

VASAVASAMUDRAM

*A Report on the Excavation conducted by the Tamilnadu
State Department of Archaeology*

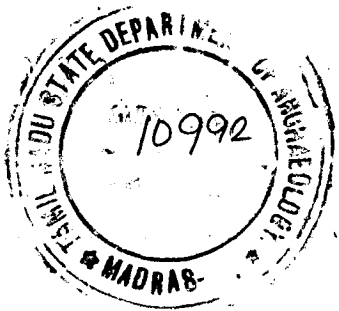
By

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PREFACE

The excavation at Vasavasamudram on the east coast, was a salvage excavation, undertaken by the Tamilnadu State Department of Archaeology, as the site was being damaged by the owner. The find of conical jars and subsequently the neck of an amphorae by the owner, which were brought to my notice, revealed the importance of the site. Though the extent of the area was limited and enough damage was done to the site, I felt it was worth while to conduct a systematic enquiry, the result of which are published in these pages. Though it is a small excavation, its importance lies in the fact, that it shows Roman contact on the east coast. This supplants what has been revealed at the great site of Arikkamedu excavated by the French Archaeologist, and Sir Mortimer Wheeler.

I was assisted in my task by Sri. Natana. Kasinathan, Sri. A. Abdul Majeed and others of the Department. The drawings were prepared by Thirumathi S. Rajam. I record my appreciation for their works.

R. NAGASWAMY.

VASAVASAMUDRAM

(REPORT ON THE EXCAVATIONS CONDUCTED IN THE YEAR 1970)

INTRODUCTION

Vasavasamudram (Latitude 12° 32' N; 80° 10' E) a coastal village in Chingleput district, lies eleven miles south of the ancient historical city Mamallapuram and two miles north of Vayalur another historic site. The chief river of this region is Palar, which rises in the Mysore country and falls into the Bay of Bengal at Oyyalikuppam, one and a half miles southeast of Vasavasamudram (Fig. 1).

The place falls within the ancient Tondaimandalam region, intimately associated with the rule of the celebrated Pallava rulers from the last quarter of the 3rd century A.D. Earlier in the sangam age assignable to the beginning of the christian era, Tiraiyars, claimed to be a branch of the ancient chola race, were in control of this region. A port in this region is sung in *Perumpanarruppadai*¹ one of the Sangam classics, "Its grand shore was surrounded by ships which brought horses, white like milk, with waving manes, from the west and the products of the north. In the streets covered with sand there were warehouses guarded by servants. There were also stately mansions in which merchants lived"². The name of the port is given in the text as Nirpeyar. This has been identified with Mamallapuram by some³ scholars and opposed by others. That Romans were engaged in trade in Tamil land particularly along the coast during the Sangam age is borne out by a number of references.⁴

Another site of considerable historic significance, particularly in the later period is Sadurangapatnam (Sadras) which lies only three miles to the north of Vasavasamudram.⁵ Though

Sadras rose to prominence in the British period, its history can be traced back to the 10th century. In the Vishnu temple at Sadras, inscriptions dating back to the 10th century, in the reign of Parantaka Chola I, has been noticed. Some scholars identify Sadras with Nirpeyar of the Sangam classics.⁶

Mention has been made of Vayalur, situated about two miles away from Vasavasamudram. The village Vayalur is also of considerable antiquity. A historic inscription dated in the reign of the Pallava ruler Rajasimha in the 8th century A.D., shows that the village received royal attention.⁷ This royal inscription is of interest in many ways. It gives a long list of Pallava rulers beginning with the mythical ancestors of the Pallavas down to the reign of Rajasimha. Thus over fifty two rulers are listed probably in the order of their succession. But perhaps the more important part of the epigraph, mentions that the king held sway over a vast region, including Laccadive Islands, thus indicating that Rajasimha brought under his control even islands in the high seas. The selection of the site Vayalur to mention the overseas rule is not without significance. Being situated at the mouth of the river Palar, providing a natural entrepot it should have played a vital role in the overseas contact of the Pallavas. The mention of overseas rule is thus indicative of the maritime importance of the village.

The importance of this mouth of the Palar river, is further enhanced by a Pallava edifice at Paramesvaramangalam, on the other bank of the river.⁸ Paramesvaramangalam, was a foundation of either Rajasimha or his father Paramesvara I in the last quarter of the 7th century. The Pallava rulers had paid special attention to the regions on either side of the Palar mouth.

Later inscriptions give the name of Vayalur as Pilavayil "the entry to nether regions".⁹ The origin of Tiraiyars, who held sway over this region is intimately connected with the nether region. Killivalavan, a Chola ruler is said to have

Romans at this site at a somewhat later date than Arikamedu but engaged in the same occupation, however on a minor scale for a brief period

The village Vasavasamudram should have formed part of Vayalur in ancient times; the present hamlet with its name Vasavasamudram, should have come into existence in 15th-16th centuries during the Vijayanagar rule. It was the Vijayanagar rulers who established a number of settlements with the name ending Samudram

In the Sangam age, the village was included in the Tondai-mandalam region. In the 10th century it was probably in Mondur nadu, a sub-division of Amurkottam.¹⁶ The village was renamed Jananathanallur after one of the titles of Rajaraja I. Rajaraja renamed Tondaimandalam as Jayamkondacholamandalam after his title Jayamkonda Chola, and stationed his high official in Amur near Mamallapuram to conduct revenue survey. A certain Pudukkurudaiyan, Ekadhiran Aimpadinman¹⁷ is mentioned as the officer of Rajaraja stationed at Amur.

In the reign of Vijayanagar ruler, Virupanna, son of Vira Bukka, Vayalur alias Jananathanallur was included in Pattinanadu, a sub-division of Semburkottam in Jayamkonda-Cholamandalam.¹⁸ The sub-division Pattinanadu is named probably after Mamallapuram, which is frequently referred to as Mallaipattinam, (Pattinam-standing for coastal town).

The name Pilavayil for Vayalur is found in an inscription of the Pandya ruler Jatavarman Sundara Pandya in 13th century.¹⁹ However in the Vijayanagar inscriptions of 16th century, the village is referred to as Vayalur alias Jananatha Nallur in Ponnurnadu. As mentioned earlier the name Jananathanallur is after a title of Rajaraja Chola I. (935-1014 A.D). Mamallapuram which lies about 11 miles (15 KM) to the north of this place and known for its historic monuments of the Pallava ruler Rajasimha, also received

entered a bila and married a Naga princess.¹⁰ The off-spring of this union was the Tiraiyan. The Child wafted on to the shore by the waves, was called Tiraiyar (*Tirai* i. e. wave) Nacchinarkiniyar a well known commentator gives this story, commenting on the ancestry of Tondaiman Ilantiraiyan.¹¹ The Kasakkudi plates of Nandivarman, refers to a lake *Tiraiyan eri* (named after Tiraiyan)¹² The sanskrit equivalent of the same name Tiraiyan is given as *Tiralaya* 'one wafted on to the shore by the waves'. Thus by the 8th century, the legendary origin of the Tiraiyas are wellknown. We have mentioned earlier that this region was under the Tiraiyars in the Sangam age. The name Pilavayil for the village Vayalur is thus of great significance.

"It will thus appear that Thiru Pilavayil at the mouth of the river Palar on the sea-coast was the port of embarkation in those days for persons going to South-East Asia and if so, identified with the Sopatma of the Periplus, wherefrom ships bound for the Chryse from the Coromandal Coast began their direct voyage crossing the sea."¹³

Kanchi, the political capital of the region from very early period is connected to the sea, at this place through the river Palar. We know Kanchi has attracted people from far and near. It maintained close maritime relationship with China and the Far East. Many Ambassadors from China have come to Kanchi. Ceylon was another important country from where people landed here to reach Kanchi. That this region maintained contact not only with the East but also with the West, particularly with the Roman Empire is proved by a number of Roman, Arab and Chinese coins found near Mamallapuram.¹⁴ Sir Mortimer Wheeler has demonstrated¹⁵ the existence of permanent Roman settlements in Arikamedu near Pondicherry, which lies only about 40 miles south of the present site.

The present excavation has shown the presense of

the name Jananathapuram²⁰ after the same title of Rajaraja I. It is interesting to note that these historic sites Mamallapuram and Vayalur which have received the attention of the Pallava ruler Rajasimha, in 8th century A.D., received also the attention of the greatest of the Chola rulers, Rajaraja I, in late 10th century who renamed both the sites after one of his well known titles Jananatha.

In the early half of 10th century A.D., this village was for a brief period, under the rule of Rashtrakuta Krishna III,²¹ who styled himself Kannaradeva, who captured Kanchi and Tanjore. An inscription in the village records the sale of land in his 22nd regnal year. In the 12th year of Rajaraja I- the village seems to have been in Mondur nadu, in Amurkottam²²

A land was gifted to the temple for burning a lamp in the reign of Rajaraja. In the 13th century, the Pandya ruler Jatavarman Sundara, conquered the territories upto Nellore.²³ In his reign the villagers of Vayalur, agreed among themselves not to purchase or mortgage the lands belonging to the temple. Obviously towards the end of the Chola rule and before Sundarapandiya's conquest, this area seems to have witnessed political instability resulting in unauthorised sale of lands etc.

In the 15th century, there flourished a number of weavers family, who were taxed three *panams* on each loom.²⁴ Evidently weaving industry flourished in 15th century in this region. In early 16th century (1505), one Tamasi Timmarasar, son of a local governor Rayatasri Bommayadeva Maharaja, gifted lands to the temple.²⁵

Thus the history of Vayalur seems to indicate that the region continued to be a place of some importance till the beginning of the 16th century.

With the building of the fort at Sadras by the Dutch, the importance of Vayalur seems to have diminished consider-

bly. But it is pertinent to note that the port set up by the Dutch at Sadras owed its selection to the weaving industry that flourished there. Kanchi, known for its cotton and silk fabrics should have also supplied its commodities through this region.

The History of the site

The excavation at Vasavasamudram, was necessitated by an accidental discovery of a conical jar. The owner of the land while digging, found large heaps of shells, which formed a source of income for him. A report was received by the Tashildar of Chingleput that the owner had struck some treasure, whereupon he examined the complaint. The Tashildar found no treasure of gold but only broken potteries and heaps of shells. He brought this to the notice of the State Department of Archaeology. The finds were examined by me and I took up a salvage excavation. The site was already damaged considerably by the owner (Pl. 1a) but further digging was prevented. The broken potteries and bricks which the owner came across were carefully collected. Among the pieces thus collected were a neck of an amphora of Mediterranean origin, conical jars, drain pipe (Pl. 6b Fig. 2) and a few bricks.

The Chronology of the site

The area covering a 50 meter square, was an uncultivated land whereas all the surrounding areas were brought under plough for growing paddy. The excavated site is on a higher level than the ploughed fields surrounding it. It cannot however be called a mound as it is almost a plain surface. The site is about 4 furlongs from the sea-coast and about a mile to the north of the the river Palar.

The excavation at undisturbed places revealed only one period of occupation, yielding occupation layers on an average of 1.7 meters. No large scale constructional activity was noticed. The important finds consisted of two ring wells found close to each other as at Arikamedu; a brick lined trough with a drainage, a large number of terracotta ovens, and heaps of

shell limes. The assemblage and antiquities found here correspond exactly to those of Arikamedu in every detail. Black and red ware, the typical ware of the Megalithic period and Arrittine pottery were however absent.

The absence of Black and red ware found in such a large number at Arikamedu would indicate a latter date probably 3-4th century A. D. The find of Roman coins of Theodosius (4th century) at Mamallapuram seems to confirm our dating. The paucity of significant finds is indicative of a great decline in the trade. The site seems to have served mainly as an industrial site for a brief period.

CUTTINGS (*pl. 1b*)

Vasavasamudram Trench

VSM-1 : This is a square trench covering an area of 2.50 m.sq. which was excavated upto the natural soil. Two ring wells were unearthed in this trench at the depths of 1.06 ms, 2.70 ms. respectively below the surface level (plate 1 and Fig. 2). This trench was dug upto a depth of 4.25 ms. In this trench a succession of nine well marked layers distinguished by the colour and content of the soil were exposed until the black river sand was reached. It may be mentioned that in all the trenches only three layers yielded pot-sherds and minor antiquities indicating the depth of occupation. This trench yielded rouletted wares, both indigenous and foreign, tapering ends of the conical jars and pot-sherds of Red ware as found at Arikamedu.

VSM-2 : A 2 ms. square trench was laid in the north western side of the VSM-1 which was dug upto the natural soil (1.92 ms). Sherds of conical jars, and Rouletted wares were unearthed in this trench. The excavation revealed three occupation layers.

VSM-3: A 3 m.sq. cut in the south western side of the site was dug upto the natural soil (1.47 ms). Very few antiquities were unearthed. Only three occupational layers were identified in this trench.

VSM-4: At the eastern side of the site a small mound was seen, where VSM-4 was cut (3 m. sq). The natural soil was reached at the depth of 1.70 ms. Rouletted ware, sherds of the conical jars and terracotta beads were unearthed here. Three occupational layers were identified.

VSM-5: This was cut in the western side of the site with the measurement of 3 m.sq. The natural soil was reached at a depth of 1.64 ms. Rouletted wares and sherds of the conical jars were unearthed. Three occupational layers were identified in this trench.

VSM-6: Very near the southern side of the VSM-1, was cut this trench (2.50 m.sq.) In which the natural soil was reached at a depth of 1.88 ms. Rouletted wares, tapering ends of the conical jars and terracotta knobs were unearthed in this trench.

VSM-7: This was laid to the east of VSM-1 the measurement being 3 m.sq. This trench was dug upto the natural soil. The maximum depth reached in this trench was 1.30 m.

VSM-8: This was laid in this northern side of VSM-1 with the measurement of 3 m.sq. This trench was dug upto the natural soil. The maximum depth reached in this trench was 1.05 ms.

RING WELLS

Ancient ring wells are found in India over a vast area extending from Shabbazgarhi²⁶ in the North to Arikamedu²⁷ and Kanchipuram in the south, and Brahmanabad²⁸ in the west to

Mahasthangarh⁴ in the east. Terracotta rings were used for wells in most of these cases. In many places ring wells occurred either close to each other or separately. There are also instances of twin ring wells in a large pit as at Tripuri and Nasik.

At Vasavasamudram two ring wells were exposed at the north eastern and south eastern corners of the trench. VSM-I (plate-I). Both the ring wells were found close to each other as found at Arikamedu by Mr. Cassal. As at Arikamedu, these two ring wells were also very close to a bricklined tank, which was probably used for dyeing or washing. As mentioned earlier the Coromandal coast supplied cotton to the Romans. Further this region was famous for weaving and dyeing from very early times. However the bricklined tank with its drain said to have been connected to the tank was completely destroyed at Vasavasamudram by the land owner. Two drainage pipes were recovered from him.

The ring well at the north eastern corner of the trench had eleven rings reaching a depth of 3.35mts. The other well at the south eastern corner of the trench had five rings, its depth being 1.50 mts. The rings were seen placed one above the other. The diameter of the rings is 60 cms. At Arikamedu the diameter at the top of the rings was larger than the lower ones, whereas at Vasavasamudram the diameter at the top was smaller than the bottom. The rings were placed one over the other with a narrow top and broader bottom. The shape of the individual ring thus obviated the use of any mortar or binding medium. Rings with exceptionally large height ranging from about 22 cms. to 1.01 m. were used at Arikamedu, whereas at Vasayasamudram their height ranged from 16 cms. to 43 cms.

It may be recounted here the traditional method adopted for digging these ring wells. First a pit is dug to a convenient

depth; then a terracotta ring is placed in the centre and the earth from within the ring is dug out. The ring will go a few inches down. Then another ring is placed over the first and the earth from inside the ring is removed.

The process is repeated by rings being placed one over the other, till sufficient depth of water is reached. In this process the earth is removed from inside the ring, the natural soil itself holding the rings in position on outer side. Thus no packing materials is used outside to hold the ring in position. Pits larger than the rings are not dug nor are they necessary. This process is not only quick yielding but also less costly and is sufficiently strong enough. This process is popular even to this day in Tamilnad, particularly in coastal regions where the soil is sandy. In excavating ancient ring wells one will not meet with packing earth or pit-lines.

Amphorae of Mediteranean origin

Sir Mortimer Wheeler has demonstrated the occurrence of sherds of amphorae of Mediteranean type and fabric on all the excavated sites at Arikamedu. A number of specimens at Arikamedu preserved an internal incrustation found to contain resin, a common constituent of Mediteranean wines. Wheeler also dates a number of them to a period earlier than the middle of the first century A.D. Wheeler further states "Stratigraphically it would appear that the arrival of amphorae continued to be imported or atleast used for a considerable time after the introduction of Arretine ware has ceased".

Only one solitary ware consisting of a neck with double handle was found at Vasavasamudram (Fig. 3. pl. 3). The ware is pink in colour with half slip. No incrustation was found. The sherd was found in the debris thrown by the land owner. The site was occupied for a single period, and the sherd should have been used when the site was under occupation.

The sherd resembles the Arikamedu varieties and may be dated to the first century A.D; but its arrival at this site should have been later.

Conical Vases

The conical vase, illustrated as type 74 and 75 by Wheeler also occurs in large numbers in Vasavasamudram. It represents a tall conical vessel, tapering to a point the base which was obviously meant to be buried in the ground. It has a narrow aperture and thick lip with an inward slope. This mouth was covered with a suitable lip (pl. 4) with a handle found at Vasavasamudram which does not seem to have been found at Arikamedu.

Both the varieties illustrated as type 74 and 75 by Wheeler occur at Vasavasamudram. The occurrence of one conical jar placed inside a broken vessel of a similar type, reported at Arikamedu, was not noticed at Vasavasamudram. But a similar occurrence is reported at Kanchipuram during the excavation conducted by the Madras University.

It may be mentioned that this type of vessel is loosely referred to as amphora by some. This nomenclature does not seem to fit in, for the term amphora is applied to a long necked storage jar with single or double handles. But this conical vessel is a neckless jar with a narrow aperture and a lid.

Rouletted Ware (pl. 5)

Sir Mortimer Wheeler has shown that beside Arretine and amphorae sherds, the one other sherd of foreign origin at Arikamedu was the Rouletted ware "A characteristic pottery type is a dish, sometimes more than 12" in diameter, with an incurved and beaked rim which usually has a faceted edge. The ware having a remarkably smooth surface, is then, brittle and well burnt, and has an almost metallic ring. The flat interior is normally decorated with two, occasionally three

concentric handle of rouletted pattern. This pattern is not an Indian feature, and may be regarded as an importation from the Mediteranean region; but it has not been possible to ascertain whether the type itself is of similar origin. It in any case be presumed that the varieties with distinctly inferior fabric and degenerate rouletted pattern were manufactured locally".

In Vasavasamudram both the superior and inferior varieties have been found during excavation. Two sherds found here are of the imported variety.

(ROULETTED WARE MEDITERANEAN ORIGIN) (*Fig. 4*)

Type 1: Dish of a Rouletted polished grey ware with pink-glazed exterior and black slipped interior. It has the beaked incurved rim due to the broken condition of the sherd, it is not possible to note whether it had roulation. The illustrated specimen is carefully potted on a quick wheel from a fine well levigated clay.

Type 1 a: Dish of Rouletted grey ware with beaked rim and rounded base: It is a pink-glazed ware. It is treated with grey slip internally. The illustrated specimen is of fine fabric. Multiple grooves are found internally and externally.

ROULETTED WARE IMITATED (*Fig. 4*)

Type 1 b: Dish: Fragment of a dish of rouletted grey ware. Its flat interior is decorated with a concentric band of rouletted pattern. The illustrated specimen is wheel turned.

Type 1 c: Dish: Fragment of a dish of a rouletted grey ware. Its flat interior is decorated with two concentric band of rouletted pattern. The illustrated specimen is wheel made.

Type 1 d: Dish: Imitated rouletted dish of a red ware. Its flat interior is decorated with concentric bands of rouletted pattern. The illustrated specimen of thick mediums fabric.

Type 1 e: Dish: Fragment of an imitated rouletted dish of red ware. Its flat interior is decorated with concentric bands of rouletted pattern. The illustrated specimen is of medium fabric. It is treated with red slip externally.

Type 1 f: Dish: Fragment of a dish of imitated rouletted ware. The flat interior is decorated with a concentric band of a rouletted pattern. The illustrated specimen is treated with red slip internally.

Type 1 g: Dish: Fragment of an imitated black ware dish, decorated with concentric band of rouletted pattern. The flat interior surface is treated with black slip. The illustrated specimen is of an indigenous variety.

Type 1 h: Dish: Fragment of a rouletted dish of a black ware and its flat interior is decorated with concentric bands of rouletted pattern. The illustrated specimen is of thick medium fabric and it is treated with black slip internally.

Type 1 i: Dish: Fragment of a dish of a rouletted ware. The flat interior of the dish is decorated with concentric bands of rouletted pattern. It is treated with black slip both internally and externally. Unstratified.

Type 1 j: Dish: Imitated rouletted red ware of a dish and its flat interior is decorated with two concentric bands of rouletted pattern. It is treated with black slip internally and red slip externally. The illustrated specimen is of medium fabric. Unstratified.

LOCAL WARES

Apart from the imported wares a large quantity of the pot-sherds were unearthed at Vasavasamudram. They were obviously of local-manufacture. With a few exceptions include a class of portable ovens, rings of the ring wells, wells, some tubs, storage jars, jars and conical jars, the last being partly wheel-turned and partly hand made. The vast majority of types of the pot-sherds are plain and utilitarian in character. Decorated types are rare, and decoration is generally simple and primitive in character, the commonest being finger nail ornament.

Different sherds of pottery belonging to different types were unearthed. There are as many as five different ceramic varieties viz., Redware, Red slipped ware, Black slipped ware, Brown ware and conical vessels of Red Ware. Almost all the potteries are slipped while a few of them are unslipped.

Red ware: In this type of ware, shapes of dishes, bowls, cooking vessels, lids of wide mouthed vases, vases, water vessels, storage jars, jars, basins, tiny pots, tubs, ovens and lamp bases were found. They are all utilitarian in character.

Red slipped ware: Dishes, simple bowls and bowls were unearthed in this type.

Black slipped ware: The shapes are of bowls, kudam or water vessels, pots and vessels. They are slipped and are found in limited quantity.

Brown Wares: It is a wheel made pottery; it is treated with the slip. There are also unslipped ones. A few of the sherds show a glittering surface on account of burnishing. The shapes include mostly cooking vessels and vessels with tapering profile.

Conical vessel of Red ware: More than thirty fragments of these vessels were unearthed at Vasavasamudram.

RED WARE (Fig. 5 to 11)

Type 2: Dish of a Redware with incurved sharpened rim and rounded base. The illustrated specimen is finely burnished. It resembles the type 4A of Arikamedu.

Type 3: Dish of a red ware with incurved rim and sagger base. The black slip is applied internally. It resembles the type 8B of Arikamedu.

Type 4: Dish of a red ware with incurved rim and sagger base. The Orange colour slip is applied both internally and externally and it resembles the type 8L of Arikamedu.

Type 5: Bowl of red ware with simple incurved rim and rounded base. The illustrated specimen is of medium fabric and it resembles the type 9F of Arikamedu.

Type 6: Bowl of red ware with pointed rim and concave profile. The illustrated specimen is of medium fabric and it resembles the type 18 of Arikamedu.

Type 6 a: Bowl of red ware with a thickened bevelled rim. The illustrated specimen is of medium fabric and it resembles type 9B of Arikamedu.

Type 7: Bowl of a red ware with a beaked rim with a slight inward projection and rounded base. The illustrated specimen is of medium fabric and it resembles the type 9T of Arikamedu.

Type 8: Bowl of red ware with an inturned and thickened rim, tapering profile and the base is not known. The illustrated specimen is of coarse fabric. It is treated with red slip internally and it resembles the type 10 of Arikamedu.

Type 9: Bowl of red ware with an out-turned flattened rim and a multi ridged shoulder. The illustrated specimen is of coarse fabric. It resembles the type 108 of Arikamedu.

Type 10: Cooking vessel of a red ware with prominent flanged rim. The illustrated specimen is of medium fabric. It is treated with red slip both internally and externally. This fabric produces the metallic sound.

Type 10a: Cooking vessel of red ware with beaked rim and globular body. The illustrated example is of coarse fabric. It resembles the type 24C of Arikamedu.

Type 10b: Cooking vessel of a red ware with flanged rim. The illustrated specimen is of coarse fabric and it is treated with black slip externally and the red slip is applied internally in the rim portion. It resembles the type 24L of Arikamedu.

Type 11: Lid of a red ware with pronounced flange at the waist and a sagger base, functioned as a lid for the cooking vessel. The illustrated specimen is of coarse fabric. It is treated with red slip on the portion above the flange, the lower portion being left plain. It resembles the type 28D of Arikamedu.

Type 11a: Lid of a cooking vessel of red ware with a pronounced flange at the waist and a sagger base. The illustrated specimen is of a coarse fabric and the red slip is applied on the portion above the flange, the lower portion being left plain. It resembles the type 28C of Arikamedu.

Type 11b: Lid of a red ware with inverted rim and sagger top. The illustrated specimen is of coarse fabric. And it resembles the type 34 of Arikamedu.

Type 11c: Fragment of a lid of red ware; the conical shape knob which was present in the lid was broken. It is treated with red slip internally. The illustrated specimen is of coarse fabric.

Type 12: Rim portion of a wide mouthed vase of red ware with an out-turned featureless rim. The illustrated specimen is of medium fabric. The red slip is applied both internally and externally. It resembles the type 42 of Arikamedu.

Type 12 a: Rim fragment of a vase of red ware with a cave neck. The illustrated example is of medium fabric. It resembles the type 42 J of Arikamedu.

Type 13: Fragment of a rim portion of a vase of red ware. A groove runs around the rim into two. The illustrated specimen is of coarse fabric.

Type 13 a: Rim portion of a vase of red ware with flat out-turned rim and carinated neck. The illustrated example is of coarse fabric.

Type 14: Vase of a red ware with out-turned rim and carinated neck. The illustrated specimen is of coarse fabric.

Type 15: Fragment of a vase of red ware with an out-turned featureless rim, oblique shoulders, carinated at the junction with the base and presumably a sagger base. The illustrated specimen is of coarse fabric. It resembles the type 13 Q of Arikamedu.

Type 16: Vase of red ware with flat rim, slightly concave neck and globular body. The illustrated specimen is of coarse fabric.

Type 17: Water vessel of red ware with, internally grooved rim and globular body. The illustrated specimen is of coarse fabric. It resembles the type 43 of Arikamedu.

Type 18: Water vessel of red ware with spherical body short narrow neck and pronounced rim. The illustrated specimen is of coarse fabric. And it resembles type 53 of Arikamedu.

Type 19: Storage jar of red ware with a wide mouth and flaring rim bulged profile. The illustrated specimen is of coarse fabric. It resembles the type 48 of Arikamedu.

Type 20: Storage jar of red ware with a thick out-turned rim. The illustrated specimen is of thick and coarse fabric. It resembles the type 76 of Arikamedu.

Type 21: Fragment of a rim portion of a jar of red ware with triangular form and has converse shoulders. The illustrated specimen is of coarse fabric. It resembles the type 51 of Arikamedu.

Type 22: Rim portion of a jar of red ware with grooved rim for placing lid. The illustrated specimen is of coarse fabric.

Type 23: Jar of red ware with a flaring rim and ledged shoulder. The illustrated specimen is of coarse fabric and it resembles the type 58 of Arikamedu.

Type 24: Jar of red ware with wide mouth, clubbed rim and hardly any neck. The illustrated specimen is of a thick coarse fabric and is treated with red slip externally. It resembles the type 61 of Arikamedu.

Type 25: Jar of a red ware characterised by a thick rolled rim. The illustrated specimen is of coarse fabric and it is treated with red slip both internally and externally. It resembles the type 71 of Arikamedu.

Type 26: Jar of red ware with an out-turned rim and light depressions are seen on the shoulder. The illustrated specimen is of coarse fabric. It resembles the type 77 of Arikamedu.

Type 27: Jar of red ware with a narrow high neck, and thickened rim. It is of a thick coarse fabric and it resembles the type 73 B of Arikamedu.

Type 28: Fragment of a perforated storage jar or a tub of red ware. The illustrated specimen is hand-made, of a thick coarse fabric which is generally red in colour.

Type 29: Basin of a red ware with clubbed rim. The illustrated specimen is of coarse fabric. It resembles the type 83 of Arikamedu.

Type 30: Large basin of a red ware with clubbed rim. The illustrated specimen is of thick coarse fabric. And it resembles the type 82 of Arikamedu.

Type 31: Flat and externally bevelled rim portion of a basin of red ware. The illustrated specimen is a coarse red ware and it resembles the type 83 of Arikamedu.

Type 32: Basin of a red ware with clubbed rim and slightly convex sides. The illustrated specimen is of coarse fabric. And it resembles the type 84 of Arikamedu.

Type 33: Large basin of red ware with a clubbed rim and it is characterised by a raised ornamented bands below a heavy rim.

Type 34: Basin of a red ware with thickened or rolled rim. The illustrated specimen is of coarse fabric. It resembles the type 92 of Arikamedu.

Type 35: Basin of a red ware with a beaded rim, rounded base with a spout. The illustrated specimen is of coarse fabric. This is the only specimen to occur in this site; unstratified.

Type 36: Basin of a red ware with thick beaked rim and rounded base. The illustrated specimen is of coarse fabric.

Type 37: Basin of a red ware with flat incised, grooved rim. Below the rim finger-nail indentations are incised within a frieze of triangles. The illustrated specimen is of coarse fabric. Unstratified.

Type 38: Vessel of a red ware with an out-turned thickened rim perched on oblique shoulders which are further distinguished by grooves and incisions. The illustrated example is of coarse fabric. It resembles type 127 of Arikamedu.

Type 39: Fragment of a vessel of red ware with grooved and cordoned rim. The illustrated specimen is of coarse fabric.

Type 40: Vessel of a red ware with a flattened and thickened rim. The illustrated specimen is of coarse fabric.

Type 41: Vessel of a red ware featureless thickened rim, carinated shoulder and globular body. The illustrated specimen is treated with red slip externally. This type occurs rarely.

Type 42: Large vessel of a red ware with an open mouth, bluntly beaked rim. The illustrated specimen is of coarse fabric and its surface is too rough.

Type 43: Vessel of a red ware with a flattened and thickened rim. The illustrated specimen is of coarse fabric.

Type 44: Tiny pot of a red ware with everted rim, short neck and globular body. The illustrated specimen is of wheel made with medium fabric.

Type 45: Flat base of a tub of an ill-fired red ware with coarse fabric. The illustrated specimen is of hand made. It may have been used for storing water or washing purpose.



Type 46: The bottom portion of a tub of red ware and it bears an applied band of finger-tip ornament. The illustrated specimen is hand made; of a thick coarse fabric which is generally red in colour.

Type 47: Base of lamp of red ware. The illustrated specimen is of coarse fabric and it occurs rarely. It is treated with redslip only internally.

RED SLIPPED WARES (*Fig. 12*)

Type 48: Dish of red slipped ware, which lacks the inward projection of beack at the rim and it has a sharp incurved side. The illustrated specimen is of medium fabric and is treated with red slip both internally and externally. It resembles the type 2 of Arikamedu.

Type 49: Dish of red slipped ware with incurved sharpened rim and rounded base. The illustrated specimen is of medium fabric and is treated with red slip both internally and externally; resembles the type 4 of Arikamedu.

Type 50: Dish of a red slipped ware with incurved rim and sagger base. The illustrated example is of coarse fabric and is treated with red slip both internally and externally. It resembles type 8 of Arikamedu.

Type 50-A: Dish of a red slipped ware with sharpened incurved rim and sagger base. The illustrated specimen is of fine fabric and is treated with red slip both internally and externally. This specimen produces metallic sound. It resembles the type 84 of Arikamedu. Unstratified.

Type 50-B: Dish of red slipped ware with sharpened incurved rim and sagger base. The illustrated specimen is of coarse fabric. And it resembles type 8 of Arikamedu.

Type 51: Simple bowl of red slipped ware with a rounded base. The illustrated specimen is of medium fabric and is treated with red slip both internally and externally. It resembles the type 9 of Arikamedu. Unstratified.

Type 51-A: Bowl of red slipped ware with internally thickened rim and rounded base. It resembles the type 9B of Arikamedu. The illustrated specimen is of medium fabric and is treated with red slip both internally and externally. Unstratified.

Type 51-B: Bowl of red slipped ware with simple incurved rim and rounded base. It resembles the type 9C of Arikamedu. It is treated with red slip

both internally and externally. The illustrated specimen is of medium fabric.

Type 52: Bowl of a red slipped ware with incurved rim and rounded base. It resembles the type 11 of Arikamedu. The illustrated specimen is of medium fabric.

Type 53: Bowl of red slipped ware with a rounded base. The illustrated specimen is of coarse fabric and it resembles the type 98 of Arikamedu. It is treated with red slip both internally and externally.

Type 54: Vessel of fine red slipped ware distinguished by an out-turned rim. The illustrated specimen is made finely of levigated clay and it has metallic sound. The red slip is applied only in the rim portion and outside. The fabric of the specimen is fine. Unstratified.

Type 55: Fragment of a vessel of red slipped ware with a heavy rolled rim and rounded base. Multiple grooves are seen in its shoulder. It is of medium fabric.

BLACK SLIPPED WARES (Fig 13)

Type 56: It is a unique bowl of black slipped ware with sharpened rim and saggar base. The illustrated specimen is of medium fabric. The black slip is applied both internally and externally. It resembles the type 9 Q of Arikamedu.

Type 57: Gata or water vessel, with an out-turned rim narrow neck probably spheroid or elliptical body. The illustrated specimen is of black slipped ware of fine fabric. It is one of the rarest types to occur in this site. The illustrated specimen resembles type 42 C of Arikamedu.

Type 58: Fragment of the rim portion of a water vessel with flat rim, narrow neck and may have globular body. The illustrated specimen is of a black slipped ware of fine fabric and the black slip is applied both internally and externally. It resembles the type 42G of Arikamedu.

Type 59: Gata or water vessel of black slipped ware with a thick out-turned rim, concave neck and spheroid or elliptical body. This specimen occurs rarely. It is treated with black slip both internally and externally. The illustrated specimen is of medium thick fabric. Unstratified.

BROWN WARES (*Fig. 13*)

Type 60: Cooking vessel of a brown ware with prominent flanked internally grooved rim. The illustrated specimen is treated with brown slip both internally and externally. It resembles the type 24 A of Arikamedu.

Type 61: Small fragment of a vessel of Brown ware with featureless rim, wide mouth and tapering profile. The illustrated specimen is of coarse fabric.

CONICAL VESSALS OF REDWARE (*Fig. 14*)

Type 62: Conical vessel of red ware with pointed base and tapering sides. It is partly hand made and partly wheel-turned. It is treated with grooves internally. The illustrated specimen is of thick, coarse fabric. Unstratified.

Type 62 a: Lower part of a tall conical vessel tapering down to a point at the base which was obviously meant to be buried in the ground. The illustrated specimen is of coarse red ware and it is wheel turned.

Type 62 b: Fragment of the tapering end of a conical vessel with a bluntly pointed base. The illustrated specimen is of thick coarse fabric of red ware.

Type 62 c: Tapering end of a conical vessel with bluntly pointed base and the illustrated specimen is of thick coarse fabric. It is of red ware.

Type 62 d: Fragment of the tapering end of the conical vessel with a bluntly pointed base. The illustrated specimen is of thick coarse red ware.

Type 62 e: Fragment of a bluntly pointed base of a conical vessel. The illustrated specimen is of a thick coarse fabric and it occurs throughout the occupation of the site.

Type 63: Head portion of a large conical vessel with dropping lips and tapering side with a lid. The red slip is applied only on the lid portion. The illustrated specimen is of coarse fabric. Unstratified.

Type 63-a: Head portion of a conical vessel of red ware with multifaceted lips and tapering sides. The illustrated specimen is of coarse fabric and it is partly hand made and partly wheel made. Unstratified.

Type 63-b: Head portion of a large conical vessel with dropping lips and globular sides. The illustrated specimen is of red ware with coarse fabric and is hand made.

Type 63-c: Fragment of the rim portion of a thin variety of a conical jar. It is a red ware with thick coarse fabric. The jar presumably functioned as a container of wine or oil like the imported amphora. The illustrated specimen resembles the type 74 I of Arikamedu.

OTHER TYPES (Fig. 15 to 16)

Type 64: Fragment of a portable hand-made oven, of horse-shoe plan. This type is decorated with hand applied finger tip ornament on the exterior. It is of a thick coarse fabric and is a red ware. This type with its variations, correspond to ovens illustrated as 148 by Wheeler.

Type 64-a: Fragment of a portable hand made oven of red ware. This type is decorated with finger tip ornament. Outside this ornamentation hering bone design is seen. The illustrated specimen is of coarse fabric.

Type 64-b: Fragment of a portable hand made oven of horse-shoe plan. This type appears without any decoration. The illustrated specimen is of thick coarse fabric of red ware.

Type 65: Fragment of a red slipped ware with bands showing criss-cross decorated designs. The illustrated specimen is of thick coarse fabric. It is treated with red slip externally and the buff slip internally.

Type 66: Fragment of a sherd of brown ware with multiple grooves and decorated with multiple rows of dots incised by a sharp instrument. The illustrated specimen is of coarse fabric.

Type 67: Fragment of a sherd decorated with multiple horizontal rows of dots bordered above and below by horizontal grooves. The illustrated specimen is of a red ware.

Type 68: Fragment of a red slipped sherd, decorated with diamond shape strokes below the rim portion. The illustrated specimen is of thick coarse fabric.

Type 69: Fragment of a red ware, decorated with a row of depressed circles. The illustrated specimen is of thick coarse fabric.

Type 70: Fragment of a red ware decorated with hering bone pattern. The illustrated specimen is of coarse, thick fabric.

Type 71: Fragment of a vase of red ware decorated with multiple grooves and the triangular dots incised by a sharp instrument within a frieze of triangles. The illustrated specimen is of thick coarse fabric. Unstratified.

C. MINOR ANTIQUITIES

Beads :

Only very few beads of various materials were found in the excavations. The total number of the beads is only fifteen. The lesser amount of beads discovered in the excavation leads to assume that beads were used on a very small scale at Vasavasamudram.

Beads made of Quartz, Agate, Soapstone, Glass and terracotta were found.

The range of colours of the glass beads is limited; shades of green, Orange and Yellow were represented. And the green colour is the most popular colour throughout. The shapes of the glass beads are barrel, circular, flat barrel, short rectangular, long barrel and pear-shaped.

The terracotta beads show little variation of shape, being either pear-shaped or top-shaped, the latter being found rarely. Those beads are very common on all ancient sites in Tamilnadu and other parts of India.

LIST OF SELECTED BEADS: (Fig. 17 and 18)

1. *Quartz bead:* Long barrel hexagonal unstratified. It resembles in shape, Fig, 4D of 20 of Arikamedu, unstratified.
2. *Agate:* Bead of agate? barrel gad rooned; worn out; unstratified.
3. *Soapstone bead:* Barrel roughly elliptical groove-collared; unstratified.
4. *Green glass bead:* Flat pear-shaped green glass bead, unstratified.
5. *Green glass bead:* Flat barrel circular groove-collared, which resembles the plate XXXIII, B of 2 of Arikamedu; unstratified.

6. *Green glass bead*: Short rectangular green glass bead, banded with square cross section.
7. *Green glass bead*: Flat barrel shaped green glass bead with oval shaped cross section.
8. *Orange glass bead*: Long-barrel elliptical with grooves; unstratified.
9. *Yellow glass bead*: Barrel circular, which resembles in shape 16 of Arikamedu; unstratified.
10. *Terracotta Bead*: Pear shaped Terracotta bead, broken. This resembles in shape 44 of Arikamedu, unstratified.
11. *Terracotta bead*: Pear shaped Terracotta bead which resembles in shape 44 of Arikamedu; unstratified.
12. *Terracotta bead*: Pear shaped Terracotta bead, which resembles in shape 44 of Arikamedu.
13. *Terracotta bead*: Terracotta bead, arllanut shaped, broken.
14. *Terracotta bead*: Short truncated bicone circular; unstratified.
15. *Terracotta bead*: Top-shaped Terracotta bead; truncated at the top with two grooves unstratified.

Conclusion

It may be seen that most of the objects found at Vasavasamudram, as amphora, rouletted ware, double ring wells, bricklined trough with drains, conical vases, ovens, beads etc., correspond exactly with those found at the Roman site of Arikamedu by Sir Mortimer Wheeler and Cassals.

Another significant find is the large storage of lime shells in the site

At Arikamedu large storage pots containing residue of lime shell occur. These however have escaped the attention of Sir Mortimer Wheeler.

New light on Arikamedu

I collected a few samples from Arikamedu and sent them to the Archaeological Survey, Chemistry branch at Dehradun for examination with a view to find out the purpose for which the shell limes were put to use.

The Chief Archaeological Chemist has sent the following result.

J. C. NAGPALL
Chief Archaeological Chemist

D.O. No. 37/1/ANYL - 3042
Archaeological Survey of
India, Dehradun, 5th Sept.,
1974.

The main specimen was drawn from the material adhering to the inside of the jar fragment. The incrustation sticking on the exterior was also examined. The main specimen has a layered structure as seen from its cross section. The layers seem to have deposited one above the other; are more or less distinct and can be cleared. Both smooth and rather rough layers are present.

The specimen from the convex or the exterior of the jar fragment was on analysis found to be mainly calcium carbonate with a small proportion of sandy particles. This incrustation is lumpy and has no structure like the material on the inside of the jar. The presence of this crust does not appear to be of any special significance.

Specimen from the concave or inner side of the jar fragment :-

- (i) On heating the specimen violet fumes evolved leaving a grey coloured residue. Further heating made the material white. The violet sublimate gave no test for iodine, sulphur, chloride and bromide. These radicals or elements were also absent from the main specimen. The sublimate was further examined. It

was found soluble in pyridine but was completely insoluble in other organic solvents like toluene, carbon tetrachloride, absolute alcohol, acetone and chloroform. It also did not react with mineral acids. Its solubility in pyridine would show it to be of the nature of some organic weakly acidic substance. This substance seems to have formed during the long burial of the jar. The soil and environmental condition of the burial would be a factor in the process.

- (ii) The layers were also separately examined. All of them besides having calcium as the main component showed the presence of iron and a trace of phosphate. More of iron was present in the layer showing a Prussian blue tint.
- (iii) The upper most layer of the specimen had a blistered look. Separate analysis of this layer showed it to consist only of calcium carbonate.
- (iv) The entire specimen was then ground for obtaining a representative sample and it gave the following analysis.

Moisture	2.3 %
Co ₂	38.48 %
Organic matter	1.52 %
Total:	<u>42.30 %</u>

Loss on Ignition	42.30 %
Insoluble Residue	1.70 %
Iron, Aluminium and Phosphorus oxides	3.20 %
Calcium Oxide	<u>52.86 %</u>
Total:	100.06

- (v) The specimen was tested for organic nitrogen since nitrates were absent. It gave a distinctly positive test for nitrogen and on further analysis was seen to contain primary amines. The lime content of the jar and the presence of amine would point out to de-hairing of skins as one of the uses to which these jars were perhaps put. Lime does not find a place in the textile processes like dyeing and mordanting. In mordanting sulphates are also used. The sample has not given tests for sulphate.

Yours sincerely,

J. C. NAGPAL

4-9-1974

*Chief Archaeological Chemist
Dehradun*

The conclusions are that these were not used for dyeing fabrics but probably were used for cleaning skins of animals."

This throws fresh light on the activities of the Romans on the coramandal coast. Besides trading in cotton, they seemed to have engaged in trade in hides as well.

The presense of large heaps of shells for lime at Vasavasamudram also point to the same purpose.

The site was occupied for a very brief period of about 75 years towards the 3rd, 4th century A.D. When the Roman trade has already reached the lowest ebb. The finds indicate the use of available material rather than fresh arrivals from the west.

FOOT NOTES

1. Perumpanarruppadai, 319-323.
2. N. S. Ramaswami, Mamallapuram, 1975 page 88.
3. Ibid.
4. Perumpanarruppadai, 316; Mullaipattu 59-61; Nedunalvadai 101-104
Padirrupattu Padikam 2: 7-9; Agham 149: 7-13; puram 56: 18-21.
5. Sadras.
6. Nirpeyar.
7. Vayalur 368 of 1908, Epigraphia Indica vol. XVII, p. 145.
8. Parameswaramangalam 257-59 of 1912.
9. Pilavayil, 363 of 1908.
10. Manimekalai, 29: 3-5; 25: 178-181.
11. Tondaiman Ilanthirayan, page 214, V.V.S. edi 1974.
12. Kasakkudi plates, Tiraiyaneri.
13. The Pallavas of Kanchi in South East Asia, T. N. Subrahmanian, page 130.
14. Ancient India, No 2, Page 119.
15. Excavations at Arikamedu, Ancient India No. 2.
16. 366 of 1908.
17. S.I.I. vol. I. 40.
18. 364 of 1908.
19. 363 of 1908.
20. 365 of 1908.
21. 367 of 1908.
22. 366 of 1908.
23. 363 of 1908.
24. 364 of 1908.
25. 362 of 1908.
26. Annual Report of Archaeological Survey of India 1921-22 p. 65-66
(ARASI).
27. R. E. M. Wheeler, 'Arikamedu' an Indo-Roman Trading-Station on the
East Coast of India, Ancient India, No. 2--1946.
28. ARASI 1903-1904, p. 135, Fig 2; also Henry Cousens, The antiquities
of Sind, vol. I LVI, Imperial series, (Calcutta-1929) pp. 51-52, fig 4.
29. ARASI 1928-29, pp. 89, 92-73, plate XXXVIII a and b.

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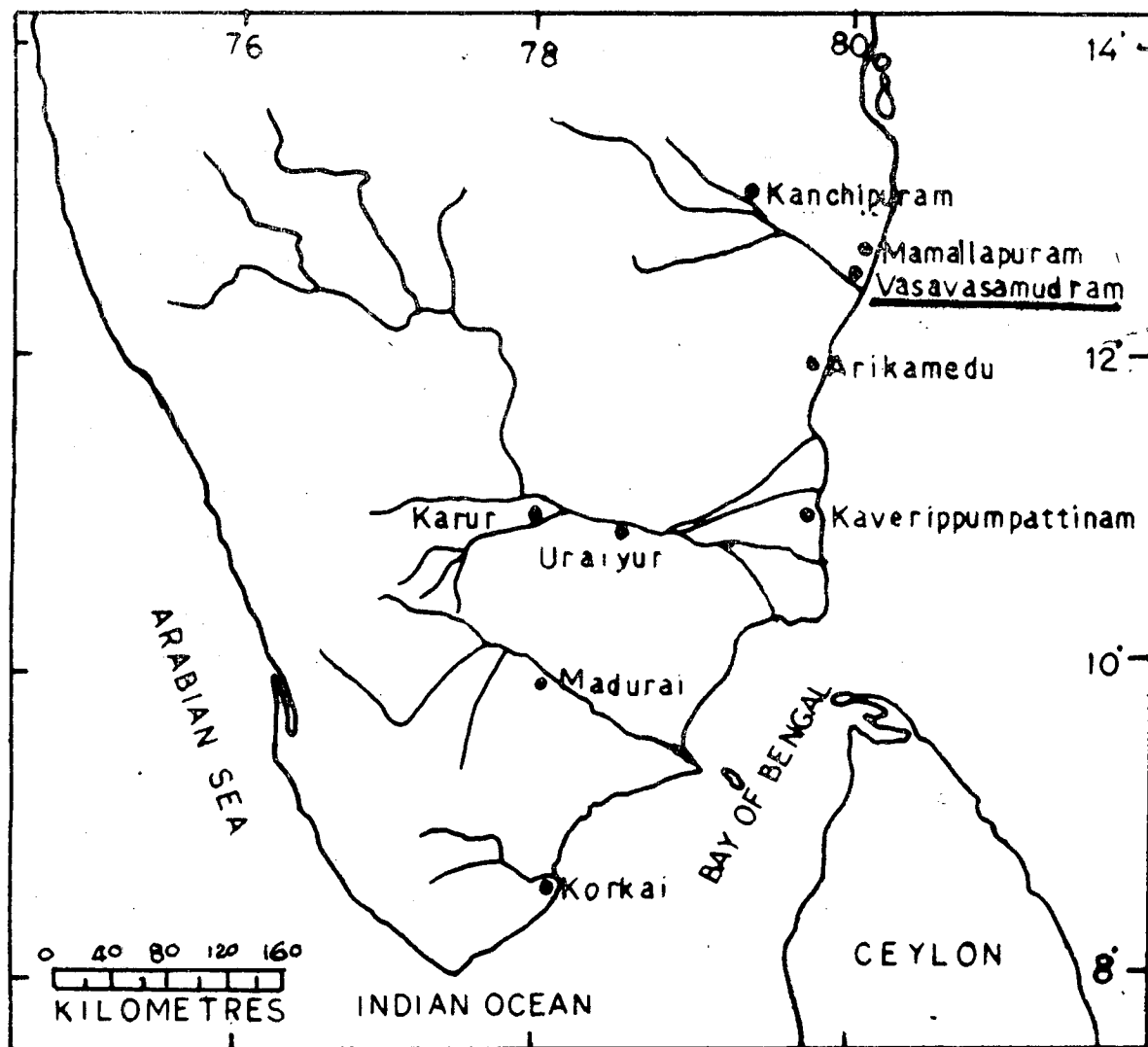


FIG.1

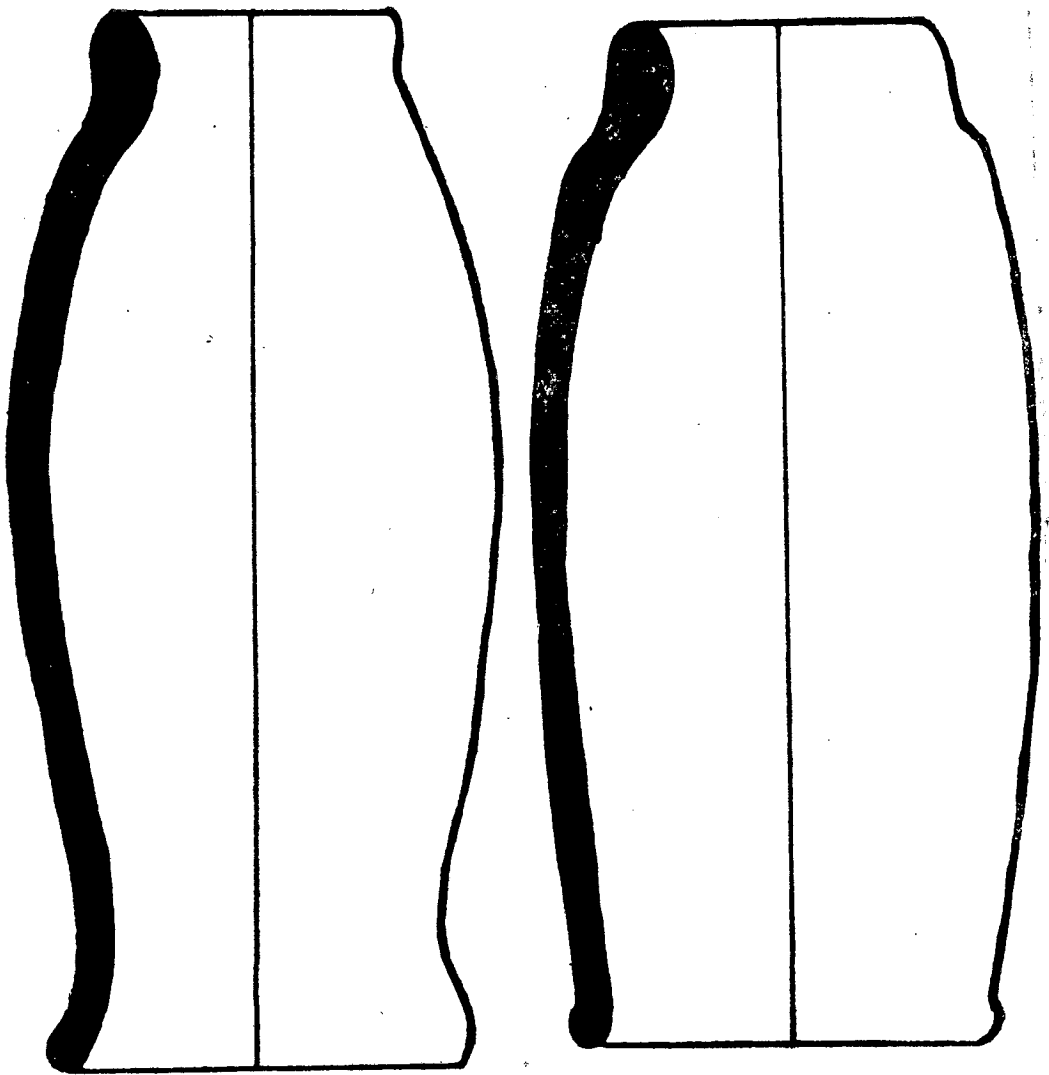


FIG.2

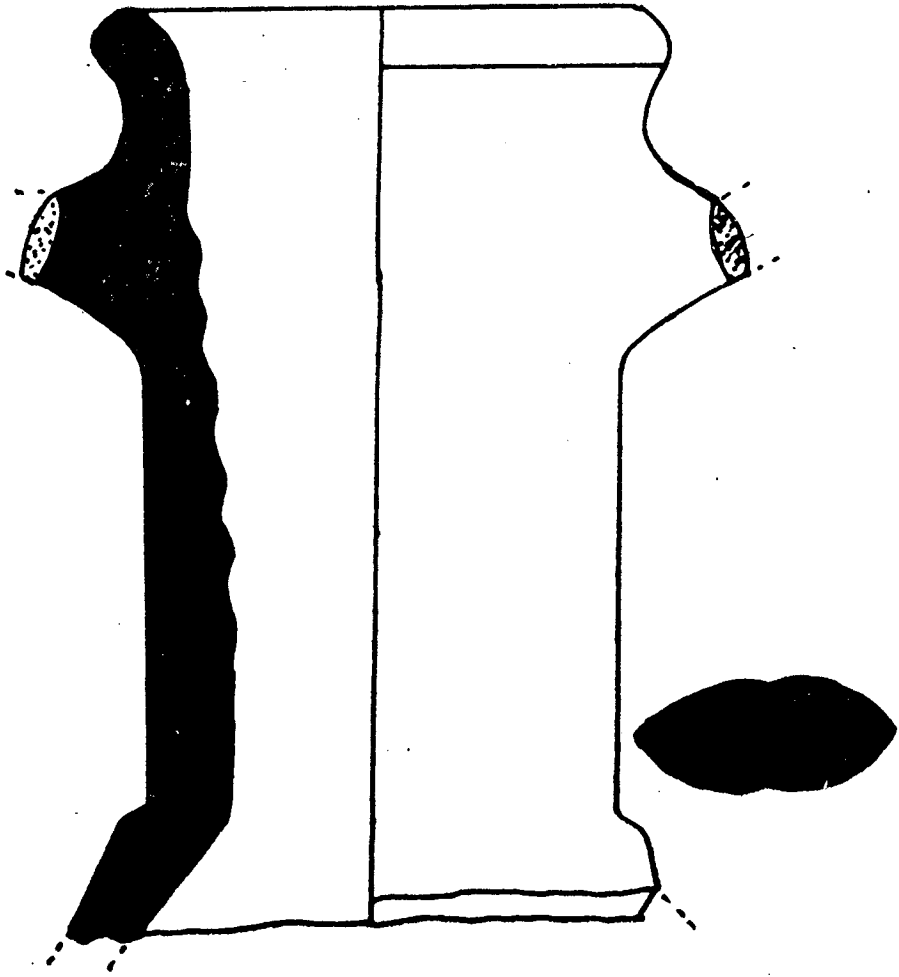
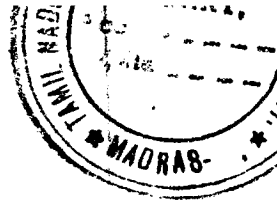
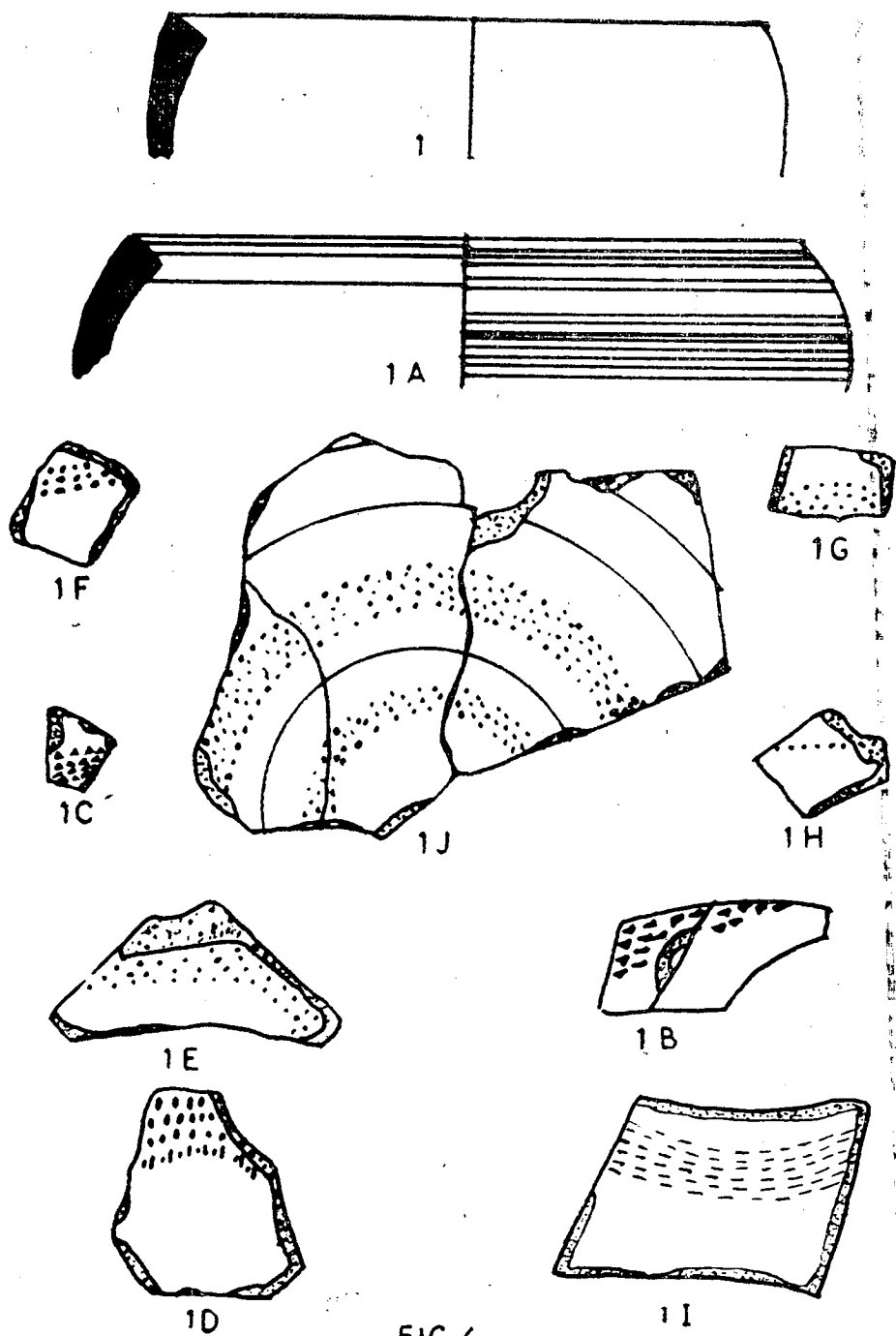


FIG. 3



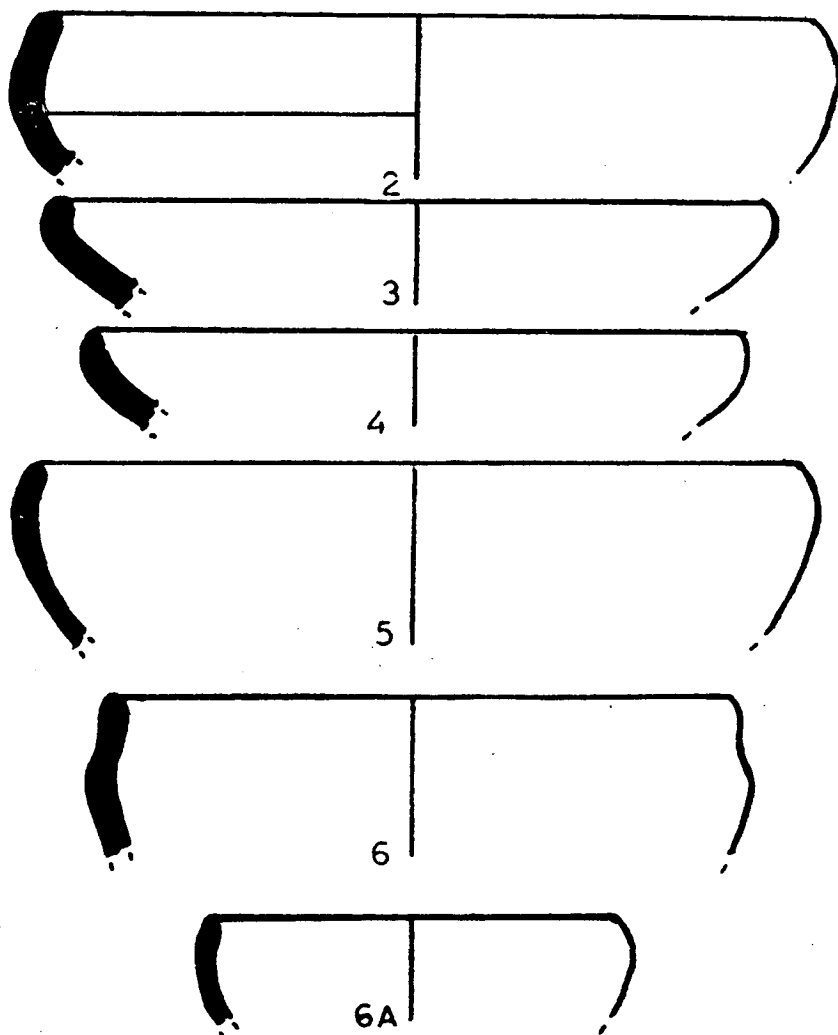


FIG 5

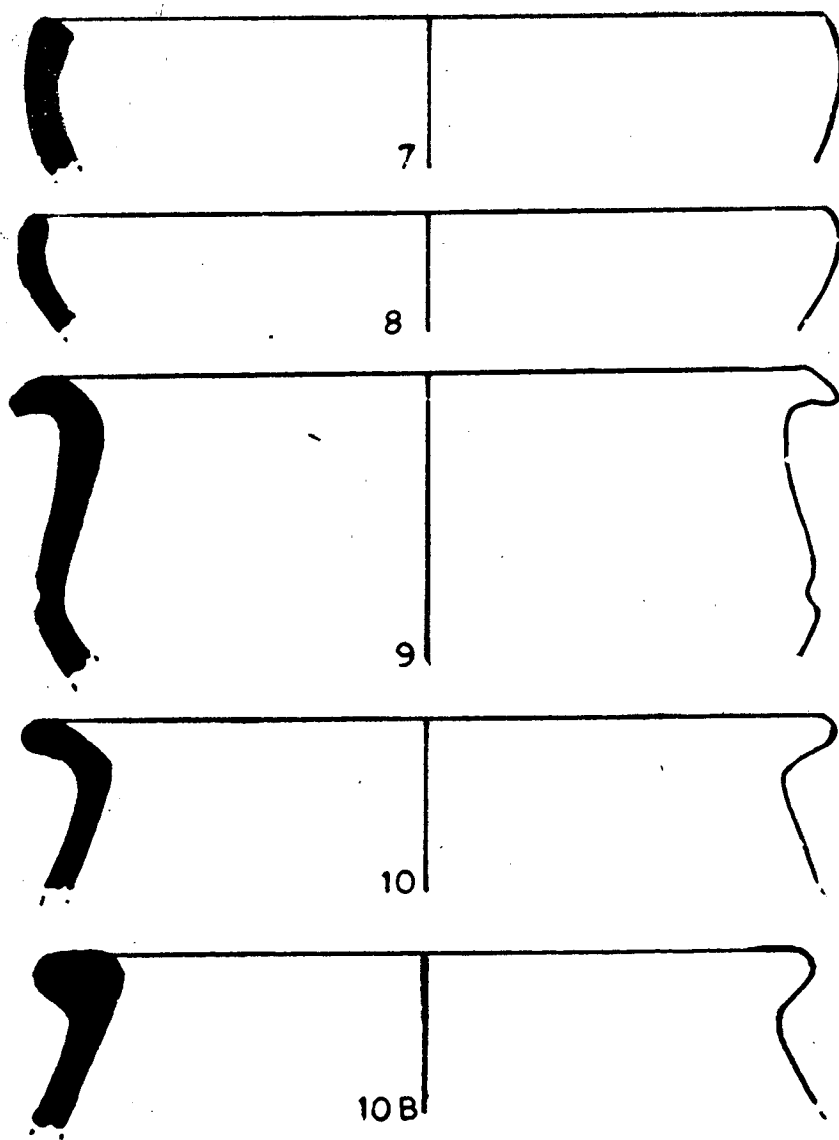
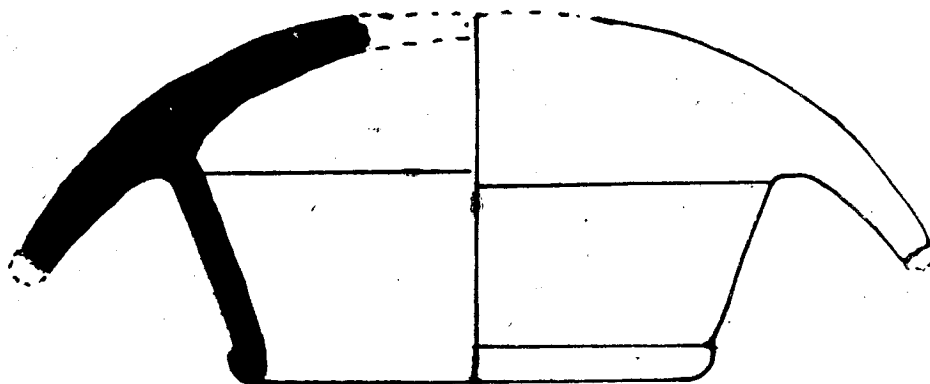
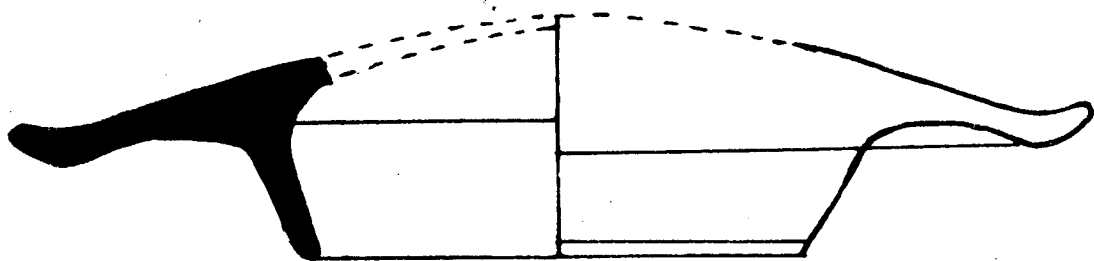


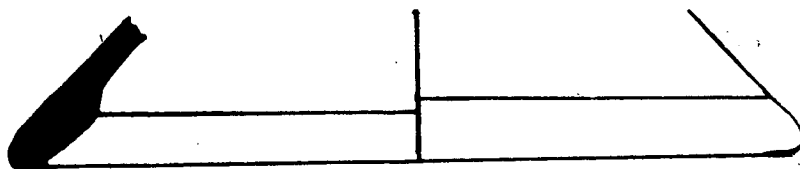
FIG.6



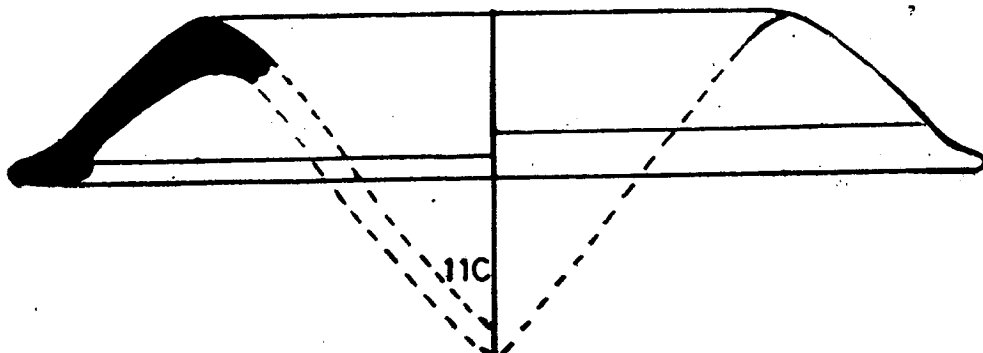
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11A



11B



11C

FIG-7

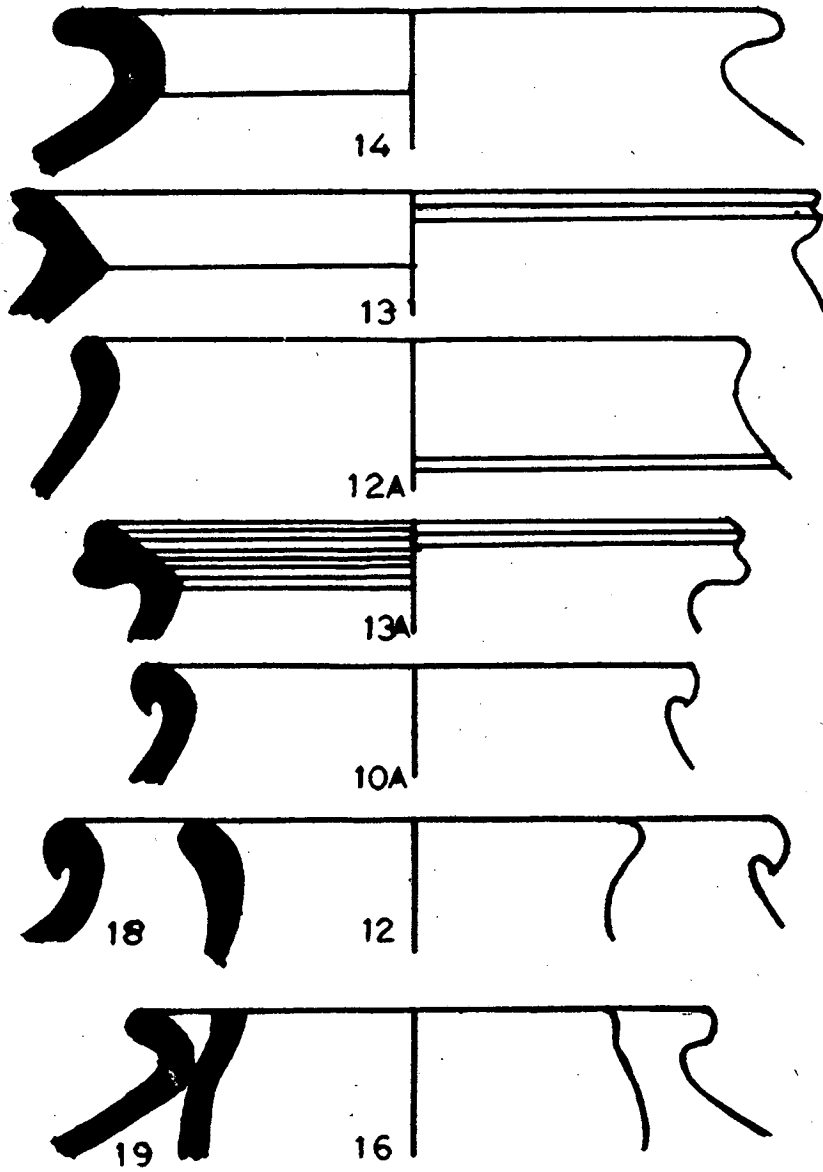


FIG 8

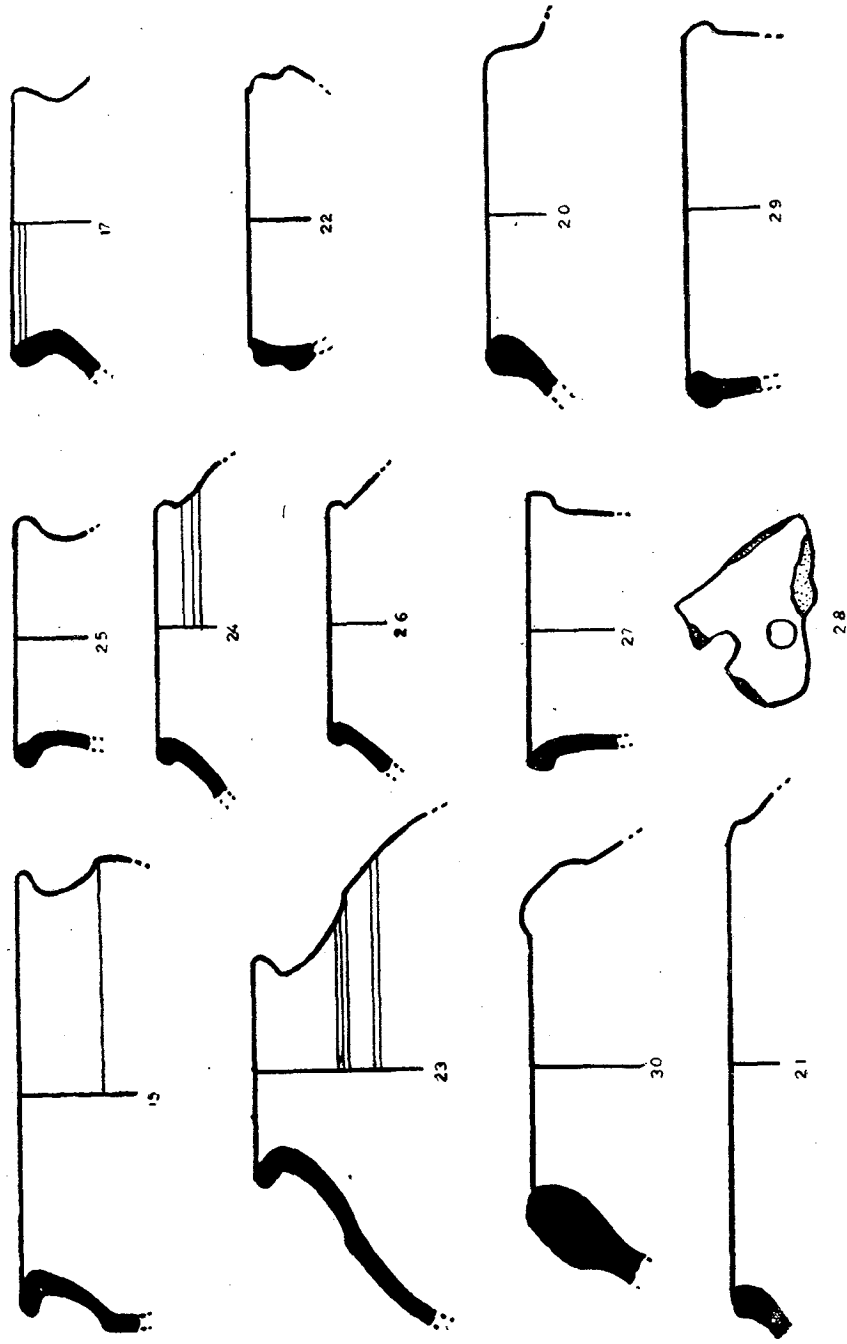
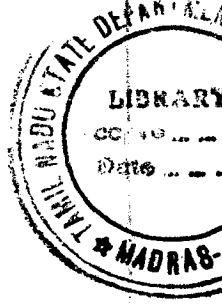


FIG. 9

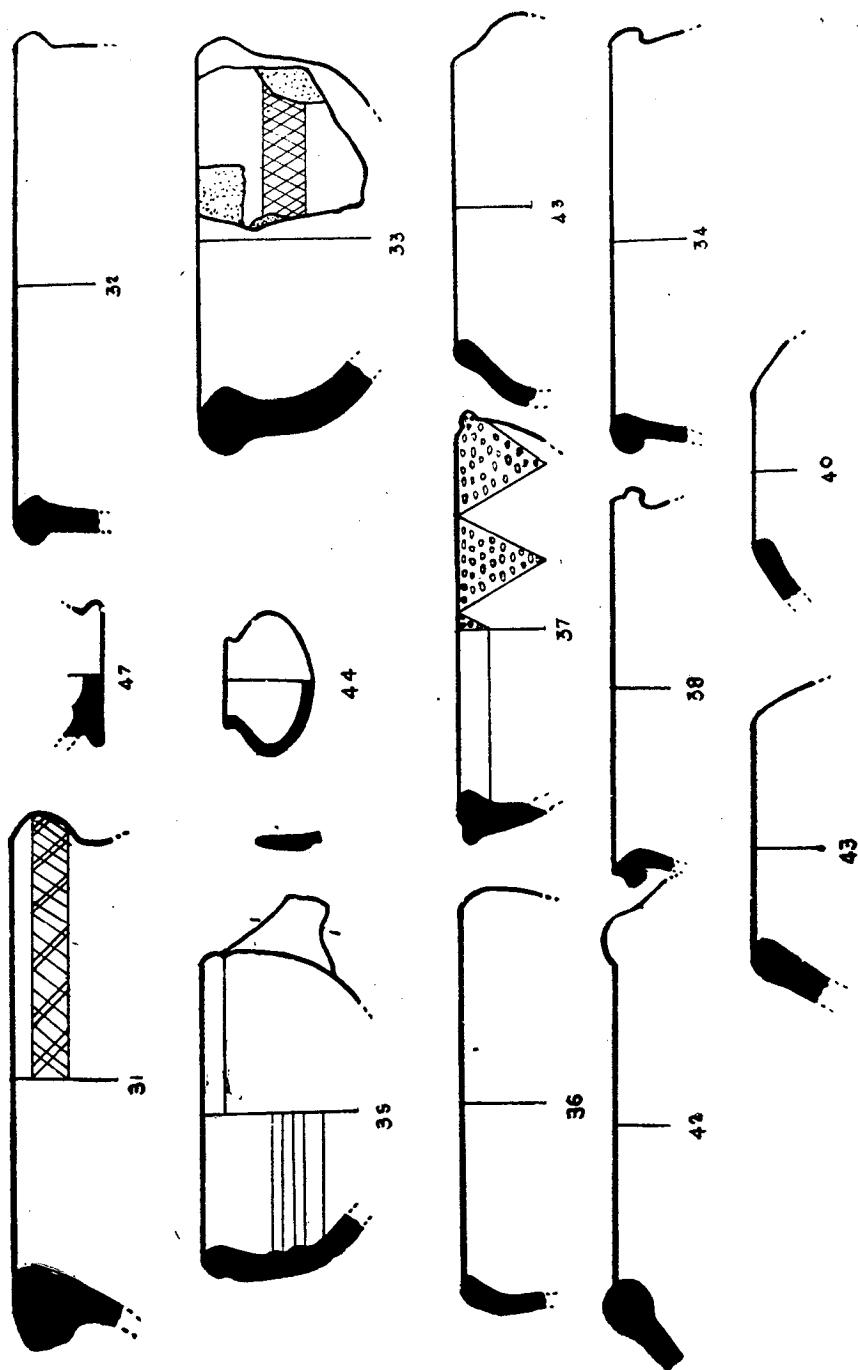


FIG. 10

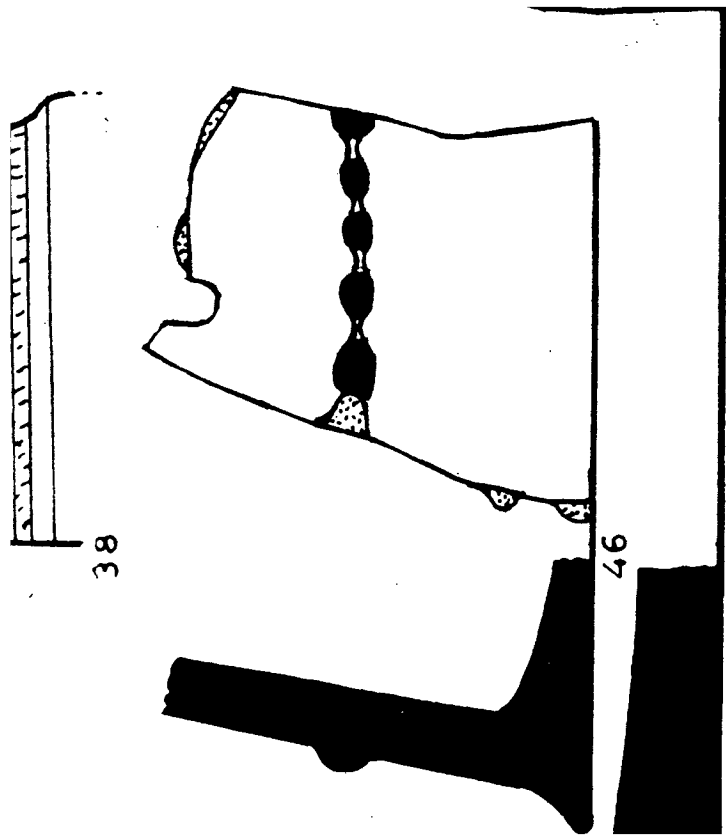


FIG11

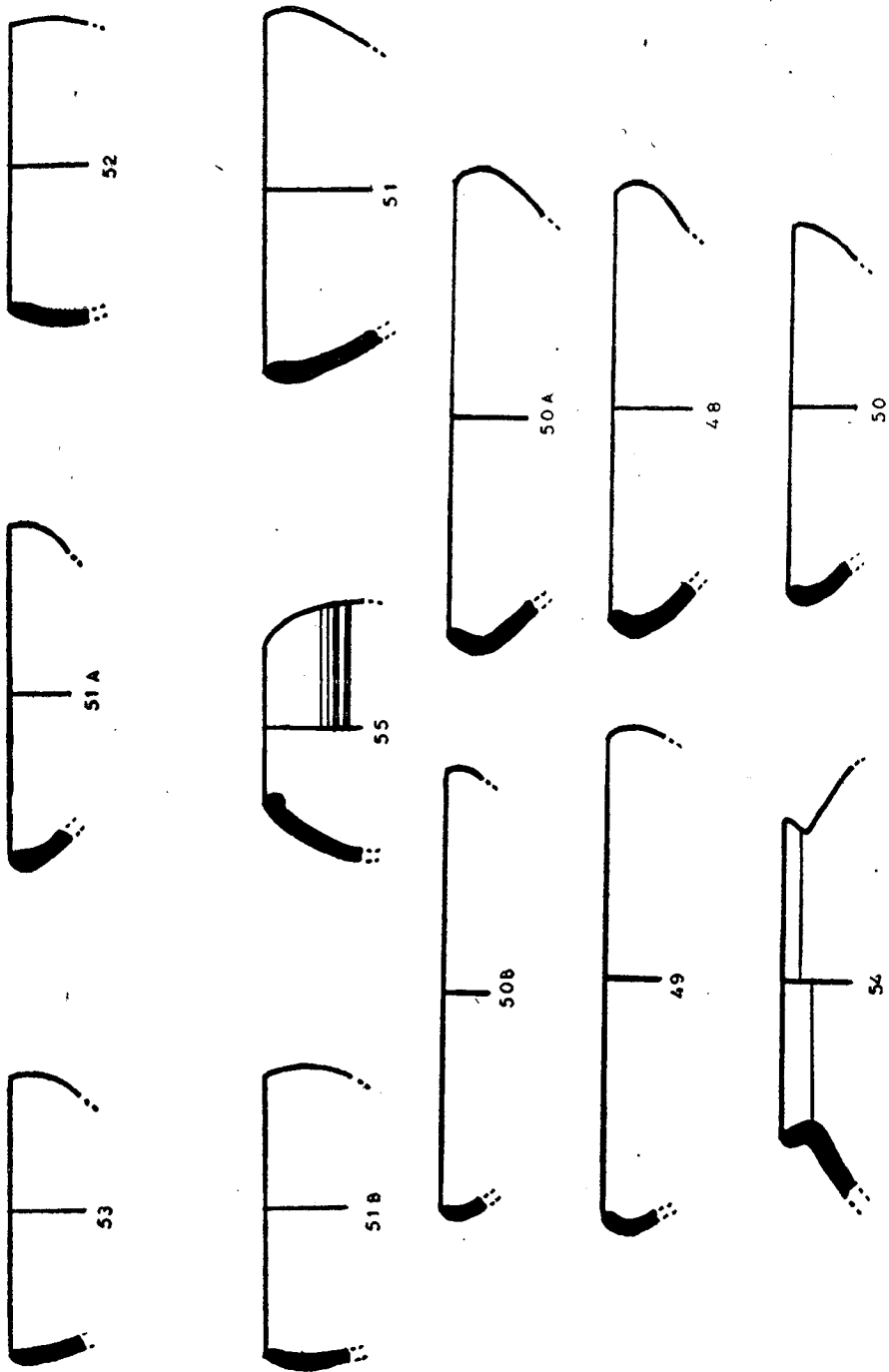


FIG. 12

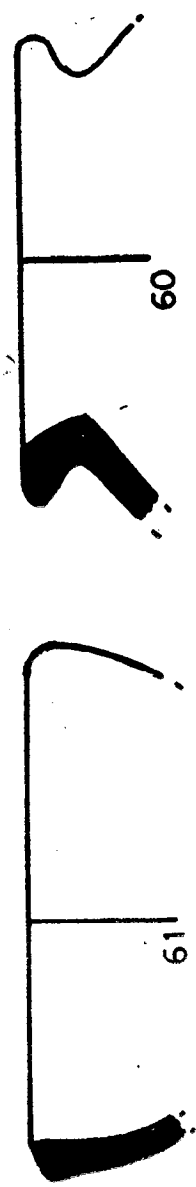


FIG. 13

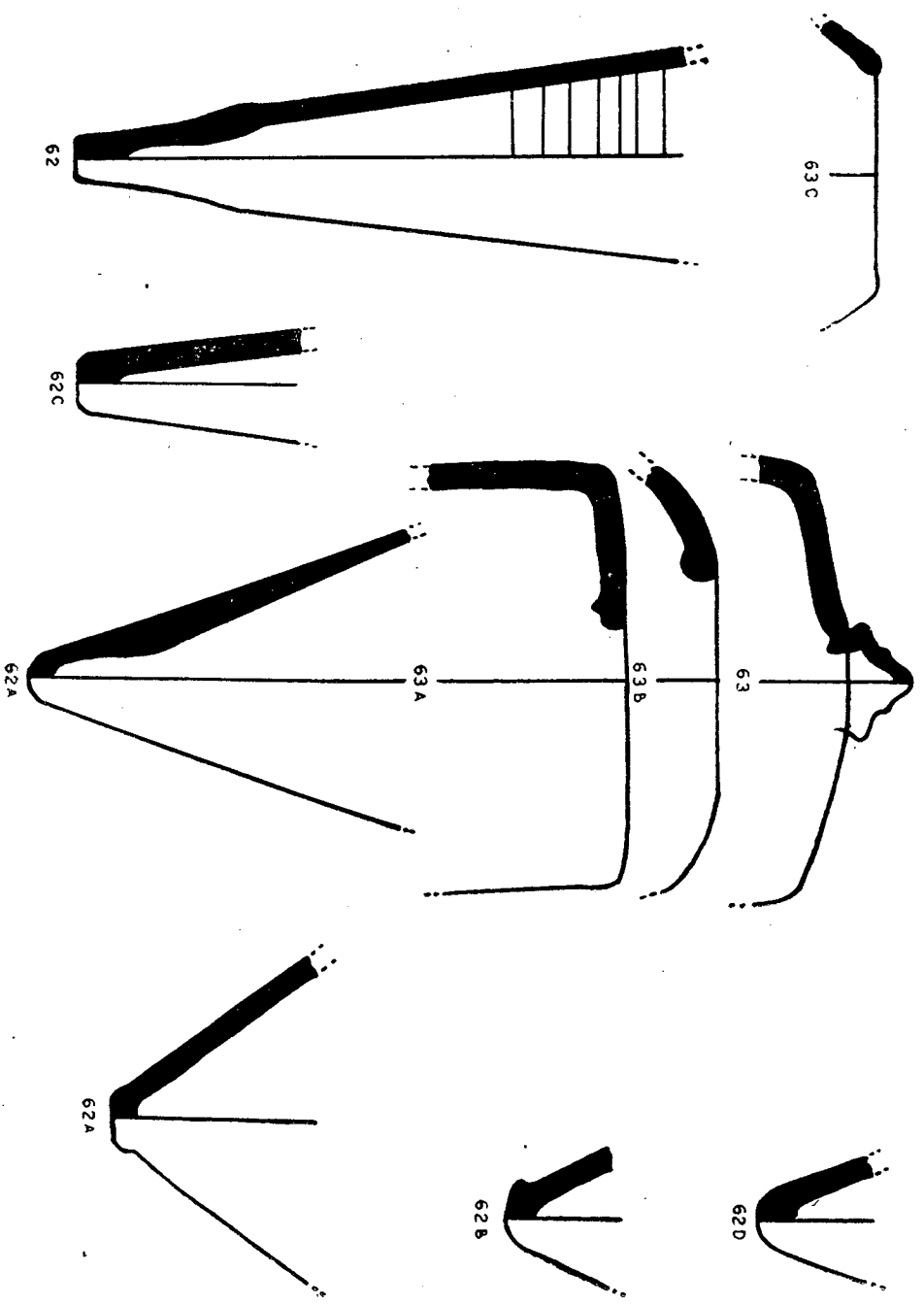


FIG. 14

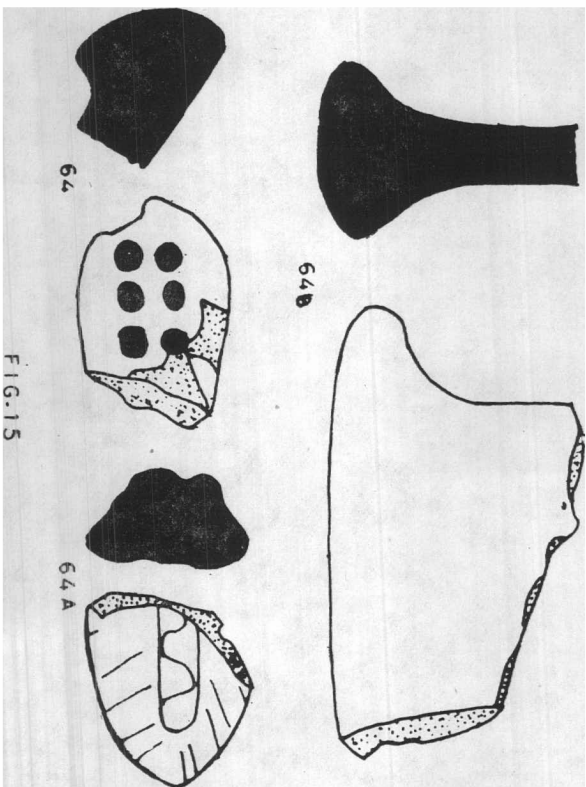


FIG. 15



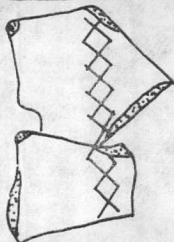
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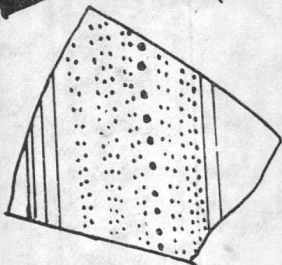
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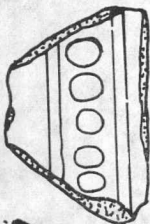
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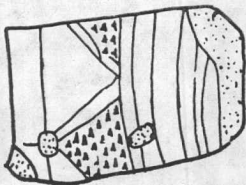


FIG. 16

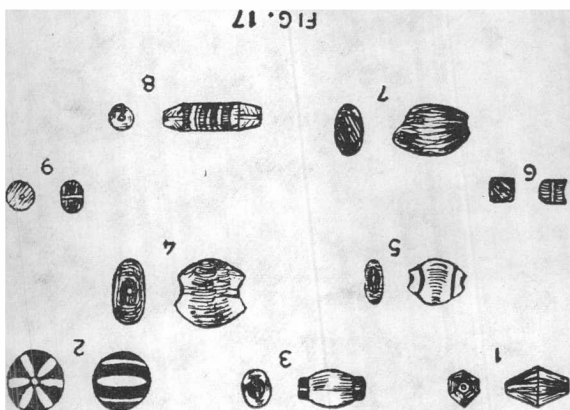


FIG. 18

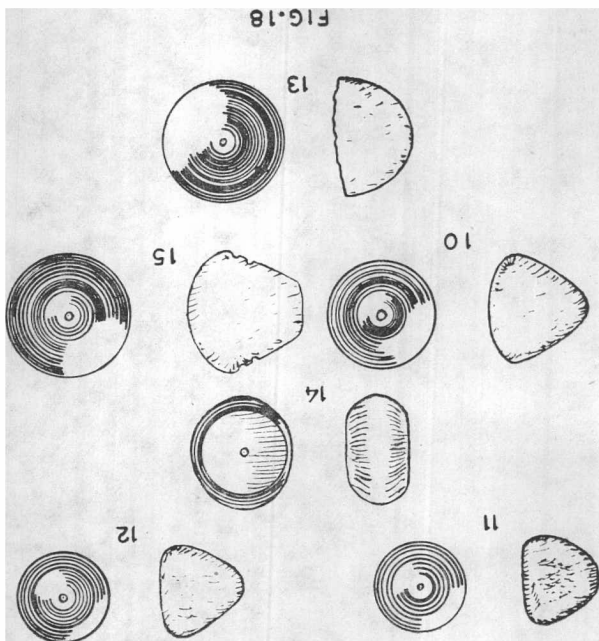




Plate I. General view of the disturbed site.



Plate I-(a). Broken Potteries and Bricks are scattered over the site.

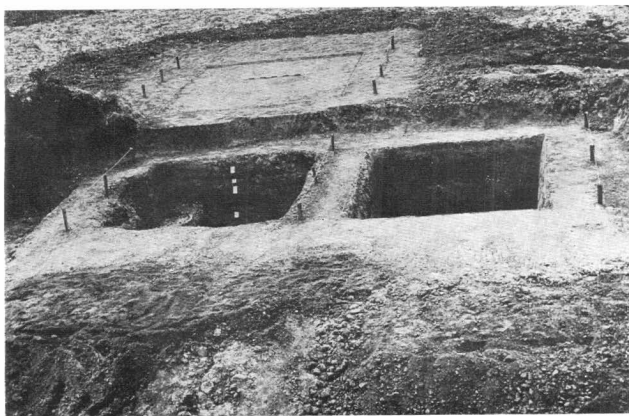


Plate I-(b). Cuttings

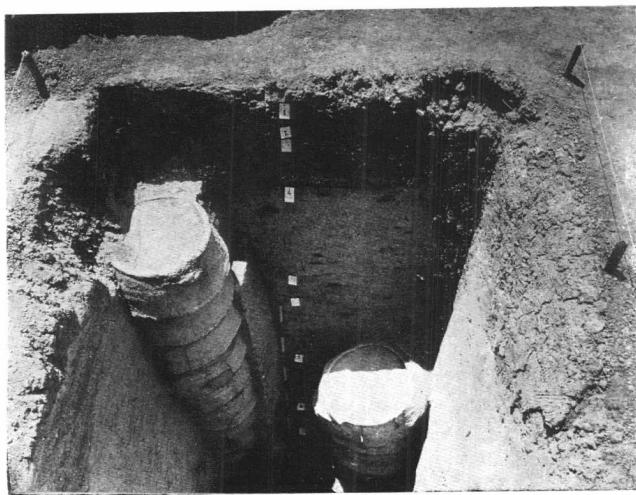


Plate II. Ring Wells.



Plate III. Neck portion of an Amphorae of
Mediterranean Origin

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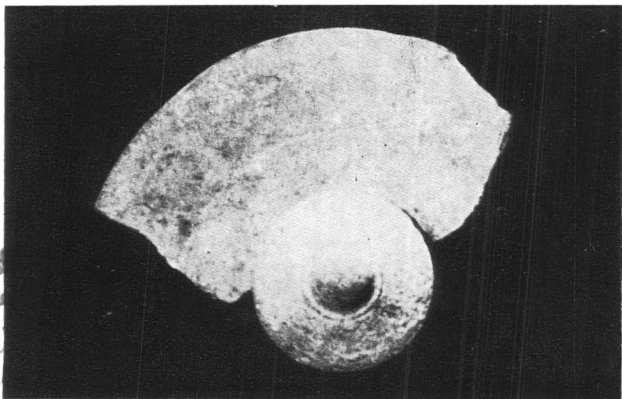


Plate IV. Conical part of a vase with a Lid

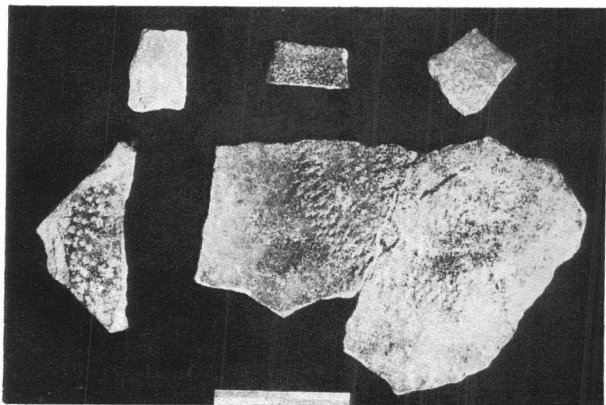


Plate V. Rouletted sherds

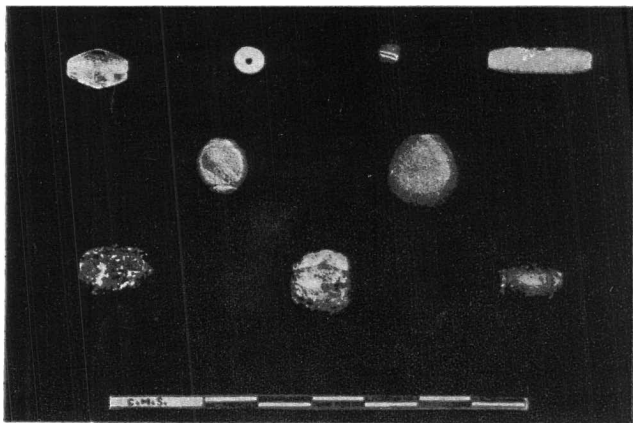


Plate VI. Beads made of Quartz, Agate, Soapstone, and Glass.

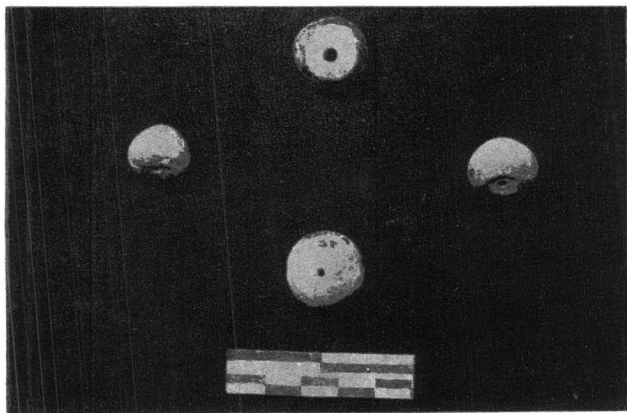


Plate VI-(a). Terracotta beads.

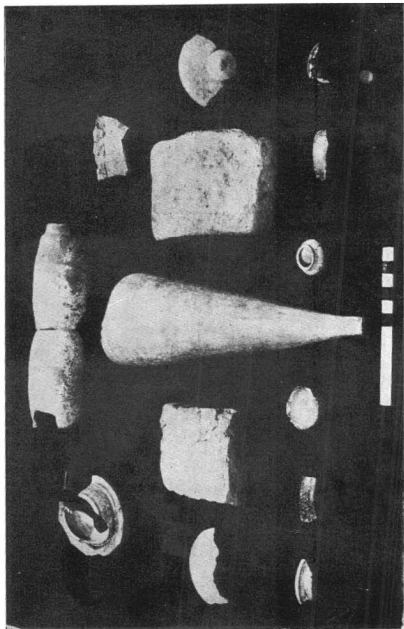


Plate VI-(b). Conical jar, Drainage pipes and bricks.