Rouletted Ware Links South and Southeast Asia through Maritime Trade

In the following study, **Shahnaj Husne Jahan** attempts to identify the maritime trade network of South and Southeast Asia by examining circulation networks of Rouletted Ware.

Introduction

The scholarly works of the 20th century have shown that the Indian Ocean trade network prior to the 3rd century CE extended from the Red Sea to the South China Sea, incorporating the core littoral regions of the Arabian Sea and the Bay of Bengal (Mookerji, 1912; Chandra, 1977; Sarkar, 1986; Ray, 1994; McPherson, 1998; Gupta, 2002). Arduous effort by archaeologists made over the last four decades has revealed a rich collection of artefacts, each pregnant with startling revelations of South and Southeast Asia's past. Archaeological artefacts found in coastal sites of Myanmar, Thailand, Vietnam, Malaysia and Indonesia clearly indicate that maritime trade between these regions and South Asia was established by the 3rd century BCE. Furthermore, early Sanskrit and Pali literature indicate that the trading communities of *vanija*s and *setthi*s arose in the middle Ganga Valley; and salt, metals, textiles and pottery were the standard items of trade. One of the characteristics of early trade in South Asia was that it was not politically controlled or administered. Instead an analysis of early inscriptional data indicates that it was in the hands of merchants and guilds that in most cases cut across political boundaries (Ray, 1989: 42-43). A particular type of fine ceramic known as Rouletted Ware may be considered as one of the very important evidence for exchange between South and Southeast Asia within the timeframe of the 3rd century BCE to the 3rd century CE.

Rouletted Ware is so called because a variety of forms including triangles, diamonds, parallelograms, wedges, and dots are 'rouletted' in a series of concentric grooves or incisions on the interior surface of the base. The pattern consists of one to three bands of concentric circles and each band contains three to ten rows of closely placed indentations. It is characterized by thick incurved rims, a contiguous body and base, and is usually wheel-thrown, well fired, thin sectioned and slipped, with an unusually smooth and strikingly lustrous surface. Its usual colour is grey and has a ring, which sounds almost metallic. Mostly found in the shape of a flat-based shallow dish, Rouletted Ware was a luxury item and was possibly meant for the use of the elite class of the society.

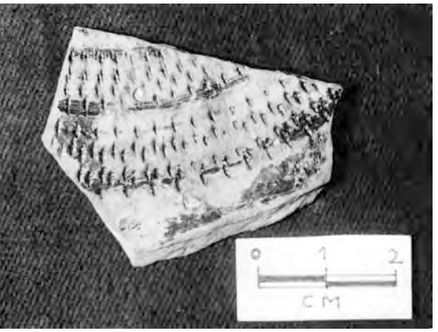

Fig. 1 Rouletted Ware from Mahasthangarh, Bangladesh.

Fig. 2 Rouletted Ware from Wari, Bangladesh.

Distribution Pattern of Rouletted Ware in South Asia

The distribution of Rouletted Ware in South Asia was indeed widespread. In Bangladesh, the ware has been reported from Mahasthangarh (Bogra district) [fig 1] and Wari-Bateshwar (Narsingdi district) [fig. 2]. In India, it has been found in West Bengal at Chandraketugarh, Deulpota, Atghara, Harinarayanpur and Hadipur (24-Parganas district), Tamluk, Tilda, Bahiri, Boral and Natshal (Medinipur district), Mangalkota (Bardhaman district), Saptagrama (Hugli district); in Orissa at Sisupalgarh (Khurdha district), Manikpatna (Puri district) and Radhanagar (Jajpur district); in Maharashtra at Junnar (Pune district), Paithan (Aurangabad district), Nashik (Nashik district),

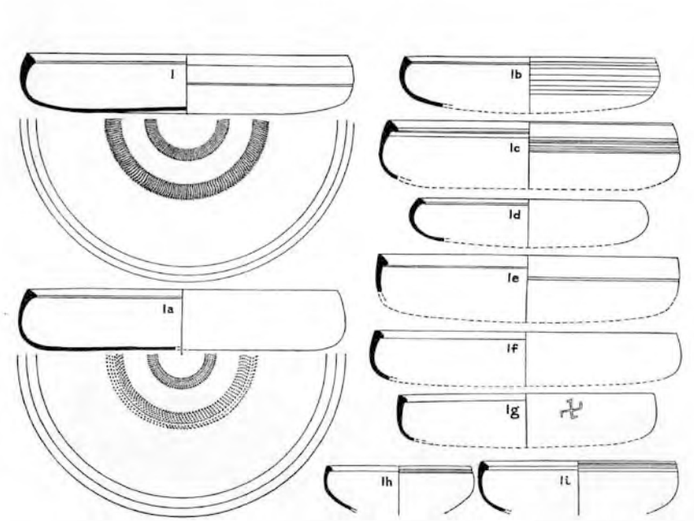

Fig. 3 Drawing of Rouletted Ware from Arikamedu after Wheeler et al. 1946

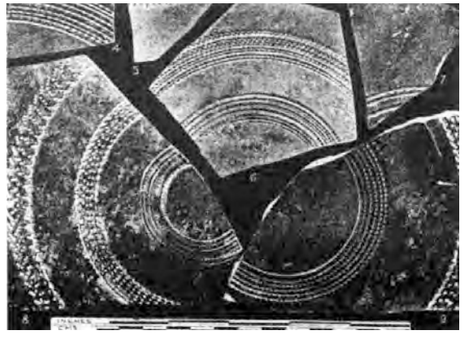

Fig. 4 Rouletted Ware from Arikamedu after Wheeler et al. 1946

Nevasa (Ahmednagar district), Ter (Osmanabad district); in Andhra Pradesh at Kondapur (Medak district), Salihundam (Srikakulam district), Vamulapadu and Satanikota (Kurnool district); in Karnataka at Maski (Raichur district), Brahmagiri and Chandravalli (Chitradurga district); in Tamil Nadu at Kanchipuram (Kanchipuram district), Karaikadu (Cuddalore district), Arikamedu (Pondicherry) [fig. 3 and fig. 4], Kaveripattinam (Krishnagiri district), Karur (Karur district), Manigramam (Nagapattinam district), Uraiyur (Tiruchchirappalli), Alagankulam (Ramanathapuran district) and Sengamedu (Perambalur district); in Uttar Pradesh at Ayodhya (Faizabad district) and in Bihar at Rajghat. In Pakistan, the ware has been reported from Taxila, while archaeological sites in Sri Lanka, which yielded Rouletted Ware, are Anuradhapura, Kantarodai, Mantai, Tissamaharama and Ambalantota.

Archaeological excavations in South Asia have yielded very little evidence in terms of dates that can help to identify the dispersion and spread of Rouletted Ware. The scant evidence that is available shows that the earliest Rouletted Ware in South Asia is from Anuradhapura. Since Deraniyagala's (1990: 274) radiocarbon dating has ascertained its manufacture in 250 BCE, the same can be accepted as the commencement date for Rouletted Ware in South Asia. On the other hand, the terminal date can be accepted as the 3rd century CE, since, as Ghosh (1986: 79) has logically argued, the ware has not been found at Nagarjunakonda (Andhra Pradesh). This is also supported by recent research at Anuradhapura, which has extended its chronology till 300 CE (Coningham, 1999). At Arikamedu, the ware has been dated from the 2nd century BCE (Begley, 1988: 440). Although Rouletted Ware from West Bengal and Bangladesh has not been dated, a relative chronology can nevertheless be worked out. To do that, one needs to remember that in most cases, Rouletted Ware in West Bengal and Bangladesh has been found along with Northern Black Polished Ware (NBPW). Dilip Chakrabarti (1992: 178) has ascertained that the earliest occurrence of NBPW in the eastern parts of South Asia is c. 300 BCE. Accepting a similar date for West Bengal and Bangladesh, which fall within this region, it is possible to benchmark c. 300 BCE for the earliest occurrence of 'Bengal' Rouletted Ware. On the basis of the above arguments, it is possible to place South Asian Rouletted Ware in the broader time bracket of the 3rd century BCE to the 3rd century CE.

Distribution Pattern of Rouletted Ware in Southeast Asia

Recent archaeological explorations and excavations in Southern Thailand have revealed a large number of Rouletted Ware sherds from quite a few archaeological sites along the Andaman Coast in Ranong province and on the east coast of the Kra Isthmus in Chumphon province. Archaeological sites which yielded Rouletted Ware along the Andaman Coast are at Pak Chan in Kra Buri district, Kapoe in Kapoe district and Phu Khao Thong [fig. 5] in Suk Samran district in Ranong province and on the east coast of the Kra Isthmus at Khao Sam Kaeo archaeological site in Muang district and Tham Thuay [fig. 6] in

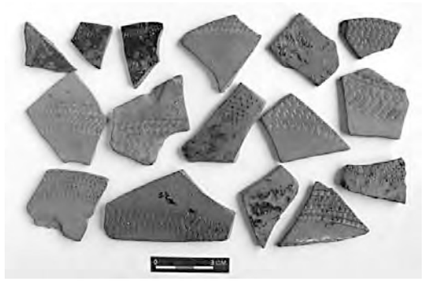

Fig. 5 Rouletted Ware from Phu Khao Thong. Courtesy: Boonyarit Chaisuwan.

Thung Tako district in Chumphon province (personal observation, during my field visit to Southern Thailand from October 2010 to January 2011). Among these, only excavated Rouletted Ware sherds from Khao Sam Kaeo archaeological site in Chumphon province have been analysed technologically by P. Bouvet (2009) and are dated between fourth and 2nd century BCE, based on radiocarbon dating. Rouletted Ware sherds of Phu Khao Thong have been reported by Captain Boonyarit Chaisuwan (Chaisuwan and Naiyawat, 2009). All Rouletted Ware sherds found in the above-mentioned archaeological

Fig. 6 Rouletted Ware from Tham Thuay. Courtesy: Chumphon National Museum

sites of Southern Thailand are identical in their shape, colour, and fineness. All are wheel-made, well fired and slipped. Most of the best preserved pieces show lustrous surface, and were mostly found in the form of a shallow dish. All of these sherds show the rouletted decoration of a series of concentric grooves or incisions on the centre of the interior base.

Besides the above-mentioned archaeological sites of Southern Thailand, Rouletted Ware has also been reported from Chansen in Central Thailand (Bronson, 1976). Other archaeological sites of Southeast Asia that yielded Rouletted Ware sherds are at Beikthano on the Irrawaddy River in Central Myanmar (Aung Thaw, 1968); Bukit Tengku Lembu in Perlis on the western coast of Malaysia; Kobak Kendal and Cibutak in North West Java, Indonesia (Walker and Santoso, 1977-78); Sembiran, a coastal site on the north coast of Bali, Indonesia (Ardika and Bellwood, 1991); and Tra Kieu, the ancient Cham capital of Simhapura in Central Vietnam (Yamagata and Glover, 1994). Among these, Rouletted Ware of Sembiran has been dated from the last centuries BCE to the early centuries of the Christian Era (Ardika and Bellwood, 1991) and Rouletted Ware of Tra Kieu has been dated to the 1st century BCE and the first half of the 1st century CE (Yamagata and Glover 1994).

Production Centres

What is most significant about all the findings of Rouletted Ware noted above is that they are all comparable in form, texture, colour of the slip and general appearance to the earliest examples of the same found at Arikamedu during the 1945 excavation. Since 1945, scholars have tried to solve the problem of the origin of the distinctive rouletted decoration, which was believed to have been made with roulette. Since the decoration was identified as distinctly non-Indian and since it bore similarity with imported Arretine ware found at Arikamedu, Wheeler concluded that the designs as well as finer quality Rouletted Ware found at the site were imported from the Mediterranean region, while the cruder variety was locally made. The imitations of Rouletted Ware made locally were believed to be distinct because of the softer fabric and coarse rouletted design (Wheeler *et al.*, 1946: 46; Wheeler, 1947-1948: 200; 1976: 50). However, as Begley (1983: 469, 478 and 1988: 439) has pointed out, Rouletted Ware at Arikamedu predates Arretine imports. Therefore, Arretine ware could not have been the source of inspiration for Rouletted Ware. She is of the opinion that the Rouletted Ware of Arikamedu was probably produced locally, possibly made at Arikamedu, or in the vicinity of the settlement. Because the technique of rouletting was not known to the cultures of south India at that time, Begley too believes that it was possibly introduced from the Mediterranean region, where it was practiced from the 4th century BCE.

Having examined the opinions of Wheeler and Begley, it is necessary now to look into the scientific analysis of Rouletted Ware in order to investigate its alternative production centres. In the Neutron Activation Analysis (NAA) for 20 rare elements performed on nine sherds of Rouletted Ware (two from Anuradhapura, two from Arikamedu, one from Karaikadu, three from Sembiran and a single sherd from Pacung), it was found that all of them are close in composition. Hence, Ardika & Bellwood (1991: 224) conclude, “a single manufacturing source for all the samples listed, both Indian and Balinese, is a definite possibility.”

Two X-ray diffraction (XRD) analyses have so far been performed on Rouletted Ware. One of these, performed by Ardika & Bellwood on eight sherds (one from Sembiran, four from Anuradhapura and three from Arikamedu), has revealed that all contain essentially the same minerals, which are mainly quartz with traces of mica, muscovite, potassium feldspar and plagioclase feldspar. The basic composition of slip and sherd interior was also found to be similar, except for one sample from Anuradhapura, which contained traces of hematite in its slip. What is most significant is that the composition of the rouletted sherd from Sembiran is not identical with the soil samples from the find spot and local sherds.

Another XRD analysis was performed by Vishwas D. Gogte (1997: 69-85 and 2001: 197-202) on Rouletted Ware and clay from Mahasthangarh in Bangladesh; in India, from Tamluk and Chandraketugarh in West

Bengal; Sisupalgarh and Manikpatna in Orissa; Nashik in Maharashtra; Kottapatnam in Andhra Pradesh; Hampi/Annegondi in Karnataka; Arikamedu, Alagankulam, Adichanallur in Tamil Nadu; Tissamaharama in Sri Lanka and Tra Kieu in Central Vietnam. The analysis shows that Rouletted Ware from all the sites mentioned above is mineralogically identical with the Rouletted Ware and the clay from Chandraketugarh. Furthermore, the XRD pattern of the Nashik sample matched closely with the clay from Tamluk and to a lesser extent, with that of Chandraketugarh. From these results, Gogte (1997: 83) concludes that "Rouletted Ware was produced at multiple production centres in the lower Ganga plain with the epicentre in the Chandraketugarh-Tamluk region of Bengal".

All the three tests discussed above point to a single conclusion. The "single manufacturing source" indicated by the NAA and similar mineral content indicated by Ardika & Bellwood XRD analysis is further supported by Gogte XRD analysis, which shows that the "single source" is none other than the lower Ganga plain in general, and Chandraketugarh-Tamluk region in particular. However, Bellina and Glover (2004: 78) find it difficult to accept Gogte's arguments that all came from Bengal. Likewise, Ford *et. al.* (2005) reminds us that "these studies need further investigation because XRD is not likely to be conclusive in assigning geological source, and the NAA result so far is based on only 10 samples." Ford *et. al.* (2005: Appendix 2) have carried out a geochemical investigation on 127 ceramic sherds from Anuradhapura, Kantarodai, Mantai, Arikamedu, Alagankulam and Vaddamanu as well as modern clay and modern pottery collected at Anuradhapura. Interestingly, the result of their analysis shows the common geological origin in India, and it has been postulated that this type of pottery was probably the product of indigenous communities from a single long-running major ceramic production centre (Ford *et. al.,* 2005). It should be noted here that the above-mentioned geochemical analysis also points to a single manufacturing source. In addition, there is no inconsistency among the scholars that the Rouletted Ware originated in South Asia.

As already mentioned above, Rouletted Ware in West Bengal and Bangladesh has been found along with Northern Black Polished Ware.

Similar feature can be seen in the case of Southern Thailand as well. In this connection, the author refers to another XRD analysis on Northern Black Polished Ware and Rouletted Ware from Mahasthangarh in Bangladesh that has been conducted by Vishwas D. Gogte (2001: 198). The analysis shows that "the clays used in the production of all varieties of Northern Black Polished Ware having surface colours of black, red, brown, golden yellow and silver have been found to be exactly identical with those of the Rouletted Ware found at the site." It has been shown that, in the production of Northern Black Polished Ware and Rouletted Ware, not only the same technology was employed but they were also produced from the same type of clays of the Ganga plain. It was also suggested that the lustrous Rouletted Ware might simply be treated as yet another variety of Northern Black Polished Ware with an indented circular decoration.

Hence, it may be concluded that NBPW and Rouletted Ware were both produced in the lower Ganga plain within the timeframe of the 3rd century BCE to the 3rd century CE. However, because it has not been possible so far to identify kilns with wasters, which may have produced this type of ware, it is not possible to state with certainty where the production centres may have been located. We may also think of carrying out some more geochemical analysis including samples from the sites in Bangladesh, West Bengal (India) and Southern Thailand. Nevertheless, one can suggest that like NBPW, Rouletted Ware also spread from the Ganga Valley into South India as well as across the Bay of Bengal to Southeast Asia from the maritime port sites of Tamralipti (Tamluk), Gangabandar (Chandraketugarh) and Wari-Bateshwar (for details of these maritime port sites, see Jahan 2006: 9-29). Since these ports were the only outlets for the entire north and northeastern part of South Asia, they played an important role in the history of maritime trade of the entire region.

Concluding Remarks

Rouletted Ware is a definite indicator of maritime trade between South and Southeast Asia within the time frame of the 3rd century BCE to the 3rd century CE. There can hardly be any doubt that the considerable

number of Rouletted Wares found at each site of South and Southeast Asia signifies that maritime contact was not accidental but of a "recurrent and repetitive" nature and, thus, it featured in a "typical inventory of trading goods". The distribution pattern of the ware is implying in turn that the trans-shipment of wares possibly took place along a coastal trade route (Sri Lanka-South India-Orissa-Bengal-Southeast Asia). 'Bengal' lies mid-point between the western arm of the route (to south India and Sri Lanka) and the eastern arm (to Myanmar, Thailand, Vietnam, Malaysia and Indonesia). This view is further strengthened when we remind ourselves that coastal trade routes continued even in the medieval period. Primitive navigation and sailing schedule determined by monsoon winds, land and sea breeze would make sailing in this route feasible. It was single route two-ways, necessitating the use of the inter-monsoon period of August-September (for voyages to 'Bengal' from Sri Lanka and South India) and the following inter-monsoon period from November to April (for voyages from 'Bengal' to Southeast Asia).

Since Rouletted Ware was a luxury item and possibly meant for the use of the elite class, the presence of a sizeable affluent community can possibly be deduced in the countries that produced and imported this luxury commodity.

Furthermore, because most of these South Asian sites were centres of Buddhism, and the spread of Buddhism and trade was organically connected, it is possible to conclude that Buddhist religious establishments provided a "religious homogeneity of traders". Rouletted wares clearly show close link of Buddhist religious establishments in South Asia with the merchant class.

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