

# Marine Archaeological Explorations in the Kaveripoompattinam Region: Fresh Light on the Structural Remains

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## Abstract

Kaveripoompattinam also known as Poompuhar, was a port which played an important role in the maritime history of India. Archaeological findings, and inscriptional as well as literary evidence bear ample testimony to this. Recent discoveries made during marine archaeological explorations and excavations around the Poompuhar region of Tamil Nadu have yielded submerged brick and stone structures and terracotta ring wells. The presence of these structures in the near-shore and off-shore region of Poompuhar suggests that the port city once extended beyond the present shore line.

Kaveripoompattinam — Poompuhar or Puhar (11°08'33"N; 79°1'31"E), an ancient Tamil port, played a vital role in the brisk maritime history of India. Sangam texts of the early Christian era mention Poompuhar as the capital of the early Cholas, covering an area of four *kavatham*, i.e. about 76.8 square kilometres. It extended upto the present villages Karuvindanathapuram and Kadarankondan on the west, Thirukadavur on the south, Kalikamur on the north and Bay of Bengal on the east (Rao 1991).

Archaeological findings, inscriptional and literary evidence show that Poompuhar was an important international emporium. People of different countries gathered here and lived in peace (Raman 1988). Ships starting from Tamralipti in West Bengal and Palur in Orissa used to visit Poompuhar, whence all sea-going vessels set sail for the Southeast Asian countries, Arabia and Rome (Syamchaudhuri 1977).

This paper deals with the brick and stone structures noticed in the off-shore region of Poompuhar during recent marine archaeological explorations and excavations. An attempt has also been made to describe the pattern, purpose and location of these remains.

## Ancient Coastal Structures of India

The ancient seafarers had a knowledge of how to construct docks, wharfs, reservoirs and buildings at various port cities. Archaeological excavations have brought to light the tidal dockyard at Lothal: 2300 B.C. (Rao 1979), warehouses at Prabhas: 2200-1800 B.C. (Dhavalikar 1977-78), at Elephanta Island: 2nd to 5th century A.D. (Rao 1987), at Arikamedu: 3rd century B.C. (Wheeler *et al.* 1946), at Dharnikota: 1st and 2nd century A.D. (Chary 1972-73), and at Kaveripattinam: 3rd century B.C. to 3rd century

A.D. (Raman 1968) (Fig. 1). Various sizes of bricks and dressed stone blocks were used for their construction.

The Archaeological Survey of India carried out excavations in and around Poompuhar, to learn about the historicity of the region. During excavations at Kilaiyur, an 'I'-shaped brick wharf was exposed near the coast. Large sized bricks (60 x 40 x 12 cm) were used for this construction. A number of wooden poles planted in this structure perhaps helped to provide easy anchorage to the small boats and generally facilitated the handling of cargo. Further, this corroborates the description in *Pattinapalai* — the Sangam text, which mentions the existence of brick jetties in Kaveripoompattinam (Rao 1964). Another brick structure of the 2nd century A.D. unearthed at Vanagiri appears to be a reservoir. The height of the wall is nearly 2 m and the internal diameter is 8 m. A wide brick-built inlet channel (83 cm) is also connected to the river Kaveri (IAR 1964-65). Further excavations yielded a Buddha *vihara* near the Pallavaneswaram temple. Another Sangam text, the *Manimekhalai* mentions that Kaveripoompattinam was a Buddhist centre. The discovery of Buddhist settlements corroborate this. One of the subsidiary structures, which was partially exposed, has a number of offsets as in an apsidal *chaitya*. The walls were originally decorated with moulded bricks and stucco. On the basis of the pottery and other antiquities found, the period has been assigned to the 1st-4th century A.D. (IAR 1964-65).

The results of onshore excavations provided clues for off-shore exploration. In 1981 a joint off-shore exploration of Poompuhar was carried out by the Department of Archaeology, Government of Tamil Nadu and the National Institute of Oceanography, Goa, with the objective of surveying the submerged port remains and locating

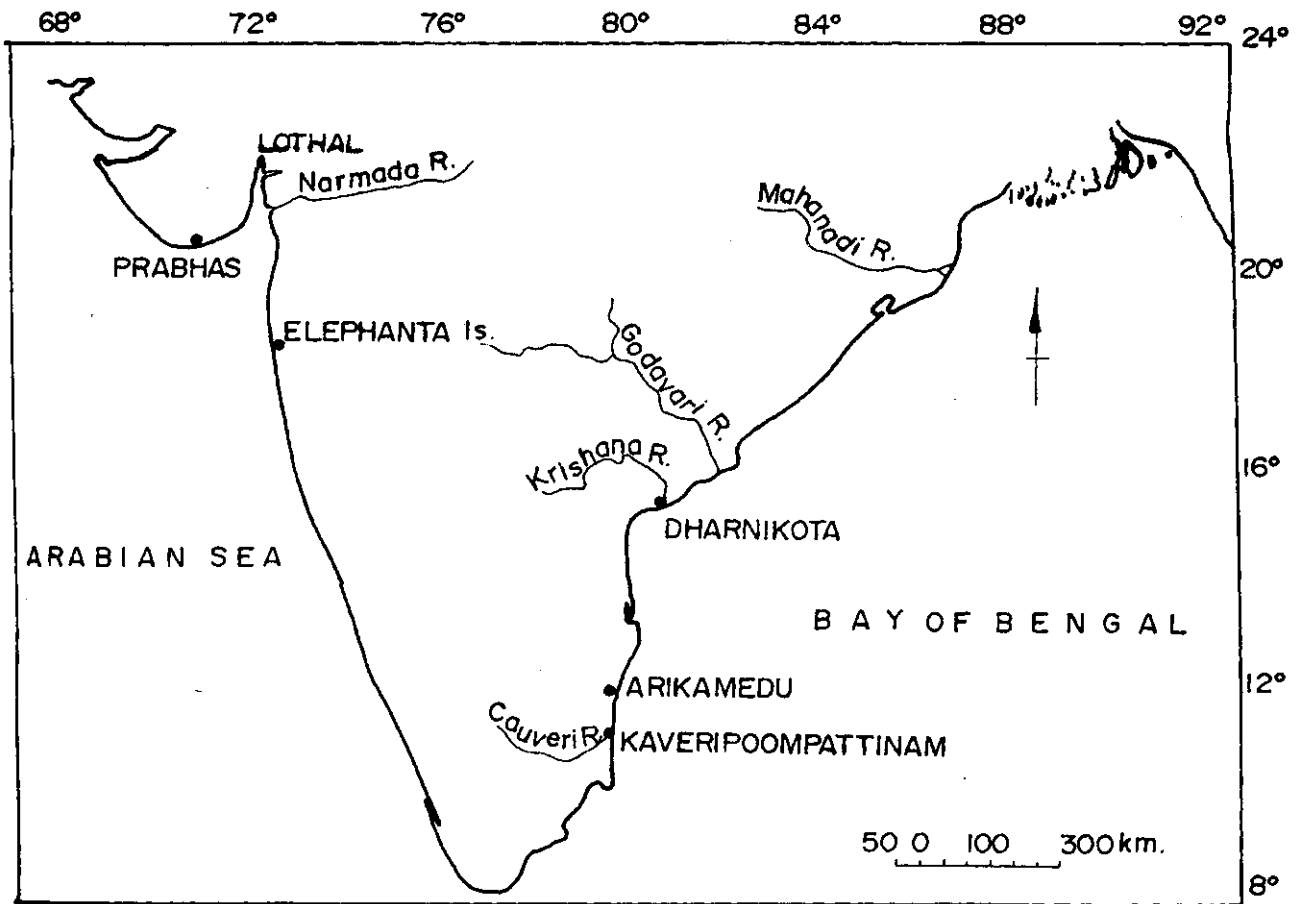


Fig. 1: Kaveripoompattinam and sites where coastal structures have been excavated

shipwrecks. This exploration revealed some conspicuous objects near the shore at a depth of 7-8 m. Objects of a similar nature were also noticed in deeper waters (Vora 1987) but could not be identified as diving was not undertaken.

Near-shore and off-shore explorations and excavations were undertaken between Tranquebar on the south and Nayakkankuppam on the north to locate contemporary structures of the Sangam Period datable between the 3rd century B.C. and 3rd century A.D. which were submerged in the waters around Poompuhar.

### Methodology

Intensive onshore exploration was carried out to try and locate both near-shore and off-shore structures. Three trial trenches of 2 x 2 m were laid at different places: one in the intertidal zone of Vanagiri, another near Kannagi statue and the third near *Mandapa* of Poompuhar. Structures and ring wells were exposed at these places and subsequently documented. Geophysical equipment like the Side Scan Sonar and Echosounder were deployed for off-shore explorations and excavations using the Self Contained Underwater Breathing Apparatus (SCUBA) and the

Surface Demand Diving Equipment (SDDE) system. The SDDE helps a diver-archaeologist to complete a long underwater schedule particularly in shallow waters, while the SCUBA is indispensable for marine archaeological search operations where much greater freedom of movement is desirable. The latter helps in underwater drawing



Fig. 2: Brick wall exposed during onshore excavation

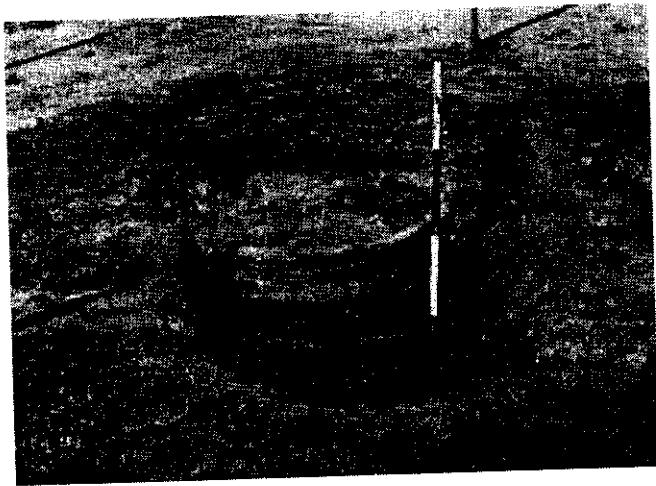


Fig. 3: Ring well exposed during onshore excavation

and photography. The precise position of the structures was taken using the Global Positioning System (GPS) and the Miniranger.

### Near-shore Exploration

Before undertaking off-shore explorations intensive near-shore explorations were carried out in the Poompuhar region. A brick structure exposed in the intertidal zone about 200 m south of the Kannagi statue was excavated to obtain a cross section by laying a trench upto a depth of 120 cm. Eleven courses of bricks, 4 m long and 1.20 m wide, were noticed (Fig. 2). The dimensions of bricks used here are 36 x 18 x 6 cm. Compact sticky clay was used as binding material. The structure is aligned parallel to the shore. Besides this structure, terracotta ring wells were also noticed at Vanagiri, Chinnavanagiri and Poompuhar. During the low tide a trench (2.5 x 2.5 m) was laid out about 300 m south of Vanagiri temple to excavate three terracotta ring wells. One of these had three courses of rings (15 cm high, 6 cm thick and 75 cm in diameter). The two other ring wells also yielded similar rings (Fig. 3). During excavations at Chinnavanagiri three courses of burnt bricks were noticed surrounding the ringwell at 70 cm depth. Megalithic Black and Red ware was also found here. Similar ring wells were also noticed to the north of Kannagi statue at Poompuhar.

### Off-shore Exploration

Since 1989, underwater explorations have been carried out in the Tranquebar-Poompuhar waters. The encouraging results of present near-shore explorations justified carrying out further off-shore explorations.

In the course of off-shore exploration a fifteen course brick structure was found on the northern side of the present river mouth of the Kaveri at a depth of 1 m, and was found to extend seaward for about 40 m from the

lowest water level. Presently this structure trends parallel to the coastline, i.e. in a north-south direction. The main structure is 6.20 m long, while the remaining ones are 3 to 4 m in length. The latter are separate from the main structure and tilted. The total length of the main structure was 25 m and lime mortar was used as the binding material. The brick size is 22 x 13 x 6 cm.

Off-shore explorations involved both geophysical and underwater surveys. The former was carried out by using an Echosounder and Side Scan Sonar and revealed a few interesting zones for diving (Fig. 4) both in shallow and deeper waters. Underwater explorations and diving operations were carried out at six zones (Fig. 5) at different water depths. Underwater excavation to expose objects buried in sediments was also carried out. Diving was resumed here to confirm the findings of the geophysical survey. Diving in zone 1 revealed a number of sandstone blocks which were marked later by four buoys to ascertain the extent of the structure which is highly disturbed and partly buried in the sediment. Airlifting operations in this zone brought to light 3 courses of dressed stone blocks 45 cm high. Rectangular and square blocks were used for the construction of this structure. The binding medium has

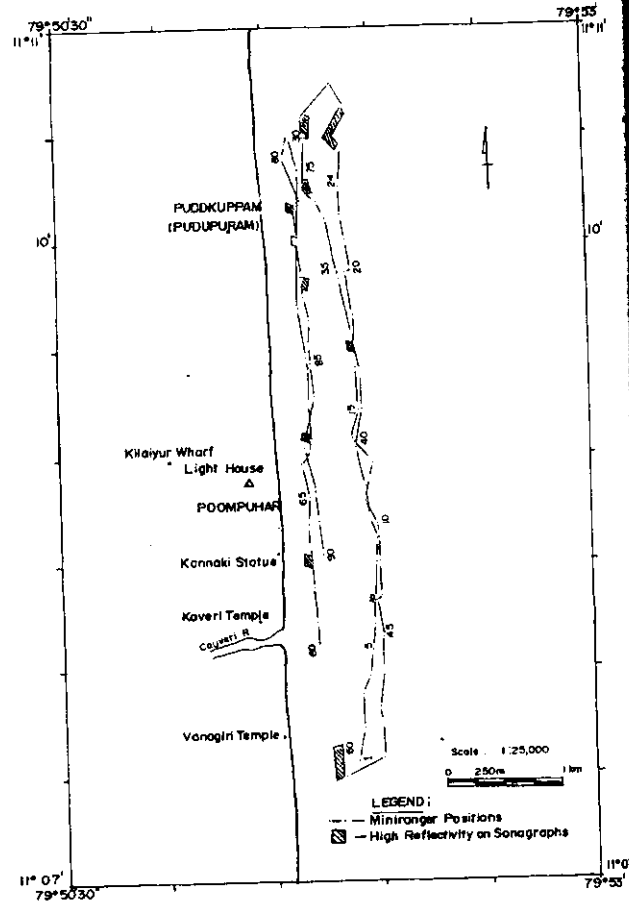


Fig. 4: Side Scan Sonar survey tracks and the results in shallow waters

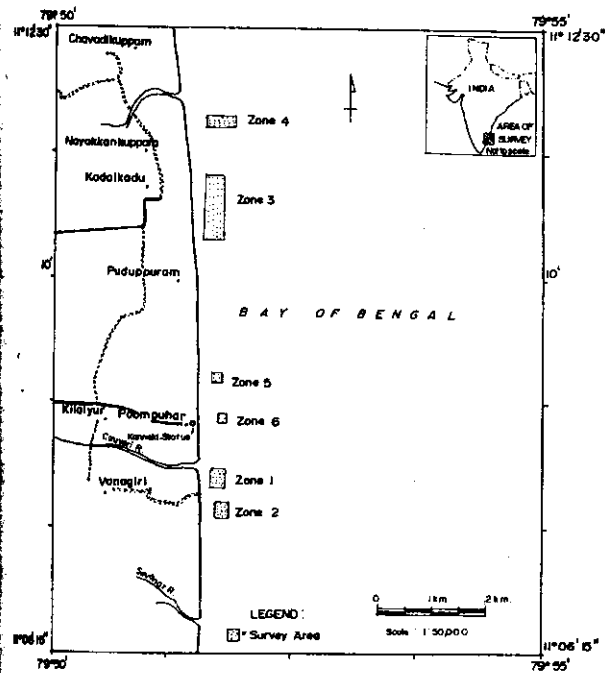


Fig. 5: Diving survey areas in the Poompuhar waters

been totally washed out and the blocks are highly eroded. Besides dressed stone blocks, brick bats were also encountered. Probably both, stone and bricks were used during construction. Red ware, Black and Red ware and a piece of an amphora were collected from the site.

During diving and airlifting in zone 2, a heap of shells and coarse grain sand were noticed, and potsherds and brick bats were collected. In zone 3, scattered dressed stone blocks of three sizes (65 x 40 x 10 cm, 60 x 35 x 10 cm and 30 x 20 x 10 cm) were noticed. Pottery, comprising Black and Red ware and Grey ware were also encountered near the area of the structure. Similar types of pottery were also noticed during the airlifting. Pottery, dressed stone blocks and brick bats of archaeological interest were not found in zones 4, 5 and 6.

**Discussion and Conclusion**

Most of the archaeological material recovered during onshore and off-shore explorations in and around Poompuhar comprised brick structures, terracotta ring wells, storage jars and clay patches which appear to have belonged to the Sangam Period (Fig. 6). These structures are probably the remains of a public building, wharf and reservoir also of contemporary date. The results of diving corroborate the data of the geophysical survey. The discovery of megalithic pottery and associated ware, along with the other remains from the off-shore area prove that the ancient habitation of Poompuhar extended beyond the present shoreline.

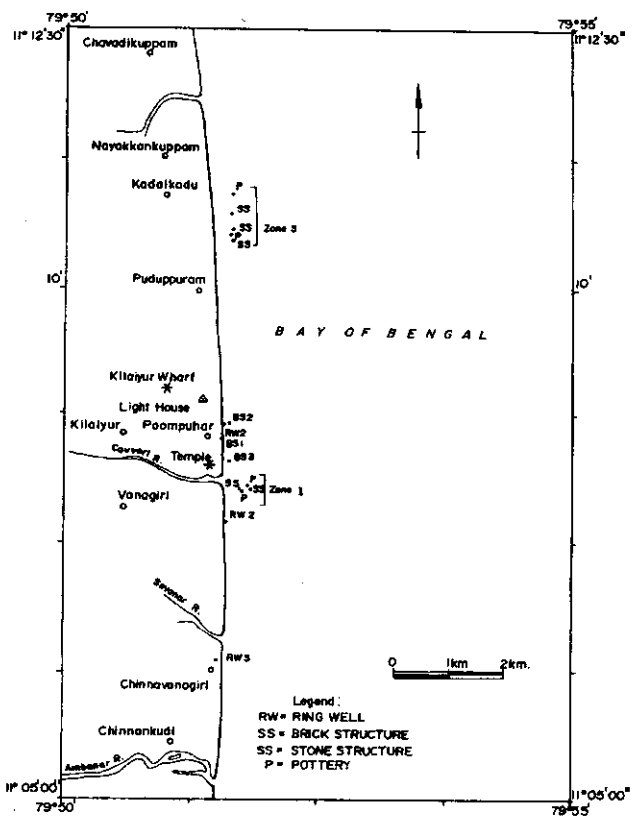


Fig. 6: Man-made structures exposed during onshore as well as off-shore exploration

The structures exposed in the intertidal zone near the Kannagi statue also suggest that the habitation at Poompuhar dates to the Sangam Period. These structures were perhaps a part of a defence wall as might be inferred from its massive width (1.20 m). The bricks used for this wall measured 36 x 18 x 6 cm, and closely resemble the size of the bricks of the Buddha *vihara* at Kaveripattinam (Padmanabhan 1992). The brick structure extended both towards the land and sea, but since it was highly disturbed, its total length could not be estimated.

Remains of other brick structures were noticed near the boundary wall of the Kannagi statue, however, they were so disturbed, probably by the sea, that nothing could be inferred from them. During onshore excavation, a compact clay was noticed outside the ring wells. It was also noticed that burnt bricks laid on the outside probably provided stability. In Andhra Pradesh it is known that vertical wooden frames were fixed on the exterior at two or three places for stability. Ghosh (1989) states that these ring wells were used as soak pits.

Stone structures have been noticed at a depth of 7 to 8 m. The structures in zones 1 and 3 are heavily scattered due to the action of waves and currents as the region falls within the high energy zone. The movement of loose and

black sediment prevents penetration of light and visibility becomes poor. It was also difficult to determine the layout of the buildings as these dressed sandstone blocks were heavily eroded and scattered. The occurrences of Early Historic Black-and-Red ware further corroborate the theory that this area was inhabited during the Sangam Period.

It is expected that continuing explorations and excavations in the near-shore and off-shore areas will bring to light more structures which will help to further reconstruct the history of Poompuhar.

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