

Underwater Exploration of submerged towns near Tranquebar (Tarangambadi) on Tamilnadu Coast

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The ancient ports of the East Coast of India have played a great role in overseas commerce with Burma, Ceylon, Indo-china, Malaysia and China from 3rd Century B.C. to the present day. The more famous among a dozen ports of the East coast are Tamralipti (Tamluk) in West Bengal, Kalinapatnam in Andhra and Kaveripatnam (Kaveripattinam) in Tamilnadu. The present paper deals with the maritime activities of Kaveripatnam situated at the mouth of the river Kaveri in Thanjavur District of Tamilnadu State. The *Periplus of the Erythrean Sea* refers to it as *Kabera*, while the Sangam literature especially *Silappadikāram* and *Manimekhalai* give graphic account of Kaveripattinam (Kaveripatnam) which is also known as 'Poompuhar', meaning a place where the river enters the sea. The Anthology *Pattinappalai* describes it as Muttachirappin Pattinam. Another Tamil text namely *Silappadikāram* calls Poompuhar a city in which people lived happily for centuries and would not like to migrate to other places.

The importance of *Silappadikāram* as a source book for the archaeologist lies in the fact that Poompuhar is said to have extended over an area of 4 *Kavatham* approximately 30 squares miles. Its boundaries were Karuvendanathapuram and Kadarankondan on the west, Thirukadavur on the south, Kalikamur on the North and the sea on the east. The town stood on the northern bank of Kaveri and encompassed within its boundaries nearly 30 villages. Poompattinam is said to have 60,000 families. According to *Silappadikāram*, the western part of Poompuhar was known as Pattinapakkam, the eastern part as Maruvarpakkam and the central part as Nalangadi. Anciently Vanagiri, one of the suburbs, lay on the northern bank of Kaveri which has changed its course. The villages Vanagiri and Chinnavanagiri lie to the south of the present mouth of Kaveri (fig.1). Manigramam, Melaiyur, Velliyaniruppu, Pallavaneswaram and Kilaiyur were in the interior on the Northern bank of the ancient course.

According to *Manimekhalai*, Kaveripattinam was swallowed by the sea and its destruction is attributed to the wrath of God Indra, whose festival the people had failed to celebrate.

The submergence of Kaveripatnam (Fig.1), the most famous emporium of early Chola kings, has attracted the attention of historians and academics because of the legend of Kovalan, the merchant prince, who was unjustly beheaded by the Pandyan king on a false charge of theft. The righteous indignation of Kovalan's devout wife Kannagi and the subsequent events form the story of the epic *Manimekhalai*.

Kaveripatnam was not only a busy port but also a great Buddhist centre. For reconstructing the early history of Tamilnadu it was essential to excavate both on shore and in the sea and reconstruct the social, economic and religious life of the people and their contribution to the cultural expansion of India in Southeast Asia.

According to the *Arthasāstra* the sea ports should be situated preferably at the confluence of the river with the sea so that the products of the hinterland could be transported by the river and then from the port to distant overseas ports. The famous port city of Dvaraka was built at the confluence of the river Gomati with the western (Arabian) sea. According to the *Mahābhārata* 12 yojanas of land were reclaimed for building Dvaraka. The constructional features of the fortified port city of Dvaraka exposed by the author in the course of 7 years of underwater excavation confirm that reclamation was resorted to by the builders of Dvaraka in 1500 B.C. (Rao S.R. 1990, 59-98). Kaveripatnam is also said to have been situated at the confluence of the river Kaveri with the Eastern Sea (Bay of Bengal). This river flows past Uraiyur, the capital of Sangam Cholas (as distinct from the Late Chola's of 10th-11th century A.D.).

The general impression is that Poompuhar was confined to the area between Kilaiyur and the present mouth of Kaveri, but the surface archaeological finds indicate that it extended from Kilaiyur to Chinnavanagiri and even up to Tranquebar (Tarangambadi) where lots of coins of various dynasties of the early historical period and of the foreign settlers of the 17th-19th Century are found in the intertidal zone. Wheeler considered Tranquebar as part of Kaveripatnam. The first systematic exploration of Poompuhar-Kaveripatnam by the Archaeological Survey of India under the direction of the author with assistance from Dr. K.V. Raman was started in 1962 at Kilaiyur, a suburb of Poompuhar. It was extended in subsequent years (upto 1965) to other suburbs such as Vanagiri, Velliyan Iruppu, Pallavaneswaram and Manigramam. The limited excavation in Kilaiyur (Mangaimatham area) in 1962 brought to light a very remarkable I-shaped brick-structure which was used as a wharf. It is lined by wooden posts and measures 18-20 × 7.62 ft. There is provision for flow of water through the channel built under the timber work supported by massive wooden posts. The carbon-14 date of the wood samples from the wharf is 233 B.C. which confirms that even before the Early Chola period Kaveripatnam was a flourishing port (IAR 1962-63, 13). The square copper coins

found in Melaiyur and Manigramam bear the emblem of tiger, the royal crest of Early Chola kings.

Wharf situated in one of the ancient channels of Kaveri provided anchorage for the boats while loading and unloading cargo. At present the ancient channel is completely silted up and the field is cultivated for growing rice. The very existence of a brick wharf must indicate that the main channel of Kaveri must be somewhere near Kilaiyur. The surface exploration revealed two flow channels one of which runs parallel to the shore while another discharges into the sea near Pudduppuram (11° N) north of Poompuhar. All along the shore from Puduppuram down south upto Tranquebar habitation deposits and occasional exposures of brick structures are encountered. The onshore excavation at Velliyan Iruppu has revealed early medieval brick structures (9th-12th century A.D.). The copper coin of Rajaraja I found here suggests 10th-11th Century date for the middle phase of occupation.

The terracotta figures recovered in excavation include two royal heads modelled in Chola style. In the course of excavation at Vanagiri a water reservoir (IAR 1963 PI XIV), semicircular in plan with 2 m high brick walls having an internal diameter of 8m, was found connected to the river Kaveri through an inlet channel 83 cm wide. The structure is assignable to 1st-2nd century A.D. on the basis of the Roulletted Ware and Megalithic Black and Red ware. In this connection it may be recalled that the Sangam texts refer to the construction of tanks and irrigation channels by the Chola Kings.

A very important building laid bare at Pallavaneswaram, one of the suburbs of Kaveripatnam is a structure of 5 cells and a common verandah indentified as the Buddha vihara datable to 4th-5th Century A.D. The subsidiary structure contained an apsidal chaitya. A small bronze figure of Dhyani Buddha and a fragmentary terracotta figure of a goddess are among the important finds from one of the rooms of the main scrossing. The longitudinal walls of the Vihara are 1.7 m thick and transverse ones are 0.9 m. Another building with stucco plaster and moulding has also been laid bare near the monastery. A large *buddhapāda* of limestone was discovered in a building exposed south of the structure decorated with stucco work. A large variety of bricks, some bevelled and others fluted or corbelled, are found used for the moulding of pillar corbels. These and other archaeological finds confirm the literary reference to Kaveripatnam as an important centre of Buddhism.

The excavations at Manigramam and Vanagiri yielded beautiful beads of quartz, crystal, chalcedony, agate, green and red jasper, coral etc. (Tr. ASSI 1965, 163-165). During the excavation resumed by K.V. Raman in 1966-67 with a view to check up findings of the proton magnetometer investigation in the area immediately to the east of the Pallavaneswaram Temple, the 3 m thick habitation debris yielded late Chola copper coins and flat terracotta tiles of pottery datable to early Medieval period (IAR 1966-67, 21).

In 1970-71 K.V. Soundara Rajan's excavation near Sampapati Amman Temple at Kaveripatnam revealed 2 terracotta ring wells in pre-Chola temple (10th - 12th cent. AD).

OFFSHORE SURVEY OF TRANQUEBAR - POOMPUHAR 1982

The onshore survey of Poompuhar-Kaveripatnam in the sixties had confirmed that there existed port-installations such as brick wharf in the 3rd century B.C. and that a part of the city of Poompuhar might have been buried in the sea. The Government of Tamil Nadu through the state Department of Archaeology approached the National Institute of Oceanography, Goa to undertake Geophysical Survey of the area seaward of the present Poompuhar monuments. Accordingly the Geophysical Survey team comprising of Mr. K.H. Vora, L.V. Subbaraju and others carried out echosounder, side scan sonar and magnetometer surveys in 1982.

The survey was on a scale 1-25000 with the line spacing of 250 m for sufficient overlap.

GRID SURVEYS

Between Kaveripatnam and Vanagiri, 23E-W and NW-SE lines and between Kaveripatnam and Tranquebar 2N-S lines were surveyed. The echosounder and side scan sonar were operated continuously and magnetometer most of the time.

Position fixing was done with the Motorola Miniranger MRS III working in C band on a line of sight principle. When the Miniranger system developed some faults the conventional sextants were found useful for position fixing.

Detailed survey: Whenever either echogram or sonograph showed some anomalous features, detailed survey by crisscrossing a number of times from different directions was undertaken to confirm the features and to record the view from different angles. Separate maps on a scale 1:5000 were prepared at 3 different locations where detailed survey was made.

Fishing trawler 17 × 5 m with 1.2 m draught was used for survey. A smaller vessel was available for crossing the surf zone.

Atlas Deso 10 echosounder provided a good resolution and also sub-bottom penetration. The bathymetry of the area was prepared on a scale of 1:25,000 with a contour interval of 1 m.

The EG & G side scan sonar system consisting of a transducer tow fish and a dual channel graphic recorder was deployed. The tow fish contains two sets of transducer arrays on either side and they were adjusted for 10° beam depression and 20° beam width. The recorder was operated usually with 125 m range to get a satisfactory coverage of the area. The signals received by the tow fish are recorded in terms of tonal difference on a specially treated wet paper.

The Barringer Oceanographic Magnetometer was deployed for collecting the total magnetic intensity values.

RESULTS OF THE SURVEY

Bathymetry: The survey was confined in certain areas of 7 to 23 m depth, and the gradient was found to be steeper in the shallow area. There is an abrupt change in the gradient at

OFFSHORE STUDY AREA OF TAMILNADU COAST :

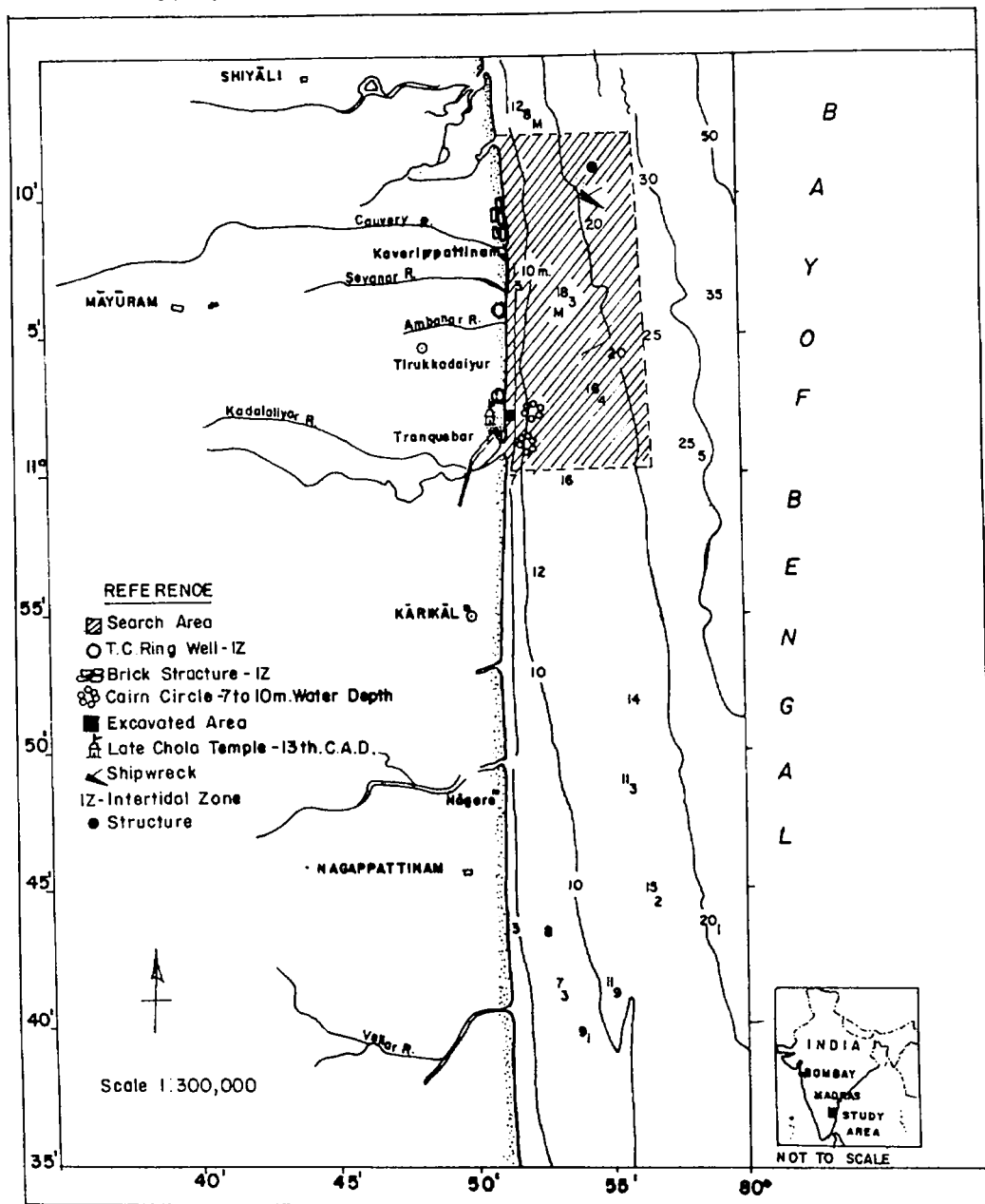


Fig. 1

about 17 m depth after which the gradient is gentle. The echograms when correlated with the sonographs show that the seabed is covered with sand. The area near the shore shows no penetration to water depths of 7–8 m. The presence of the acoustically transparent clay in the rest of the area is indicated by echogram showing 2–3m penetration.

Some salient features noted on echograms are given below:

Sl. No.	Water Depth	Height of the feature	Remarks
1.	18 m	4 m	80-90 wide; has 2 peaks separated by about 25 m
2.	18 m	6 m	Sharp Peak
3.	18 m	3 m	Massive with twin peaks
4.	19 m	3 m	Two features separated by 30 m
5.	18 m to 7 to 1524 m	1.2 to 3 m	Features shown by echogram are slender; may be from a ship wreck or due to rough weather or heave of the boat etc.

A significant feature is noted at 79° 54' E; 11° 12' N, and another feature at 79° 54' E, 11° 12' N, the former is seaward NE of Pudukkottai and the latter opposite Vanagiri. Vora has observed that a feature near Tranquebar may be a wreck.

A request was made in 1986 by Mr. M. Subramanian, Manager, Integrated Marine Fisheries Department, Tranquebar Branch and the Director of Archaeology and Museums, Tamil Nadu State to the National Institute of Oceanography (Marine Archaeology Unit), to remove the obstruction caused to fishing near Tranquebar by the presence of a shipwreck in the seabed. The author visited Tranquebar on 7th June 1986 for a preliminary survey and found that the massive brick jetty, pier and protection walls of 17th – 18th century (Pl. 34) have been destroyed by the merciless battering of the waves. Further landward, the 11th Century Chola Temple, locally known as Masalamani Temple, (Pl. 35) has also collapsed over half the portion owing to the transgression of the sea. What is however of great archaeological significance is that at the foot of the medieval habitation deposit north of the temple, terracotta ring wells get exposed in the intertidal zone at low tide. They are datable on ceramic evidence to the 3rd–4th Century A.D., if not earlier. The more crucial but baffling evidence comes from the same zone in the form of innumerable coins, mostly of copper, and a few of silver, lead and gold which are collected in low tide by local fishermen (Pl. 36). Unless there is a wreck or structure which got submerged in the sea such a large number of coins cannot be expected in a very limited area of just 300 metres of the Intertidal zones. The call from the departments of Archaeology and Fisheries to investigate the wreck, the occurrence of early historic and medieval habitation deposits and the likelihood of finding submerged features prompted the Marine Archaeology Unit to explore the seabed off Tranquebar upto Kaveripattinam in the month of May 1989. This was only a trial survey deploying side scan sonar and echo-

sounder. The high surf zone is quite risky to cross here in small boats or catamarans especially when scientific equipment is to be carried to and from the survey vessels anchored about 0.5 to 1 km seaward. In the absence of landing facilities, all equipment had to be loaded and unloaded at Nagapattinam. Two trawlers *Sona* and *Pota* besides a motorised surf landing vessel were engaged from Vizag; In addition to our small team of diving archaeologists, the services of Vishal Diving Co. Vizag were requisitioned. The sea was rough all through and especially after 11 am. and visibility was nil upto 14 – 15 m water depth. However the main objective of the survey being bathymetric study and location of wrecks or structural remains by deploying side scan sonar, echosounder and magnetometer, we had to avoid high surf zone. Details of the bathymetric study and side scan sonar survey of the area upto Chinnarkudi in the south and Vanagiri in the north upto 18 m depth have been given in a paper presented by Dr. T.C.S. Rao who conducted the survey and the same has been published in this volume. As visibility was nil photographs of submerged circular objects noted by divers could not be taken. It is however fairly certain that a township was submerged between Tranquebar and Poompuhar and one or two wrecks lie buried. These will be investigated in March 90.

The pottery collected from the intertidal zone and the coins found earlier did however indicate continuous occupation from the beginning of the Christian era upto 19th century A.D. The habitation mound on the shore north of Masalamani Temple was scraped and Red Ware and coarse grey ware of 10th–11th century were found. Brick structures of a slightly earlier date which are visible in the intertidal zone will be examined and excavated if found sufficiently important.

Manavi Thakkar and Bandodkar dived in 9–11 m depth between Sinnarpet and Chinnavanagiri where the sonograph showed semi-circular objects opposite Chinnavanagiri temple and samples were collected. They are similar to those found in the circular cairn like feature with a tumulus of pebbles with large boulders underneath (Fig.2). They were reported by Sila Tripathi, Alok Tripathi, Manavi Thakkar and Srinivas Bandodkar at 7 m depth opposite the partly submerged brick wall between the Museum Building and Masalamani Temple. It is proposed to resume exploration of circular objects noticed in this zone in the next season.

In conclusion it can be said that some of the features recorded by the sonar and echosounder are man-made features. At present it is not possible to confirm whether the disjointed objects to the north of Masalamani temple were fragments of a linear structure.

Abbreviations

1. Tr. ASSI=Transactions of the Archaeological Society of South India, Madras
2. IAR = *Indian Archaeology – A Review*.

References

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CAIRN CIRCLE AT 7M. DEPTH IN THE SEA TRANQUEBAR

