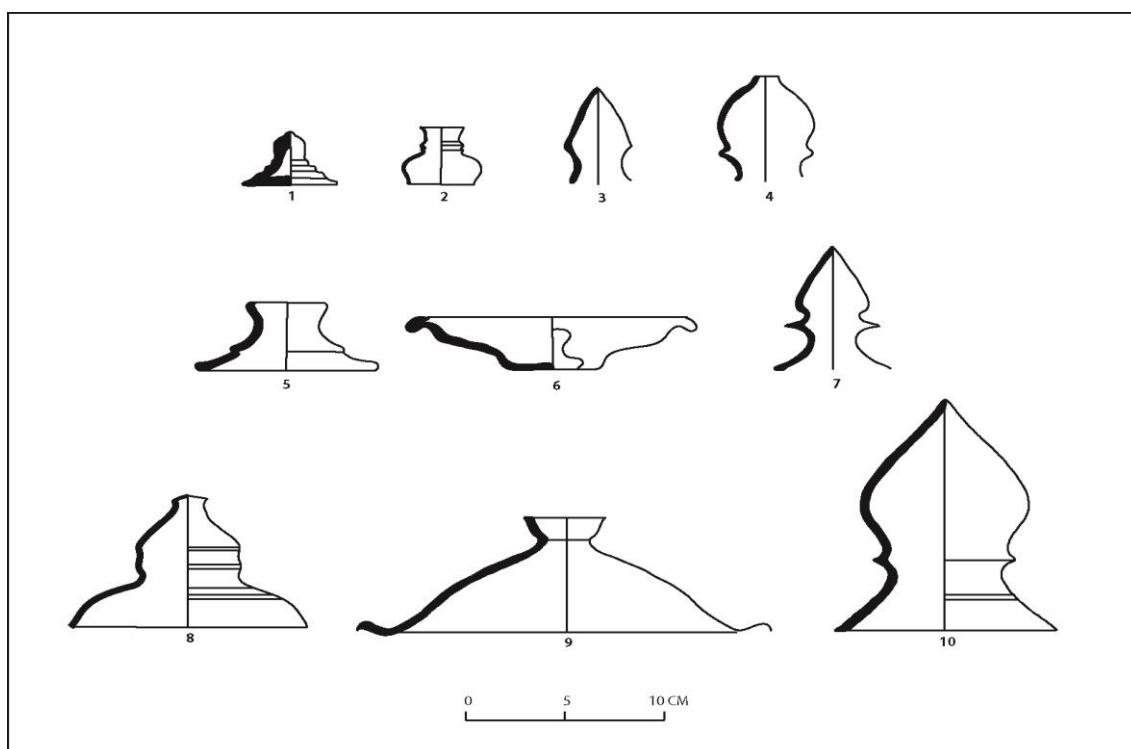


Figure 16: Simple and Knobbed Lids

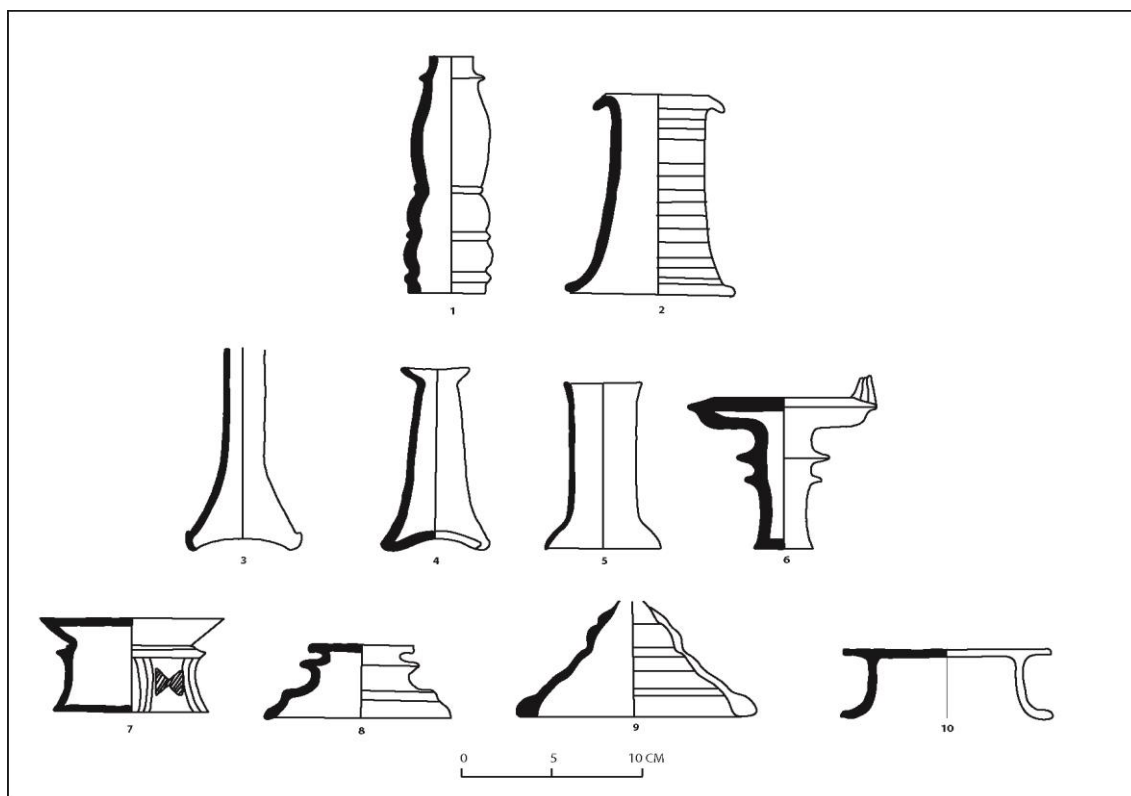


Figure 17: Stands or Stems (Complete and Broken)

Kaolin Ware: One of the most distinctive pottery types observed at the early medieval sites of the Brahmaputra valley is the 'Kaolin ware' noted for the usage of Kaolin clay as a raw material in the potting process (Sharma 2018: 320). Kaolin is an earthy mineral, which is soft and soapy in touch. It was Dhavalikar (1973: 138) who first termed the Kaolin pottery recovered from Ambari archaeological site as the 'Ambari ware' because it was found in enormous quantity in the period I of Ambari, unlike anywhere else in India (Singh and Sharma 2016: 558). Gradually the 'Ambari ware' became well-established term amongst the scholars (Roy 1976, Sonowal 2006, Sharma 2014). Kaolin clay is a very fine variety of clay with no inclusion in its natural form. It is white or creamy in colour when it is free from any impurities (Roy 2004) and devoid of ferric content (Sharma 2018: 320-21).

A very fine clay like Kaolin is not very suitable for potting, for which red clay and powdered potsherds were utilised as tempering materials that give sustainability to the pots. Sharma (2018: 321) recorded different varieties of kaolin fabric available in the region and labelled them as oxidised unslipped, oxidised slipped and oxidised red slipped kaolin fabrics. Within the larger ambit of kaolin pottery, there are definite fabric varieties as well as vessel forms. However, it is beyond doubt that kaolin pottery observes distinctive similarity across the Brahmaputra valley as Sharma (2018: 322) states. Principal forms of kaolin pottery include globular jars with flaring mouth and short neck, flat-based goblets, sharp-rimmed cups, carinated bowls with rusticated base, dish-on-stand and horn-shaped vessels (Dhavalikar 1973, Sharma 2006). At the

excavations at Cotton College, several pieces of fine and well-levigated kaolin sherds were recovered (Figure 8b). These are well fired and have typical designs akin to the ones like Ambari.

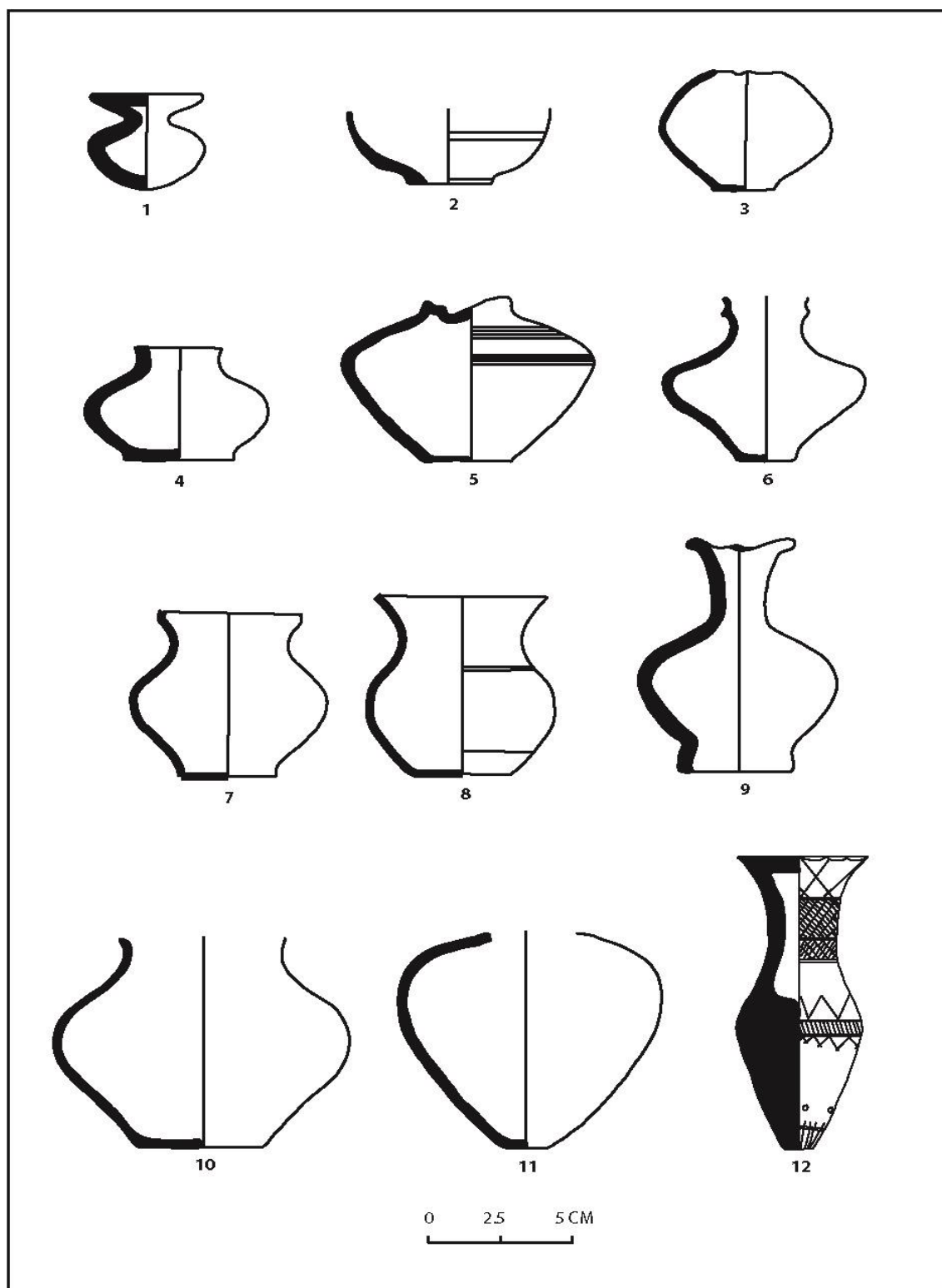


Figure 18: Miniatures Pots and Goblets

Grey Ware: The recovery of a Grey Ware (Figure 8c) variety of pottery at the excavations at Cotton College was not as frequent as the other two. It is a type of pottery with a body that becomes grey after firing. The sherds are either fine or medium-grained. Ceramic forms belonging to this category are mainly bowls, dishes, plates, dish-on-stand, pot and miniature pot with a lid. The sherds are either plain or have line patterns on them. Some of them are of dark grey colour. Grey ware shreds have been recorded in small quantity at Ambari (Sonowal 2006: 84).

Glazed Ware: Glaze is a glassy coating on pottery, the primary purpose of which is decoration. One important use of glaze is to render porous pottery vessels impermeable to water and other liquids. Thus, they generally function as waterproof provisions on pottery because of which these are applied basically on the earthenware vessels suitable for holding liquid. The glaze is an impervious layer or coating of a vitreous substance which is applied to a ceramic body through firing. Glazed ware is the variety of pottery that has shining blue or green slip applied on a whitish surface. Glaze may be clear or transparent at times, especially over painting or coloured and opaque. The early glaze technology emerged in Cyprus during the thirteenth century CE. Glaze may be applied by dusting the unfired composition over the ware or by spraying, dipping, trailing or brushing on a thin slurry composed of the unfired glaze and water. The colour of the glaze after it has been fired may be significantly different from before firing. Some popular glaze techniques are salt glazing, ash glazing, under-glaze decoration, in-glaze decoration, and enamel decoration (Schurecht 1923: 717-29). Throughout the excavation at Cotton College, only a few pieces of potsherds were found having green glaze (Figure 8d) having some crackled marks. One such near complete pot of green Glazed ware is presently displayed at the Anthropological Museum of Cotton University recovered from the excavation. A few pieces of green Glazed ware of Turkish-Mughal origin are also recorded at Amabri excavation (Sharma 2006, Sonowal 2006: 84).

Technology

Potteries recovered from the excavations at Cotton College site are of both handmade and wheel made variety. In some cases, a combination of both wheel and handmade techniques are applied in a single pot. The pottery collection is comparatively well fired, with both open-air and kiln-based firing technique. From the composition, it seems that silica-rich clay was applied for pottery making in this area. As surface treatment, either wash or red slip has been applied on some of them. The pottery found in Ambari exhibit extremely limited application of slip. In case of deluxe ware (bowl or *bati*, plate) they used fine wash which is in the inner portion of the pot. Wash is sometime applied around in the rim portion and also till the neck portion. Only a few such shreds having the evidences of slip and wash have been observed at the Cotton College collection. This might be due to the bad preservation condition. Rain water must have washed away the slips from the pottery. A similar situation was recorded at Ambari where underwater deteriorated and erased the surface treatments from the potteries (Sharma *et al.* 2006: 49).

As tempering material, potters used crushed quartz crystal, sand, mica and sometimes they prefer paddy husk. For durability, strength and toughness of the potteries, sometimes as fluxing agents to form a glassy like impression people used feldspars for making pots. Besides giving an artistic or beautiful look, the wash is used for reducing the chances of percolation of liquid into the pores of the vessel.

Forms

From the excavations at Cotton College, hundreds of potsherds were unearthed belonging to different periods. Some tiny sherds were indistinguishable, whereas most of them were suited for reconstruction of the original pottery shapes. The sherds include rim, neck and shoulder of the pottery, fragments of body parts and bases. Several intact pots along with some with minimum breakages have also been recovered (Figure 9 - 10). From the intact pottery, and the tons of previous ethnographical studies on pottery tradition in Assam (see Sarmah and Hazarika 2018 for a detailed review), we could reach a better understanding of the forms of pottery excavated at the Cotton College campus.

The pottery forms are a way to hint on the socio-cultural aspects and subsistence pattern of a past society. The excavated pottery and its various forms are indicative of the food habits of the Assamese people in general and the inhabitants of Guwahati area in particular. Table 1 below would reflect upon some essential information regarding the excavated pottery such as how many specimens of each form (Figure 9 - 12) were recovered, what are these forms locally known as, how they look like and what were their functional value.

Table 1: Pottery Forms from the Excavations at Cotton College, 1990-92

Sl. No.	Forms	Number of Specimens	Descriptions	Usage
1	Pitchers (long and short-necked) (small and big pitcher) (Figure 13)	393	Pitchers are jar-like vessels with wide-mouthed rim and long/short neck and a circular base. Locally they are known as <i>Kalah</i> / <i>Tekeli</i> .	Primarily used for storage of liquid, particularly water.
2	Wide-mouthed short-necked globular bowls (deep and shallow) (Figure 14)	523	These are cooking vessels, resembling the 'tou' or 'choru', a utensil made of brass/bell metal, used for cooking in Assam.	Primarily used for regular and ritualistic cooking.
3	Shallow plate (intact) (Figure 15)	10	These circular plates are intact. Based on the size, these plates are called	Purpose of the plates is also to serve food.

<i>'Thali'/'Kahi'</i> in Assam.				
4	Shallow plate (broken) (Figure 15)	329	These are broken parts of the above mentioned shallow plates.	Used for serving food.
5	Plate (perforated) (Figure 15)	01	This is a broken piece of a circular plate with perforation on the base.	Probably used as the lid of the cooking vessels during steaming food.
6	Bowl (Figure 15)	54	These are small-sized circular containers with a wide mouth and round base.	Used for serving and eating food. Locally known as <i>'bati'</i> .
7	Base (of vessels)	118	These are shallow, circular base parts of above-mentioned vessels.	Regular usage for cooking and storing.
8	Simple lid (Figure 16)	43	They are some intact and broken lids, having a plain surface without a knob and mostly wheel made.	Used for covering a vessel or pot. Locally known as <i>'Dhakoni'</i> .
9	Knobbed lid (Figure 16)	11	These are complete or broken lids with an attached knob at the centre of the upper surface.	Used for covering a vessel. Attached Knobs are for easy handling, known as <i>'dhakani'</i>
10	Large vessel having appliqué decoration (Figure 15)	43	These vessels are large and thick with the presence of appliqué decoration on the rim part.	Probably used for daily or ceremonial purposes.
11	Spouted vessels (Figure 13)	10	These types of pots with hollow spouts and lids.	Used for boiling and pouring liquids.
12	Spout (broken)	163	Hollow spouts are attached to a vessel. They are made separately and affixed later to the pot.	A spout attached to a vessel is made for pouring liquids.
13	Stand/stem (Figure 17)	90	These are part of incense burner or oil lamp and locally known as <i>'gacha'</i> . On the outer surface of	Served as the stem part of a dish-on-stand, used in ritual and ceremonial

			the stand some grooves, flower and incised designs are observed.	purposes, holds lamps or incense burners.
14	Incense burner	09	Popular as the ' <i>Dhuna Dani</i> ', it holds the burning incense.	Basically used for ritualistic purpose.
15	Handle/legs of tripod vessels	28	The hollow legs support the vessel. Tripod vessels were used for cooking as the legs provide space while putting on fire.	Possibly used for cooking purpose or used on rituals.
16	Deep bowl (Figure 15)	02	These are deep, carinated containers with a wide and open mouth. Locally known as ' <i>Mola</i> '.	Probably used for both ritualistic and utilitarian purposes.
17	Tripod vessels	04	These vessels are supported by three hollow stands which provide space to put on the fire beneath.	Mostly used for cooking purpose.
18	Miniature plate	02	These are small circular plates probably for the amusement of kids.	Might have a ritualistic or decorative purpose.
19	Miniature goblet (Figure 18)	15	Small intact pots, locally known as the ' <i>ghat</i> '.	Might have a ceremonial or decorative purpose.
20	Dome-shaped terracotta object	07	Oval objects, similar to that of a lotus bud, hollow from inside with one pointed end and one mouth.	Probably used for ritualistic, amusement or decorative purpose.
21	Handle	05	Holding part of a jar like vessels.	Handles are attached to hold a jar/vessel easily.
22	Dish-on-stand	01	A more or less flat dish with decorations on the surface having splayed rim attached on top of a stand.	These are utilized for ceremonial, decorative and domestic purposes.
23	Earthen lamp	03	These are shallow small-sized earthenware with an open-mouthed rim and a pinched lip. It is	Used with a cotton wick (<i>xolita</i>) dipped in ghee or oil, for ritualistic and

			locally known as 'Saki'.	utilitarian purposes.
24	Short neck vessels	22	Medium-sized vessel with a small and sometimes wide mouth. Neck showing keel on its external surface and it has a round base, locally known as 'Ghoti/lota'.	Most probably used for ritualistic purpose.
25	Large vessels	11	These are the vessels with a wide mouth and more or less rounded base. Locally these large-sized vessels are known as 'Saru'.	Possibly used for cooking purpose.

Apart from the above mentioned diagnostic pottery with as many as 25 forms, a good amount of plain (272) and decorated (85) potsherds (body part) and non-diagnostic rims (232) were recorded. These large numbers of broken rim parts without any diagnostic attribute makes it difficult to diagnose the shape and size of the complete pottery.



Figure 19: Wide-mouthed Short-necked Bowl from Cotton College

Decorations

Decoration of pottery may serve as a vital measure for cross-cultural studies or comparisons. Designs used for decorating the pottery are taken as sources for classification of pottery types (Roy 2004). A good variety of designs has been identified at this collection which is mostly done in the pre-firing stage. The most typical designs found in this site are beater-impression, comb-impression or combed pattern and stamped design. Most of the decorations are found around the neck and shoulder

portion of the vessels. Since the excavation at Cotton College was not followed up by an extensive report unlike the Ambari excavation, it is very difficult to determine a particular layer which exhibits the highest occurrence of a particular design or when to be precise the decorative pottery reached its peak. However, considering the similarities with the decorations recorded at Ambari having its peak at around 13th century CE (Sharma 2011, 2014), identical cultural strata at the Cotton College site can be envisaged.



Figure 20: Beater Impressed and Cord-impressed Pottery from Cotton College



Figure 21: Beater-impression and Comb-impression on Pottery from Cotton College

Some of the decorations we came across while studying the unearthed pottery can be described as artistic as well as functional decorations, because of their utility in other aspects than just enhancing the aesthetics. Some of them were observed in the bottom of globular pots which starts from the mid-point of the pot where it curves towards the bottom. Most probably the function that these patterns adhered to was to provide stability to those pots by reducing pot's movement on a flat surface (Sharma 2014: 1123).

Most of the designs are found on the deluxe wares. On the cooking wares, beater marks and comb marks on the body part and simple decorations using single and multiple lines around the neck and the rims can be observed. Following are some decorative patterns observed on the pottery of Cotton College collection.



Figure 22: Stamp Impressions on the Pottery from Cotton College

Beater-impression: As the term suggests, it is an impression of a beater or a paddle mostly on the outer surface, either partially or fully, while making handmade pottery. Impressions are made either as a decorative pattern (stylistic) with a carved paddle, or they remain over the surface as a by-product (technological) while beating and shaping

the pot in leather-hard condition with a carved paddle. Both stylistic and technological attributes may also be associated with these impressions, besides its functional value, if there is any. The paddles are carved with various designs for easy beating of the sticky clay by preventing the paddle from sticking to the clay. The pottery made with beaters or paddles having grooves or carves are well-known in Northeast Indian context as beater-impressed or carved paddle pottery. Occasionally cordage or basketry is also used to wrap the paddle which is known as cord-impressed or basket-impressed pottery (Hazarika 2013, 2019). In certain cases, it is observed that these impressions are shallow and not very clear, and so the decorations cannot be figured out. Sometimes, it becomes difficult to identify whether these are cord-impressions or impressions of a carved paddle. However, in this collection, most of this type of impression appears to be beater-impressed (Figure 20 and 21) with few cord-impressed sherds (Figure 20). There are some crisscross designs which may be obtained by altering the arrangement of the lines which usually produce ribbed or basketry pattern while engraving on the paddle. These designs are the result of the inter-section of parallel lines such that their inter-sections produce small parallel-organs (Roy 2004: 127). The designs also include basket marks, crisscross marks and small web net impressions. The wide-mouthed short-necked globular bowls of deep and shallow variety which outnumbers (523 specimens) the pottery forms of the collection has occasionally rusticated concave base (Figure 19). The rustication is due to the beater-impression while shaping the pot.

Comb-impression or Comb Pattern: Comb design exhibits a frequent occurrence on pottery in the present collection. As the name suggests, the distinctive comb pattern vessels are decorated with a variety of geometric patterns incised in parallel slanting lines that resemble a pattern made by a wooden or bamboo comb-like instrument. The lines are made on the freshly shaped pottery in pre-fired stage. Apart from parallel straight or zigzag lines, the intersecting lines produce small squares or rectangles (Figure 21).

Stamp-impression: Stamp impression counts a high frequency of decorative pottery in the Cotton College excavated collection (Figure 22-23). The stamping method involves applying a stamp with an adequate amount of pressure on the unfired sundried surface of the pot. This leads to replicating the stamp pattern over the pot. The potter decorates the vessels with a wooden or terracotta stamp with positive marks on it and maintaining equal and symmetrical gaps between the impressions. Sometimes overlapping of these stamps is also noted. Unlike the cord or basket and mat impressions, stamp impression on pottery is meant for decorative purpose. To enhance the beauty of the pots, the potters used to press the stamp on the neck or shoulder of the vessels and form a circle of decorative patterns. Occasionally the decorations are made near the spout of the vessel (Figure 23). There is another specimen of a rim having stamped design and pinching on its orifice (Figure 23). Sometimes they used mica on the outer surface which gives a shiny look of the design. Designs like floral pattern or lotus design, geometric patterns like diamond or lozenge are common. From the frequency of occurrence, the diamond or lozenge pattern, rosette pattern and oval

or round sun-like radiating motifs on the potsherds, assumptions could be made that these were the most popular stamp patterns of all. The stamped concentric circles may be interpreted as Sun motifs on the pottery. Dhavalikar (1973) also terms these as Sun designs. At the site of Ghoramara in North Guwahati, a terracotta disc decorated with multiple incised marks, circular lines and at the centre portion stamped with 26 such concentric Sun motifs are recorded (Hazarika *et al.* 2020, in press).



Figure 23: Stamp Impressions on the Pottery from Cotton College



Figure 24: Incised Designs on the Pottery from Cotton College



Figure 25: Incised Designs on the Pottery from Cotton College

Appliqué Design: Appliqué decorative patterns are those that are attached to the surface of the pots and not created on the surface (Sharma 2011). First, they prepare pieces of designs with clay and later stuck those motifs on to the outer surface of the pot. It is commonly used as decoration. One of the terracotta objects has decorations with beaded collar made with this appliqué technique. The occurrence of appliqué designs on potsherds of Cotton College excavation is extremely limited, which somewhat suggest a non-local origin of those sherds. As Roy (2004) remarks they might have reached from different places through the means of trade and cultural network. There are few examples of designs made by cutting the pot with sharp objects (Figure 12c) which is still a common way of decorations among the present day Hira potters of Assam while making incense burner (*dhuna dani*).

Incised Design: Incised designs are the result of incision on pottery or any terracotta surfaces, with a sharp and pointed instrument. In Assam, incisions are fairly common on ceramics, where potters generally use pointed bamboo or wooden sticks to make creative designs, most of which are restricted to sincere linear patterns. At the excavations at Cotton Campus, several potsherds with incised designs made by pinching were recovered (Figure 24 - 25). Geometric and non-geometric patterns, floral designs and wavy lines were the most common ones. The incision patterns are though identical, yet show lack of uniformity in the styles. There is one specimen having graffiti marks (Figure 25).



Figure 26: Moulded, Incised and Ribbed Impression on Pottery from Cotton College

Basketry or Ribbed Impression: This design is characterized by roughly parallel or some convergent lines that resemble basketry impression (Roy 2004: 127). Occasionally, this design is achieved by placing freshly made pottery on a jute mat to replicate the mat impression (Figure 26). The pottery found in the Cotton Campus a number of potsherds and pottery are design roughly parallel or some convergent lines that resemble or give an appearance like a bamboo basket pattern.

Mould Pattern Design: Mould patterns are mostly observed on the bottom of globular vessels. During the process, sundried unfired pots are pressed onto moulds with the intention to replicate the existing pattern on the mould on the pottery surface (Figure 26). From Sharma's (2014: 1123) analysis of decorated variety of pottery across the Brahmaputra valley, it could be presumed that mould pattern was another common decorative technique throughout the Brahmaputra valley. This is a cost-effective method as it neither requires a high level of technical expertise, nor complicated equipment.

Interestingly, the pottery from Cotton College collection has either one of these impressions or designs or mixture of at least two to three of them. For example, the pots having stamp impression around the neck or shoulder is also decorated with wavy lines below and has the Sun-like concentric motifs or diamond stamps. Fine pinching is also done with the stamps-impressions.

Conclusion

A tradition as universal as pottery making does not develop in isolation. Comparison of the pottery of the Cotton College site enables us to determine the geographical limit of the pottery traditions found at the site. The nature of pottery assemblages from this site exhibits some similarities, in general, with the pottery traditions which flourished at Ambari. The similarity could be justified in terms of the geographical proximity which is just 600 m apart in distance.

The Ambari pottery, similarly reflects both regional and external influences. The pots are generally wheel made with the exception of a few forms like globular vessels and *diyas* which are handmade at Ambari. High concentration of mica mixed with clay was used as slip which gave the golden hue after firing. It seems at Ambari, pottery was mostly made using the oxidized technique of firing (Sharma 2020: 205-25). Its relation to contemporaneous pottery culture is expressed in many ways (Roy 2004). The most recent excavations at Ambari (IAR 2008-09) has revealed Kaolin ware, Red ware, Buff ware and few Grey wares having shapes like bowls, vase, jars, carinated *handis*, dish, *lota*, lamp, lamp on stand and ink-pots. The potsherds with decorative patterns (IAR 2008-09, pl. 11-12) like loops, diamonds, leaves, rosettes of stamped variety in the Kushana levels at Ambari are also present in the Cotton College site.

As mentioned earlier, the excavations at Cotton College revealed a large number of pottery, cannonballs, terracotta plaques, decorated bricks and sculptural art. However, the generalization of pottery in Cotton College with Ambari would be problematic since information on the stratigraphy of ceramics at Cotton College is limited. Keeping that limitation in mind, some basic comparisons were made between the potteries found in both the sites, wherein pottery fabrics, technology, forms and decorations were considered. Accordingly, ceramics like Red ware, Kaolin ware and Grey ware with similar decorative styles are common at both the sites. The stamps of concentric Sun motifs along with the diamond or rosette or lozenge pattern are the common decorations on the Ambari pottery (IAR 1968-69, pl. I and II). The ribbed, basket, quadruple, crossed and criss-crossed designs defined by Goswami and Roy (2006: 28-29, pl. XVI) are all present in the Cotton College collection. The pottery assemblages from both the sites suggest ritualistic and domestic or utilitarian purpose of the ceramic repertoire. To sum up, both the excavations at Ambari and Cotton College exhibit fair resemblance in terms of pottery.

The Cotton College campus and the Ambari Archaeological site, both are situated adjacent to each other on the south bank of river Brahmaputra. The aerial distance between these two excavated sites is approx. 600 m. The Ambari site has been excavated over nine seasons. Though vertically well excavated, its horizontal spread could not be ascertained as it is in the middle of the city. However, it is one of the most important sites of the Brahmaputra valley suggesting cultural development since the Sunga-Kushana period (IAR 2008-09: 10-21). Considering the similarity of the pottery in terms of types, shapes, decorations and technological features, the archaeological

remains of Cotton College campus can be considered as an extension of the Ambari archaeological site. The finding of the sculptures, terracotta plaques, architectural pieces, stone blocks, bricks and tiles besides the ritualistic pottery including miniature pots found in the excavations and frequent unearthing of similar objects while digging in nearby areas suggest the existence of a temple remains at the excavated area of Cotton College in the past. Moreover, the frequent discovery of pottery, sculptures and bricks in an area extending from Panbazar, Kachari, Uzanbazar, Kharghuli, Navagraha, Silpukhuri and Chandmari suggests that cultural development and human settlements in ancient Guwahati was confined not only to the present site of Ambari or Cotton College, but in a wider area inhabited by a large population. A good amount of potsherds resembling Ambari and Cotton College site were recorded at river sections near Kachari bus stand and Kharghuli by the present authors.

These important sites having archaeological remains dated back to the second-first century BCE to the third century CE (IAR 2008-09: 10-21) onwards suggest that the area was occupied from the beginning of the Common Era. Moreover, the evidence of archaeological remains belonging to Sunga-Kushana, Gupta, Varmana, Salastambha and Pala periods in the ancient and early medieval phases, followed by the Ahom-Koch and colonial periods suggests a continuous human occupation for around two thousand years without any hiatus. Moreover, the area remained important throughout all the phases of history, suggested by the rich archaeological resources and historical literature and tradition.

The present day land use of the Guwahati city with urbanisation at a fast pace has posed a serious threat to the underlying archaeological settlements and antiquarian remains in the metropolitan city which needs to be addressed with a salvage archaeological strategy for unveiling the rich historical context of the Brahmaputra valley in general and ancient Pragjyotisha-Kamarupa in particular.

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