

# Rouletting and Chattering

## Decoration on Ancient and Present-Day Pottery in India

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As the *Periplus of the Erythraean Sea* and other Classical accounts tell us, there was a thriving sea trade between the ports of the Red Sea and south India during the 1st century A.D. Unfortunately we know very little about when this trade first began or who the earlier traders might have been, since written records dealing with pre-Imperial Roman times are few and vague. For the reconstruction of the trade patterns of the late Hellenistic period we must therefore turn to the available archaeological evidence. My recent research indicates that the decoration on the distinctive Indian ceramic type called Rouletted ware may have been influenced by Hellenistic pottery techniques, perhaps introduced into India as early as the end of the 2nd century B.C. This hypothesis has far-reaching implications for the understanding of the formative phase of the overseas contact between south India and the west. While the problem of the dating of the Indian Rouletted ware was discussed by me elsewhere (1983), this paper deals more closely with the question of how Rouletted ware was made, where it might have been produced, and what were its possible sources of influence from the Mediterranean world. In addition to archaeological data, this paper also studies contemporary practices of pottery-making in an Indian village, since these furnish close parallels to the techniques used in ancient India.

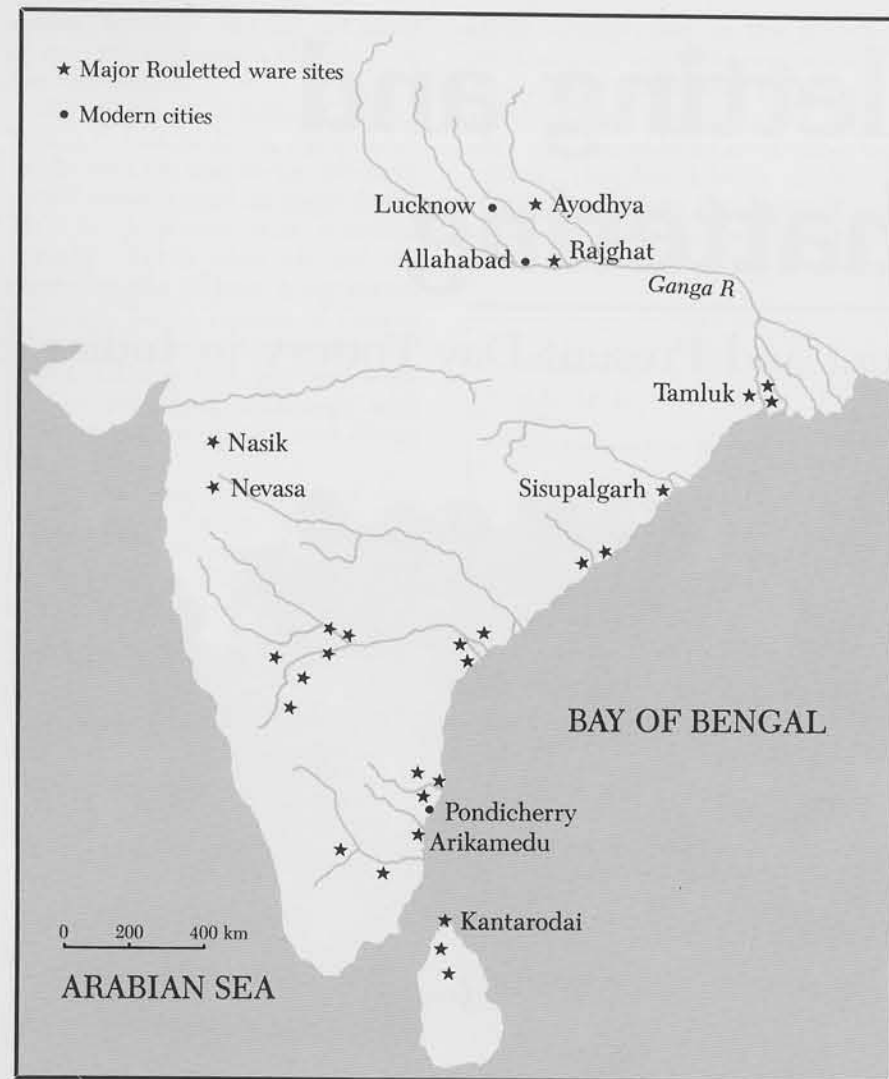


*1* Bijnaur pottery for sale at the fair in Lucknow. In the foreground are covered bowls of lustrous black pottery with rouletted decoration.

### *Rouletting versus Chattering*

The Indian Rouletted ware is named after its decoration, which, no doubt, is its most distinctive feature. Indian scholars borrowed the term rouletting from Classical archaeology where it is widely used to describe the process of making indented concentric or spiral linear patterns on pottery, by means of a small toothed wheel called a roulette. The patterns are

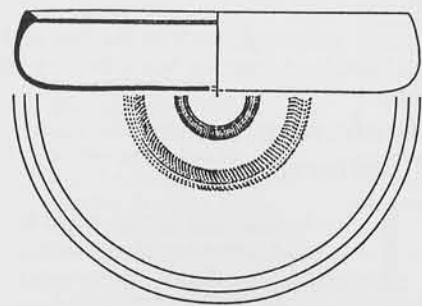
produced by the continuous rolling motion of the roulette when it is held against the revolving clay vessel, and typically are arranged in narrow bands consisting of one or more rows of evenly and closely spaced small indented marks. Even among Classical archaeologists, however, the term rouletting is sometimes inappropriately used to refer to quite a different process that is more accurately called chattering (Peets 1963). Chattered designs are also arranged in concen-



2  
India and Sri Lanka.

tric or spiral bands made of tiny wedge-shaped indentations, and are produced by the continuous flicking motion of a tool with one or more long thin points, when it is held against the surface of the clay vessel rotating on the potter's wheel. Both techniques were used in Classical times, as was pointed out by B. A. Sparkes and L. Talcott in their description of the pottery from the Athenian Agora (1970:30-31). The spirals on Greek pottery were most likely made by the process of chattering, while on Roman wares typically a roulette was used.

In India, Rouletted ware was first identified in 1945 during Sir Mortimer Wheeler's excavations at Arikamedu (see Fig. 2), a unique site situated on the southeastern coast that engaged in extensive re-



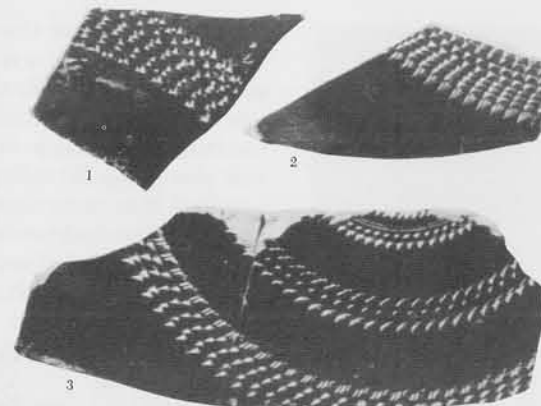
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Dish of Rouletted ware (Type 1 at Arikamedu) with two bands of rouletted or chattered decoration, dating from ca. 2nd to 1st century B.C. (After Wheeler, Ghosh and Deva 1946, Fig. 12:1a)

gional commerce, and also traded with the Mediterranean world, apparently during both the late Hellenistic and Roman periods (Wheeler 1951; 1954). But, since neither pottery workshops nor potters' tools were unearthed in the limited area of these and later excavations, very little is known about the local pottery industry. Since the time of excavations at Arikamedu, similar "rouletted" pottery has been found at numerous other sites in India and Sri Lanka, and all of this has been designated as Rouletted ware, irrespective of the technique of decoration.

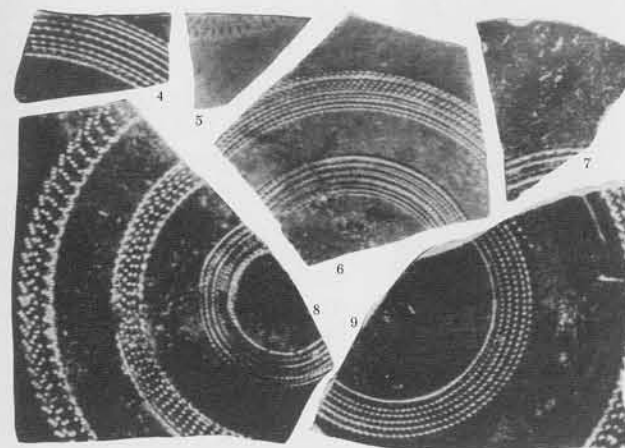
In the present paper, it will be argued that the decoration on some of the Rouletted ware at Arikamedu was most probably produced by the process of chattering (Figs. 4, 5), and that fine chattered or rouletted wares could have been produced by any skilled local potter, once the basic technique was understood. It will also be argued that although such technology was probably introduced from the Classical world, Arikamedu must have been one of the major centers for the production and distribution of Rouletted ware. These arguments will be supported by evidence from the site, as well as from my recent observations of similar ceramic techniques used by a contemporary potter in the north Indian village of Bijnaur.

### Rouletting or Chattering at Arikamedu

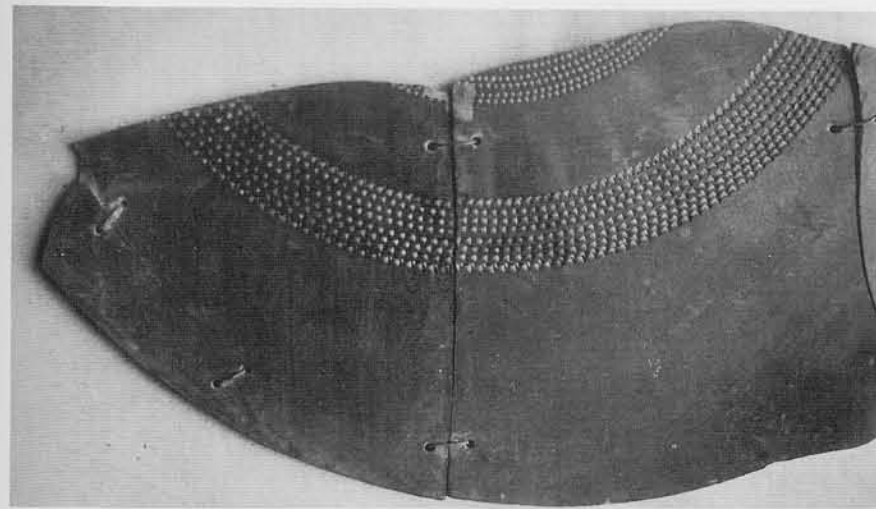
At Arikamedu "rouletting" occurs on simple footless dishes with inturned rims (Wheeler's Type 1; Fig. 3), but similar dishes without "rouletting" also exist at the site (Wheeler's Types 2 and 3). In the early levels, "rouletted" dishes are of fine variety, but in later levels both the fabric and the quality of decoration deteriorate and become coarse. In both cases, however, the decoration is always on the inner surface of the flat base. The patterns consist of one to three bands of concentric circles, each band containing three to ten rows of closely placed indentations which look like tiny dots, strokes, wedges, triangles, or other shapes.



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Varieties of decoration, most probably chattered, on Rouletted ware at Arikamedu. Experiments show that the gouging effect, as seen on these examples, may have been due to the wetness of the clay when the decoration was undertaken. (Photograph after Wheeler et al. 1946, pl. XXVA)



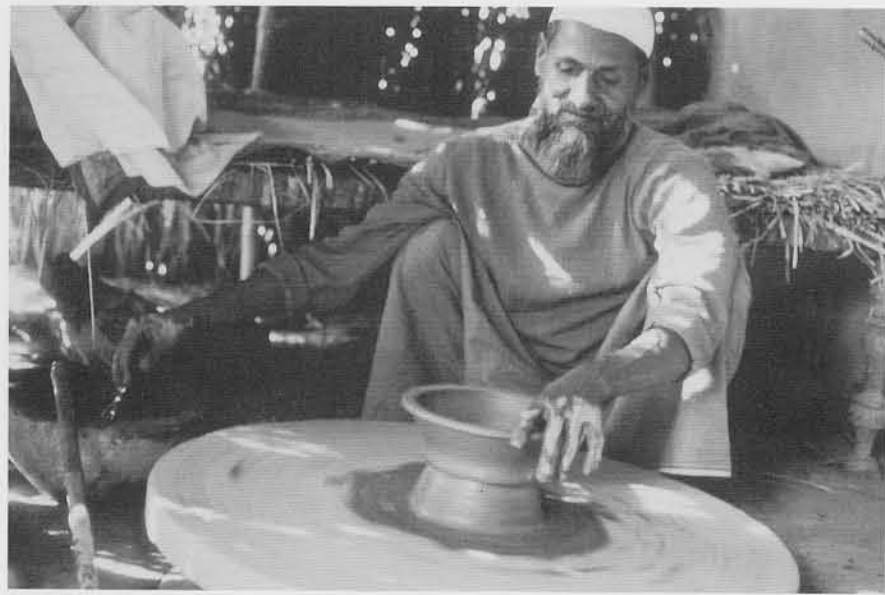
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Varieties of decoration, most probably chattered, on fine Rouletted ware at Arikamedu. Numbers 4 and 7 show wedge-shaped dots occasionally turning into grooved lines. Similar irregularity occurred when the potter in Bijnaur tried to make several rows of concentric circles consisting of tiny dots, using a fragmentary comb as a chattering tool. (Photograph after Wheeler et al. 1946, pl. XXVB)



6  
Fragments of a Rouletted ware dish from the French excavations, now preserved in the Pondicherry Museum. The fragments, put together by the excavators, are of the fine variety with black surface and show two bands of decoration, most probably made by the process of chattering.

Most scholars are agreed that the technique of "rouletting" was imported from some as yet unidentified source in the Mediterranean region, but no precise place for the original manufacture of Rouletted ware was ever determined. This interpretation is based on the apparently sudden introduction of this technique into the Indian context. Krishna Deva, who described the Arikamedu Rouletted ware from Wheeler's excavation, felt that the coarse variety was made locally, but was not certain about the place of production for the fine variety (Wheeler, Ghosh, and Deva 1946). Wheeler considered that fine Rouletted ware was derived from Arretine ware—which he found at the site—since he believed that trade between Arikamedu and the west was essentially a Roman enterprise dating from the time of Augustus on. J. M. Casal, who in his excavations discovered evidence for earlier trade, pointed out similarities between Rouletted ware and earlier black wares in the Mediterranean (1949:37). He further noted that the fabric of fine Rouletted ware (Fig. 6) was different from that of earlier local wares at the site. But no precise place of production, in the west or in south India, was suggested. Some Indian archaeologists have confused the issue by sometimes referring to the fine variety as "Roman" and the coarse variety as an Indian copy.

Since the fine variety occurs first, and is central to the question of origin, it will be the focus of our discussion on the source of the technique of "rouletting" and the production of Rouletted ware. "Rouletting" certainly must have been introduced from the Classical world, since it was widely prevalent there and Arikamedu is known to have traded with the west. But Rouletted ware, as we know it at Arikamedu, could not have been imported from any known source in the Mediterranean region, for it is quite different from Hellenistic and early Roman wares in fabric, shapes, and scheme of decoration. Even if we consider only the decoration for the moment, the differences are quite apparent. On Mediterranean pottery, "rouletting" is usually one part of the dec-



7

In the contemporary village of Bijnaur, about 18 kilometers from the north Indian city of Lucknow, a potter shapes a vessel of black pottery on a hand-rotated wheel.

oration, while at Arikamedu it is the *only* decoration. Furthermore, on Mediterranean pottery the bands are narrower than at Arikamedu, where between five to ten rows in a band is the norm. Finally, at Arikamedu the shapes of the indentations are frequently different from those on Classical wares. Such differences can also be demonstrated in vessel shapes, fabric, and surface treatment. We must, therefore, consider local production as a more viable alternative.

Before proceeding further, let us first consider the time-frame in which—and the source from where—the new technique of decoration could have arrived. If the first occurrence of Rouletted ware at Arikamedu was in the 2nd–1st century B.C., as the internal evidence now seems to indicate, the source of influence must be pottery of the pre-Roman, that is, pre-Augustan period. One possible source is the Eastern Sigillata A ware (with an earlier black glaze variety as well) to which my attention was drawn by Professors Henry Robinson and Kathleen Slane. It seems probable that this ceramic, manufactured in Syria, was exported to other places around the end of the 2nd, or early in the 1st century B.C. Since this is approximately the time period to which the earliest occurrence of Indian Rouletted

ware can be dated, it would be tempting to conclude that Eastern Sigillata A may be the source of inspiration for the manufacture of Rouletted ware. But since not much is known about the early trade at Arikamedu this hypothesis needs further investigation. At present, it is difficult even to determine whether some actual pottery was brought to Arikamedu, or whether it was merely the transmission of technology via the traders.

### Contemporary Ceramic Traditions

An important question is: even if the techniques of rouletting or chattering was introduced from outside, could the local potters have produced what is known as the fine Rouletted ware? To ascertain this, we must examine the other characteristics of the ware in the context of Indian ceramic traditions of that time. Other than the pronounced “beaked” rim profile, the most distinctive features of the pottery—such as the simple footless dish shape, the fine fabric, the reduced firing, and the lustrous black surface—exist in various gray-black wares of the second half of the 1st millennium B.C. in northern and southern India. Even

finer examples of the highly lustrous type of dish are represented in the earlier Northern Black Polished ware. The nuclear area for the Northern Black Polished ware was the Gangetic valley, but it had reached the coast north of Arikamedu by the 2nd century B.C., for this was a period of rapid transmission of ideas and technology in the Indian subcontinent. Therefore, the making of a dish of lustrous gray ware, and the diffusion of its technology, was not unique in early historical India, only “rouletting” was.

If only the technique of decoration arrived from the west, and in the pre-Roman period, the chances are that it was initially the method of chattering. A close examination of the sherds from Arikamedu shows that this may have been the case, for some of the characteristics of the decoration—such as the wedge shapes of the indentations, the occasional change of indented marks into grooved lines, and the irregularity in spacing—are more likely to have occurred as a result of a flicking motion rather than the continuous furrowing of a roulette. In addition, it also appears that some of the tools used for chattering must have had multiple points, similar to those used for making multiple concentric grooved circles. Furthermore, experiments made with a metal pin show that a single tool could make a variety of indentations, depending upon when the decoration is undertaken. The gouging effect, quite striking on some Arikamedu sherds, occurs when the vessel is quite wet, that is, the decoration is made at the time the vessel is formed on the wheel (Figs. 4, 5). On the other hand, the rows of almost round tiny dots are more likely to have been made after the vessel had partially dried.

The above observations apply only to some of the sherds, for a vast majority are too fragmentary for satisfactory examination. Thus, the still unanswered question is whether any of the pottery is rouletted, and whether the Roman roulette was ever introduced at Arikamedu. The use of the roulette, no doubt, would have made the task of decoration easier and the

patterns more regular in appearance. There are only a few sherds at Arikamedu that, because of the regularity and evenness of the indentations, may be regarded as rouletted, but whether this was the case must be determined by further experimentation, and observation of contemporary methods of similar decoration.

### Rouletting and Chattering in Bijnaur

The difference between rouletting and chattering was recently demonstrated for me quite unknowingly by a potter in the village of Bijnaur near Lucknow, where one simple technique of making fine lustrous black pottery with rouletting is currently being practiced (Figs. 1, 8). In addition to rouletting, the Bijnaur pottery production provides important insight into other aspects of technology which may be relevant to Arikamedu. It is therefore worthwhile to digress and describe the process and its discovery in some detail.

Upon a visit to Lucknow in October 1984, I happened to see in a home a small black jar which had two striking similarities to the Arikamedu Rouletted ware. The first was its black lustrous surface, and the second was its decoration, which included a band of rouletting consisting of evenly spaced strokes. I therefore decided to locate its source of production. After several inquiries, I discovered that at the fair of Gangasnana, held once a year around November, a small amount of decorated black pottery is sold along with the predominant red wares. Further inquiries in the neighboring villages revealed the name of one potter, who was eventually traced to the village of Bijnaur, some 18 kilometers west of Lucknow by road.

At Bijnaur, I found that there were several families of the traditional Hindu potter caste, the *kumbhars*, who were making utilitarian vessels in red wares; however, there was one Muslim family who made gray ware, locally known as black pottery because of its surface color, that was decorated with rouletted, stamped, incised, and



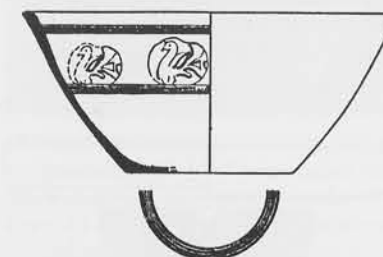
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Bowls and lids of black pottery from the village of Bijnaur. The heightened luster is due to an application of mustard oil before firing. The pottery has a variety of decoration, including a band of rouletting on the lid.



9

Dishes of Bijnaur black pottery, with rouletted and stamped decoration, made on request. The tools used for decoration are a brass roulette with a detachable wooden handle, and several terracotta stamps.



10

Bowl of Type 10 at Arikamedu found in various fabrics, with stamped decoration between grooved lines and grooved circles on the base, dating from ca. 1st century B.C. to 2nd century A.D. (After Wheeler et al. 1946, fig. 17:10b)

chiselled designs. Due to limitations of time, it was not possible to pursue the search in other villages around Lucknow, especially villages to the east which are also known for pottery making. Therefore, it is quite possible that there may be other potters who make similar wares, residing in the villages around Lucknow.

The potter observed and interviewed was Abdul Hasin, whose father, Maulvi Imam Ali, and uncle, Hasan Ali, are also practicing potters. The entire family is involved in the process of pottery making during the work season. The male members of the family prepare the clay and work on the wheel, while the women assist by carrying the pots for drying, stacking them, preparing the slip, etc. The family lives in a modest house made of mudbrick walls and a thatched roof. The open yard in front of the house is the work area for all activities related to pottery production, including firing.

Although the family makes a variety of vessels, the standard shapes in black pottery are bowls and jars, and their lids. The vessels are not considered to be for daily use, but are supposed to be containers for special items in a household, and sell at the fair for the very modest sum of a rupee or less (ca. US\$.08).

The clay used for preparing this black pottery is different from that used by other potters for ordinary wares. Abdul Hasin indicated that his family has the privilege of obtaining fine gray clay from the neighboring tank (irrigation reservoir), which is part of a Muslim *dargah* (shrine) complex maintained by Muhammad Malik Omar Sharif Sayyid. This exclusive right seems to be causing some tension in the village, but he believes that this source of clay is essential for making the black pottery produced by his family.

The pottery is thrown on a simple hand-rotated wheel (Fig. 7) and most of the decoration is added at the time the vessel is shaped, that is, when the vessel is still quite wet. The most valuable tool for decoration is a roulette (*manka*) made of brass with a detachable wooden handle; the family owned two of these. The roulette is held to

the wall of the vessel firmly, while it is revolving on the wheel, making a band of regularly spaced small strokes. The standard design consists of one band of rouletting on the outer surface of the vessel, just below the rim, or on the lid. In appearance, the rouletting is very similar to that on early Roman wares.

Other decoration, consisting of impressed and incised designs, is added immediately after the vessel is removed from the wheel. The impressed designs are made with stamps, terracotta cylinders about 4 centimeters long with a motif on one end that are made by the potters themselves. The motifs consist of a leaf, a rosette, a star, and a wheel. The pattern is formed by placing the same stamp at more or less regular intervals on the outer wall of the vessel. Connecting these stamped impressions are incised lines made with a pointed wooden tool which looks like a stylus. Finally, after partial drying, cut and chisel work is done with a knife.

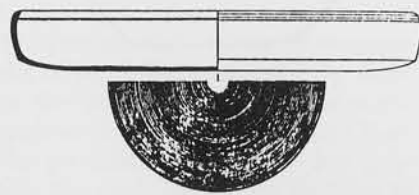
Surface treatment is undertaken after the vessel has dried in the open air to leather-hard condition. The vessel is dipped in a bucket of water, which also contains finely ground clays obtained from three different sources, two of which are local and one from as far away as the city of Allahabad. After the 'wash' is applied the vessel emerges light brown in color and is let to dry some more. The slip turns black upon firing. The pottery is neither polished nor burnished, but before firing mustard oil is applied very gently with a piece of cloth to both surfaces of the vessel; this, on firing, is considered to produce the lustrous finish. It was not possible to observe the firing procedure. According to the potter, the vessels are fired in an open bonfire made with dried cowdung cakes and wood. The finished product, however, is a pot with a uniform dark gray body, black lustrous surface, and decoration consisting of a variety of designs, including rouletting (Fig. 8).

Since the shapes of the vessels and their decorated surface were quite different from that of ancient

**"The gouging effect, quite striking on some Arikamedu sherds, occurs when the vessel is quite wet"**



11 Fragmentary dish of gray ware from the French excavations at Arikamedu (Wheeler's Type 61), now preserved in the Pondicherry Museum. The dish dates from ca. 1st century B.C. and is decorated with grooved concentric circles, which cover more than half the surface of the base. Grooved concentric circles occur on several other types of pottery at Arikamedu and may have been inspired by bands of grooved circles on Hellenistic-Roman pottery.



12 Dish of gray ware (Type 6a at Arikamedu) decorated with concentric grooved circles covering more than half the surface of the base, dating from ca. 1st century B.C. (After Wheeler et al. 1946, fig. 15:6a)

Rouletted ware, I asked the potter to make a dish shape and decorate its inner surface. Furthermore, I asked if he could make several rows of concentric circles, consisting of closely placed dots. Consequently, two small dishes (*tash-taris*) were quickly thrown on the wheel with two types of decoration. In the first case, the dish was decorated with bands of rouletting interspersed with impressed medallions, using the roulette and stamps he already had as tools (Fig. 9). On the other dish, a band of four rows of concentric tiny wedged dots was made by the continuous flicking motion of a fragmentary comb held against the inner surface of the dish rotating on the wheel. The important factor appeared to be the dexterity with which the comb was held, for occasionally the dots became tiny wedges interconnected with grooved lines. Such irregularity can be seen on some sherds at Arikamedu as well. It is therefore quite possible that a similar tool for chattering may have been used by potters in ancient times.

In addition to possible methods of decoration, the Bijnaur pottery, which is still uninfluenced by modern technologies, demonstrates a simple technique of producing luster. It would be important to investigate whether oiling was also used as a method of heightening luster on Rouletted ware and other ancient potteries, such as the Northern Black Polished ware.

### Arikamedu as a Production Center for Rouletted Ware

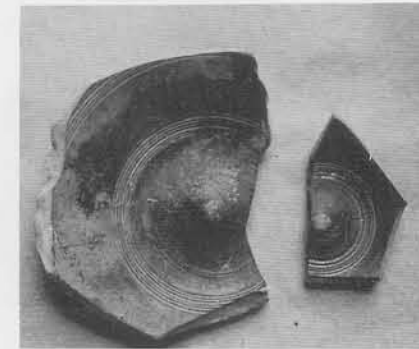
From the discussion in the preceding sections, if we draw the conclusion that the potential for manufacturing Rouletted ware existed in ancient south India, Arikamedu would appear to be the most likely center for its production and distribution. There are two main reasons for suggesting this. The first concerns the spatial distribution of the ceramic type. Rouletted ware is now known to have had a very wide distribution all along the eastern coast—including northwest Sri Lanka—as far north as the Gangetic delta.

Inland, it reached settlements in the drainage area of the major rivers emptying into the Bay of Bengal. It seems to occur in larger quantities, however, at sites close to the coast and in the southeastern parts of the peninsula; at sites farther removed from these areas—such as Nasik and Nevasa in the western Deccan, and Rajghat and Ayodhya in the Gangetic valley—only a few sherds are reported.

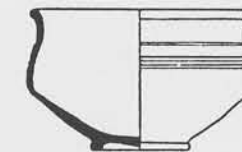
In spite of the fact that the absolute contemporaneity of all these sites cannot be established at present, it seems that the major thrust of the Rouletted ware trade was coastal, and in the southeastern regions of the peninsula. Therefore, if the pottery was produced in India, its earliest production center (or centers) must have been along the southeastern coast, or in close proximity to the coastal sites. In addition, the place must have been a major center of trade. Arikamedu is such a site.

Secondly, of all the Rouletted ware associated sites, Arikamedu is the only one which has evidence for sustained trade with the west, from where the technique of chattering, or rouletting as the case may be, must have been introduced. In addition to actual imports, such as amphorae, Arretine ware, and glass bowls, evidence for this trade is also found in Rouletted ware and other new ceramic types evolved during the 1st century B.C. and the 1st century A.D. These were most probably made locally, judging from the fabric, but were almost certainly influenced by Hellenistic-Roman pottery. We must therefore view the question of the earliest production of Rouletted ware in conjunction with these other types also, for it seems that the impact of trade was felt on the local ceramic industry as a whole.

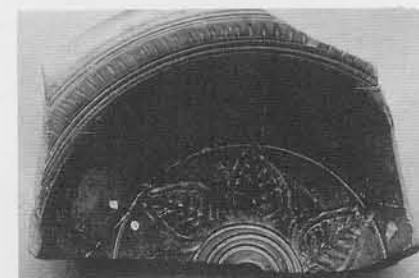
Of these other ceramic types, perhaps the most relevant for our purposes are the ones that are decorated. One of the earliest—dating from early 1st century B.C. on—is Wheeler's Type 10, a bowl with impressed decoration which is found in various fabrics at the site (Fig. 10). The decoration is on the outer surface, below the rim. It consists of stamped motifs of birds, peacock,



13 Two fragments of vessel bases of gray ware with black lustrous surface, from Arikamedu. The decoration consists of grooved circles around a central 'knob,' perhaps inspired by vessels of the Hellenistic-Roman world. The sherds are from French collections, now in the Pondicherry Museum.



14 Bowl of red ware, Type 18 at Arikamedu, that imitates Arretine ware shapes and occurs at the same time as Arretine imports at the site. (After Wheeler et al. 1946, fig. 18:18)

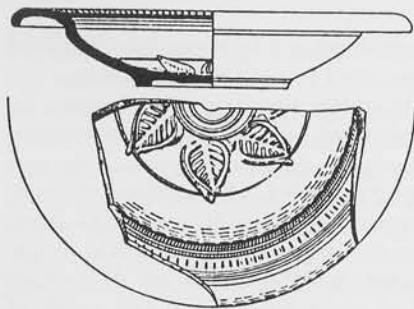


15 Fragmentary dish of gray ware with black lustrous surface (Wheeler's Type 141) from French excavations at Arikamedu, now in the Pondicherry Museum. The dish is decorated with a row of nicks between grooved lines at the rim, and a stamped leaf pattern around grooved circles on the base. The dish occurs at the same time as imported Arretine ware and may have been inspired by pottery of the Roman world, both in shape and in decoration.

or fish placed between two bands of grooved lines. The technique of stamping was commonly used in the west, as well as the arrangement of stamped motifs between grooved lines. The method of decoration on Type 10 seems to have been inspired from such decorations, but the motifs are distinctive and must have been the work of local potters. An important point to remember is that "rouletting" and stamping do not occur on the same vessels at Arikamedu, as they do on Mediterranean pottery, although both techniques seem to have arrived from the Classical world.

Grooved concentric circles, on the inner surface of flat dishes, is yet another type of decoration that may have been inspired by western pottery traditions. At Arikamedu, such decoration appears on Wheeler's Type 3a and Type 6a; the most elaborate example is Type 6a where grooved concentric circles cover more than half the surface of the base (Figs. 11, 12). But of greatest interest are two fragmentary bases of bowls with grooved circles around a central "knob", known as Knobbed ware at other Indian sites (Fig. 13). In the Classical world, such bases appear on molded vessels that are considered to be copies of metal prototypes.

Another distinctive scheme of decoration can be observed on Wheeler's Type 141 (Fig. 15), a small dish of gray ware with lustrous black surface which occurs at the same time as Arretine ware and its copies (including Wheeler's Type 18; see Fig. 14). The dish has a flaring rim and a ring-foot base. The features are new at the site and almost certainly were copied from Roman wares, just as Type 18 was. The decoration is on the inner surface of the dish and consists of a row of indented 'nicks' between grooved lines at the rim, and a stamped leaf motif around grooved circles on the base (Figs. 16, 17). Like the shape, the decoration also seems to have been influenced by pottery of the Roman period. The 'nicks' at the rim may have been meant to look like rouletting on Roman wares, but were indented with a thin tool and not made with a roulette.



**16**  
Dish of gray ware with lustrous black surface; Type 141 at Arikamedu. It has a flaring rim and a ring-foot base and is decorated with a row of nicks at the rim and a stamped leaf motif around grooved circles on the base. Both the shape and decoration seem to be influenced by pottery of the Roman world. The dish occurs at the same time as Arretine imports. (After Wheeler et al. 1946, fig. 36:141)

From these and other such examples, we may infer that Arikamedu must have had a dynamic local pottery industry that was assimilating new ideas and technology, and that Rouletted ware may have evolved here. The difference between Rouletted ware and these other new types is in their relative popularity. Sherds of Rouletted ware are far more abundant than any of these other types; for example, over four hundred sherds of Rouletted ware were seen by me in the preserved Arikamedu collections, but less than forty of Type 141. In addition, Rouletted ware is distributed over a very large geographical area, while the other types are either confined to Arikamedu, or appear in small quantity at a few other sites. Rouletted ware, therefore, must have been produced at Arikamedu on a large scale both for domestic use and trade. It is quite possible that it was manufactured at other centers as well, where it could have survived for an even longer period of time. Nevertheless, the evidence so far indicates that Rouletted ware probably evolved as a distinctive ceramic type first at Arikamedu, from where it was exported and perhaps copied at other places in the wide area of its distribution.

It now seems certain that trade in Rouletted ware was in the hands of merchants of southeastern India,



**17**  
Fragment of a dish, probably of Type 141 but without the black slip. The decoration consists of a stamped leaf motif around grooved circles. The fragment is preserved in the Pondicherry Museum, and is from French excavations at Arikamedu.

operating both along the coast as well as on the island of Sri Lanka. We still do not know whether the trade to the Mediterranean region was direct, or was carried on indirectly through other traders operating in the Indian Ocean, nor can we demonstrate whether the routing was via the Persian Gulf or the Red Sea during the early formative period. But what is apparent from the ceramic evidence is that sea contact existed between the southeastern coast of India and the west from the close of the 2nd century B.C. on. We can also assume that this contact influenced the ceramic industry at Arikamedu, and that such influence continued into the accelerated trade of Imperial Roman times. **21**

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