

**CHAPTER – 1****Petrological and Architectural Technology  
in the Megaliths of Pudukkottai****Dr. J. Raja Mohamed**

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Pudukkottai covering an area of about 4650 sq.km, was the former princely state. The Pudukkottai state merged with Indian Union in 1948, became a revenue division in the composite Tiruchirappalli district and carved out as a separate district in 1974. The Pudukkottai district is surrounded by Palk Strait of the Bay in the east, Thanjavur district in the north Tiruchirappalli in the north west and Sivagangai district in the south west.

The metamorphic rocks in the region is of gneisses of amphibolites (dark coloured rock) granulite variety and proxinities (mono mineralic rock). There are hillocks of these varieties at Piranmalai, Narthamalai, Sevalurmalai, Viralimalai, Kudumianmalai, Malayakkovil and Malayadippatti 'to mention a few. Such rocks and soils were found most suitable for living by the prehistoric people and they had enormously exploited them. Laterite has been quarried traditionally in the eastern part of the district and used as ideal material in constructions.

Pudukkottai has yielded a rich cultural wealth ranging from the early megalithic times to historical period. There are more than hundred megalithic sites in the district, the largest in Tamil Nadu. Though Paleolithic and Neolithic artifacts had been collected occasionally in the district in the past, the important cultural phase here is megalithic. The profusion of suitable rocky materials, rich mineral resources, the benevolent tank irrigation system and fertile soil favorable to the needs of the prehistoric people, particularly the megalithic builders, accounts for the large number of megalithic sites in the tract.

**Megalith:**

The term megalith, in archaeology, is defined a tomb built with big stones in natural form or roughly dressed (maga = big, lithos = stone). It is also applied to erection of huge stones, memorial or religious in function. Besides graves with out any lithic (stone) appendage, but by virtue of the possession of certain other complex materials, such as pottery (urns) commonly found in the other forms of megalithis are also classed as megalithis'.

**Megalithic Culture:**

A large number of megalithic sites were found in the district in the water spread area of irrigation tank or close to them. This clearly demonstrates that most of the tanks that are still being used in this district had a long history. The occurrence of hundreds of burials as one noticed in Thayinipatti, Vayalokam, Chinkathakurichi, sithannavasal and a host of other places suggest the usages of the tank for a longer period of time. Sometimes the burials are constructed on the elevated ground usually near a water course covering an area of 5 to 200 acres. These sites are found generally, south of habitation mounds and were known to the local people as kurangupattarai, the workshop of monkeys. The urns were known as mathamakkachal or mudhumakkal Thazhi, meaning old man's burial pot. The location of various habitation cum burial sites indicates that megalithic people opted for tank based settlement. Even though raw materials were available of plenty in other places also they selected only small hillocks and out crops, the reason may be to avoid dense forests that were not congenial to live or cultivate. They selected the sites where water was easily available or accessible. The budding of irrigation and agricultural technology in the area could be seen in the cultural trait of the megalithic people.

**Raw materials:**

The present location of the burial grounds in Pudukkottai region, except in a few cases, clearly demonstrates that the raw materials were available within a reasonable distance. The raw materials for the construction of the megaliths were granite and laterite . Besides, pegmatite or white quartz fragment, river worn pebbles of quart and conglomerates were also used, though not on a large scale in construction. It appears that different kinds of stones according to their natural forms of appearance were used to the specific parts of the megaliths. Round boulders were used in the construction of the circles around the cist chamber. Stone slabs were used for the construction of the cists

under the ground. Both dressed and undressed slabs were used to prepare cists where as undressed slabs were generally used for capstones. The circle stones are either built with granite or laterite blocks.

Every kind of locally available stones suitable for construction are used. Neat cutting of laterite, fine dressing of their surface are instances of the knowledge of megalithic men in local geology, skill in exploiting the natural resources, quarrying, lifting, transporting and erecting these huge stone slabs and boulders, certainly will go to indicate their in-depth knowledge of petrology and related technology.

Separating and splitting the slabs from the rock surface required the technique of litting fire along the natural surface cleavages on the horizontal bedding of the sedimentary rock yielded detached sheets of granites (slabs) owing to exfoliation. The granite gneiss slabs thus provide excellent building materials. The occurrence of chisel marks in orthostats and capstones indicates besides natural way of breaking, they also used chisel to quarry the raw material for making orthostats or slabs. The traditional method by firing in separating slabs from the rocky surface is still being used in the district in quarrying such slabs. Pudukkottai remains one of the best studied regions of Tamil Nadu as for the megalithic remains are concerned. As far back as 1917 the region attracted the attention of scholars since then, thanks to the yeomen work in the field by Venkatrama Aiyer, Venkatrangam Raju, P.T.Srinivasa Iyengar, K.R.Srinivasan, K.S.Ramachandran and K.Rajan, who have systematically studied the megalithic sites and many scores on the burial sites have been brought to light'.

### **Types of megalithic burials:**

The burials in Pudukkottai were heterogeneous in nature. They are cairns, stone circles with a menhir or standing monolithic slab at the periphery of the circle enclosing different kinds of cists and urn burials.

#### **Cairn:**

Huge unhewn boulders kept in one or more circles above the ground is known as cairn. Frequently a heap of rubble, enclosed in a stone circle is also classified as a cairn.

#### **Stone Circles:**

Stone circles made of round boulders. These circles have an average diameter of 8m. The stone boulders were placed one after another without any gap to form a circle

to serve as a demarcation of a grave. The stones are about 4 feet height above the ground and 2.5 feet breadth. Some graves had double circles as seen at Todaiyur. Most of the urns unearthed in the region were from the stone circles.

### **Cist Burial:**

The major type of burial encountered in the region is the cist burial (Chamber burial) invariably found within a stone circle. The tomb made of granite slabs may be partly buried and partly above the ground. They are called as dolmenoid cist. The cists are capped by a single or multiple stone slab. The orthostats project vertically to about 2 to 2.5 feet above the ground level over which the capstone is placed. They are of three types:

1. Simple cist burial constructed of four orthostats.
2. Cist with a passage.
3. Transepted cist with single, double and multiple chambers.

#### **1.Simple cist:**

This type of cist is box like structure, built with four orthostats or upright stone slabs, kept in clockwise or anticlockwise direction on a floor slab and was enclosed by a cap stone. A round hole called (port hole) is noticed at the centre of the eastern orthostat.

#### **2.Cist with passage:**

Besides the cist, a passage was constructed in front of the port hole by placing three vertical slabs near the port hole.

#### **3.Transepted list:**

The cist bifurcated longitudinally into two or more chambers are called transepted cist. The majority of the cist found in the district are of this type. These cists were constructed with thick orthostats under the ground and had a floor slab. The cists of this type are rectangular chamber constructed with cut granite monolithic slabs about 8 inch thick forming the walls of the floor of the pit about 8 feet square and 7 feet deep. The arrangement of the orthostats are in clockwise svasthica pattern. There is a small square outer chamber formed of cut slabs (the ante-chamber) attached to the upper portion of the southern half of the eastern side measuring 4 feet square and 3 feet deep. The cists are found in stone circles ranging from 10 to 20 feet in dia. The main cist is divided into two parts by a vertical stone slab placed across east to west and pierced in its middle with two holes one above the other, large enough for a man to crawl through. It is to the outside of the southern portion of the main cist that the small outer chamber

mentioned above is attached and a hole pierced in the wall separating the outer small chamber from the southern portion of the cist gives access to that portion. The northern portion of the main cist is divided horizontally in to two shelves by a stone slab supported by two small upright side slabs at the ends.

The two holes in the vertical partition slab give access to these two shelves separately from the larger southern chamber. The holes in the partition slab of the main cist and in the slab separating the smaller eastern chamber from the main cist were closed by thin stone slabs and earth after the burial process. The cist was covered by a massive capstone of about 8 to 10 inch thick. Thus the transepted cist of Pudukkottai is the most elaborate type of cist burials in South India and has not yet been met with elsewhere. Generally these cist tombs had served as funerary monuments. Full skeleton are met very rarely. The dead body was thrown open and a few piece of bones were collected from the remain and may be placed in the tomb.

The chambers were generally covered with earth, broken stones and boulders to a depth of about 3 feet from the ground level and with sand mixed with lime further below. They may also be vacant as a mere chamber or room. Finds of any importance such as potteries, iron weapons etc... were found at a depth of 4 to 5 feet below ground level. The potteries found in the cist were thin, well made and polished of block, red or black and red colour. Bones are also occasionally met. Such transepted cists are found in a number of places in Pudukkottai among them the cists found at Sithannavasal, Todaiyur, Sengalur, Thayinipatti and Tiruppur deserve special mention”.

The arrangement of the orthostats in clock wise or anti clock wise pattern which would prevent the orthostats from international collapse, is the architectural achievement in the construction of these cists. The cairn packing raised almost up to the capstone would not allow outward collapse of the orthostats. Though the plan is simple it is intelligently preferred. Thus the inter locking of the orthostats of cist chambers, providing cairn packing externally buttressing the chamber to avoid outward collapse, centering the tombcist-within the enclosing perfect circle, relative proportions in the dimensions of the chambers the cairn packing, settings up of well dressed menhirs, (or nadukal) construction of coursed wall indicate the practical skill, technology and simple arithmetical knowledge of structural engineering of the megalithic people of the regions.

### **Urn burial:**

Um burials (Mudhumakkal Thazhi) were noticed through out Pudukkottai region. The shape of the urn is pyriform having a wide mouth, bulbous or globular body

and truncated stem base. The rim is thick round and rolled. Generally the urns measure 3 feet 6 inch in height and 5 feet 6 inch round the broad part. The urns are coarse red ware variety. Human bones and potteries were placed inside the urns, filled with earth and buried. The urn let down in a pit one foot below the ground level, covered by a lid, and a capstone of 7 feet square and 10 inch thick placed above. Sometimes stone rubbles of various size are heaped. The burial is marked on the surface by a circle of laterite or granite boulders. The building of the circle with the laterite boulders are master works of the artisans of the period and are examples of superiority of megalithic architecture of the region.

### **Architecture and skill:**

There are scarcely evidences giving some idea about the domestic architecture, (houses) in spite of the fact the people did have huge boulders and slabs and built tombs of various types of no less architectural merit and suggesting that empirical skill in meeting the architectural problems. It could be, however suggested that the houses of the people of the megalithic period were made of perishable materials such as thatched and reed materials, the floor and walls made of either mud or stone on the model of the megalithic building. The round shaped houses of some of the primitive tribes even to the day is a point for consideration.

In contrast to the absolutely rudimentary nature and types of their dwelling, the tombs are invariably built with huge stones and display variety of types ensuring permanency to the structures. At every stage from selection of the suitable stone and quarrying for construction, the technological skill on petrology is attested. They were adept in handling all kinds of available rocks, the judicious use of a particular stone to a particular part of the tomb, the knowledge of the geological zones of the particular rocky surface demonstrate their traditional affiliation in the subject’.

The method of neat cutting of the granite boulders and laterite blocks, fine dressing of their surface are instances of the knowledge of the local geology and petrology of the megalithic builders of the region. The different kinds of materials associated in the graves, tombs and urns also throw light on the multifarious technical skill of the megalithic people. The megalithic monuments ‘by their very nature of construction, transportation etc... would have involved the entire community in the particular area.

Thus the construction of the tomb cists with rough, undressed huge stones that uniquely distinguished the megalithic culture of Pudukkottai region in the cultural history of man in South India. The megalithic monuments are the fore runners, for all the later architectural forms, secular and religious. The megalithic monuments in Pudukkottai therefore bear eloquent testimony among other things to the great veneration of the makers to the dead and their belief in post mortem existence, besides the benefits of their periodical proposition by ritual and worship.

### **References:**

- 1) A Sundara, The Early chamber Tombs of South India, New Delhi 1975, P3
- 2) K.Rajan, Archaeology of Pudukkottai Region (ICHR Project) Thanjavur, 2002.
- 3) K.R.Venkatrama Aiyar, A Manual Pudukkottai state (revised) 1944, vol.II.Pt.II commissioner of Museums Chennai pt I & II reprint K.R.Srinivasan, Megalithic Burials and un field of South India in the light of Tamil literature and Tradition, Ancient India 229-16: Administration Report of the state Museum Pudukkottai for the year 1921, 1922, 1926, 1938 1939, 1943 1944: J.Raja Mohamad, Pudukkottai, mavatta varalaru, Pudukkottai 1992.
- 4) Administration Report of the state Museum, Pudukkottai for the year 193 8-1939: V.D.Krishna swamy, megalithic Types of South India, in Ancient India, No. 5, January 1949: B.Narsimhaiah, Neolithic and Megalithic cultures in Tamil Nadu, (sundeep prakashan) New Delhi, 1980. PP.120-123.
- 5) A.Sundara, opt.cit.p.218 219. 6) K.R.Venkatarama Ayar, A Manual of Pudukkottai State, 1940, vol. II Pt.I, P.523; K.Rajan, opt.cit. 7) A.Sundara, opt.cit.p.22 l.