Studies in
SOUTH INDIAN ARCHAEOLOGY,
EPIGRAPHY, ARCHITECTURE AND
SCULPTURE
(With Special Reference to Tamil Nadu)

D3274

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PREFACE

The following pages represent a course of three special lectures that I delivered at the Department of History, Annamalai University in February, 1967 for the benefit of its post-graduate students. I am grateful to the Vice-Chancellor and the Syndicate of the University for inviting me to deliver the lectures and permitting me to publish them myself.

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Since there has been a steady accession of fresh material on the subject-matter of these lectures during the last decade, I have tried to utilise the same particularly for the subjects covered by the first two lectures. Though mainly intended for the post-graduate students, I hope the present book will be found useful by scholars as well.

Dr. K. V. Raman, Dr. C. Krishnamurthy and Dr. S. Gurumurthy respectively, Professor, Reader and Lecturer in the Department of Ancient History and Archaeology, University of Madras gave me useful suggestions for revising the manuscript for the press. Sri R. Anandasivam, M.A., Research Assistant working under me helped me in bringing the manuscript fairly up to date and getting it through the press. To all of them I am beholden.

The Southern Circle of the Archaeological Survey of India and the Temple Survey Project (South) of the Survey, both at Madras, supplied me at my request some of the photographs illustrated in the book. Sri V. N. Srinivasa Desikan, Curator for Art and Archaeology, Government Museum, Madras was helpful in preparing a few line drawings illustrated. I gratefully acknowledge their help in the matter.

Messrs. Sremati Printers, Madras deserve my thanks for their neat execution of the job.

Ramakrishna Nagar
Madras-600 028
1 January, 1978

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CONTENTS

Preface

I. ARCHAEOLOGY
   i Introductory ... 1
   ii Lower Palaeolithic Age ... 4
   iii Middle Palaeolithic Age ... 11
   iv Upper Palaeolithic Age ... 13
   v Material Life of the Palaeolithic People ... 14
   vi Mesolithic Age and the Microlithic Industry ... 16
   vii Neolithic Age ... 19
   viii Iron Age and the Dawn of History in South India ... 48

II. EPIGRAPHY AND NUMISMATICS
   A. Epigraphy ... 84
   B. Numismatics ... 100

III. ARCHITECTURE AND SCULPTURE
   A. Architecture ... 115
   B. Sculpture ... 129

PLATES
Memoirs of the Archaeological Society of South India, No. 2

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PLATES
I

ARCHAEOLOGY

I. INTRODUCTORY

Archaeology is a branch of human science that deals with the material remains that ancient man has left behind. The word itself is derived from two Greek words, *arkhaios* meaning "ancient" and *logos* meaning "knowledge". Long ago it was thought archaeology was concerned more with art, and the object of any archaeological excavation was to collect good art objects for the museum or the curio, as also to discover buried treasures, palaces, ramparts and the like. Though there is always a thrill attached to such finds, the real aim of the archaeologist is "to dig up, not things, but peoples". Archaeology, in its essence, and archaeological work, are "based on the theory that the historical value of an object depends not so much on the nature of the object itself, as on its association, which only scientific excavation will detect. The casual digger and the plunderer aim at getting something of artistic or commercial value, and there, their interest stops. The archaeologist, being after all human, does enjoy finding rare and beautiful objects, but wants to know all about them, and in any case, prefers the acquisition of knowledge to that of things; for him, digging consists very largely in observation, recording and interpretation. There is all the difference in the world between the purpose and methods of the scientific worker and those of the robber".

The ultimate aim of archaeology being the reconstruction of the civilization and culture of bygone ages, it is a source of history; archaeological data are all historical documents; and like any historian the archaeologist attempts "to reconstitute the process that has created the human world in which we live". We expect and extract from archaeology, data on many aspects of life in the ancient past, such as environment and population, articles of production and consumption, methods of transport and distribution, besides social, economic and religious conditions among the people and their artistic and technological achievements from age to age or period to period, in short, *man's progress or evolution through the Ages*.

Thus the civilizations of many ancient countries have been unearthed and brought to light by the pick axe. The nineteenth century was marked by great achievements in archaeological work and we owe our
knowledge of the ancient civilizations of Egypt, Italy, Greece and some of the countries of the Middle East to the spade. Even when archaeology had not developed into a full fledged discipline, much valuable archaeological work was done by men like Heinrich Schliemann, Flinders Petrie and others like Leonard Woolley. But the subject has now developed as a good and exacting scientific discipline and become closely connected with many of the exact sciences like Geology, Palaeobotany, Physics, Chemistry and Zoology, not to speak of subjects like Geography, Physical Anthropology, etc.

The story of man may be taken to have commenced somewhere about 20,00,000—10,00,000 years ago, the clue for the dating, however tentative it may be, being derived by the age of the fossil finds and the human characteristics revealed by the fragments of bones obtained from a number of excavations in Pre-historic sites in different parts of the world. The early men would have lived in areas which offered necessary living conditions. The rise and growth of cultures in ancient times are related to environmental and geomorphic context which have not been the same everywhere and all through the ages. The natural context in which primitive man lived all the time constantly regarding himself about his survival alone and contriving methods of conquering and shaping environment to suit his needs, is an important aspect of Pre-historic archaeology. The story of the evolution of human civilization can be understood only if it is correlated to a study of environments like the physical, vegetational and zoological, during different ages which witnessed and influenced the important stages of man’s progress towards civilization. Taking these factors into consideration, it is presumed by many prehistorians and palaeontologists that Western Europe, the great rift valley in Tanganyika in Central Africa, Western Asia and China would have offered the necessary living conditions for being the earliest habitat of man.

In the story of the evolution of man there can be distinguished two stages, namely the one for which we have written records and the other for which we have no such records. Writing in some form or other is not very old, but man has lived in this world for many millennia. While the period for which we have written records is called the historical period, the age of man for which we have no such records is called Pre-historic Age. Usually this Pre-historic Age is subdivided broadly into three Ages according to the nature of the raw material used for making implements by man in his daily activities namely Stone Age, Bronze Age and Iron Age. This division was suggested so early as the eighteenth century by Thomsen, Nilsson and Worsaae. Later they were expanded into four Ages viz., Palaeolithic, Neolithic, Copper
and Iron. The Palaeolithic Age itself came to be subdivided into Lower, Middle and Upper Palaeolithic Ages. But these Ages were not separated from one another by any measurable length of time. Often they were found to co-exist or overlap. As Childe has explained, these divisions were not chronological ones, but only technological stages in the slow development in human civilization in its early evolution. Broadly speaking, there were three such stages in the progress of early human history. First, man was a food gatherer; then he became a food producer and finally with the urban revolution as a result of the discovery of metals like copper, labour became organised, goods were stored and trade developed.

What applies to other countries and civilizations applies to India also. In India, though the beginnings of her history, as reconstructed with the help of written records and tradition, may be traced back to about five thousand years, the history of man in the country may be pushed further back to several millennia.

In the course of this lecture, I shall confine myself to a study of the pre and proto or early historic archaeology of South India with particular reference to Tamil Nadu. By South India is meant here roughly all the area from the river Godavari in the north to the extreme south of the Peninsula with the Bay of Bengal in the east and the Arabian Sea in the west. Though South India did not have an Ice Age, it underwent a number of extremely wet and extremely dry climatic oscillations. It is found that this region passed through at least four wet and three dry periods (respectively called as pluvials and inter-pluvials). These periods are recognised as (i) a long damp period marked by the formation of laterite (ii) a long dry period (iii) a period of violent and torrential rain leading to the formation of detrital beds (iv) the second dry period (v) the third wet period in which neither laterite was formed nor the rain wash was violent (vi) a period of less rain fall and (vii) a period of denudation. These changes had a determining influence on the soil formation on the surface of the land. This region which is geologically considered to be the early and stable land mass in the country contains a number of rock formations and weathered and lateritic soil in different regions, besides water and forest cover facilities capable of supplying game and edible fruits and roots, so necessary for the prevalence of Stone Age cultures.

There are a number of sites representing the different phases in the chronological sequence of the Stone Age cultures in South India. A number of Stone Age and Iron Age sites have been explored in many parts of South India, some of which have also been excavated. The
cultures and cultural phases that constitute South Indian pre and proto-history may chronologically and conveniently be divided as follows:

- Lower Palaeolithic Age
- Middle Palaeolithic Age
- Upper Palaeolithic Age
- Mesolithic Age (with microliths or tiny tools)
- Neolithic Age
- Iron Age (with megaliths)

Old Stone Age or Palaeolithic Age

Stone Ages

Metal Age

Though there is some stratigraphic evidence for arranging the Stone Age cultures in chronological order, one is not in a position to fix the time span or the duration of each culture or the datum line separating one from another, mainly on account of the absence of datable finds associated with them.

Let us now consider some of the salient features of each of the above cultures in South India in the light of recent discoveries.

II. LOWER PALAEOLITHIC AGE

The Lower Palaeolithic period was very long covering more than 80 per cent of the entire Stone Age. Starting from the first discovery of a palaeolithic implement from Pallavaram near Madras (1863) by Robert Bruce Foote, the father of Indian prehistory, the remains of the Lower Palaeolithic culture in South India have been noticed in the States of Tamil Nadu, Karnataka and Andhra Pradesh. The State of Kerala has not yielded any palaeoliths. The reason, however, is not known. Probably, as Sankalia suggests, it may be due to the fact that it has not been properly explored; or the absence of palaeoliths may be due to geographical reasons.

A. Tamil Nadu

The artifacts of the Lower Palaeolithic Age in Tamil Nadu are noticed in a number of places, of which the area covered by the districts of Madras, Chingleput and North Arcot deserve special mention. Large parts of the Chingleput district are rich in quartzite of fine quality derived mainly from the Alicoor-Satyavidu ridge of the Jurassic period. The Alicoor hills are made of gritty sand stone, dipping at an angle of 12°-15° A-N-W. The eastern part of the district is a plateau of laterite. This is cut through by both the Naranavaram and Korttalaiyar rivers which create a big valley. They offered living conditions for the earliest man in Tamil Nadu wherein the vestiges of Pre-historic man's
activities can be traced. Thus the Chingleput district which surrounds the present city of Madras forms the most fruitful area for the study of South Indian Pre-history. It is in this district that three well known and important Early Stone Age sites are situated, namely Attirampakkam, Gudiym and Vadamadurai which have yielded thousands of stone tools, representing different phases in the evolution of the Early Stone Age industries of South India. Besides, there are also other important sites like Erumalivettipalaiyam, Manjanakaranai and Sriperumbudur, all of them not far from the above sites.

The Lower Palaeolithic Age of the Tamil Nadu region can be broadly classified and arranged in the following order:

1. The crude pebble and hand-axe or Abbevillian phase
2. The advanced hand-axe or early Acheulian phase &
3. The late hand-axe-cum-flake tool or post-Acheulian and Micoquian phase

Such a division is mainly based on the study of the typology of the tools. The Abbevillian tools, chronologically speaking, are earlier than the other tools and represent the early stages in the art of tool making. The tools from Vadamadurai and Attirampakkam have been classified and studied by V. D. Krishnaswami in relation to their occurrence in the geological deposits like river terraces. The tools studied by him were, however, not obtained from any stratified deposits or systematic excavations, but were from surface collections. Therefore nothing was known about their origin and chronology. But it may be noted that four terraces have been recognised in the Korttalaiyar valley namely terrace detrital and terraces I, II and III. The first terrace was formed by the detrital laterite overlaying a boulder-conglomerate which probably belonged to the Mid-Pleistocene and the next three terraces were formed by erosion and cutting. The palaeoliths yielded by the Vadamadurai region may be divided into three groups: the earliest, the pre-laterite and contemporary with the boulder-conglomerate, resembles the early Acheulian type. The second is contemporaneous with the laterite deposits and consists of hand-axes of the middle Acheulian type while the third belongs to terrace I and comprises hand-axes of the late Acheulian type. Tools of the third group occur in large numbers at Attirampakkam in the basal laterite gravels of terrace II. A correlated study of these Palaeolithic industries with those of the north-west with Himalayan glacial cycles shows that there was a pattern of palaeolithic sequence interlaced with geological formation and climatic oscillations.

In 1965 systematic excavations were undertaken by the Pre-History Branch of the Archaeological Survey of India at the site of Attiram-
pakkam and at Gudiyam. The excavated sequence in the rock shelter at Gudiyam revealed a post-Acheulian industry imperceptibly developing into a microlithic one without any hiatus. Further explorations in the area revealed sixteen more rock-shelters, two of them yielding tools on the surface. But no vestiges of paintings or engravings were noticed in them. Nor have the excavations brought out any skeletal remains or skulls. Therefore one has to depend only on the typology of the tools for the reconstruction of the culture of their authors. The difficulty of such reconstruction is considerable also because some kinds of ‘tools’ are related to certain geological and environmental conditions, and thus not man made.

The Early Stone Age tools from the area near Madras include a number of varieties such as pebble tools, core tools, both crude and fine bifacial hand-axes, flake tools, cleavers, scrapers, borers, discoids, etc. There may be noticed different stages in the evolution of their shapes or forms. The general category of types of the tools collected from the Attirampakkam region can be evolved from a comparative study of the Lower and Middle Palaeolithic cultures of Europe and Africa.

The most important and frequently occurring main type is the hand-axe or coup-de-poing. The hand-axe is a multipurpose tool used for digging, chopping and cutting. It is a dressed stone block, with a pebble or butt end to serve the purpose of easy handling and grip, and a pointed end with two sides as cutting edges. The hand-axes themselves are divisible into sub-types, such as the pear-shaped hand-axes, ovates and cordiform hand-axes. Further, hand-axes as well as other types of stone implements, characterised by distinctive typology and technology, marked the gradual advancement of Stone Age cultures; and the names of places where the above cultures were found came to be applied to the tools found associated with the cultures such as Abbevillian, Chellean, Acheulian, Clactonian, Levalloisian, Micoquian, Mousterian, etc. It is important to note in this context that the Chellean, Acheulian, etc., tools of any industry stand to represent only the typology or technology and do not belong to the respective cultures as such.

The earliest of the collected tools is a massive pebble that belongs to the pre-lateritic times in the Attirampakkam region. This pebble is about seven inches in length, five inches in breadth and three inches in thickness on which a few flakes were removed on one side only. The pebble is heavily patinatated.

The hand-axes vary from primitive Chellean types to the advanced Acheulian and Micoquian types. In the early types, the flaking is not
carried over the entire surface of the pebble and considerable portions of the cortex are still left unworked in the butt end. Gradually the flaking becomes more defined, as a result of which the cutting edge becomes more straight and long; the cortex is gradually eliminated. Early Acheulian ovate hand-axes from Attirampakkam are found flaked over the entire surface on both sides. Some, however, slightly differ in type and technique from them and may be called plano-convex hand-axes, since the flaking is exhibited only on one surface viz., the dorsal surface. The ventral surface is an uniform flake surface. Unlike the ones that are flaked and shaped on both sides, these tools have one surface of the pebble first worked. The Middle Acheulian hand-axes followed by the typical post-Acheulian ones have also been collected from Attirampakkam. Stone tools are represented by the Micoquian type of hand-axe. In some others, the advance of flaking technique from cylinder hammer technique to controlled flaking can be seen. In contrast to these techniques, the earlier tools were flaked by free-flaking and stone techniques.

Rostrocarinates are the next type of tools in the category. These tools have a flat ventral surface and a keeled dorsal surface. The implement is massive and triangular in section (i.e. resembling a triangle with horizontal base with vertex at the top). The butt end of this implement is straight and is untrimmed. Two (or some times three crude flakes (keeled in order to make a central ridge from the point to the butt end) are removed on either side of the implement. The rostrocarinates in the evolutionary stage, retain the flat ventral surface, but the dorsal keeling becomes much less marked. The implements become more shaped and suggest that more care was taken in their preparation. In the outline, they assume a nearer hand-axe form and it is suggested that the rostrocarinates were the forerunners of the hand-axes at Attirampakkam, as they had been in some other Lower Palaeolithic industries of the world. Cleavers, the next tool type of the Attirampakkam industry, are second only in importance to the hand-axes. As regards usage, the cleavers have a special advantage over the hand-axes in that they have a sharp and broad cutting edge, instead of a pointed edge, which makes it an ideal tool for skinning, flaying and cutting. The cleavers of the Attirampakkam industry are generally trapizoidal, U-shaped, V-shaped (triangular) and of the guillotine type. There were also some tool types like the coroid or discoid. They are more circular in their shape and are flaked on both sides. There are also cordiform hand-axes. These hand-axes in miniature belong to the Middle and Late Acheulian times. As in the other type of tools, the two types namely the bifacial and the plano-convex types can be seen in these cordiform hand-axes also.
Besides, a number of flake tools have been collected from the Attirampakkam dağai, as also from Nampakkam. Mostly they come under the category of side and end scrapers, points and burin-like flakes. Most of the flakes probably belonged to the Middle Stone Age, and a few tools may be compared with those of the Series II classification of Burkitt and also with the Middle Stone Age tools from Wai, on the Krishna and Mahuli (Satara), Vajreshwari (Bombay), Borivli and Adamgarh (Hoshangabad).

But the main bulk of the tools are bifacial hand-axes and therefore the whole of the Early Stone Age tools in the area are termed ‘Hand-Axe Industry’ by scholars. The hand-axes include a number of shapes in themselves such as oval, circular, elongated, pointed, discoidal, etc. Some of the hand-axes are of fine workmanship with clear and sharp cutting edges and pointed ends. The hand-axes are finely shaped and belong to the Abbevillian and Acheulian varieties. The bifacial hand-axes of the Madras industry bear close resemblance to those found in South Africa. For example, the shapes like ovate, elongated and the pointed ones suggest that the typology, as also the workmanship involved in such tools are almost identical and require careful examination. A comparison of these tools with those of the African Old Stone Age tools reveals some possible connection or association of the ‘Madras Hand-Axe Industry’ with that of the African ones or it may be said that there may be intrusion of techniques from Africa into Peninsular India in the remote past. “The position of India between Europe and Africa on the one hand and Australasia on the other, the two areas where important discoveries of Stone Age man have already been made, suggests that India is a kind of node where different trends of culture and routes of migration must have crossed each other.” Since there have not been found any human remains in the Pre-historic sites in association with stone tools in India, we do not get a clear picture of the problem. Besides, since the excavations conducted in the Palaeolithic sites in South India are not many, we do not have enough material to examine this problem in detail.

**B Karnataka**

Though Robert Bruce Foote had discovered long ago palaeoliths at some sites like Kadur, Nyamti, Nidaghatta and Lingadahalli in the Shimoga district in the Karnataka State and subsequently some more sites were reported, a full idea of the Lower Palaeolithic period of the Karnataka region is yet to be formed.

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* In bringing up to date the portion on the Palaeolithic Ages in Karnataka and Andhra Pradesh, the second and revised edition of H. D. Sankalia’s work the *Prehistory and Protohistory of India and Pakistan* was of considerable help.
A Palaeolithic industry was noticed by Seshadri at Kibbanahalli, Tumkur district in the State. The tools collected from the surface at the place comprise early Abbevillian and Late Acheulian types, beaked ones (of Clactonian technique) and small tools recalling Series II. The mixed nature of these would suggest, according to Sankalia, that the accumulation may be a redeposit. Typical Levallois flakes seem to be absent.

In the Malaprabha and Ghataprabha basins in North Karnataka more than two dozen sites have been reported. The most important among them are Khyad on the Malaprabha, Menasgi or Megur-Asoti on the Bennihalla, Anagwadi and Bagalkot on the Ghataprabha, besides Herkal, Kolhar, Almatti on the Krishna and Sivanandi, Nandikeshvara, Pattadakkal and Shivayogamandir near Badami, to mention only a few.

In Hire Mulangi, Alur and Taminhal, Abbevillian and Acheulian types of hand-axes (pear shaped, ovate, cordate, etc.) are found in abundance and hand-axes on cores or on pebbles are comparatively few. Two types of special importance are (i) chisel-edged and (ii) burin types. The absence of a large number of pebble tools is generally attributed to the absence of small sized pebbles in the region; and it is suggested that huge boulders were broken up on block-on-block method on the spot and the flakes were trimmed up and used.

Anagwadi on the Ghataprabha is a rich site. Except cleavers, which are all made on flakes, the remaining three tool types are dominated largely by pebbles. The fine workmanship exhibited in them may be termed Acheulian. A good number of hand-axes are bifacial, having neatly made thin body, symmetrical outline, and convex to lenticular section. A tool with chisel-end and another with beak-shaped point are two rare types from the site.

Nittur on the right bank of the Tungabhadra (BellarY district) has yielded genuine pebble tools in association with the remains of Bos. The tools are all made on dyke basalt; some of them are unifacial, while some others are bifacial. The types of working edges of the unifacial choppers include pointed, straight, convex and concave types. Likewise, the bifacial group comprises edge around the periphery, cleaver-like edge and convex edge. The fossils found are the remains of vertebrate, skull and horns of Bos namadicus.

Some hundred artifacts on silicified limestone and a few on chert are found embedded in the tool-bearing deposit at Gulbal in the southwestern part of the Gulbarga district. Acheulian hand-axes, cleavers,
thick points, and flake scrapers are found and the industry of the site is said to have been 'developed Acheulian'.

C. Andhra Pradesh

 Implements of the Stone Ages have been found all over Andhra Pradesh, excepting in the East and West Godavari districts of the State. The Kurnool district in particular has yielded a good number of Stone Age implements suggesting a fairly good sequence of Stone Age cultures. Recently the southern districts of Chittoor and Cuddapah have also been surveyed and thus "Andhra can claim to be the best or most extensively explored State in India".

 Much of the evidence available for the Stone Ages in the Kurnool district comes from the river beds of the region, especially the smaller ones viz., Bhavanasi and its tributaries, Gundlakamma, etc. The tools from Giddalur in the district are classified by K. V. Soundararajan into as many as fourteen groups. They are: pebble tools, restrocarinates, Victoria West type flakes, Abbevillio-Acheulian hand-axes, Acheulian hand-axes, ovoids, cleavers (of various types), Clactonian flakes, scrapers on Clactonian flakes, proto-Levallois flakes, Levallois flakes, bladish flakes and coarse burinate tools and cores and core scrapers. It seems the above tools are very much mixed and some of them later. The pebble tools from the site are of a large percentage. These are regarded by some as Sohanian in character or at least suggest Sohan influence. The hand-axes are fine and of varied shapes and some of the cleavers on the single or double Vaal technique provide 'text book illustrations'.

 Two main sites have been discovered in the Krishna valley. The first Karempudi on the banks of the river Naguluru enshrines five localities which have yielded some tools with a pebble cortex, pebble tools, early crude bifacial Abbevillian *coup-de-poing* hand-axes, heavy Clactonian flakes and a single tool showing Victoria West technique (Locality I) and advanced hand-axes and proto-Levallois and Levallois flakes (Locality II). In localities II to V the pebble tools are not seen but there is a sprinkling of the Abbevillian bifaces and a gradual development in the bifacial tradition and progress in the flake technique. The flakes, though few, exhibit thick and rudimentary Clactonian character. The other important site, Nagarjunakonda, presents evidence for a series of industries belonging to the Lower Palaeolithic Age to the Neolithic Age. The industries include those of pebble tools, hand-axes, Levallois cores and flakes, blades, microliths and polished axes. The site comprising six localities has yielded a varied assemblage of tools. 'They include Abbevillio-Acheulian hand-axes, cleavers, some
pebble tools (Locality 'A'), flakes and flake tools of Levallois industry (Locality 'B'), an incomplete early Acheulian hand-axe and two scrapers (Locality 'C'), pebble tools and high bulbed Clactonian flakes and occasionally hand-axes (Locality 'D'), an assemblage of blade flakes and burins and scrapers of an Upper Palaeolithic nature (Locality 'E'), etc.

The river beds of the tributaries of the Krishna in the Nalgonda district have also yielded Stone Age tools. Such tools collected from Wazirabad in the district are divisible into two groups: (i) cruder tools of Abbevillian technique and (ii) finer tools of Acheulian technique. These two groups of tools contain a fair percentage of pebble tools. S. N. Rao who surveyed the present district observes that stone tools have been found wherever the Chenchus live today.

The Chittoor district is studded with several localities revealing their old deposits. On techno-typological grounds the early Stone Age tools collected from the region are divisible into three groups. Here choppers made on flat based pebbles that have been flaked from the bottom upwards on the broader side and have a straight or convex edge, are found in the first and second groups while the biface dominates all the three groups. Regarding the technique, in the first two, the block-on-block and stone hammer techniques are noticed, while in the third group the cylinder hammer technique is seen. The tools are generally small, light and notably symmetrical. The Nellore and Cuddapah districts which have been surveyed have also yielded some useful data for a study of the subject.

III. MIDDLE PALAEOLITHIC AGE

By the end of the Early Stone Age or the 'hand-axe epoch' there appeared a new and highly advanced industry which consisted largely of small flake tools, technically called Middle Stone Age tools. These small tools were of different kinds such as points, awls, scrapers, etc. Being entirely different from the Early Stone Age tools, they served different purposes also for the Palaeolithic man such as hunting. Unlike the hand-axes bulky in weight, used for digging up roots, in the earlier period, these tools show an entirely different technique of flaking and typological evolution.

A. Tamil Nadu

We have good recent evidence for the Middle Palaeolithic Age in Tamil Nadu. In the Budida Manu Vanka at Attirampakkam was found a layer of the detrital laterite gravel, containing a post-Acheulian flake industry consisting of points, scrapers and longish flake blades.
Similar industry is also witnessed in Gudiyam where it was overlaid by a microlithic one. These may well correspond to Middle Palaeolithic Age. However, in the present state of our knowledge to distinguish a sharp break between the Early and Middle Palaeolithic industries and to give a firm date for the Middle Palaeolithic Age in this region, as also in the case of other regions in India are difficult.

B. Karnataka

Taminhal and Alamatti are two of the most important Middle Palaeolithic sites in North Karnataka. This industry called ‘Karnataka Nevasian’ by Banerjee, is marked by “a high percentage of irregular flakes, cores and nodules, the main tool types being points having various sub-types and some showing incipient or ill-developed tang, scrapers, borers, borer-cum-scrapers, flakes and cores. The borer or borer-cum-scaper is once again the most prominent tool in the industry.” Besides these two sites, Kovall, Anagwadi, Salvadgi, Meralbhavi, Mallur, Devapur, Gurjihal, Tumkur, Sanganakallu, etc., have yielded Middle Palaeolithic implements. Sanganakallu has supplied tools of quartzite, patinated basalt and quartz industries. Levallois flakes, and also macrolunates are found among the quartz and patinated groups.

C. Andhra Pradesh

Burkitt and Cammiade classified their collection from the Kurnool region into three series of which Series II corresponds to the Middle Stone Age. However, usually the tools of Series II occur mixed up either with Series I or Series III at many sites.

At Giddalur, the Abbevillio-Acheulian bifaces are present, while the rostrocarnates and Victoria West are absent. The bifaces are comparatively smaller in size. Proto-Levallois and Levallois flaking are present along with the Clactonian. Three or four bladish flakes are also found. Most of the flakes and scrapers seem to be a part of the Late Stone Age. According to K. V. Soundararajan the site contained an industry essentially pertaining to Series II and III along with representative ones from Series I.

Flakes of evolved Levalloisian technique with faceted striking platforms are found at Nagarjunakonda. There are discoidal and biconial, as well as tortoise cores. A number of triangular flake tools with peripheral chipping and retouch and with plain platforms also occur. It seems pressure flaking was introduced during this Age. One more remarkable feature of the site is the presence of
burinate tools in the context of the Middle Stone Age. The Nalgonda, Karimnagar and Chittoor districts have also yielded a number of Middle Palaeolithic tools.

IV. UPPER PALAEOLITHIC AGE

Less than two decades ago, it was thought that there existed no Upper Palaeolithic culture in India and the evolution was from the Early Palaeolithic into sub-recent times. However, subsequent explorations and surveys have brought to light evidence for the existence of lithic industries in many places in South India belonging to this Age. However, the evidence of the existence of an Upper Palaeolithic Age in Tamil Nadu is almost nil.

A. Karnataka

The Shorapur Doab comprises sites like Salvadgi and Meralbhavi which contain artifacts of the Upper Palaeolithic industry. At Gulbal, Benhatti and Hunsgi very near the above places have been noticed a lens of loose granular gravel about ten inches thick. The technique of the tools is crude. The assemblage is classified as edged tools, non-edged tools and multiple tools. The edged tools consist of blades with single, double, transverse or lateral-cum-transverse edges, notched blades, lateral-cum-notched blades, blade with transverse edge and notch, backed blades, nosed edge tools, blade sections, burins and tools on fluted core. The non-edged tools include simple and tanged points and borers, while the multiple tools comprise notched blade-cum-points and straight edge blade-cum-borers. It was thought that the Shorapur Doab Upper Palaeolithic industry "leans heavily on its earlier antecedents" and typologically should be regarded as slightly earlier than the true blade and burin industry from Renigunta and Yerragondapalem in Andhra Pradesh.

B. Andhra Pradesh

The sites scattered to the north-west of Renigunta, in the Chittoor district of the State have given a large number of specimens of tools of this Age. A trial trench at Nallagundlu has also yielded a good number of implements. They include finished tools like burins, backed blades, awls, points, choppers, scrapers and tools of other categories like blades, primary flakes, flakes, core flakes, cores and chips. The large collection enables one to have a fair knowledge of the manufacturing technique, as also the wants of the makers of those tools. For the first time they have given solid evidence for an Upper Palaeolithic blade-and-burin culture.
The presence of the Upper Palaeolithic industry at the sites near about Renigunta is not an isolated phenomenon, for the Stone Age tools collected from Vemula in the Cuddapah district are considered to be distinct from those which belong to those of other Ages and are assignable to this Age by a comparative study of the length, breadth and thickness of the products of the industry.

Yerragondapalem in the Markapur taluk of the Prakasam district is a rich site and has supplied along with the tools of earlier periods finished tools like choppers, scrapers, back blunted blades, burins, points, awls, besides blades and other categories of tools like cores, core flakes, flakes and chips.

Supplementing this stone industry, some faunal evidence is available at a cave near Betamchera in the Kurnool district. The material available for the deposits of this cave (locally called the Muchchatla Chinta Gavi) has indicated the existence of two industries, lithic and bone. The lithic industry includes flakes, blades, cores, chips, etc., and the other, namely bone tool industry includes scrapers, perforators, chisels, scoops, shouldered points, barbs, spatulae and tools of other categories such as worked bones, bone-blanks, broken and-cut bones, splinters, etc. "The bone implements are made on the shafts of long bones and three processes can be noticed in making a finished form. These are (a) knocking of the epiphyses and transverse cutting (b) longitudinal cutting and (c) lateral chipping and finishing." Interestingly the technique adopted in making the bone tools of this site closely follows the technique of the Upper Palaeoliths in Western Europe.

Besides the aforesaid sites, Nagarjunakonda, as also several sites in the Nellore district have yielded Upper Palaeolithic implements. On the whole it appears that the Upper Palaeolithic group of tools in Nagarjunakonda consisted of blade-flakes, burins and scrapers, the last of which contained a rich variety. Nagarjunakonda bears evidence of the flake blade industry, blade and burin assemblage and retouched and pressure flaked scrapers.

V. MATERIAL LIFE OF THE PALAEOLITHIC PEOPLE

During the period of the Old Stone Age men were nomadic and food gatherers. Hunting and gathering of edibles were the chief methods of making livelihood. There was no cultivation or agriculture. The Palaeolithic folk could have possessed some elements of reasoning ability and craftsmanship as they knew the purpose and method of making tools and the material suited for them. There can be seen an increasing understanding by human brain as evidenced by
the evolutionary trends shown by the tools made by them. Thus in the beginning the primitive men simply chipped off a flake or two from a selected crude pebble by hitting it with a hammer-stone. This left with them a crude tool with a sharp cross-wise edge or point to be used as a poker or as a pick. This humble skill acquired by them gave the idea of hand-axe. Hand-axe is usually a pear-shaped tool, pointed at one end, and round at the other, flattened and chipped over both its flat sides. The Palaeolithic men were able to make a variety of hand-axes and improved their method of making these tools by using hammers of bone or hard wood which enabled them to shape the tool exactly in accordance to their requirements. Thus the hand-axe industry was evolved.

When they were expertising themselves in making hand-axes they appear to have understood the advantages of flakes obtained in the process of making such tools. The flakes that came off in the process were themselves sharp cutting edges and found to be useful as such. This further gave rise to the flake industry often found existing along with hand-axe or core-tool industry or following it. They subsequently learnt the making of spearheads, borers, scrapers, etc., out of the flakes.

The discovery of the use of stone flakes as cutting edges again paved the way for the manufacture of a new and more efficient cutting instrument in the form of a long narrow blade mainly in the Upper Palaeolithic period. The blades were not only used as such, but also as points, engraving tools, arrow-heads and the like. Some of them might have been set in handles or hafts. Thus throughout the Palaeolithic Age men were chiefly “tool using creatures, employing their wits to fashion implements and weapons.”

Natural caverns and rock shelters, but to a large extent, open air sites, served as homes for these people. They seem to have abandoned the dead or removed them to nearby places and left them exposed to wild beasts.

One of the interesting aspects of the material culture of the Palaeolithic men, particularly of the Upper Palaeolithic Age, is their knowledge of the art of drawing, painting and engraving. Recently several Pre-historic cave paintings from the regions of Madhya Pradesh, Maharashtra, Karnataka and Andhra have been reported. Some of these paintings may be ascribed to this age. These pieces of art reveal their true aesthetic sense, however crude the expression may be. They would have been probably born out of the art of sympathetic magic cultivated by Palaeolithic men which was “based upon the principle that imitating a
desired result may bring about that result". Thus the representations of animals and hunters in action become meaningful probably as primitive magical charms. Among the animals and other objects painted were the deer or antelope, wild pig, rhinoceros, buffalo, monkey and cattle. In some places one sees human figures also, either alone or in groups or hunting animals. Probably these exercises in painting which started in the Upper Palaeolithic Age continued in the subsequent period also. It may be mentioned here that vestiges of Palaeolithic art and paintings have been discovered in natural caverns in Spain and France.

VI. MESOLITHIC AGE AND THE MICROLITHIC INDUSTRY

The Upper Palaeolithic Age was succeeded by the Mesolithic Age which, in turn, was followed by the Neolithic Age. This division, namely the Mesolithic Age among the Stone Ages is comparatively new for India. This Age which is essentially a transitional phase in the context of stratigraphy between the Upper Palaeolithic and Neolithic Ages is characterised by a typology of tools different from those of the above two Ages. This phase which evolved as a result of a more congenial climate for an improved stage in the cultural evolution of man who appears to have had knowledge of hunting, fishing and probably agriculture too in its earliest phase. Much work remains to be done in elucidating the problem of the Mesolithic Age in South India. In South India we come across a site—Sanganakallu in the Bellary district (Karnataka State) where tiny stone tools have been found in between the Upper Palaeolithic and Neolithic strata. But similar microliths from other Pre-historic sites of South India have been collected largely from the surface only. Till the exact position of the microlithic industry in terms of stratigraphy is decided, it is preferable to discuss the industry only as such.

Generally microliths are found with or without pottery from surface levels, along the hill-sides, as also in certain geological deposits. These tiny tools are made of semi-precious stones like chert, agate, carnelian and opal. The shapes of the tools consist of both geometrical forms such as small flakes, parallel sided blades, backed blades, truncated blades, blade cores, lunates, trepezes, scrapers, arrow heads, worked points, bifacial points, discoids, burins. etc. Some of the tools could have been hafted to handles and used. These microliths in later phases are found in association with some quantities of pottery, which is, of course, a coarse variety with a medium fabric and hand made.

A. Tamil Nadu

The main group of microlithic sites in Tamil Nadu lies near the east-coast in the Tuticorin and Tiruchchendur taluks in the
Tirunelveli district. They are called teri sites on account of their close association with the large teris or fossil red-sand dunes of the region. These teri sites seem to have been associated with the sea level which is believed to have stood seven or eight metres higher than the present level.

A number of sites such as Manadu, Megnanapuram, Nazareth, Erai, Sawyerpuram, Kuttalankulam, Kuttampuli, Kulattur, Surangudi, Kuthankuli, Puttan Taruvi, etc., which have been explored have yielded thousands of tiny tools in various shapes and sizes. The tool types of the teri industry included nearly fifteen groups. The lunates dominate all these groups. Kulattur has yielded a form of four triangles leading to the suggestion that the industry may be called geometric. The occurrence of bifacial pressure flaked specimens in the teri sites is not reported from elsewhere in India, though a few such are found in Sri Lanka and are comparable with those from Africa and Oceania. The raw material used for making these tiny tools were quartz and chert alone; and the other semi precious stones were not utilized due to their non-availability in the region. As Subba Rao observes “it is also noticed that there is an increase in use of quartz as one moves south. Whether it is a part of a cultural tradition of using quartz or just it is fortuitous, remains to be studied.” The microliths from the teri sites are of high antiquity and bear a red stain (red hydrated ferric oxide).

B. Karnataka

The districts of Chitradurga and Bellary in the State have yielded microlithic implements on a large scale. Seshadri classified the microlithic collections from the Karnataka region into the following two groups:

1. Jalalahalli microlithic industry with a preponderance of crescents, points and arrow heads, indicating a hunting economy and environment.

2. Brahmagiri microlithic industry consisting primarily of parallel-sided flakes and Gravettian-like penknife blades, implying a semi-urban culture in which arrow-head, crescent, etc., were absent.

To these may be added the Kibbanahalli group which consists of three or four types of scrapers, blades and highly finished lunates.

As said earlier, in Sanganakallu, microliths are found in the Mesolithic phase. Such a clear association of microlithic industry with
the Mesolithic Age is hard to find elsewhere in South India. At the Bangaltota site in Sanganakallu, the microlithic industry lies in between the Neolithic and Palaeolithic cultures. The associated soil points to a more damp climate than at present. The first layer which is made up of sticky red brown soil yielded microliths on quartz (probably made at the site) and a few flakes and nodules on patinated trap. The second layer of reddish murum yielded large quantities of basalt flakes and nodules, quartz pebbles and nodules and tools and a few quartzite flakes and nodules. The third layer is of granite rock. The first layer consisted of cores, core trimmings, parallel-sided flakes, irregular flakes, pseudo-lunates, points, scrapers and lunates.

Baosi, Deur, Hallur, Kop, Sirol, Salvadgi and Kovalli, all in the Bijapur district have yielded evidence for the microlithic industry flourishing in those places. The Shorapur Doab comprises over thirty sites of this industry. Rajakolur, Yerkanhal, Hunsgi, Bijapur, Vibhuthihalli, Khanapur, Tumkur, Bihar, Chigurhalli and Jewargi have been studied so far. The types of tools from these places include retouched blades, backed blades, edged blades, scrapers, multiple tools, points, borers, burins, lunates, triangles, trapezes, etc.

C. Andhra Pradesh

In the districts of Kurnool, Guntur, Nalgonda and Chittoor of the Andhra Pradesh State a number of microlithic sites have been discovered. The finds are generally found on the surface, on high ground and on river banks. As in Maharashtra, Karnataka and Central India, the microliths of Andhra can be classified into (i) the true microliths of the Mesolithic type and (ii) short parallel-sided blades, etc. The industry comprises parallel-sided blades, lunates, triangles, trapezes, scrapers, backed blades and burins.

Date of the industry

As the microliths are collected largely from the surface, the exact place of the industry in the chronological sequence of the Stone Age industries of South India is indeterminable. It is understood that they represent an advanced stage of the Stone Age cultures. As Zeuner and Allchin suggested “of the numerous microlithic sites of India, the vast majority are of a later age, ranging well into the Iron Age and possibly the historic period.” At one place i.e., Sanganakallu, the microlithic industry seems to have preceded the Neolithic culture as evidenced by its chronological sequence. Here, the industry may be placed between 9,000 B.C. and 3000 B.C. According to Sankalia the excavations in some of the Neolithic and Chalcolithic sites in South India have put the
use of these microliths not later than 5,000 B.C. Again the teri industry of the Tirunelveli region is considered by him to be divisible into two phases "the older one belonging to a fossil teri and hence of some geological antiquity. Provisionally Zeuner dates it to 4000 B.C. with a suggestion that further geological research may push it back into the Pleistocene." Thus the date limits available to us that may be of some help in deducing the chronology of the industry in South India are varied and isolated in nature making it difficult to arrive at a definite time span for it. However, the difficulty in dating this microlithic industry can be overcome if good excavations are undertaken in the Kurnool, Guntur, Nalgonda regions in Andhra Pradesh, as also the microlithic sites in Karnataka and Tirunelveli district in Tamil Nadu, besides intensive explorations in the Kanyakumari and Rameswaram regions, also in Tamil Nadu.

Regarding the material culture of the users of the microliths, it may be said that since the industry was slightly later in date when compared to similar industries in the other parts of the world and found at times in association with the Neolithic–Chalcolithic culture as at Maski, it had no independent cultural traits except with reference to the typology and technology of the tools concerned. Wide distribution of microlithic sites and the large number of microliths collected from these sites would suggest high population. The tiny tools like the arrow-heads, worked points and the like show that hunting and fishing were extensively practised by the microlithic people.

VII. NEOLITHIC AGE

The next stage in the evolution of Stone Age cultures is represented by that of the Neolithic Age. During this period man ceased to be a savage and began to lead a settled life. In this Age he discovered a primitive form of agriculture, domesticated animals, made pottery and used polished stone tools. The stone tools of this Age generally consisted of polished axes, adzes, harvesters, pounders, moulds, chisels and mace heads, besides microliths. They were usually made by flaking, grinding, polishing and in some cases by pecking (hammer dressing), instead of by chipping and fracturing as in the Ages which preceded it.

The first important find of a neolith in India was made in 1860 by H. P. La Mesuvier who drew attention to his find of ground and polished stone implements in the valley of East Tons river in Uttar Pradesh. Since then neolithic implements have been collected in different parts of India from the surface. Even then it was held by some till some years ago that there was no Indian culture that could surely be called 'Neolithic'. But the excavations
at Brahmagiri by Mortimer Wheeler (1947) have proved beyond
doubt about the extensive use of neoliths in India, particularly in
South India. A brilliant period followed the Brahmagiri excavations
by the identification of a large number of sites revealing Neolithic
cultures in Southern, Central, Western, Eastern and Northern India.

The cultural equipment of the peoples who began a settled life
with agriculture as their main stay in the post-Palaeolithic times in
India varied from region to region in some details. Hence the data
available about them has been broadly distinguished considering
their economy and accomplishments, and studied on the basis of
the cultural zones indicated by the same. The different cultures
with varied equipments which developed from a common background
during the period after the introduction of ground stone tools and
prior to the introduction of iron in India do justify some nice
distinctions in describing them. The cultures which flourished during
this period are generally grouped as i) Neolithic culture and
ii) Chalcolithic culture.

i) Neolithic culture

It has been characterised by the presence of ground stone
implements and hand-made pottery, as noticed in Bihar, Assam and
Bengal in Eastern India, Baluchistan to the north-west of India,
Kashmir in North India and several sites in South India. But the
Neolithic culture in the Deccan had an additional element viz.,
the parallel-sided blades, besides painted pottery. Further, houses
with wattle and daub were also known. The limited number of
copper implements present in the Neolithic phases of a few sites
makes it difficult to include such a culture under the head of an
unqualified Neolithic culture, though there may be undeniable
Neolithic traits in it. In such a culture where a meagre quantity
of copper tools occurs, other cultural traits largely conform to
those of the purely Neolithic sites. So this difficulty with regard
to its nomenclature has been tried to be overcome in recent years
by the use of a compromise term ‘Neolithic-Chalcolithic’ to denote
it. This term is used to describe and distinguish a phase of the
Neolithic culture which possessed copper implements without the
people not probably having knowledge of metallurgy but using them
in such small quantities as to have been ineffective in influencing
or changing their economy. However, as far as the study of
pottery is concerned it makes practically no difference whether
such a culture is called Neolithic or Neolithic-Chalcolithic. Such
Neolithic-Chalcolithic cultures in South India flourished largely in
the region immediately to the north of the area in which the
Neolithic cultures flourished.
ii) Chalcolithic culture

The Chalcolithic culture as such is distinguished by the use of blade tools, wheel-made plain and painted pottery, and wattle and daub houses. Ground tools were absent, and the pottery was painted in most cases. It was characterised by a knowledge and use of copper. This culture has been noticed in Maharashtra in Western India, Malwa in Central India and some parts of Karnataka and in South-eastern India. The Chalcolithic culture may itself be sub-divided considering certain minor variations in the cultural patterns seen in different regions. A type of Chalcolithic culture is the Chalcolithic-Bronze culture, distinguished by the presence of blade tools, copper and bronze tools, wheel-made pottery and baked bricks. This type has been noticed in Sind, Punjab, Saurashtra and Kutch, besides Northern Rajasthan in Northern India; but it is completely absent in South India. Yet another interesting pattern is characterised by the profuse use of copper and bronze tools and wheel-made pottery. This culture has been noticed in the Ganga Yamuna doab and in South-east Rajasthan; again it is conspicuous by its absence in South India.

A few words may be said here by way of caution. Though the above said cultural patterns may appear to have had some chronological sequence or order and suggest some stages in their evolution, they are not always found in a single site or region, revealing in clear terms their succession order. They cannot be treated in a logical way beginning with the Neolithic and ending with the Iron Age or early historic period, passing through the Chalcolithic. The Neolithic and Chalcolithic cultures very often overlap in India; and in the Deccan they overlap even with the Megalithic culture (Iron Age culture).

Some Important Neolithic, Neolithic-Chalcolithic and Chalcolithic Sites in South India

A number of sites have been excavated in South India which reveal the existence of Neolithic or Neolithic-Chalcolithic or Chalcolithic cultures in them.* The pattern of distribution of

*In analysing the evidence from explorations and excavations in the Neolithic sites, the data available from the published material has been largely followed here. However, there is not much of uniformity regarding the nomenclature used in them to indicate the nature of the settlements of this period. For example, F. R. Allchin who has excavated at Piklihal and Utnur observes: “In the south, for instance, the quantities of metal are very often small and stone still predominates, and it is a moot point—and not of very serious significance—whether we describe such cultures as Neolithic or Chalcolithic”. H. Sarkar, the excavator of Kesarapalle names the culture at the place as Chalcolithic “in the absence of any other suitable term in spite of the fact that neither any stone implement nor even a bit of copper came into view in the excavation”. A standard glossary of technical terms in pre-historic archaeology is highly desirable.
these settlements in South India would show that this “New Stone Age” culture flourished in a wider area, and in specific concentrated zones. All of them flourished more or less in similar ecological conditions and assumed a definite pattern dictated by geography and the availability of raw materials. The gneiss and granite formations in the Central Deccan favoured very much the formation of such Neolithic settlements and the granatoid and gneissic hills, dykes and habitation areas of this Age had an interesting common link-up. It seems the Bellary-Raichur area, by virtue of its geographical nature and geological background served as an ideal area for the concentration and development of a number of Neolithic units. T. Narasipur on the Kaveri in the south-west, Paiyampalli in the south and Nagarjunakonda on the Krishna in the south-east served the peripheral limits of this zone of concentration. Surface explorations and excavations so far made also point to the possible extent of the Neolithic horizon further south, as also north.

Now to a consideration of the data available for the Neolithic Age through explorations and excavations in a few important sites in the States of Tamil Nadu, Karnataka and Andhra Pradesh. Even a superficial perusal of the materials from the individual sites of this Age would reveal that each of the settlements was not fully identical with that of another, though almost all sites betray certain features which are repetitive in several respects, site after site. This is quite understandable because no culture flourishing in such a vast area and at such an early Age can exhibit a rigid uniform cultural pattern, especially when the culture itself was in the process of evolution and subjected to continuous external influences.

A. Tamil Nadu

Many Neolithic sites have been reported from different parts of Tamil Nadu. Among them may be mentioned Sengamedu (South Arcot district), Paiyampalli (North Arcot district), Mohanur, Yercaud, Boganapalli and Gollapalli (Salem district), Ottakkoyil (Tiruchirappalli district), Karuppannasamikoyilmedu, Theni and Periyakulum (Madurai district), Saidanganallur, Korkai and the area near Sawyerpuram (Tirunelveli district), besides a number of ones in a few other districts.

Paiyampalli

Paiyampalli, excavated by S.R. Rao (1964–65 and 1967-68), revealed two cultural periods:

Period I : Neolithic and
Period II : Megalithic
In one of the trenches on the middle terrace, the top level of the later Neolithic culture was found to overlap the early level of the Megalithic, as evidenced by the co-occurrence of the burnished grey ware and the Megalithic black-and-red ware along with ground stone axes. This is sufficiently illustrative of the overlapping of the two cultures.

The Neolithic period itself is divisible into two phases, A and B. While phase A contained bone tools and short blades of jasper, agate and chert, besides a small quantity of ground stone axes, phase B contained lesser quantity of stone blades and bone tools. The ground stone axes were of all stages of manufacture, namely, flaking, pecking, grinding, etc. Even unground ones were used as tools, as can be judged from the wear and tear of such ones. Generally, the axes with a pointed butt formed the majority, but those with blunted or truncated butt were not wanting. Axe-hammer was an interesting type that occurred not only at Paiyampalli, but also in the Neolithic sites around Kolar in Karnataka. The mace-heads and perforated stones used as weights of digging stick, are of particular interest. Short blades of chalcedony, chert and quartz were used as composite tools probably for domestic use and agricultural operations. The waste flakes and fluted cores indicate that the blades were made locally.

The ceramic contents of phase A comprised pale grey and burnished grey wares, besides a red ware, found in small proportion. The more important shapes in pottery included lipped bowl, storage jar, etc. Among stone objects found in the Neolithic levels, mention may be made of querns, mortars, pestles, pounders and pebble polishers. Phase B showed the absence of bone tools and an increase in the number of stone blades. In this phase the principal pottery was red ware, though the use of grey ware also continued. However, still later, Neolithic and Megalithic wares were found together, the emergence and disappearance of painted pottery being a significant feature.

All vessels of pale grey and red ware of the pure Neolithic levels were hand-made or turned on a slow wheel. The most outstanding type occurring in all the fabrics was the lipped bowl with a round base. It is common to most of the Neolithic sites in South India. This type in the pale grey ware was painted in red ochre on the rim. A rare type was a bowl with a short channel-spool. In both the phases, habitational erosion was prevented through plugging gaps with small stones. There was a marked preference for built-up huts with wooden posts over the dwelling pits of the earlier period in phase B. This definitely indicated good progress in the economy of the
people. The floors were levelled with stone chips and plastered over with ash-mixed earth.

The Neolithic settlers of Paiyampalli used to cultivate cereals and pulses. Charred grains, identified as horse-gram (khultil) and green-gram have been found in those levels where a few sherds of Megalithic pottery occurred in an essentially Neolithic habitation deposit. The skeletal remains from the Neolithic levels represented animals of the bovoid group, sheep, spotted deer, fowl, pig, jungle cat and rhinoceros. Swamps and thick jungle in the neighbourhood of Paiyampalli are suggested by the presence of bones of rhinoceros. The earlier occupational history of Paiyampalli shows that it was a purely Neolithic site without any metal using phase. The C14 dates for the Neolithic phase at the site are: $1360 \pm 210$ B. C., $1485 \pm 100$ B. C., and $1725 \pm 110$ B. C.

B. Karnataka

Karnataka has yielded much useful data for a study of the Neolithic culture in the area. Excavations conducted in a few important Neolithic sites in the State may briefly be described here.

1. T. Narasipur (T. Narsipur)

T. Narasipur on the left bank of the river Kaveri (Mysore district) excavated by M. Seshadri revealed two occupational periods:

- Period I: Neolithic and
- Period II: Megalithic

Period I was distinguished by the typical Neolithic pottery, notably a thick burnished grey ware. A few burnished sherds in orange red and brown also occurred; some of the orange-red ones had curved lines in violet and some of the grey ones incised ornamentation. Throughout the period a typical clay object called by Foote ‘neck-rest’ was common. A type of thin burnished grey pottery with its lip painted in red ochre met within the Chalcolithic layers at Bahal was commonly found in the early layers, which also had two examples of channel-spouted vessels in coarse greyish ware. The lipped bowl in coarse grey or buff ware, similar to the one found at Brahmagiri, occurred frequently. Neolithic implements such as polished stone axes and pounders occurred in considerable numbers. But there was no trace of copper. Except for a single fluted core recovered from an early stratum, microliths were absent. Two C14 dates are available for the Neolithic phase at this site. They are: $1495 \pm 110$ B. C. and $1805 \pm 110$ B. C.
2. **Brahmagiri ✓**

Brahmagiri in the Chitradurga district excavated by Mortimer Wheeler (1947) revealed three successive cultures *viz.*, 

- Stone Axe culture (Neolithic)
- Megalithic culture and
- Andhra culture (Early historic culture)

with a definite intermingling of any two consecutive cultures. The Neolithic period (Period I) of this site is divided into two phases with a thin weathered horizon between the two, indicating a break in occupation in the otherwise integrated cultural deposit. The pottery is throughout hand-made, the bulk of which is of a coarse grey fabric. Some times it is coated with a thin slip of the same clay. The most common pot of this fabric is a round bottomed vessel with plain slightly everted rim. A proportion of red (burnished and salt glazed) and buff slipped wares (neither burnished nor glazed), both painted with a brownish purple colour in the post-firing stage, is limited to phase I A. The painted designs are of the simplest kind and consist of linear, criss-crosses, hooked patterns and highly conventionalised creeper-like designs. Shallow bowls or dishes with featureless rims, spouted vessels and vases with long narrow ‘bottle-like’ necks were also found.

The painted red and buff wares discontinued in phase I B. Instead, there were found certain brown-and-black polished wares, probably anticipating the black-and-red and all black wares of the Megalithic period. A wide repertoire of pot forms is found in this phase (I B) in contrast to that in the previous phase (I A). Simple, ovoid, lipped and necked bowls, pots with carinated neck and flared rim, besides the ubiquitous urn types, are some of the pot forms noticed in this phase. Other rim forms flanged, under-cut and clubbed pedestal bases and perforated sherds are among its other novelties.

Phase I B is richer in stone tool as well as stone blade industries than the earlier phase I A. However, this difference in distribution may partly be due to proportionate differences in the thickness of the occupational deposits representing these two phases. Saddle querns, cylindrical pestles, stone balls and flat discs, were all present almost uniformly in both the phases. It is also to be noted that while phase I A contained no copper implements, some implements of the metal were found in the layers of phase I B. Hence technically phase I A is taken to represent Neolithic and phase I B Neolithic-Chalcolithic.

The Neolithic phase at this site was estimated to have begun early in the first millennium B. C. However, a consideration of the dates for
other Neolithic settlements in South India (mostly dated by C14 method) would suggest that the Brahmagiri Neolithic phase might have commenced before, and not after, the middle of the second millennium B.C.

3. Sanganakallu

Sanganakallu, three miles north-east of Bellary, excavated by B. Subba Rao and later by M. S. Nagaraja Rao, confirmed the evidence of Brahmagiri. The sequence of cultures reconstructed from the excavations at the site is as follows:

Period I: Stone Age culture
—Choppers, chopping tools, scrapers and prepared flakes, all highly patinated and on trap-dyke material

Period II: Microlithic
—Quartz flakes, cores, lunates and scrapers

Period III: Neolithic culture (2 phases)
—Ground stone implements, pottery, circular huts, etc.

Period IV: Megalithic culture

The Neolithic occupation at the place is divisible into two phases on the basis of pottery. In phase I a full circular house about five metres in diameter was found constructed on the original murrum. The walls of this hut were of clay plastered on bamboo-screen. The latter was obviously supported by wooden posts, the average diameter of which was 25 cms. To the west of this hut was a sloping boulder which brought in a lot of rain water. In order to prevent the flow of water into the hut, its floor was raised by covering it with flat rubble stones, over which a fine floor was made by alternate layers of black soil and murrum, the working top being plastered with lime. In one corner of this house was a hearth, while in the other was a storage jar found resting on four flat stones. Between these four stones were a couple of stone axes and a rubber stone. Incomplete plans of similar circular huts at the same level were exposed in five other trenches laid at the place. The associated pottery was of the usual pale grey and the burnished grey wares, occasionally with post-fire ochre painting. In phase II a new intrusive element of wheel-made black painted red ware was observed. As at Tekkalakota, a few bone tools were also found. From this phase terracotta bulls resembling the paintings and bruising on the hill were also obtained. Unlike in Tekkalakota, however, the percen-
tage of finished tools in the neolithic industry, as well as the blade industry was very small.

The C14 test gives a date round about 1500 B.C. to the Neolithic occupation at the place (1550±105 B.C., 1585±105 B.C. and 1590±110 B.C.).

4. Tekkalakota

Tekkalakota to the south of the river Tungabhadra in the Bellary district, excavated by M. S. Nagaraja Rao (1963-4) has yielded evidence for two periods of occupation of the place viz.,

Period I : Neolithic-Chalcolithic and
Period II : Megalithic

Two phases, early and late, are discerned by the excavator in the Neolithic-Chalcolithic occupation of the site. The pottery shows some differences, thereby suggesting gradual development from a purely handmade stage to a hand-made-cum-wheel-made stage. Grey, brown and buff wares continued all through. However, at the close of the early phase there appeared a painted black-on-red ware of the Jorwe tradition and black-and-red ware, occasionally painted in white. These two wares betray contacts of the Tekkalakota Neolithic people with those of the Chalcolithic sites further north. This inference is further strengthened by the occurrence of a copper-axe found in the early levels.

The site has yielded a rich ground stone industry. The tools were made with the locally available raw material. The excavated specimens of this industry included varieties of axes, edges, chisels, wedges, picks and fabricators. These are all common to all the Neolithic sites in this region and are available in large numbers. The stone blade industry which utilised chert, chalcedony and rarely opal, as the raw materials for manufacturing tools, was also rich and variety-borne. Most of the tools showed wear and tear marks and many have retouched edges. The types included parallel-sided flakes, backed blades, lunates, pen-knives, trapezes and a single triangle. A few bones and antler tools were also found. Interestingly two gold objects (ornaments?) were found in the early levels. A flat copper-axe, a few coils and a piece of wire, both of the same metal were also available. The minor antiquities unearthed from the site included beads of steatite, shell and semi-precious stones, tortoise and conch shell, ground to shape and perforated, and some terracotta objects such as a human torso, hind part of a bull, lamps, etc.

The earliest C14 date for the site is around 1700 B.C. Individual dates of different samples available are: 1540±105 B.C., 1610±140 B.C. and 1780±105 B.C.
5. Maski

Excavations were conducted at Maski in the Raichur district by B. K. Thapar (1954). Of the four cuttings that were made in different parts of the site only one was complete and it afforded evidence for three successive occupational activities, with a break between the first two, and with a few remains of the medieval period at the top level. The over-all early cultural sequence was as follows:

- **Period I**: Chalcolithic culture
  - extending to an average height of three feet above the natural surface with a distinct break in occupation at the end of the period

- **Period II**: Megalithic culture

- **Period III**: Early historic culture

The pottery of the Chalcolithic period was mostly plain and revealed two main ceramic industries: (i) dull grey ware and (ii) pinkish buff ware. A larger portion of the pottery was wheel-made; however, hand-made pottery was also found. The pots, which were restricted to a few generalised and unvarying shapes, were usually treated with a slip and were occasionally burnished. The pinkish buff ware, though essentially coeval with dull grey ware, showed greater frequency at the lower levels. Some of the pottery types were common to both these industries, indicating an integral cultural phase. The typical potforms of these industries were: (a) the globular vase with a flared rim (dull grey ware) and (b) trough with a splayout or everted rim (pinkish buff ware). Painted ware also obtained.

Throughout the Chalcolithic period of the site microliths occurred. The material employed for the manufacture of the microliths included chert, agate, carnelian and opal. Among the types of implements may be stated, symmetrical flakes and parallel-sided blades in larger proportion (showing no secondary work) and in less proportion forms such as backed and serrated blades, lunates, trapezes, scrapers, worked points and burins(?). The whole complex appears to have been dominated by a blade industry essentially without any retouching. No polished stone axe was recovered from the stratified deposits of this period. Some four specimens collected from the surface have been assigned to this period because of the undoubted association of the polished stone axe industry with microliths both at Brahmagiri and Sanganakallu. "The restricted presence of copper, represented by a rod of indeterminate use from a mid-level of the period amongst an all-purpose use of stone clearly indicates the slow infiltration of the metal in an essentially Neolithic culture." Beads made of amethyst, carnelian, agate, chalcedony, coral, shell, glass and paste are among the important small finds from the site.
The animal remains revealed the existence of the fresh water mussel among the invertebrates, and the common rat, short-horned humpless cattle, buffalo, besides sheep and goat among the vertebrates. No definitive evidence of house plans and building material was revealed. The period of this Chalcolithic culture has been proposed by Thapar from the beginning of the first millennium B.C. to c.400 B.C.

6. Piklihal

Piklihal in the Raichur doab was excavated by F.R. Allchin (1952). This site, more or less, confirmed the sequence of the Brahmagiri excavations. Allchin demarcated two phases in the Neolithic cultural sequence respectively called 'Lower Neolithic' and 'Upper Neolithic' on the basis of an analysis of the pottery finds. He has grouped the pottery types of the site into five. The first group A1 comprised grey, black and buff coloured fabrics, both incised and perforated, assignable to the Lower-Upper Neolithic phase. They were all hand-made and without burnish. Some wares of the same group (A1) with roughened and rusticated surface, also hand-made and without burnish, are assignable to the Upper Neolithic phase. Hand-made burnished pottery type in grey, black and buff, grouped as A2 belonged to the Lower-Upper Neolithic phase. Some ochre painted potteries of this group A2 (with a post firing wash of red ochre) also belonged to this phase. The pottery type A3 was mainly Lower Neolithic and comprised varieties of red, black, chocolate, brown ochre coloured and hand-made varieties (the colours were effected as a result of distinctive dressing applied to the ware), as also painted ones with purple ochre paint, applied before firing. Group A4 consisted of wares of grey, buff, mottled and burnished (often turntabled and surface fused) and A5 of grey, buff, olive green and black colour and burnished (often turntabled approaching red-and-black ware). Both A4 and A5 are assigned to the Upper Neolithic phase.

The A1 and A2 wares of Piklihal may be the same as the common grey ware present right through the Neolithic habitation at Brahmagiri. Similarly the painted red and buff wares of Brahmagiri IA offer close parallels to A3 wares of the Lower Neolithic while the black polished and brown and black pottery of Brahmagiri IA are nearer to A4 and A5 wares of Piklihal.

Apart from the pottery, the developed stone tool industry of the site which consisted of axes, chisels, wedges, by-product flakes, quern grinders, pestles, axe-hammers, spheroid and oval rubbles, etc., is notable. The materials excavated are further supplemented by a good number of surface collections. The site also yielded a large number
of blades, flakes and cores which suggest the existence of a flourishing neolithic blade industry at the place. There is no evidence of the usage of copper in the Lower Neolithic phase, while some fragments of the metal were recovered from the Upper Neolithic layers.

The dating points in the Neolithic cultural sequence are taken to be as follows:

- Lower Neolithic: c. 2000 B. C. —— c. 1250 B. C.
- Upper Neolithic: c. 1250 B. C. —— c. 650 B. C.
- Intrusion: c. 650 B. C. —— c. 550 B. C.
- (Iron Age: c. 550 B. C. —— 1st century B.C.)

7. Hallur ✓

Hallur in the southern tip of the Dharwar district on the left bank of the Tungabhadra river also excavated by M. S. Nagaraja Rao (1969) has revealed two occupational periods. Period I consisted of two phases, lower Neolithic and Neolithic-Chalcolithic and Period II was represented by an overlap of Neolithic-Chalcolithic and Early Iron Age cultures.

The Lower Neolithic phase of the site (Period I phase 1) is characterised by a pale grey ware (occasionally burnished and painted at rim margins with red ochre), a coarse blackish grey ware and a small quantity of reddish brown ware with pre-firing purple painting. A comparison of the wares would show that this Neolithic phase at Hallur may roughly conform to the Lower Neolithic phase at Piklihal. The phase is further characterised by rarity of ground stone tools, paucity of antiquities, as also absence of metals. No blade industry was witnessed. In the second phase of Period I, a change in the ceramic tradition was observed. The pale grey ceramic of the first phase was replaced by a brown and black ware, a coarse dull red ware and a sparsely represented painted black-on-red ware of the Jorwe fabric. Besides, there was an increase in the number of antiquities and ground stone implements, the latter being in association with the rich stone blade industry, consisting of parallel-sided blades and lunates, as in many contemporary sites in the Deccan. Copper was found in this phase in the form of a few fish hooks and double edged axes. A number of bone tools, shell and steatite beads also occurred.

The Neolithic and Neolithic-Chalcolithic phases have yielded bones of sheep (or goats), swine (both wild and domesticated), antelope, canine, etc. Horse was another animal whose presence is attested. Ragi seems to have been cultivated by the people.
The next period was marked by an overlap of the Neolithic-Chalcolithic and Early Iron Age cultures characterised by their respective ceramic traditions and implements. Megalithic burials are found near the site.

The tentative chronology for the cultural sequence of the site is:
Period I phase 1 (Neolithic) : c. 1800 B.C. —— 1500 B.C.
phase 2 (Neolithic-Chalcolithic) : c. 1500 B.C. —— 1100 B.C.
Period II (Neolithic-Chalcolithic and Early Iron Age) : c. 1100 B.C. —— 800 B.C.

The C14 dates of the samples recovered from different layers of the site are: 955 ± 100 B.C., 1030 ± 105 B.C., 1105 ± 105 B.C., 1195 ± 100 B.C., 1425 ± 110 B.C. and 1710 ± 105 B.C.

8. Terdal ✓

The site known as Vibhutimaddi about four kilometres west of Terdal (Bijapur district) is one of the richest Chalcolithic sites in the Upper Krishna. Surface collections from this ashy site brought to light parallel-sided blades, fluted cores, flakes, and fragments of chert, chalcedony, fragments of neoliths, pottery of different fabrics of all the known Chalcolithic groups such as, pottery of the Maski fabric, greyish buff ware pottery, pottery of the Savalda fabric, black slipped pottery, etc., besides animal bones, highly encrusted with lime, terracotta objects, beads of shell, carnelian and terracotta, stone objects such as spheroidal balls, pieces of boat-shaped saddle querns, etc., shells of apparently gastropods and pelecypods and scattered soriaceous ash lumps. The site which is a disturbed one, is presently under cultivation.

In view of the ‘extent and richness of the site’, A. Sundara dug a trial pit in order to study the undisturbed cultural debris of the place. The results of the digging are reported as follows: But for stumps of two burnt wooden posts, no structural remains in the form of floors hearths, etc., were found. Among the excavated microliths two representative objects — a fluted core of chalcedony with a crested ridge and well prepared striking platform and a parallel-sided retouched blade of chert — were found in layer 2 (depth 20cms). The pottery as mentioned above, are of three groups (a) of Maski fabric (b) of buff ware pottery and (c) of Savalda fabric. The first is the largest in proportion.

The excavator has postulated a date 2200 - 2000 B.C. for the beginning of this culture on the evidence of the pottery of Maski fabric. The C14 dates for the site, samples for which were taken from the undisturbed earliest layers of the Chalcolithic occupational debris are:
3615 + 120 (3720 + 120) and 3885 + 100 i.e., c. 1935 B. C. which confirms more or less the above archaeological dating. The end of this culture has been fixed between 1200—1000 B.C.

C. Andhra Pradesh

Our knowledge of the Neolithic culture in Andhra Pradesh is not much when compared with our knowledge of the same in Karnataka. Though a number of sites are known the culture of the Neolithic folk of the region is gleaned mainly from a few sites in the area. Singanapalle, Nagarjunakonda, Kesarapalle, Utnur, Jami, etc., are a few important sites excavated so far in Andhra Pradesh, yielding evidence for the Neolithic phases in them. However, full reports on the excavations at those sites have not yet been published except those at Utnur, and Kesarapalle. Only notices of the rest are available.

1. Singanapalle

The excavations at Singanapalle yielded a large quantity of painted pottery, besides stone blades, fluted cores, as also micro-beads of steatite and shell. At this single-culture site, were also found channelled bowls and black-on-red painted pottery. The red ware from the place was hand-made or turned on a slow wheel, most of it painted in black over a red or pink surface. Among the significant types were the convex-sided bowls with a featureless rim, high necked jars (like the late Harappan ones) of lustrous red surface with a beaded rim, perforated bowl and jars and vessels with tubular wavy or oblique lines. Plain coarse red ware was also in use. The present archaeological evidence, according to S. R. Rao who excavated the site, suggests a date ranging from 1600—1400 B.C., for the Neolithic culture of Singanapalle.

To the group of Neolithic sites in the Kurnool district, of which Singanapalle is the largest excavated site, may be added Patapadu, Sivavaram and Ramavaram which have been fully explored. Of such explored sites, Patapadu (meaning old refuse), a village about five miles to the west of Banganapalle (in Kurnool district) is important, as the site besides being a Chalcolithic one standing foremost in its yield of pottery forms and fabrics of the Neolithic and Chalcolithic sequence, bears evidence of the intrusion of elements which superficially atleast recalls the pottery from the Chalcolithic assemblages in Maharashtra and Malwa. Such elements must have found their way into the region from northern Deccan or beyond, during the Upper Neolithic Age. This is suggestive of the fact that the painted pottery sites of the Cuddapah and Kurnool regions grew largely on account of the inter-regional development due to some external stimuli. It may be noted
that the grey ware characteristic of the Early Neolithic phase is almost completely absent at the site while there is a dominance of the red ware of coarse to medium fabric with profusely painted surface. The painted black-on-red ware is a fabric which was hand-made, though there have been found a few for which turn-table may have been used. Thus the painted pottery culture of the Kurnool region is greatly interesting and sheds more light on the Neolithic dwellers of the region.*

2. Nagarjunakonda

The Neolithic period (divisible into three phases) at Nagarjunakonda where excavations were conducted by K. V. Soundararajan, yielded crude pottery, either grey or pale reddish brown in colour. They were often coarse and hand-made, occasionally with a burnished exterior. Though both grey and brown coloured potteries occurred, almost in equal proportion, the latter exhibited a great variety of forms. Painted pottery seems to be absent. Sherds with grooves and incised herring bone pattern were commonly found. The most notable pot form was the urn type with globular body and widely flared featureless rim. Besides common utilitarian pot shapes, there were found lipped and spouted vessels.

The site is rich in stone axe industry turned out on a trapoid or basaltic rock. Nearly 75 per cent of the available tools came from the earliest neolithic layers. The tools included axes of different kinds, shoe-last celts, wedges, axes, picks, chisels, hammers and miscellaneous flake tools. Interestingly the entire collection of specimens of stone blade industry, represented by a few chert and agate fragments including blade-lets, fluted cores is from the latest layer, thereby making it difficult to understand the true association of ground stone and stone blade industry at the place. The occurrence of some very small copper fragments may probably give a Chalcolithic touch to the site.

On the whole the Neolithic phase at Nagarjunakonda is in conformity with the late Neolithic phase at other sites like Brahmagiri and

* The excavations conducted by Rami Reddy in the Pre-historic and ash mound site of Palavoy in the Kalyandurg taluk of Anantapur district (1968) have stratigraphically confirmed the data from other sites regarding the main features of the Neolithic culture in South-western Andhra Pradesh. Surface explorations in the Anantapur, as also Kurnool districts have yielded much useful material for enriching our knowledge of the Neolithic folk of the area. The early phase of the Neolithic culture in this region can be dated to earlier than 2000 B.C., as known from the radio-carbon dates obtained for Palavoy and other sites.
Sanganakallu. The three phases demarcated in the Neolithic culture may tentatively be dated respectively not later than c. 2500 B.C., 2000 B.C., and 1500 B.C.

3. Kesarapalle

Kesarapalle near Gannavaram in the Krishna district excavated by H. Sarkar (1962) has revealed the following sequence of cultures:

- Period I: Chalcolithic
- Period II: Megalithic
- Period III: Early historic
- Period IV: Late medieval

Here the natural soil could not be reached in the excavations owing to sub-soil water. The excavator observes: "In the absence of any other suitable term, Period I of Kesarapalle has been designated here as 'Chalcolithic' in spite of the fact that neither any stone implement nor even a bit of copper came into view in the excavations". The Chalcolithic phase of the site extended from the lowest level up to a height of 2.6 metres. In its last phase, this culture was found interlocked with the succeeding Megalithic culture.

The pottery of this phase included the grey ware, burnished as well as unburnished, which occurred very frequently and red-and-black wares, besides the black-and-red ware. Except two small sherds, other specimens of pottery remain unpainted. The main potforms were the wide-mouthed jar (storage jars?), medium sized jar, medium or small sized bowl, the lid-cum-dish and the stand. Animal bones, some times charred, were found in abundance. They appear to be those of the bull or cow, buffalo, sheep, goat, pig, spotted deer, besides those of birds and the fish.

Two polished neoliths recovered from the surface may perhaps be ascribed to this period. They are without any pointed butt and one is roughly trapezoid in outline. Other finds included a terracotta spacer-bead, pottery discs, and two bone pins(?). Associated with this period was also a huge stepped pit four metres in diameter filled with ash, burnt earth, charcoal, pottery and mollusc shells. The last mentioned material, along with charred animal bones, was present in all the layers. In some cases such pits were edged by post-holes, varying in diameter from 18 to 25 cms. The last phase of the Chalcolithic showed a significant overlap with the Megalithic, indicating the arrival of a new people with certain distinctive cultural traditions.
In general, it is found that the material assemblage of this cultural phase showed affinities with the Chalcolithic material from sites in Central and Western India. The duration of this Chalcolithic culture has been taken to be between the middle of the eighth century B.C. and middle of the fifth century B.C.

4. **Utnur**

Utnur in the Mahabubnagar district, also excavated by Allochin (1957) is an ash mound site which lies in the eastern part of the Raichur doab, some twenty three miles south-east of Raichur and about seven miles on the north of the river Tungabhadra. The finds unearthed from this site showed an assemblage of two separate cultural phases, Neolithic and Early historic. The Neolithic phase reflects the nature of the site as an ash mound. The Neolithic strata contained burnt refuse of cattle which was not very different from that from other sites of this kind such as Kanditini and Kupgal near Bellary. A certain amateurishness and immaturity is noticeable in the pottery fabrics and types of wares from this site. They included a variety of fairly coarse clay with some admixture of particles of grit in good proportion. Besides a small number of sherds, which were made of a much superior clay with no larger particles, appears to have been imported from elsewhere. The shapes of pots which were hand-made are all very simple and utilitarian. There were no sophisticated vessels. The Neolithic pottery forms from Utnur compare well with the Piklihal Lower Neolithic ones. As in the case of pottery, the stone tool industry was also of poor quality, particularly when compared with those from Sanganakallu, Maski or Piklihal. Ground and polished celts were very rare. Likewise the stone blade industry was also very crude. As regards the structural remains at the site only a few trenches and lines of post-holes have been exposed.

The above simplicity, crudeness and immaturity as revealed by both the quality and quantity of antiquities clearly points to the early date of this Neolithic settlement. The C14 dates $2040 \pm 115$ B.C., $2050 \pm 115$ B.C., and $2295 \pm 155$ B.C. lend support to this view.

5. **Jami**

Jami in the Visakhapatnam district was excavated in 1971 by O. Ramachandraiya and B. R. Subrahmanyam. The site yielded three cultural phases interlocked with one another. They are:

- Neolithic-Chalcolithic
- Megalithic and
- Early historic
The occupation deposit of the Neolithic-Chalcolithic phase rests directly over the natural soil and has a maximum thickness of about 4 feet. The ceramic industry of this phase at the site comprised of:

1. **Hand-made gritty ware**
   — Common forms: large vessel with globular body, narrow neck and heavy splayed out rim.

2. **Hand-made burnished ware with sections in pink and pinkish buff colour**
   — Common forms: globular pot with carinated neck and sharply flared rim, pot with short concave neck, high-necked jar and rarely straight side bowl.

3. **Bright red ware**
   — Common forms: flat dish with short sides and rebated rim, bowls (ordinary and pedestalled), dish-on stand and the miniature pot. A rare type is pedestalled bowl of the shape of hour-glass. A decorative feature consists of horizontal graphite paint on rims and shoulders.

4. **Graphite coated ware**
   — Common forms: ovoid bowl, pedestalled bowl and flat dish with expanding corrugated sides (wheel-made).

5. **Non-megalithic black-and red ware**
   — Common forms: straight sided bowl, dish with flat base and dish/bowl on stand.

The pottery was generally hand-made. Wheel-made pottery was also known, but constituted only a small minority. The ceramic was essentially plain and undecorated. There were, however, three sherds, two painted and one decorated with an applique chain-like design in high relief. Of the painted sherds the design was executed on inside with a fugitive white pigment and consisted of groups of vertical linears.

There were a couple of beads made of semi precious stones, pieces of ground stone axes with bifacially ground median cutting edges, a few copper pieces, probably parts of a ring and a small spherical ball. A house, circular in plan, raised on wooden posts was also brought to light. Outside the house was a double hearth looking like twin basins sunk into the ground.

**Phase I of Jami** (Neolithic-Chalcolithic) appears to be not of a considerably long duration and 900 B.C. or thereabouts for its beginning is said to fit in with the evidence.
There are certain traits in the Neolithic culture which help us in considering the same as the concluding phase of the Stone Age cultures. The first among them relates to the economy of the people. They were no more food gatherers, but food producers. Their economy was based on agriculture (the main produce being millets and gram), supplemented by the rearing of cattle, sheep and goat, as also fishing, hunting and gathering of forest products. This rural economy of the Neolithic folk, under which they had greater control over their food supply, appears to have been stable and unchanged, except for certain improvements they may have had to devise consequent on the surplus yield both in agricultural produce and in dairy products. This surplus economy would have naturally given rise to storage problems and this led to the production of storage jars. Thus pottery becomes an important feature of the Neolithic Age. The pottery of this Age enables one to distinguish two phases in the cultural evolution. The earlier phase is characterised by the use of hand-made grey, brown or buff wares, which continued in the second phase and a less popular red-slipped and burnished ceramic, painted with purple which disappeared in the second phase. Surface rustication, perforated vessels and finally a mat-surftaced unburnished pottery of the Nasik-Jorwe tradition are witnessed during the later phase.

Granatoid or gneissic hills, flat topped and or terraced at the sides were the favoured localities of the Neolithic settlers. The Neolithic folk of South India purposely chose places where granite rock was found in abundance, though they also made use of materials other than trap rock for their implements. They had a preference for the trap rock which on account of its being more tough and hard than quartzite, served as good material for making polished varieties of stone tools. Besides, the natural fissures, which were found in plenty in the granite rocks and provided the needed shelter, were used as convenient places for habitation. The granite areas favoured the formation of natural cisterns in which rain water collected and was used by the people. The Neolithic people were the first builders of home. While the Piklihal Neolithic folk made terraces of hill sides which served for them in three main ways viz., for making habitation, penning cattle and cultivating, some sort of pit dwelling is noticed at Paiyampalli. In this site dwelling-pits of varying depths cut into the natural soil, roughly oval, circular, or oblong with longer axis along the cardinal points were uncovered. One of such pits was divided into two parts by means of a row of stones. The larger one had a landing or ramp-like approach on one side. A dwelling pit lined with stones along the edges showed two phases of occupation, the earlier marked by a flat stone at the bottom and the
subsequent one by floor made of rammed earth, 50 cms. in thickness. Post-holes along the periphery of a few pits suggested the existence of some sort of thatched superstructure over them. Some refuse-pits too were encountered at the place. Bone tools exemplified by awls, points and scrapers were also found in one of the dwelling pits, besides fragmentary ground axes and short blades of chert and quartz. Such a kind of pit-dwelling practice is suggested at Nagarjunakonda also by some pits with post-holes around the perimeter of the entrance at the top. In Hallur remains of huts with matted screen plastered on either side by mud as walls, floors of rammed earth with stone fragments and a conical roof raised on wooden uprights of bamboo were found. It seems the huts were usually circular in plan, some of them measuring more than nine feet in diameter. Similar huts of this period were exposed at Tekkalakota. One of the earliest structures here, was a circular hut with a diameter of eighteen feet. Even floor surface was made first by filling the hollows of the ground with stone chips and then covering the surface thus prepared, by a thick layer of mud some times mixed with ash. The walls proper were mud masses interlaced with split bamboos inside them. There must have been conical roof at the top. The household effects of Tekkalakota included paraphernalia for cooking, pot rests, grinding stones and querns. The querns were of rectangular or oval shape with an oval and boat-shaped depression in the centre. The rubbing stones were spheroidal or oval in shape. Though no regular house plans were brought to light at Brahmagiri the presence of post-holes and the straight alignment of a few such post-holes suggest that some hut like erections were raised on wooden posts supplemented by basic lines of low walls of granite blocks and that some of the huts were rectangular in plan. Thus the structural remains of the Age definitely reveal the settled life of the people. In these circumstances it is likely that the institution of family would have also made its appearance in some primitive form or other.

The Neolithic people of South India used advanced stone tools which may be classified into four groups viz., polished and pecked stone axes, parallel-sided blades, true microliths like trapeze and lunates (in small percentage) and bone tools. The tool types are: axe with oval cross section, axe with lenticular cross section, axe with circular cross section, axe with blunt butt, axe with semi rectangular cross section, axe with semi rectangular body, axe hammer, chisels with square, sharp and thick cross-cut edges, picks with pointed working end and with blunted butt end, fabricator, a rough irregular implement used for secondary working, hammer stones, large flat thick discoidal, belt hammer stones, polishing stones used as rubbers, sling stones, flat discs, perforated mace heads, etc.
Regarding the disposal of the dead. The evidence on the Neolithic burials is drawn mainly from the excavated sites such as Brahmagiri, Piklihal, Utnur, Tekkalakota, T. Narasipur, Nagarjunakonda, Hallur, etc. The burials at Nagarjunakonda, Piklihal, Utnur and T. Narasipur belong to the early and pure Neolithic phase, whereas those of Brahmagiri, Tekkalakota and Hallur belong to the later phase of the same.

At Nagarjunakonda nearly six graves including extended inhumations and an urn burial of a child have been unearthed. In the extended burials, skeletons with incomplete articulation and north-south orientation along with funerary pottery objects of wheel-turned and hand-made burnished grey ware were found. The funerary vessels were largely spouted ones, though straight-sided bowls with featureless rim were not uncommon. No other objects of importance were met with in the graves at the place. It cannot be ascertained whether these graves were within or without the habitation area. Besides an urn burial of a child mentioned above, some pits containing pottery, animal bones, microliths and flake tools were also noticed at the place. In one of these pits were found the remains of an articulated skeleton as in the "sagging burials".

The three burials excavated at Piklihal are particularly valuable as they individually yielded interesting data. The burial of an adult female was found in the habitation area near a hearth, in which the skeleton was on its back, roughly oriented in the north-south direction in a shallow coffin-shaped pit covered with a group of small stones. A spouted earthen ware jar to the left of the head and a tall vase, both of burnished grey ware, were also found. The same trench which yielded the above female skeleton also furnished a skeleton of a child resting on its right with south-east orientation and with no grave goods. A grave of an adult male excavated at the place is important because of its funerary goods. In that grave, the outline of which was not clear, lay the body on its back with the head towards the south. The burial pit after having been filled up, was surmounted with large boulders. Five large well executed chert blades placed parallelly on the right hand side of the head, two basalt axesat feet, and a small bowl of unburnished hand-made grey ware near the pelvis were found. Above the body the capula of a bovine was discovered. 'The Utnur shallow grave containing much decayed bones of a newly born baby calls for no special attention, except that it was not in an urn.

In T. Narasipur the buried corpse lay in an east-west direction with its hands placed over each other on the abdomen part. By the side of the head were found two pots of the hand-made cream coloured ware together with a shallow bowl with channel spout,
A pottery-stand with a concave top described as ‘neck-rest’ was also found on the right side of the head. Such ‘neck-rests’ were found to occur in great profusion at the site. Interestingly similar pottery-stands have also been found in the Neolithic phase at Tekkalakota and Jhukar levels at ChanhuDaro.

The upper sub-phase of the Brahmagiri excavations have yielded two types of burials, one, the extended burial in pits meant for adults and possibly grown up children also and the other urn burial especially for infants. In one of the graves at this place, the body of a child was laid in a fully extended form on its back in east-west direction, the head placed towards the east. The left hand of the child was found placed near the pelvic region. Some vessels of earthen ware including two bowls placed by the side of two femurs and a vessel with a funnel-spout kept near the head, were the grave goods. The vessel with small cylindrical funnel might have been used for some ritualistic purposes. It may be noted that a similar type of vessel had also been found in a Neolithic burial at Piklihal. The other type of burial viz., urn burial mainly intended for babies, noticed at Brahmagiri, interestingly contains no grave goods, except in one case, where a small pin or rod of bronze and two small earthen ware pots were found in an urn. Brahmagiri yielded some seventeen urn burials of children. The urns “are of dull mottled grey colour, often coarse and grey in fabric and are hand-made. They have a globular body, flaring mouth and rounded base. Their average height is thirteen inches and have a diameter of twelve inches at the mouth”. It seems the dead body of a child would be inserted into the urn intact and buried in a small pit which was dug for the purpose. Then the urn would be covered either with a full bowl placed upright or inverted, or with the lower half of a broken urn.

The two periods discerned in the Neolithic occupation at Tekkalakota have both yielded burials. Period I yielded evidence for “fractional burials” (or fragmentary or incomplete burials?). In two such cases the skulls and long bones were buried in south-north direction (the head towards the south). Out of these two graves, one contained the mortal remains of three persons suggesting probably some sort of “community burial”. Nothing can be said about the associated goods as they were found to be fragmentary. It seems a fine goblet of ashy grey colour was kept in the graves. While this was the mode of the disposal of the dead at the earlier phase at Tekkalakota, the succeeding phase (Period II) revealed that both inhumation in extended form (for adults) and urn burial (for children) were the two burial customs followed by the people. In the extended burial meant for adults the body was laid in the north-south direction, the head being towards the
north. The grave goods consisted of varying number of earthen vessels which included bowls of black-and-red ware painted in white. A unique grave which calls for attention is that in which the skeleton was laid in four pots joined together. Such a practice is found generally among the Chalcolithic peoples of the Upper Deccan. In the urn burials of this site, the bodies were put in an embryonic posture in single urns or double urns joined together. Occasionally such urns were found beneath the house floors.

Hallur in its Upper Neolithic phase revealed two graves of infants, of which one was a double pot burial under the floor of a circular hut. In this case the dead kid was put in two urns placed mouth to mouth which were interred in a pit of oval shape, oriented in east-west direction. The funerary objects included three earthen ware bowls. This seems to be an intrusive element probably from the contemporary Chalcolithic cultures of the Godavari-Pravara system where the pot burials of this kind were a common feature.

To these instances may be added a new type of burial in the form of a round barrow from Terdal in the Bijapur district, Karnataka State. In Terdal a round barrow which lay amidst many Megalithic passage chamber tombs, was excavated by A. Sundara under the idea that it was also a Megalithic one. Surprisingly it was found to be a Neolithic burial. The round barrow is roughly circular, six metres in diameter on average and about 10 to 12 metres high at the centre imperceptibly tailing off to the present ground level. The known Neolithic habitation site near about is Vibhutimaddi (earlier described) about two kilometres west of this barrow. The cairn packing consisted of dark red earth and rubbles of sandstone about 60 cms. deep at the centre. It covered a burial pit cut in the sand red earth accumulated in a hollow of the sandstone rock. The pit (180×40 60×30 cms.) was east-north-east—west-south-west oriented. The pit contained articulated secondary skeletal remains of apparently one individual, four earthen vessels of Neolithic grey ware of the Maski fabric, a copper bangle and a few microliths such as crescents and without Megalithic pottery and iron. The excavated human skeletal remains, individually described, were a few fragments of skull, front tooth of the lower jaw and two broken long bones. As said above, the remains were fractional and laid in articulated and extended form along the longitudinal axis of the pit. The skull pieces were in the east-north-eastern part of the pit, while the long bones, were near the other end.

A. Sundara has suggested that "the round barrow may provisionally be ascribed to a phase immediately preceding the Iron
Age Megalithic phase, i.e. the late phase of the Neolithic culture in the Chalcolithic stage before the intrusion of Megalithic culture in this part’, after having carefully analysed the myriad problems connected with the dating of this burial. In the light of C14 dating he considers that the Neolithic culture ended perhaps a little earlier in this part than in the Krishna-Tungabhadra where by about 1000–800 B.C., the culture was intruded by the iron using Megalithic culture, and suggests a date somewhere in between 1100–1000 B.C. for the round barrow.

The following points are evident and worth noting from the above brief summary of the available data relating to the disposal of the dead among the Neolithic people of South India:

Evidence regarding the disposal of the dead in the early Neolithic period is meagre and no standard norms appear to have existed among the Neolithic folk regarding the orientation of the dead. However, the general practice seems to have been extended inhumation in regular pits dug in the habitation area. There can be seen a change in the later phase of the Neolithic culture regarding the disposal of dead children. In the earlier phase which was purely Neolithic, children were buried in pits like he adults. But in the later phase, which was essentially Neolithic-Chalcolithic, urn burials were largely practised for the purpose. Again in the Upper Neolithic phase it was the common practice to bury the adults in pits and the kids in urns, the latter being interred in the habitation area. The burial of infants put in urns beneath the house floors (as seen at Tekkalakota and Hallur) and the pit burials of adults in pots joined together (as seen at Tekkalakota) definitely suggest the contacts of the Neolithic people of the Deccan with the Chalcolithic people of the Maharashtra region, for such customs were found to have been widely popular among the latter. In this connection it is noteworthy that the pottery stands called neck-rest from T. Narasipur as indicated above, which also occur in several other places including Chanhudaro suggest far wide contacts that should have existed in those times.

Regarding the Teral round barrow and its date Sundara says: “If...(it) is proved correct by further work, then there is an instance that provision of cairn packing of large magnitude that can be called literally Megalithic goes back to the Upper phase of the Neolithic culture which becomes a common feature of Megalithic tombs of the Iron Age.” Though this is a unique instance, yet to be supplemented by further instances, from the Bijapur district region where the village Teral is situated, the study is significant. One’s attention may also be drawn to the features of a grave of a female adult excavated at Piklihal,
where the pit was found to have been covered with small stones as also another grave from the same place where large boulders were placed above the burial pit. These pieces of evidence are worth further examination. Lastly, the pit burial at Nagarjunakonda resembling "sagging burials" and the "fractional burials" at Tekkalakota do not conform to the available data on the burial customs of the Neoliths. But no final word can be said in the present state of our knowledge on the same.

The study of the disposal of the dead among the Neolithic people would show that even as early as the Neolithic times, there were customs, traditions and beliefs, some of which continued to influence the life of the people in later times also. It seems the Neolithic people believed in life after death. For instance, urn burials of this Age, may be taken as showing the symbolic re-entry of the child into the womb as the urns resemble in shape the belly of a pregnant woman. This indicates probably belief in reincarnation. Besides the slow growth of the institution of family in some incipient form, possibly controlled by some tacit arrangements, the practice of religion in some form should also have begun. It is generally agreed that rites came first; myths, dogmas and theologies were later rationalizations leading to a complex religious form. We are able to discern some rites that should have been observed by the Neolithic people.

Ashmounds

An important trait that is usually connected with the Neolithic culture relates to the formation of ashmounds. The ashmounds are noticed in some places in Andhra, Karnataka, and possibly in parts of Tamil Nadu. The origin and formation of, and people responsible for, these ashmounds have been the subject of much study and research for more than one and a half centuries from the days of Mackenzie who was one of the earliest to notice such ashmounds in northern Karnataka.

The excavations at sites like Piklihal, Utnur, Kupgal, etc., have shown that these ashmounds were formed by the burning of cowdung. Early scholars who tackled the problem considered these heaps of ash to be a petrified substance, ancient kankar, more or less calcined volcanic or limestone slags, result of funerary practices, cowdung mass accidentally burnt, vast funerary holocausts, etc. It is also said that these ashmound sites were to be associated with gold and iron-smelting.

Logically speaking there are two ways of interpreting the cause of the formation of the ashmounds. Cowdung was a good fuel in ancient times, as it is even today. This fuel could have been used for
either industrial or non-industrial purposes. If the ashmounds could be traced to cowdung having been used for non-industrial purposes, it is obvious they cannot possibly be connected with funerary practices, the evidence for which is lacking. But they can be connected with some rituals as Allchin has suggested. Allchin after his excavations at Piklihal and Utnur thought that the ashmounds "which have been shown within cattle pens, may have been fired in connection with seasonal festivals marking such events as the beginning or end of the annual migrations to forest grazing grounds. Among modern pastoralists in Peninsular India bonfires are still lit at festivals at such times. Cattle are driven through fires as prophylaxis against disease, just as in the need-fires of Western Europe."

The theory that the ashmounds were formed as a result of accidental fire in the cowdung is not convincing, as accidents could not have occurred in a definite pattern. Moreover the excavations at Kupgal have revealed that the cowdung accumulated for a definite period was heaped on a well made floor and then burnt. The site has yielded evidence for two such separate burning activities.

With regard to the possibility that cowdung was utilized as fuel in industrial activities which resulted in the formation of ashmounds. Among such industries were probably those connected with the firing of pottery and smelting of ore like gold, or iron. The determination of the exact industry which utilised the cowdung as fuel would also be helpful in identifying their authors. Since the commonly found objects in these ashmounds are potsherds, it is likely that the industry involved related to that of pot-firing. In that case the people responsible for these may well be the Neolithic or Iron Age people both of whom knew the industry and whose pottery types are found in them. It was Robert Bruce Foote who associated these mounds with the Neolithic people, and his view is generally followed by scholars.

However, recent studies on the problem throw new light on it. Recent excavations of the ashmound at Palavoy where Megalithic pottery and iron objects were found, seem to indicate that they were iron-smelting sites. If the ashmounds owe their origin to the smelting of iron ore (or any other ore) their Neolithic origin is practically ruled out for the Neolithic people lacked knowledge of iron metallurgy. A. Sundara who has made a study of these ashmounds was able to find at Kudachi in North Karnataka an ashmound overlying the Chalcolithic debris. He observes: "The almost invariable situations of the ashmounds in or nearby Chalcolithic or Neolithic sites may only indicate that the mounds came into existence, most probably in the
latest phase of the Neolithic or Chalcolithic culture." He further points out that the ashmounds in the Krishna Valley are situated in proximity to iron bearing localities such as the Bisenal, Rajankollur, etc. His study of a few new ashmound sites in North Karnataka shows that "the activity leading to the formation of the ashmounds spread along Krishna towards doab and further eastwards and southwards, probably by the users of the painted pottery comparable to that of Savalda of the Upper Krishna or the builders of the Megalithic passage chamber tombs. Most likely these peoples were connected with iron smelting activity."

In this connection it may be noted that at Adichchanallur (Tirunelveli district, Tamil Nadu), the existence of an extensive area of ashes mixed with the bones and horns of animals covered over with a thick layer of silted gravel was mentioned by Marshall. B. K. Gururaja Rao who takes note of this, feels that this might have been the result of burning of cow dung by the agriculturist-pastoralist people of Megalithic times. But he is very cautious in arriving at any conclusion on this since "the evidence in support of this suggestion is meagre or non-existent." His observation on the ash heap at Adichchanallur now acquires a new dimension in the light of A. Sundara's work in North Karnataka. But much work has still to be done to make out the diffusion pattern of Neolithic and Megalithic cultures in different parts of South India. Perhaps such a study may enlighten one, more about the ashmounds and their significance.*

Now to a comparative study of the Chalcolithic cultures of North and Central India on one side and the Neolithic culture of South India on the other. It has been shown that the polished stone axes which are found in abundance in the South Indian Neolithic phases occur very rarely in the north, beyond the banks of the Godavari. They do not occur alone, but with the parallel-sided blade industry in both the regions. Similarly the 'crested guiding ridge' technique adopted for making the blades provides some clue to link up the South Indian Neolithic cultures with the Chalcolithic cultures of Central India and Maharashtra and the Harappan culture as well. For, this technique has been noticed not only in the Central Indian Chalcolithic industry, but also in the pre-Harappan from Baluchistan, Sind and also the Harappan. Further the other features of the South Indian Neolithic

*K. V. Raman informs me that he came across heaps of ashes during his excavations at Appukkulam at the foot of the Gangaiakulam hill, about 20 kms. from Vellore (North Arcot district, Tamil Nadu). The earliest habitational stratum at the place is characterised by the presence of fine black-and-red ware and polished red pottery. Two Neolithic celts were collected from the Megalithic levels as survivals from the Neolithic substratum.
cultures like the hand-made, plain and painted pottery, house pattern (as seen at Sanganakallu and Tekkalakota), besides bone tools and beads of semi-precious stones reveal its close connection with the Central Indian and Maharashtra Chalcolithic cultures. For instance, the pin-holed or punctured decorations found in the Tekkalakota pottery are strikingly similar to those found in the pottery of Inamgaon. Such similarities in pottery forms, fabrics or decoration, though yet to be studied fully, suggest some sort of common or homogenous social and religious customs among both the cultural groups which in turn, suggests contacts. In this regard it is interesting that plain and white painted black-and-red ware noticed in the Central Indian Chalcolithic culture is also reported, for instance, from Hallur. Again, as said earlier, certain burial customs of the South Indian Neoliths are noticed also in the Maharashtra Chalcolithic culture.*

Thus the result of the study goes well with the opinion of Childe that “far from being a scattering of discrete units, the Neolithic world should be viewed as a continuous chain of communities, each linked to its neighbours on either side by recurrent, if not infrequent and irregular contacts.” As a result of mutual contacts there must have been much exchange of ideas and mutual absorption of cultural elements among the Chalcolithic North and the Neolithic South. By this process the Neolithic culture of South India in its last phase not only became more elaborate and diversified in its material content, but also strikingly less ethnocentric while the Chalcolithic North acquired the use of ground stone axes along with burnished grey ware as gleaned from the finds from Nevasa, Chandoli, Daimabad, Prakash, etc.

* But this does not necessarily mean that the South Indian Neolithic culture possessed no distinct characteristic features of its own. The occurrence of stone axes in large quantity, painted pottery and parallel-sided blades in comparatively less quantities and copper objects or tools in restricted number (or their absence) would, no doubt, characterise specially the South Indian Neolithic culture and distinguish it from the Chalcolithic cultures further north. It is known that in the Central Indian Chalcolithic cultures, the stone axes are very scarce, while the painted pottery, parallel-sided blades and copper objects are found in considerable quantity. It is also to be noted that the contacts of the South Indian Neolithic cultures were not only with the contemporary cultures of north and north-west India, but also, to some extent, with those of north-east. The jasper axe with sawn margin, vessels with lustrous red surface, and bowls with pinch and channel spouts among the Singanapalle finds would show that at least the painted pottery culture of the Kurnool region felt the influence of the cultures to its north-east for these finds occur at Pandu Rajar Dhipi and a few other sites on the eastern margin of the Chhota Nagpur plateau.
Racial Types

Lastly an attempt may be made here to have an idea of the racial types of the Neolithic people of South India. The skeletal remains of the Neolithic people unearthed at Pikkilah and Tekkalakota have been examined to determine the racial complex at the two places. Three complete human skeletons, two of adults and one of a child, were unearthed from the Neolithic debris at Pikkilah. They have been examined by A. Ananthanarayana Aiyer. According to him, in cranial form, both the adult cranials resemble in general the modern South Indian skull and belong to Guha’s Palaeo-Mediterranean physical type. The forehead is well-marked, vertical in the male and slightly receding in the female. The stature is of medium tall size. The head is long and the jaws are slightly prognathous. Regarding the Tekkalakota skeletal remains, Malhotra observes some morphometric similarities between the human remains he examined with those from Nevasa and Chandoli in Maharashtra and Brahmagiri and Pikkilah in Karnataka. It seems the first Neolithic settlers in the Deccan were of the Palaeo-Mediterranean physical type. Allchin makes use of the term *Dravidoid* for these Neolithic people of the Deccan. According to him this stock was very widely spread throughout the Iranian plateau and even Central Asia in pre-bronze times. Interestingly the same physical type has been identified in Central Asia by Soviet archaeologists and anthropologists in the Keltiminar culture. Trofimov, while discussing the skeletal finds of a Chalcolithic site in S. Turkmenistan, thinks that they show a connection with the South Indian (*Dravidoid*) type of population in early Chalcolithic times.

Date

We have already seen the dates for individual Neolithic and Neolithic-Chalcolithic sites, mostly dated by the C14 method. The Upper Palaeolithic Age which must have had a comparatively long duration was, as explained above, followed by the Neolithic Age. Its middle period may be dated about 1700 B.C. which had its chronological equivalent in Navdatoli IIIa. The carbon dates available for Tekkalakota and T. Narasipur are very close to that period, while the dates for the Neolithic-Chalcolithic phase at Hallur ‘are somewhat aberrant’, though its end appears to have been about 1000 B.C. The Utnur excavations have yielded a date about 2160 B.C. for its Neolithic phase while the middle phase of the Neolithic at Paityampilii is datable to about 1500 B.C. Thus taking into account the above pieces of evidence collected with regard to different Neolithic sites in South India, it may be taken that the southern Neolithic culture may be placed roughly in the period from 2500 B.C. to 1000 B.C.
VIII
IRON AGE AND THE DAWN OF HISTORY IN SOUTH INDIA

The Neolithic Age was followed by the Iron Age in South India, as may be seen from the occurrence of iron objects in the cultural deposits of the post-Neolithic Age. In certain parts of the area iron came to be introduced while the Neolithic folk of the region were using copper without their having much knowledge of metallurgy and thus in the Neolithic-Chalcolithic stage. In a few sites the Neolithic and Iron Age cultures overlapped, thus confirming the fact that both the cultures flourished for some time contemporaneously until the former was completely obliterated by the latter.

Some sections of the iron using successors of the Neolithic folk interred the skeletons of their dead kith and kin in different types of graves made for the purpose in which large stones were mainly used. This important characteristic feature of the Iron Age culture is called megalithism. The word *megalith* is derived from two Greek words *megas* meaning ‘great’ and *lithos* meaning ‘stone’. Therefore the word applies primarily to the structures of a rudimentary character made of huge stones. The megalithic monuments of this Age in South India largely fulfilled a funerary or commemorative purpose and were of a religious nature. In fact they were sepulchral in nature.

Considering this aspect of megalithism which was obviously a dominant trait among some sections of the population during the Iron Age, the culture complex of these people as a whole, is some times called megalithic culture. It is to be admitted that such a generalization has its own short-comings. The burial customs that were prevalent among all the peoples of this Age were not uniform and completely megalithic in nature. It is possible that only certain agricultural communities practised megalithism while other sections of the population might have practised other methods with regard to the disposal of the dead. One such mode of burial was the burial of the skeletal remains of the dead in earthen urns, specially made for the purpose which evidently lacked “the presence of small, let alone great stones”. But unfortunately we do not have much archaeological evidence about the burial practices other than those of megaliths, and urn burials of the non-megalithic people of this Age, though there is sufficient literary evidence to such ones in some of the Tamil Sangam works. Moreover, that atleast a section the Neolithic people themselves had a practice which may literally be called megalithic, is evidenced from the round barrow burial at Terdal about which mention has been made in an earlier context. Therefore the culture complex of this Age may better be called ‘Iron Age culture’ or iron
using ‘Megalithic culture’ (if the context required specific mention of the megalithic traits) rather, than merely as ‘Megalithic culture’.

Chronologically the Iron Age with its characteristic megalithic practices is the last phase in the pre and proto history of South India. Excavations have been conducted in a number of sites in South India of which some were purely burial sites and the others were habitation ones in character. Sanur, Kunnattur and Amritamangalam, the last an urn burial site (all in the Chingleput district, Tamil Nadu), Porkalam (Keiala) were some of the burial sites excavated. Paiyampalli, Sengamedu, Tirukkampuliyyur and Alagarai (all in Tamil Nadu), Brahmagiri, Chandravalli, Maski, T. Narasipur, and Sanganakallu (all in Karnataka), and Nagarjunakonda in Andhra Pradesh are some of the habitation sites with megalithic appendages that have been excavated. Arikamedu near Pondicherry is a unique Indo-Roman trading centre of the period which is also important from our point of view here.

Attention has been so far paid largely to the study of the megalithic burial sites and to some extent, to the urn burial sites of this Age. The habitation sites of this Age associated with megaliths deserve more attention than they have received till now.*

But the study of the sepulchral monuments of this Age has been engaging the attention of scholars ever since 1823 in which year Babington’s article ‘Descriptions of the Pandool Coolies of Malabar’ was published in the Transactions of the Literary Society of Bombay. Much has been written on this interesting subject during these hundred and fifty years. The megalithic monuments of a few regions have been studied recently in detail by a number of scholars. Besides, there is a good bibliography on Indian megaliths. Some glimpses of a few problems and aspects of the iron using megalithic culture of South India with special reference to Tamil Nadu may be attempted here.

Though a lot of literature has grown on the megaliths of India in general and South India in particular, no thorough and detailed exploration has been made with regard to the types and distribution of

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*It is generally observed that the proportion of the habitation-cum-burial sites explored so far to the burial monuments known is comparatively small and the occupational deposits at the known excavated habitation sites are also thin. These have been attributed to the ‘shifting’ and expanding nature of settlements. Hence one may naturally get different dates for the beginning and duration of different settlements with reference to the topography and the typology of their megalithic appendages which may, in all probability, give a clue to the way in which the Iron Age settlements were formed in this part of the country.
megaliths except in the districts of Chingleput and Pudukottai (former Pudukottai State) in Tamil Nadu and Cochin in Kerala by V. D. Krishnaswami, about three decades ago. According to him the types of megaliths in the Chingleput area (Tamil Nadu) were two, namely the dolmenoid cist and the cairn circle. The dolmenoid cist was a burial chamber made of stones both for the sides and the cap, the whole complex circumscribed generally by a single stone circle or some times by double circles. There were, however, slight variations in their nature. Some of the cairn circles had terracotta sarcophagus in them. The megalithic monuments in the Pudukottai area were of two major types viz., the cairn type and the cist type, with minor variations among them. The cairn type had either single urns or double urns or multiple urns as in the Chingleput region, but without the sarcophagus. The cist type of megaliths in this area had generally orthostats arranged in a svastika fashion which are all monolithic slabs. Most of them are found transepted, except a solitary instance at Sittannavasal. In the old Cochin state region, as in the whole of Kerala, the nature of the monuments were determined largely by the material then available. Thus dolmens, both ‘multiple’ (i.e. several within a single stone circle) and ‘isolated’ ones are found in the eastern hilly region. The rock-cut caves, menhirs, and megaliths of the umbrella series (kudakallu and toppikallu) are seen on the lateritic plains and urn burials proper with some menhirs on the alluvial sea board.

Besides V. D. Krishnaswami, scholars like N. R. Banerjee, K. V. Soundara Rajan, F. R. Allchin, S. B. Deo, K. N. Dikshit, S. P. Gupta, B. K. Gururaja Rao, A. Sundara, K. S. Ramachandran, etc., to mention only a few, have dealt with the subject, and a few of them have attempted tentative classifications of the different types of megalithic monuments in South India. These classifications are based mainly on the known burial types found by surface explorations. These groupings are, however, subject to modification either in the light of fresh discovery of till-date unknown types or recognition of variations in the material content or physical type of burials which were earlier considered to be uniform. To have a general idea about the types of megalithic monuments in South India, the classification of F. R. Allchin may be of use in the present state of our knowledge of them. He classifies the regularly recurring types of graves of this Age as follows:

“(a) Large urns, often piriform, containing collected bones previously excarnated, and buried in a small pit, marked in some cases by a stone circle or small capstone or both. The pits, and some times the urn itself, often contain grave goods. Urn burials of this sort are
common on the eastern coastal plains, and have a wide distribution elsewhere.

(b) Legged urns and legged pottery sarcophagi, the latter sometimes with an animal's head, are less frequently found but have a fairly wide distribution.

(c) Pit circle graves, of which several examples were excavated at Brahmagiri, in which the body had evidently been placed on a wooden bier in a large open pit and exposed, perhaps to allow for excarnation. Grave goods are found in the pits, and a stone circle is erected round the circumference.

(d) Cist graves. Of these there is a great variety. The stone cists are usually of granite slabs, sometimes with portholes, variously oriented. The cists may be deeply buried in pits, partly buried, or erected upon the bare rock surface. Some cists are compartmented and have several separate chambers: in some instances a separate slab resting on four stones suggests a bed. The capstones may be single or multiple. Many different arrangements of burial—both single and multiple—are found, and grave goods, were placed both within and around the cists. In some cases a ramp below ground level leads down to the porthole entrance and this has been covered by a slab door. The cist is usually marked by a stone circle or on occasion by a double or treble circle.

(e) In the Malabar coastal laterites small rock-cut chambers are found, sometimes approached by an entrance from above and covered with a capstone. Some of these chambers have vaulted roofs.

(f) One further monument associated with the graves and belonging to the Iron Age is the stone alignment, comprising carefully oriented rows of standing stones set in a square or diagonal plan. The standing stones are generally from 5 to 8 feet in height but occasionally examples of over 20 feet are recorded. Small alignments have been reported with as few as three rows of three stones, four rows of four, five rows of five, etc., but large diagonal alignments with sometimes many hundreds of standing stones are reported from Gulbarga district. These monuments are so far mainly distributed in the central Deccan, in the districts to the south of Hyderabad.**

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K. N. Dikshit would group the megalithic monuments into six categories such as dolmen, underground rock-cut passage cave, menhir, toppikallu, kudakallu and cist.
Thus it may be seen that there were at least five or six types of funerary monuments, the nature and provenance of each type, as also the material content of them depending on the physiomorphic character of the raw material available for making such sepulchral monuments. This is well attested to by the fact that one finds, for instance, in the Tamil Nadu region, largely dolmens in the Chingleput district, North Arcot and South Arcot districts, a mixture of dolmen and cist in Coimbatore, Salem, Tiruchirappalli and Pudukkottai areas and Kerala, of cave tombs, cists, urn-burials and pure urns in the deep south of Tamil Nadu, as for instance Korkai and Adichchanallur in the Tirunelveli district. At times local customs may also contribute something to such differences in the structures. For instance, in Kerala the type called hat stones (tappikallu) are found in large numbers and they are not known in any other part of India. This may probably be due to the influence of local customs concerning the disposal of the dead or probably due to influences from outside the country. But the material and equipment associated with these types are practically uniform.

In this connection it is necessary to know something about the urn burials of this Age which are a class by themselves. These burials are important as they are different from the megalithic ones, but can be dated more or less in the same period. Urn burials of different kinds are found at many ancient archaeological sites in South India and some of them have been explored, unearthed and the material yielded by them studied. Three of such sites namely Amritamangalam in the lateritic zone in the northern part of the Chingleput district and Korkai and Adittanallur (Adichchanallur) in the south of the Peninsula deserve particular mention.

Amritamangalam is a comparatively large burial area which is marked by ‘heaps of earth mixed with quartz chips’. More than two hundred and fifty burial urns without any megalithic association have been found at the place. The urns were of different shapes and sizes “ranging from the normal pyriform oval to almost globular form.” They were of coarse texture ill-fired and hand-made. Their bottom terminated either in a pointed base or had a truncated base varying in diameter. Uncalcined skeletal remains like skulls collected after excavation and a few pottery and iron pieces were found in most of them.

Adichchanallur on the river Tambraparni lies fifteen miles to the south-east of Tirunelveli and nine miles to the west of Korkai, another urn burial site. The place which is virtually an urn-field covering an
area of 114 acres is a very important archaeological site which has attracted the attention of archaeologists for over a century. It was first noticed and excavated by Jagor so early as 1876. Excavations were carried out at the place by M. Louis Lapicque in 1903-04 and later by Alexander Rae. The excavations have brought to light a large volume of archaeological material of different kinds relating to the burial site which throw much useful light on the early culture of the place. Among the excavated finds may be mentioned large pyriform burial urns (some of them four feet to nine feet in diameter and six feet to twelve-fifteen feet in depth), small earthen vessels of black-and-red ware, black ware and the red polished ware varieties in different shapes, some of them occasionally decorated with simple painted designs besides iron weapons, tools and other objects like bronze vessels, ornaments, etc. The other excavated finds included gold diadems, mouth pieces (plates?) and a number of household stone tools. It is presumed that the date of the finds may be assigned to the period c. 1000-800 B.C. The influence of foreign elements in the culture revealed by the excavations is seen by scholars.

Korkai on the same river is situated five miles to the west of the Coromandel coast. The site was first excavated by Caldwell(.876). Recently the Department of Archaeology, Tamil Nadu State has conducted excavations at this site. It has yielded evidence to show that in its first phase it was an urn burial site throwing out burial urns, black-and-red ware, a kind of black ware, a coarse red ware, besides shell bangles, bone ornaments, etc. The finds are considered to belong to the eighth century B.C. as indicated by C14 tests.

MATERIAL LIFE OF THE PEOPLE

The introduction and use of iron at the end of the period of an essentially Neolithic culture with or without using a small quantity of copper more or less revolutionised the life and economy of the people. Though they continued to dwell in thatched houses with mud walls and rammed earth-flooring, they began to use profusely iron for making implements for different purposes. There is definitive evidence regarding the nature and dimension of house constructions during this Age. At Paiyampalli the layers assignable to the period revealed three successive floors with post-holes. In general plan, the huts were circular, oval or oblong. The floor was made often of stone chips covered with murrum invariably plastered with lime. A rubble flooring was also provided occasionally on the periphery of the house. In one or two cases the foundation wall of rubble could be seen. The houses usually consisted of a single room. One double roomed house was also exposed at the place. A unique example of a perforated stone
base, provided for supporting the thatched roof also came to light. Some evidence on the constructional activities during the period are also available from Hallur, Kesarapalle, Brahmagiri, etc., as a number of post-holes and patches of floorings were noticed at these places. But the material evidence on the nature of house constructions is very meagre, as the number of habitation sites that are known and have been excavated are only a few. It seems bricks came to be used in the last phase of the Iron Age which coincided with the early historic age.

Not much can be said about the arrangement of rooms in the houses of this period as also the household articles. Interestingly Paiyampalli has yielded a rare type of terracotta lamp, circular in shape with eight lips for wicks probably used by the megalithic people for ritualistic purposes. It is not stated where exactly the lamp was found. A saucer lamp made of iron was reported from Kildnattam by Rea. Recently Appukallu, has yielded from the surface a terracotta lamp like the one at Paiyampalli.

As in the Neolithic Age, agriculture was the main occupation of the folk of this Age. The excavated materials from various sites, both habitational and burial, of this Age such as sickles, strapped hatchets, tips of plough, etc., supply evidence on the practice of cultivation during the period. In a megalithic burial at Brahmagiri was found a tool consisting of a long handle with a large chopper-like blade at one end, the other end being pointed. M. K. Dhavalikar has identified it as a Roman plough coulter. Such coulters were used in the Roman empire in regions where the soil was heavy, compact and cohesive. It is possible that such plough coulters were imported or imitated to be used in the Deccan cotton soil.

It is important and interesting to note that the existence of the megalithic monuments are mostly located in areas where abundant water supply either by rivers or by tanks was available which shows that the agriculturists of this Age (who practised megalithism) preferred to live near lands with irrigation facilities where they could engage themselves in agriculture. It is believed that the Iron Age in South India also witnessed the introduction of tank irrigation for agricultural purposes The agriculture of the period was probably of a shifting kind, as also the settlements, for we see that most of the habitational deposits of this Age are comparatively thin. Remains of agricultural implements are also not found in large quantities. These suggest that the people were migrating from place to place in search of more and more cultivable and pasture land because of the increase of population, resulting in the growth of settlements. Those places which offered congenia
climate and water cover facilities for the thriving of population might have witnessed a longer duration of occupation than those that were not so.

If the Iron Age people were a rigorous agricultural folk with a knowledge of irrigation methods, then it is possible that they could have irrigated land for the cultivation of rice. But there is no solid evidence in the period regarding the beginning of the practice of irrigated rice cultivation. At Paiyampalli and a few other sites one gets evidence of grains such as green gram and ragi like cereals. Brahmagiri has yielded pestles of granite which would have been used to prepare flour out of grains. It is also evident that the occupation of food production would have been supplemented by those of catching fish, hunting wild animals, etc. The bones of animals like sheep, pig, tortoise, dog, *Bos indicus* and cattle of short-horned humpless variety would show that animal food was consumed. Domestication of animals was also there. Horse was known. In fact a number of burials have yielded snaffle bits and stirrups used for horses.

The wide range of cutlery such as chisels, adzes, and iron slags would point that there were crafts like carpentry, smithy besides some industrial activity such as iron smelting, etc. The presence of cotton cloth bits in several vessels would show that cotton weaving was also practised.

The most dominant and characteristic ceramic industry of the Iron Age culture complex was the black-and-red ware. It has been found not only in the megalithic burials of this Age, but also in the habitation sites with or without megalithic associations. Several sites have yielded a large volume and variety of this ware which has enabled scholars to make a detailed study of its different aspects in the South Indian context.

In the making process, the mud paste was first graduated along with a quantity of fine gravel which acted as a tempering material. It was turned on a slow wheel and the wet smoothed pot (normally the core was grey with air holes) was smeared with a coating of slip on both sides. Then it was fired in a kiln. The most important aspect of the pottery relates to the method of firing it in the kiln. It seems the pot was placed in an inverted position (one above the other) in the kiln and fired. The interior and a portion of the top turned black due to firing under reduction while most of the lower outer portion was fired under oxidising conditions resulting in the formation of a red or brown colour. The different degrees of firing in the kiln led
to different shades on the exterior portion of the vessels. The shades included bright red, orange red, pale red, greenish yellow, dark brown, light brown, chocolate with dark brown patches, etc. Since the pots were fired at lower temperatures they did not acquire sufficient hardness and when the water was stored for a long period they disintegrated some times. The pots had also burnished surface and on account of the burnish applied, the surface became lustrous. At times crackles developed due to the application of salt-glazing.

The method of firing of this ware has been recently studied by Majumdar. His observations show that "the ordinary kiln without special arrangement can only produce either wholly red or wholly black pot irrespective of its position in the kiln". According to him, there are ways in which, under special arrangement, the double colour effect can be achieved by (i) simple firing and (ii) double firing. Painted designs executed in kaolin, incised and impressed patterns of various kinds and graffiti marks are met within this pottery both inside and outside.

The pots of this ceramic ware were mostly utilitarian in character. Some common forms of this pottery were lids, ring stands, deep bowls, legged vases, pyriform urns with lids etc. Though the above are a few common potforms, considerable variations in the forms, technique and types of this pottery were also present. For instance, while Palkalam yielded four legged vase, Savandurga gave a similar vase with three legs only. Likewise salt-glazing does not seem to have been an universal practice with regard to this pottery. This is suggested by the fact that such a feature is absent at Brahmagiri while the same was normally present at Palkalam.

Hence it is not difficult to conclude that different local pot making traditions belonging to the culture complex of this Age shared a commonness in pottery fabric, though there was no specific resemblance between different pottery types.

This pottery viz, black-and-red ware has its antecedents in the Indus culture and in its process of spread, it seems, it influenced and got influenced by many regional ceramic fabrics. It is to be noted, as K. V. Soundara Rajan has said, that the megaliths and black-and-red ware had no 'incipient co-existence' in India. The logical view that there should have been a non-megalithic black-and-red ware tradition in and preceding the Iron Age is further strengthened by a recent study of A. Sundara. He has shown that there was a non-megalithic black-and-red ware cultural strain in the Tungabhadra valley originating from Western India surviving from the Chalcolithic stage, along with the Iron Age mega'thithic cultural milieu in the overlap phase. Thus it is
now more or less clear that a section of the black-and-red ware people acquired megalithism, just before, if not definitely simultaneously with, the coming in and use of iron.

The origin and date of this black-and-red ware pottery is a matter of great controversy among scholars; however, on the basis of evidence obtained from excavations it may be assigned, tentatively, to a date between c. 1000 B.C. from the beginning of the Iron Age and c. 300 A.D. well down to the early historic Age in the South Indian context.

Besides this black-and-red ware, black burnished ware (a black ware with a shining slip) (common forms: elongated vases, tulip-shaped vases, funnel-shaped lids, goblets, spouted vessels, circular stands with triangular and rectangular perforations on their sides and knobbled and rimmed lids, lids with bird and animal finials, etc.), dull red ware which was wheel-made (common forms: double knobbled lids, legged vessels ringed stands, vases, etc.), micaceous red ware found especially in the Vidarbha region, Maharashtra (common forms: pots with globular body and funnel mouth, basins, etc.), as also some painted wares with graffiti marks on them are also associated with the megaliths. These will be seen in some detail in the sequel.

Apart from customs, beliefs and conventions which make a section of people distinguishable from others, dress, ornaments of decoration, etc., from time immemorial, have played an important role in their every day life. The Iron Age people cared very much for personal hygiene and paid no less attention to the art of Max Factor. Combs, razors, nail-parers, etc., were used as articles of personal toilet. They also used circular bronze plaques as mirrors. The abundant articles of ornamentation of gold, silver, copper, shell, terracotta and semi-precious stones, would show the taste of the people for ornaments, as also the high skill attained by the artisans who produced them. Gold objects recovered from Adichchanallur, Maski, Nagarjunakonda and a few other sites deserve mention. The gold diadems from Adichchanallur remind one of those from Mycenae. Gold bangles and ear rings and finger rings have been got from sites like Nagarjunakon-a. Nagarjunakonda and Maski are reported to have yielded gold beads, and Amritamangalam gold necklace. Particular mention should be made of beads of terracotta, copper, etc., as also semi-precious stones like carnelian (for example etched carnelian beads), chalcedony, agate, crystal, garnet, jasper, lapis-lazuli, coral, magnesite, paste, quartz serpentine, shell, steatite, etc. In fact beads may be considered as an aesthetic aspect of a particular culture. It is of interest to note that glass was known to the people of this Age. Bangles of opaque glass have been yielded by Maski and Paiyampalli.
It has been already seen that the dominant metal during the Age was iron, though gold, silver, copper and bronze were also known. Iron was used for casting (i) weapons such as lances, daggers, swords, arrow-heads, spear-heads, knives, axes, with cross bands (ii) other utilitarian objects and tools like razors, adzes, axes, plough coulters hoes, sickles, various kinds of chisels and (iii) domestic ones like frying pans, saucers, nails, lamps, besides bridle bits, etc. Bronze ferrules of walking sticks have been found at Hashampet and Maski.

The practice of the worship of the dead is very old. Ancestral worship was a common phenomenon witnessed in ancient cultures all over the world. The Neolithic folk buried the dead in pits with some grave goods small pots, cups, etc., which act of theirs shows that they had some sort of ceremony attached to burials. The megalithic people of the Iron Age, who appeared in South India after the Neolithic folk, have left much material evidence for a study of the actual methods of the disposal of the dead. There are many references in the Tamil Šangam literature which is usually assigned to the early centuries of the Christian era. Among the modes of burial referred to in the above literature there were two which deserve special mention. They are:

i) To lay the dead in pits dug into the ground and cover it with leaves and stones and

ii) To place the dead inside a burial urn (talī) and cover it with an inverted lid.

The post-Šangam work Maṉimēkai which contains a descriptive account of the burial customs of those days mentions

\[\text{suṆuvōr iṆuvōr tōdu kuḷi-ppaṆuvōr}\
\[\text{talīvāyin-agāippōr talīyin-kavippōr}\

(Maṉimēkai, vi, II. 66-7)

The two methods of burial mentioned above are the most important characteristic features of the Iron Age culture. The intensive survey of a large variety of megalithic monuments and exposure of urn burials in a number of sites in South India partly confirm the literary traditions contained in the Šangam and post-Šangam Tamil works.

The megalithic monuments were generally set up in the form of a large or small dolmen usually consisting of one large flat slab of stone supported by two or four upright stones (the latter at times intercepted) which themselves formed a small cell with a hole on one side (generally to the east) to serve as an entrance. Besides, there were also other types of megalithic monuments which are variously called menhirs, hatstone (toppi kal) hood stone, stone circle, cairn circle, cist and rock-cut
caves. The excavated examples at places like Sanur, Kunnattur, Porkalan and Brahmagiri give an insight into the very nature of the conventions and beliefs of the megalithic people regarding the cult of the dead. The megalithic burials, which are secondary ones of the bodies of the dead, are oriented in the east-west direction in an extended position. The grave may contain the skeletal remains of one or more persons placed either directly on the floor or on a stone seat or in a terracotta sarcophagus. One of the most interesting features of the burial is that along with the dead were also placed some grave goods like household pots, water jars, weapons and ornaments used by the dead when they were alive. It was on account of the faith of the people in life after death and the existence of the other world that they provided the dead with such necessary articles of domestic use. It is equally interesting to observe that some of the monuments have a provision for the entrance of the soul to the grave and accept the offerings made by the relatives or community concerned. As said above, the entrance path is generally provided on the eastern side of the grave and usually called porthole. This aspect of the megalithic burial suggests belief in the transmigration of souls. Though we do not have a clear picture of the manner in which offerings were made to the dead whose skeletons were buried in such graves, it may be said that they were made at regular intervals or on certain fixed occasions. But not much can be said about this aspect of the megalithic burials in the present state of our knowledge. It is probable that this cult of the dead was transformed in later times into hero-worship in the form of stones set up for the dead.

It seems the people who practised urn burials had also belief in life after death. One is reminded here of what Logan said regarding the resemblance between the pyriform urn and human uterus. If his view is acceptable it would suggest that burial in urns was symbolic of man's return to Mother Earth from which he came.

Megalithism from Literature

Before going into the details of the origin, authors and date of the South Indian megaliths and the duration of the early Iron Age culture in South India, the available literary evidence on the megalithic practices in India may be examined in brief here.

It is possible to find references to the practice of megalithism in the Later Vedic literature as well as Tamil Sangam works. These literary references are important as "behind the different burial practices also lie the different standards of social behaviour and the concept of a full normal life, and unless that is known, certain inter-
pretations based only on material remains within sepulchral monument may be far from the truth”.

R. C. Gaur has traced some references in the Śatapatha Brāhmaṇa for two types of megaliths; the first type, parimandalāni covering burrows, cairns, and even dolmens, and the second type guhā suggestive of the Malabar cave and other chamber type burials. He observes: “Although it is true that the Śatapatha Brāhmaṇa belongs to a quite late date of the Vedic period, the above references do indicate the survival of quite an old tradition, for while mentioning these details of the grave monuments, the author of the Brāhmaṇa has also not forgotten to record the ancient wars of the early Vedic days when the Aryans completely defeated the Asuras”.

Similarly K. R. Srinivasan has shown the usefulness of the early Tamil literary works for a study of the megalithic monuments of South India, especially those of Tamil Nadu and Kerala.

But the main problem with regard to the complete acceptance of these pieces of literary evidence is that the dates of these works are not certain. For instance, K. R. Srinivasan takes the Tamil Śangam literature as “a collection of almost contemporary and slightly late literature in the Tamil country viz., the Śangam and post-Śangam periods covering the first six centuries A.D. and definitely antedating and clearly marked off, both in diction and contents, from the devotional Tamil literature commencing from the 8th-9th centuries A. D.” But there are some who either carry back the date of the Śangam literature to centuries prior to the Christian era or drag the same into almost early medieval times. They may be after all recording a waning practice.

In spite of this chronological difficulty in dating of these literary works, it can be said that a study of these shows that the megaliths were of high antiquity and were known to the authors of those works and to some extent, megalithic tradition continued to later times.

**Origin and Authors of Megaliths**

Megaliths are found not only in India, but also in many other parts of the world, and particularly in the Mediterranean area. Archaeologists consider the detailed resemblance of some of the megalithic monuments of South India to those of Western Asia, North Africa and Europe as “an alluring and baffling problem—alluring as presenting a possible link in the early development of human thought and expression extending half-way round the world, baffling because we still know
less about the monuments in India than in any other country". Much has been written on the elusive problem of the origin of Indian megaliths; and the possible architectural similarities and cultural links between those in India and those in countries outside India have been discussed. It may be mentioned here that although the megaliths have been found in countries both to the west and east of India, those in South-east Asia belong to the first millennium A.D. and so the megaliths could not have come to India from the eastern side.

In South India the beginning of the iron using megalithic culture may be dated from about 1000 B. C. But outside India, in the west, megaliths are ascribed to a period much anterior to 1000 B. C. i.e., about 2,000 B. C. Since megaliths are later in South India and similarities are found to exist between the South Indian megaliths and those outside India, it is believed that the wave of megalithism was from outside India. Gordon thought that the southern Arabian cairn burials and the Baluchistan cairn burials of the Iron Age were possibly related. It was subsequently reiterated by S. P. Gupta. However, Banerjee connected the Baluchistan cairns with the Indian megaliths generically while Heine-Geldern connected the same with the Caucasian megaliths and the stone slabbed graves of Tepe Sialk. Leshnik has enlarged this Central Asian theory recently.

Haimendorf on the analogy between the porthole cists in India and the Mediterranean region concludes that the west coast of India was the first to receive the megalithic influence either by sea or by land. Lal thinks that on account of the typological similarities and the identity of the graffiti marks as available on the black-and-red megalithic ware of India and the black topped ware of the Nubian graves in Egypt, the origin of Indian megaliths could be traced to the west, though there may be a chronological gap between the two groups. He is also aware of the fact that in the Nubian graves iron is completely absent.

The views which are aimed to trace the origin of the megaliths from Europe region has the biggest snag of chronology. While the megaliths in Europe are dated between 2000 B. C. and 1800 B. C. in the Neolithic and bronze Ages, the megaliths of India are mostly of the Iron Age or the last phase of the Neolithic-Chalcolithic Age which goes back only to about 1000 B. C. This time gap, though may be reduced in the light of fresh evidence in future, at present poses a hurdle to the above view.

Turning to the problem of the connection between the megaliths of the Near-East and those of India, the megaliths in the Near-East
are located in Palestine, South Arabia, Caucasus, Northern Iran and Central Asia. They are dated between 3200 B. C. and 1000 B. C. The earliest are located in Palestine and the latest are found in South Arabia. Many similar monuments are also noticed in Yemen, but their date is uncertain. Considering the above, it is maintained by S. P. Gupta that the Gulf of Oman, because of its geographical location, had been receiving throughout its history, cultural waves from Palestine, Arabia, Iraq and Iran and that the Gulf of Oman could be the region where from megalithic culture could have come to India in successive waves round about 1000 800 B. C. However, N. R. Banerjee feels that the megalithic waves came to India from Northern Iran and Central Asia through Baluchistan and the Vindhyas. He has been supported by Leshnik, Allchin and others. K. S. Ramachandran is in full agreement with the view that the megaliths in India are an intrusion from the west, but thinks that the South Indian megaliths seem to have been inspired by a people capable of traversing rough seas and not by those who struck to coastal sailings.

There are some scholars who suggest an indigenous development for the megalithic customs. For instance, Pande seems to think that megalithism, at least in Kashmir, evolved out of the earlier Neolithic burial practices. Similarly Ghurye opines that the dolmen originated in India proper by about 1000 B. C. though he is of the view that the megaliths are intimately connected with the Egyptian funerary monuments. In this connection the recent discovery of a round barrow at Terdal, devoid of iron implements, as also black-and-red ware pottery but with the Neolithic grey ware (c. 1100-1000 B. C.) deserves careful attention. This would support either the direct maritime landing of the megalithic people in South India (in support of which Subba Rao wanted solid evidence in South India for the prevalence of pre-black-and-red ware and pre-iron megalithic complex) or the indigenous development of the megalithic customs. Terdal does not seem to be a solitary instance, for the use of boulders in the burial pits during the Neolithic Age is gleaned from Piklihal as well.

The above discussion would show the difficulty in offering an acceptable solution to the vexed question of the original sources for the South Indian megaliths. While discussing the problem of the origin of the Indian megaliths as a whole, with particular reference to those of South India, it should be borne in mind that neither the typology of the principal varieties among them with their local variations, nor the repertoire of grave goods in the monuments of a single geographical or political zone is uniform. Making due allowance for stadal conformities in certain fundamental and basic cultural traits among them one
should recognise some hybridisation in their form and character due to the persistence of local ideas and customs on account of which variations and differences among the megaliths in different parts of the country are noticed. Thus K. V. Soundara Rajan thinks “Indian megaliths are entirely Indian manifestations of this world wide megalithism and not a link in any cultural chain across the continents ethnically. They are composite in their architectural ingredients and form diverse original sources, maritime as well as overland. Thus within the country itself they would divide into many first arrival zones, later resulting in contact zones of hybridisation and diffusionary zones of transmutation”. No serious work has been done in this line of enquiry and consequently no clue is available regarding the original source or sources that could have inspired the different kinds of Indian megaliths.

There is also much speculation on the question who could be the people who practised this culture in India. Studies on the problem by Cunningham, Walhouse, Brecks, Sankalia and a few others would reveal that atleast some of the aboriginal tribes now mostly confined to hilly tracts seem to have had megalithic cultural ancestry. It was also thought by scholars like Taylor that the authors of the Indian megaliths were probably Celto-Druids or Celto Scythians.

However, the view that the authors of the megalith culture of South India were the speakers of the proto-Dravidian or Dravidian group of languages is gaining ground. This view was putforth a few years ago by Haimendorf. He opined that the Mauryan Emperor Asoka in his edicts in the Brahmagiri region could have addressed only the megalithic people and not the Neolithic barbarians. His pertinent question “If the megalithic builders did not speak Dravidian what language could they have spoken?” still stands unanswered. He further argued that they (the megalithic people) came by a direct maritime route or by a southward coastal movement along the west coast creating coastal colonies in certain regions of North India. According to him, they never touched the interior territories of North India. Though the Dravidian authorship of the megaliths, as suggested by him, is generally accepted, the second part of his theory viz., their direct migration into South India does not go without criticism.

G. H. Gordon accepting the Dravidian authorship of the megaliths suggests that they came to the west coast of South India by a maritime route directly from South Arabia some time between 700 and 400 B. C. Regarding this view, some scholars are of the opinion that the date does not fit in with the available evidence.
Subba Rao ventured to think that the Dravidians whom he accepted as the authors of these megaliths, could have picked up the black-and-red ware and iron technology outside the South Indian megalithic zone. According to him, the Dravidians with iron and megalithism, along with the black-and-red ware migrated to the south and the east from Rajasthan through Central India and either ousted or followed the earlier settlements of the Neolithic Age.

Fortunately we have some skeletal remains unearthed from Brahmagiri, Yeleswaram, Adichchanallur, etc., and a brief summary of the results from their studies will be of some use in this connection.

It is regretted that the number of skulls recovered from each single site is meagre and hence the application of any statistical test and use of statistical constants could not be attempted in the study of the skulls of this period. Chatterjee and Gupta who examined the Adichchanallur skulls felt that the people of that place were of several racial types such as Veddid Australoid, proto-Australoid which were presumably autochthonous, as also two varieties of Mediterranean. According to Guha, the crania from the place compare well with the Sialkot skulls of North India and that of the Veddahs of Sri Lanka. Sarkar who studied the Brahmagiri skeletal remains suggested that the skull type of Brahmagiri cannot be obtained in India and must be foreign in origin. According to him the type was Scytho-Iranian. The study of a child’s skull at the place revealed the presence of an Australoid type of race. Hence Sarkar concludes that the two divergent types indicate that there was a mixed population at the place. According to Guha and Datta the skull recovered from Yeleswaram indicated also Scytho Iranian affinity. D. K. Sen by tabulating the statistical constants of the megalithic population and by comparing it with similar tabulation of those of the Harappan population concludes that these two closely approximate.

Date
Two C14 determinations from Hallur have indicated 955 ± 100 B.C. and 1105 ± 100 B.C. for the overlapped deposits of the Neolithic and Iron Age cultures. Besides, we have already seen that the Neolithic and Neolithic-Chalcolithic cultures of South India came to an end by about 1000 B.C. and were followed by those of the Iron Age. Thus the commencement of the Iron Age in South India may be placed some time about 1000 B.C. However, the appearance of the megalithic monuments in South India though normally dated about 1000 B.C., may be pushed back to one or two centuries earlier in the Neolithic Age itself, as the date of the Terdal round barrow would suggest (c. 1100-1000 B.C.). In the present state of our
knowledge it may be said that by about 1000 B.C. iron was introduced in South India and megalithism gradually spread. The terminal date of this iron using megalithic culture may be fixed with the help of datable Roman coins from the excavated megalithic burials. The above numismatic evidence, besides other associated finds, suggest a terminal date by the close of the early centuries of the Christian era. The duration of the iron using megalithic culture in South India may thus be taken to have been c. 1000 B.C.—300 A.D.

Dawn of History

The introduction of iron in South India brought about a change in the life of the population of the area. By about 300 B.C., this Iron Age culture with its characteristic megalithism had already well established itself in a large part of the southern peninsula. It is in this period that sources other than archaeological also begin to flow and yield data for the reconstruction of the early history of South India. Thus the latter phase of the iron using megalithic culture in South India coincides well in point of time with the dawn of the Early historic period in the region.

The rise of the Early historic cultures in the region is also attested to by the find, among others, of numismatic and ceramic evidence from sites like Brahmagiri, Arikamedu, etc. and a few other places. Though sources other than archaeological begin to appear during the period of the hazy beginnings of the history of South India in the chronological sequence of the Early historic cultures in the area in relation to the earlier iron using megalithic culture has to be carefully examined. For the elucidation of the same, various pieces of evidence such as epigraphy, numismatics, literature, both indigenous and foreign, and above all material evidence collected from explorations and excavations are to be correlated and studied against each other.

By a study of the early Sanskrit literature and traditions recorded in them, historians have detected a movement of the Sanskrit speaking Vedic-Aryan culture into the south, which began ‘some where about 1000 B.C.’ and ‘proceeded more or less steadily and peacefully and had reached its completion some time before the establishment of the Mauryan empire.’ The acceptance of the Brāhmi script with necessary adaptations to suit the needs of the South Indian proto-Dravidian or Dravidian language may be one of the phenomena that occurred at the wake of this movement. Besides this movement, it is also believed that another wave consisting of the authors of the South Indian megalithic monuments swept over the country starting and reaching its completion more or less in the same period (c. 1000-300
Fortunately, a correlation of these two movements is possible by a study of the Tamil Sangam literature. As mentioned earlier, they not only attest to the prevalence of some of the burial practices of the Iron Age including the erection of megalithic monuments but also bear evidence to the impact of Aryan of Vedic culture into the area with its gods, beliefs and customs on the society and culture of the earlier people. It is necessary to correlate and coordinate the evidence relating to these two movements and the consequent developments in South Indian society and examine how much and how far they contributed to the growth of organised political societies and evolution of kingdoms in the area.

It is known that the Second and Thirteenth Rock Edicts of Ashoka say that there were three kingdoms viz., those of the Cōdas, Kēraláputas (Ceras), Pāṇḍyas, besides that of the Satyaputas in the extreme southof the Peninsula bordering on the southern frontiers of the Mauryan empire. Several inscriptions of the Satavāhanas, as also the Purāṇas show that at the beginning of the third century B.C., the kings of the Satavahana dynasty began to rule in the Deccan. Thus it is evident that in the third century B. C., if not earlier, there were emerging organised kingdoms in South India ruled over by different dynasties of rulers, though in the early stages these might have been largely of a tribal nature. The rise of these dynasties was not merely accidental but a historical necessity born out of several factors. The principal one must have been the need for the regional exploitation of the natural resources of the land through political organization. The establishment of a kingdom and the imposition of governmental relationship between the ruler and the ruled are some of the characteristics of the beginnings of the socio-political organization and growth of civilizations.

The interesting problem regarding the dawn of history in South India is centred round the question wherefrom the exact inspiration or impetus came to South India for such an early organisational and cultural development. Until 1000 B. C., the people of South India were largely of the Neolithic stage, probably people in a few settlements knowing the use of copper, if not copper metallurgy. Within a period of about six or seven centuries there came into existence a few kingdoms in the extreme South India. Thus the period roughly between 1000 B. C. and c. 500 B. C. is a crucial one and witnessed, as observed earlier, at least two movements i) of Sanskrit speaking Vedic Aryans and ii) of the people some of whom practised megalithism and probably spoke Proto-Dravidian or Dravidian tongue. In this connection it may be noted that the megalithic
urn burial sites by themselves did not have a continuous history and develop into urban centres in the course of centuries. But habitational areas which had megalithic burials near or in them appear to have had a continuous development and grew into urban centres in many cases.

A final word is yet to be uttered as to who the people of South India were who rose to this position and if so whether they rose by themselves or with necessary impetus from elsewhere and if it was the latter, wherefrom they received it.

**MATERIAL CULTURE OF THE PEOPLE OF TAMIL NADU DURING THE EARLY HISTORIC PERIOD**

With the coming into existence of organised kingdoms in different regions in South India, it may not be possible to study here in detail in one compass the cultural trends among the people of all the southern parts of the sub-continent, for even from this period each region in South India began to develop its own individual personality, though there continued to be some common features among them. Hence we shall confine ourselves largely to an examination of the material culture of Tamil Nadu. To form a correct idea of the material culture of the people during the period under review* it is necessary that the evidence supplied by the Tamil Sangam works should be checked, corrected if necessary and supplemented if possible by archaeological evidence. It is with this view that a number of excavations have been conducted in recent years by the Southern Circle of the Archaeological Survey of India, the Department of Archaeology, Tamil Nadu State and the Department of Ancient History and Archaeology, University of Madras in some of the Early historic and habitation sites in Tamil Nadu. The excavated places include Kanchipuram and Vasavasamudram (Palar basin), Karur, Tirukkampuliyur, Alagarai, Uraiyr and Kaverippumpattinam (Lower Kaveri Valley), Korkai (Tambraparni Valley), besides a few on the coromandel coast like Arikamedu near Pondicherry and Nattamedu (South Arcot district). Their reports except those of three, Arikamedu, Tirukkampuliyur and Alagarai, have not yet been published. Most of these places, archaeologically speaking, came into prominence in the third-second centuries B. C.

* While dealing with the material evidence during the Early historic Age largely those belonging to the period roughly between c.300 B. C.— 300 A. D. are taken for consideration, though pieces of evidence of a slightly later period are also touched upon wherever necessary.
Now to the material culture of the people during the period. Agriculture, as in the preceding period, was the main occupation of the people. We have already seen about the evidence supplied indirectly and directly by the megaliths on agricultural activities during the period. Quantities of husk and charred paddy collected from the earlier levels of the excavations at Tirukkampuliyr would show the practice of the cultivation of rice. A structure which appears to be the embankment of a reservoir with an inlet found at Kaverippumpattinam would point to the advanced knowledge the people had in the construction of artificial irrigation works, though they still depended largely on rivers and tanks. Further two granary-like structures at Tirukkampuliyr bear evidence to the care that was taken during the period to store surplus grains. As in the preceding ages hunting and fishing would have supplemented the food supply to a considerable extent.

Though agriculture was the main stay of the people, there was already much proliferation of occupations, as a result of specialised labour consequent on the growth in population and the increasing wants of the people. Thus one gets evidence to show that subsidiary industries such as those of pottery, making of terracotta art objects, weaving and dyeing and metal working also flourished, each contributing its own share to the development of the economy of the people concerned.

Pot making: Though there is no doubt that the ceramic industry had made its appearance even in the Neolithic phase of South Indian pre-history as seen from sites like Brahmagiri, Tekkalakota, Hallur, Sanganakallu, Maski and Paiyampalli, it reached its perfection only in the Iron Age in its closing phase and in the Early historic Age i.e., in the centuries before and after the beginning of the Christian era. A high water mark in the ceramic tradition was reached during this period for which the occurrence of fine black-and-red ware (which has been dealt with in detail earlier), the russet coated and painted ware, the black polished ware, the red slipped ware, besides the imported and imitative Roman potteries such as arretine, amphorae and rouletted ones in a number of places in Tamil Nadu fully bear evidence. The russet coated and painted ware is one of the most interesting varieties of pottery in South India which bears kaolin paintings on the red surface. After the pot was made and dried leather-hard, russet coating or ochre wash was given. Then it was dried and the painting in kaolin was given evenly. The painting after firing took a high polish and shining like glass. Graffiti marks are also found on this variety of pottery. In most of the sites this pottery occurs along with the black-and-red ware. On the basis of the excavations
at Brahmagiri and Chandravalli, the pottery is to be dated roughly to about 100 B.C. to 400 A.D. and the evidence from Tirukkampuliur may take it back to earlier than the first century B.C.

The black polished ware, also known as All black ware was another important ceramic variety and has a fine surface and thin section. It is fully black with high polish. It is often compared to the Northern black polished ware (NBP) which has similar characteristics. It occurs in two varieties (i) a thin and polished variety and (ii) a thick and less polished variety. The former category is the predominant ceramic tradition encountered in almost all sites during the period. Paintings and graffiti marks are also found on the vessels of this pottery. In date it belongs to the black-and-red ware group.

Along with the black-and-red and black polished wares, there also occurred red ware from the megalithic burials and Early historic sites. The red ware belongs essentially to the same cultural and chronological horizon of that of the above ceramic traditions. Besides, there was also another ware called red slipped (polished) ware. It has slip on one or both sides with high polish and fine texture. A large number of incised decorative designs are found on the rim portion of the vessels of this ware besides graffiti marks. It is slightly later in date and may be ascribed to about 400 or 500 A.D. and later.

Besides the above mentioned indigenous varieties of ceramics, imitacional as well as the imported varieties of Roman wares such as arretine, amphorae and rouletted ones were also in use in some parts of the area, indicating the cultural and trade contacts of South India with the Roman empire in the period.

The study of the ceramic industries of the Early historical period cannot be complete unless at least a brief mention is made of certain marks or symbols called graffiti marks etched on the ceramic wares by the potter when they were in a leather-hard condition. These markings are variously interpreted by scholars as "owners' marks", "potter's marks", "marks of authority or organization", etc. Though Yazdani long back catalogued and studied many of these graffiti marks, no satisfactory explanation has been given to this problem so far; recently Lal has shown that these symbols have close similarities with comparable pottery marks from the Chalcolithic and still earlier Harappan cultures. However, in the light of the fresh discoveries of numerous graffiti marks in the course of the excavations at sites like Tirukkampuliur and Alagari an attempt may be made to give some reasonable explanation for the
occurrence of graffiti symbols like the Sun, Moon, Star, River, Mountain, Tree, Triśūla, Svastika, etc., which probably pertain to religious beliefs and practices of the people in those days. They indicate that forces of Nature were worshipped. Yet another view is that those graffiti symbols may also represent ‘totemic symbols’ of the tribal people who lived in different parts of the country during the period under review. More will be seen of this when we take up the question of the religion of the people during the age, as also in the next lecture on epigraphy and numismatics.

Connected with the ceramic industry is the terracotta art. The antiquity of making of terracotta objects can be traced back to Neolithic times in South India. Thanks to the spade work at Neolithic sites like Paiyampalli (Tamil Nadu) and Tekkalakota (Karnataka) and a few other sites, a good lot of information is available on the art. The excavations at these places have brought to light a considerable number of terracotta objects of both human and animal figurines which form the earliest specimens of South Indian terracotta art datable to c.3000-1000 B.C. But the objects produced in the Neolithic Age were very crude and suggest that the art was in its infancy at that time. However, it seems to have reached a considerable amount of perfection and sophistication during the few centuries before and after the Christian era. The excavations at sites like Arikamedu, Brahmagiri, Maski, Kanchipuram, Tirukkampuliyur, Alagarai, Uraiyyur and Kaverippumpattinam have yielded a large number of terracotta objects of both religious and secular interest. The terracotta objects are helpful to get glimpses of the religious beliefs of the people, as also the nature and varieties of ornaments in vogue during the period.

A terracotta human figurine from Arikamedu (datable to the first century B.C. or A.D.) for example, shows remarkable workmanship. It is beautifully draped with full saree comparable to its modern counterpart, and is adorned with heavy jewellery and ornaments. The terracotta objects of this period from various sites include in general cult-gods and goddesses like Mother Goddess Vṛksa devata, winged devata, Bālakraśa, Nāgalinga, mūṣika (from Tirukkampuliyur), auspicious symbols like Śrīvaiśa (terracotta seal from Kanchipuram), heads adorned with regal head dress female figurines in rhythmic dancing pose (Maski and Kanchipuram), men and women of aboriginal types with various kinds of head-dresses (Tirukkampuliyur and Alagarai) and other miscellaneous objects like terracotta rings, lamps, knobs, pedestals, and ear
ornaments. Seals were used probably for purposes of documentation; and one such seal about one inch in diameter was unearthed in Tirukkampuliyur. A similar object, probably a mould, was obtained from the excavations at Kanchipuram.

It is interesting to mention in this connection that a hollow terracotta ring (just like a tennicoit ring) of 7.6 cms. in inner diameter with a spouted tube-like outer projection and a coating of salt glazing on its surface, has been unearthed at Tirukkampuliyur. It may be suggested from the very appearance of the ring that it would have been either a musical wind instrument in vogue in those days or a device for making metal wires. The find is datable to the third-fourth century A.D.

The prevalence of the fertility cult, worship of primitive objects like *Vṛkṣadevata* (Tree Spirit), etc., and gods and goddesses of major religions like Śaivism, Vaiṣṇavism, etc., are indicated by some of the terracotta objects. Likewise the find of Buddhist and Jain symbols and figures are suggestive of the popularity of these religions.

Regarding the technique and quality of the terracotta objects. They were all hand-made and local in character and not moulded, while a few of them show alien features or rather influence such as a few terracotta busts (Tirukkampuliyur) with their style similar to those of the Gandharan figurines.

The next industry which would have employed a sizable portion of population was the textile industry including weaving and dyeing. The evidence for its popularity and large scale practice comes in the form of finds connected with these industries from sites like Arikamedu, Trikkampuliyur and Uraiyyur. The excavations in the occupational sites yielded round pieces of pottery, one or two inches in diameter with a central hole, which were probably used as spindle whirls in spinning. Generally some of the terracotta human figurines unearthed from excavations are found, as said earlier, adorned with garments of different kinds, which go to prove that weaving and dyeing and garment making were well known during the period. The excavations at Arikamedu yielded a brick structure which was identified as a dyeing vat. At Uraiyyur a similar structure, but of a slightly smaller size, was unearthed. It is interesting to note that a bunch of silk thread looking like fibre was found at Tirukkampuliyur which may be ascribed to about the fourth or fifth century A.D.
Metal working was another important profession current during the period which involved a high degree of skill and knowledge of scientific methods like smelting, casting and carving. Among the metals which were in use were iron, copper, tin, silver, bronze and gold. It is unfortunate that not enough gold objects have been discovered in Tamil Nadu, as well as in other parts of South India, though the Tamil Sangam literature contains good descriptions of a number of gold ornaments and objects used during the period and worn by both men and women. Copper was used largely for making coins, finger rings, beads and antimony rods. Metal objects from various sites included iron weapons of war like sword, dagger, knife, spear, etc., agricultural tools like cutters, sickles, plough tips, axes, chisels, etc., and objects of ornamentation like antimony rods, beads bangles, finger and tow rings and coins.

For making coins metals like gold, silver, as also copper seem to have been used. It is noteworthy that iron was avoided in this regard. The excavations at Brahmagiri have yielded a few gold coins and silver punch marked coins. The occurrence of silver and copper coins in a number of places in South India attest to the advanced knowledge the people had of the art of smelting, casting, cutting of metals, etc.

Some thing may be said here about the ornamentation work during the period. The multifarious painted designs lavishly made on the pottery of the period coupled with the numerous incised and applique patterns suggest that decorative art had reached a state of maturity and sophistication both in its techique and aesthetic appeal. This is shown by the occurrence of numerous beads, amulets and bangles with painted designs and incised patterns as also terracotta figurines. Bronze and iron vessels and utensils with beautiful animal motifs indicate the artistic progress and achievements of the people in those days.

Explorations and excavations in a number of places in South India have yielded material evidence with regard to the trade contacts of South India with the western countries, particularly with the Roman Empire. Added to this the Tamil Sangam literature contains casual references to such trade relations and the notices of foreigners like Ptolemy are also helpful in this connection. The occurrence of Roman pottery in a number of excavations at places like Arikamedu, Kanchipuram, Sengamedu, Kaveripumpattinam, as also the Roman coins in some places in South India confirm the evidence of the literary accounts. It is interesting to observe that
an Indo-Roman settlement seems to have flourished in Arikamedu, for which there is good evidence. For example, a number of dilapidated brick structures have been exposed at the place by Wheeler in 1944. However, if large scale excavations in the coastal area are undertaken they may probably supply more data and welcome light on the cultural and trade contacts between ancient Rome and South India.

Remains of what appears to be a wharf in the backwaters of the sea (Bay of Bengal) at Kaverippumpattinam have been exposed which point to trading operations with foreign countries. It has been suggested that a piece of wood found in the above construction was probably a part of a bigger one used as a tying post for anchoring ships and that small crafts of the sea were probably tied to wooden posts and anchored at the place. The wooden piece has been found to be of the second century B.C., according to C14 dating.

Though much is said about the flourishing condition of trade in the country during the period, it is unfortunate that one is not able to gather much evidence about the medium of exchange and hence a comprehensive idea of the then existing system of currency. However, one thing is certain. Besides the barter system of exchanges, the punch marked coins and several other indigenous coins besides gold and silver coins of foreign countries would have been used in inland trade. This is suggested by a number of punch marked, Roman and Chinese coins discovered in some places in the south. But it is difficult to say anything definite about their exchange ratio value. The study and interpretation of the symbols on the punch marked coins, their chronology, metrology, etc., are still in a state of infancy and there is much discussion among scholars about them. The early coinage of South India will be dealt with in greater detail in the next lecture.

As seen earlier, the food gathering people of the Palaeolithic time lived in rock shelters provided by Nature or in the open country side. Later as time advanced, though their successors, the Neolithic people continued to occupy the natural rock shelters and caverns they possessed knowledge of constructing wattle and daub huts also about which mention has been made earlier. Regarding the constructions of the Iron Age people who continued to be largely a rural folk we have no comprehensive evidence since the habitation sites excavated are comparatively few.

Evidence for the existence of houses with mud walls and thatched roofs during the period has become available in the course of excavations wherein a number of post-holes in different alignments signifying
the positions of wooden posts that supported the super structure of the houses have been noticed. A careful examination of the arrangement of the post-holes suggests that the ground plan of the houses was either circular or square or rectangular. Besides continuing the tradition of wattle and daub and mud constructions, there is evidence to show that the people made use of mud brick and rubble for walls. The walls seem to have been very low when compared with the high roofs. It is not known whether the walls were coated with lime or any other substance, though literary works speak of the method of white washing the walls. Clay flooring with white washing has been noticed in some of the remains of the houses. But as a whole, it may be generally said that the plan, size and functions or purposes of such simple houses depended upon the class of people for whom they were intended.

But it was during this period that urban centres developed, trade with foreign countries grew and certain important regions with their epicentres in certain cities which included capitals and ports of kingdoms became largely urbanised and one witnesses the marvellous progress in building operations and constructions during the period under review. The Tamil Šangam literature contains references to the existence of famous cities like Vanji, Kanchi, Madurai, Uraiyur and Kaverippumpattinam with palaces, temples, well planned streets and houses. It is mentioned in one of the Šangam works that the buildings were constructed according to rules laid down in the Šāstras (known to them) with the help of the architects who knew the art of town planning and house building. The houses were of simple construction and designed by pragmatic individuals. They were all typical and representative of city life. The excavations at sites like Arikamedu, Kaverippumpattinam and Tirukkampuliyur have yielded some evidence to partly confirm the literary descriptions mentioned above.

As mentioned earlier, at Tirukkampuliyur a granary-like structure consisting of two compartments and a front verandah has been exposed. The structure was a rectangular one with a partition in between making two rooms each 8' square and 6' deep with a front verandah. It was built of burnt bricks and the foundations were made of brickbats, pebbles, and hard earth. Mud plaster was the binding medium used in the construction. It is described in the Tamil literature that granaries of this period were so high that their top would be reached only by ladder. Grain was poured into them from the top. The Tirukkampuliyur structure also suggests that it was used as a granary by the agrarian people at the place.

It was seen in the context of agriculture and irrigation that Kaverippumpattinam has yielded a huge reservoir-like structure. The
structure was probably used for storing water for irrigation purposes. (It is also possible that it was used for storing drinking water). An impressive inlet was built on one side of the water tank, connecting it with a channel which probably supplied water for the tank from the river Kāveri, which appears to have flowed close by in those days. The tank was also provided with brick built steps to facilitate descent to the water edge. The Buddhist vihāra at the place (Kaverippumpattinam) consisted of five square rooms with a common verandah. The walls were built of large burnt bricks. One of the adjacent subsidiary buildings at the place resembled an apsidal cāltiya. The decorative work on the walls consisted of moulded brick designs and ornamentation along with paintings as shown by the remnant traces of the paint of the stucco pieces.

It may be mentioned in this connection that no large scale excavations as at Harappa and Mohenjodaro have been tried yet in South India and such work alone can throw some light on different aspects of the building operations in the area during the period under review.

The people seem to have realised the great power of the forces of Nature. According to literary evidence, they worshipped various elements of Nature such as the Sun, Moon, Sea, River, Tank, Mountain, Pillar, Tree, Plants, etc. Besides, worship was also offered to the different gods and goddesses of the major religions like Śaivism, Vaishnavism and to the monks and teachers belonging to creeds like Buddhism and Jainism. The unearthed finds, mostly the terracotta objects of religious significance also confirm the evidence of the Tamil Sangam literature on the existing beliefs of the people in the field of religion and philosophy, and the different forms of worship connected with them. The terracotta figurines of a Vṛkṣadevata or Tree Spirit and of a winged devata discovered in the Tirukkampuliyur diggings clearly indicate the faith of the people in the worship of Tree and other Spirits.

Most important of all the terracotta cult objects is the one of the Mother Goddess found in the early levels of the stratified deposits from Tirukkampuliyur belonging to the period roughly of about the fourth or fifth century A.D., the first of its kind in South India. The cult of the Mother Goddess has been found in many ancient civilizations. She is usually represented in nude posture. In most cases the bust and the waist portions are alone shown; the hip is slightly bulged and broadened, signifying Her reproductive power. The figure from Tirukkampuliyur has only the hip and a part of the bust in complete nudity with of course some decorative
incised dotted pattern adorning the hip portion. It measures about six cms. in height. It is solid and uniformly fired.

In fact worship of the Divine Mother is one of the outstanding features of Hindu religious belief. She possesses activity and force (Śakti). She is more easily propitiated by prayer, flattery and offerings. She is more ready to defend from evil, more sensitive to human needs, more irritable and capricious in Her temper and moods, more dangerously spiteful and proves to inflict diseases, if offended by neglect. In India, particularly in ancient times, Her worship was an aspect of Śaivism called Śakti worship. The Mother Goddess in the early period is usually represented as nude which signifies the veneration and respect shown by the people to the fertility cult. She is supposed to represent and so is identified with the Great Earth, signifying Her most interesting aspects of primitive religious concepts.

The terracotta objects like, what appears to be a Nāga-linga mūṣika, Balakṛṣṇa (all from Tirukkampuliyur) and a seated Gaṇeśa (from Alagaral) suggest the worship of these deities and the popularity of Śaivism and Vaiṣṇavism in the country in the fourth-fifth centuries of the Christian era.*

It may be noted that Hiuen Tsang, the Chinese pilgrim mentions Kanchipuram as having been a great centre of Buddhism and Buddhist activity. A fragment (rim portion) of a dish of grey ware obtained from the lower levels of a trench at the place bears five Brāhmi letters viz., pu ta la si ta probably the name of a Buddhist monk. It bears testimony to the activities of Buddhist monks at Kanchipuram. Among the remnants of a few Buddhist structures exposed at the place was one which was probably part of a Buddhist vihāra assignable to the early centuries of the Christian era. The excavations at Kaverippumpattinam have also yielded terracotta and bronze images of the Buddha and votive stūpas besides a pair of Buddha pāda and sacred symbols like pūrṇaghaṭa, svastika and Śrīvatsa. A Buddhist stūra vihāra has been exposed in the course of the excavations at this place. The discovery of the important vestiges of Buddhism at Kaverippumpattinam and the remnants of a stūpa like structure at Kanchipuram bear testimony to the literary evidence

* An interesting find in one of the trenches at Uraiyyur relates to a series of holes in a definite, but incomplete alignment and in which sand and charcoal were found. They seem to suggest a temporary structure for the performance of some sacrifice. The sacrificial altar which resembled a flying kyte reminds one of the garuda-cayana-yajña. This seems to be of the early medieval period.
on the existence of the Buddhist faith in this part of the country, particularly during the early centuries of the Christian era.

It is obvious that ancestor worship by erecting megalithic monuments over the skeletal remains also continued in the Early historic Age. A brief review of the significance of the megaliths has already been done. Hero-worship, a modified and much transformed form of ancestor worship had its beginnings probably during this period.

Memorial stones were planted in honour of certain heroes who gave up their life for the welfare of the community responding to some local call of duty at the time of danger to the village such as border dispute, cattle raid, robbery, etc. These stones were buried in a ceremonial way and consecrated as deities in a shrine and are known as Naḍukal or Virakal. The Sangam works like the Ahanānūru, Puranānūru, Malaiapadukaṭām and the post-Sangam works like the Silapadhikāram and Maṇimēkalai, besides the Tolkāppiyam contain details regarding the manner how they were erected and offered worship to perpetuate the memory of the departed heroes. The epigraphical records of a later period give some valuable information about the various aspects of such hero worship. The practice prevails even in the present day in South India.

Society seems to have been divided on the basis of the professions followed by different people. Though the literary works of the period refer to the existence of many castes and separate streets or localities occupied by them nothing is known on this from the excavations. A number of interesting antiquities and ornaments collected from explorations and excavations give us a broad picture of contemporary society.

As said earlier, a number of professions such as agriculture, pot making, metal working, weaving, dyeing, etc., were practised in the country. Regarding food habits, rice and probably barley and other cereals were the chief grains which were available for the preparation of food stuffs. Ornaments were worn by men and women. They wore upper and lower garments. The womenfolk, at least some of them, appear to have used nicely woven sarees and blouses as suggested by a terracotta female figurine, probably of a house wife, from Arikamedu (about the first century A. D.) who is shown in a standing posture with a saree running all over her body. Men were particularly fond of turbans and various kinds of head-dress. They tied their hair into different kinds of knots,
as also the womenfolk. Many such human figurines have been unearthed from Kanchipuram recently.

The excavated finds like beads, amulets, bangles, rings, etc., and some of the terracotta figurines suggest that numerous ornaments made of different materials were in use. The terracotta human figurines from Arikamedu and Maski are nice productions of art depicting men and women in different poses with varying types of dress and hands heavily loaded with bangles. Besides, beads of different materials like glass, paste, semi-precious stones, shell and terracotta, bangle pieces of glass, shell, and copper, terracotta ear ornaments with beautiful designs imprinted on them, amulets bearing the figure of the double fish and finger and two rings of copper were collected from many sites in South India. The Tirukkampuliyur excavations alone have yielded about 1000 antiquities of this kind. Kanchipuram also has yielded a good number of such antiquities including the figure of the double fish.

Hunting was the most favourite game popular among the people as evidenced from finds like arrow-heads, etc. However, other sports activities such as swimming, boating and various local games played on different diagrams drawn on the floor and the chess were not unknown to them. It may be pointed out that there are certain graffiti marks on the ceramic wares from Alagarai and Tirukkampuliyur which represent boats, diagrams of different patterns, etc. A few clay objects which may be called 'chess man' in the modern sense were also collected from Tirukkampuliyur which indicate the playing of chess in those days. The game of chess was a widespread one popular in the ancient world.

Besides a number of interesting antiquities like rattles made of both clay and metal, votive carts, vessels, hopscotches, etc., obtained from all over South India give us some idea about the taste of the young for sports during the period. Yet another aspect of the culture of the people relates to their language and the script they used. But it requires detailed examination and hence will be dealt with in the next lecture which is on epigraphy and numismatics.

The foregoing consideration of South Indian Archaeology from the Palaeolithic times down to the early historic Age should enable one to appreciate the varied problems and material related to the South Indian

* For instance in Russia have been unearthed in the course of a chance digging recently a complete set of chessmen purely made of clay and ascribable to about the thirteenth century A.D. Likewise in India at a number of sites. Particular mention may be made of Salihundam in Andhra Pradesh in this connection.
archaeological studies, as also the progress achieved so far in elucidating the story of ancient man in this part of the country. What has not been said so far is about the difficulties of the present day excavator and the limited nature and results of the diggings so far made. For instance, considering the excavations conducted in different places in Tamil Nadu, except a few in such places like Arikamedu, Tirukkampuliyur, Alagarai, Kaverippumpattinam, etc., other diggings have not yielded adequate finds and structures to correlate the literary evidence, though one may have to give some allowance for literary conventions and exaggeration; hence good correlation of the Sangam literary data with archaeological data has not been satisfactorily achieved so far. This may be due to the following difficulties experienced by the excavators in the Tamil Nadu region, as in some other parts of South India:

(i) The excavations conducted at the chosen sites are largely vertical and limited to a small area for various reasons.

(ii) The location of the ancient sites in Tamil Nadu is not without difficulties. While ancient habitation sites in many parts in North India have been easily spotted and identified by reason of the mounds formed in such places, such mounds are not seen in South India. This may be due to the fact that the region is mainly plain agricultural country, not susceptible to high winds leading at times to the conversion of habitation areas into sandy deserts and the formation of high mounds resulting in their depopulation.

(iii) Ancient places in Tamil Nadu have been so continuously occupied that even archaeological surface finds are not easily traceable in them. Thus it is not known, for instance, where exactly was the habitation areas in Madurai, Uraiayar or Kanchipuram about which we have such glowing descriptions in literature. One has to depend largely on contour maps for the location of such places; but in most cases they are occupied or cultivated areas now.

(iv) It is said that ancient coastal towns like Kaverippumpattinam and Korkai have been partially washed away by the sea. For some distance from the present Kaverippumpattinam the sea is shallow with turfs and hence one cannot be sure if the old town was considerably washed away by a tidal wave or the sea receded after having swept the place and converted it into a sandy plain. The same is the case with Korkai. A solution to the question depends much on geological factors and seismic changes regarding the formation of the coast line in the area. Archaeological explorations in such areas adopting also the technique of under water archaeology may be useful in the location of ancient archaeological sites on the sea coast.
In the midst of these, the sites mentioned above were chosen for excavation and in fact a few of them have yielded a lot of useful archaeological material and the excavations have, on the whole, been a good success. Archaeologically speaking much progress has been made during the last three decades in revealing South India's past despite the above handicaps. There are many more prospective sites in the area which still await archaeological investigation and may yield good results to the spade and win for South India its due place in the archaeological map of the country.
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II

EPIGRAPHY AND NUMISMATICS

A. Epigraphy

India is very rich in historical material of different varieties, and one of them consists of inscriptions. J. F. Fleet defines inscriptions as "notifications, very frequently of an official character, and generally more or less of a public nature, which recite facts, simple or complex with or without date and were intended to be lasting records of the matters to which they refer." They denote words or writing engraved on objects like stone, metals like gold, copper, brass, tin and the like, or any other hard substance like bricks, burnt clay, wood and mud vessels, terracotta objects, conch, shell, ivory, crystal, etc. Writing either in relief as found in the legends on coins, and seals or by scooping out space round, is also an inscription. The decipherment and explanation of inscriptions are an important branch of knowledge constituting one of the major branches of archaeology.

To present historical facts and chronology and to reconstruct the history of the people of the land, epigraphy is an important source, for inscriptions not only furnish dates for historical occurrences but also contain much useful information regarding the conditions of the contemporary society. It is estimated that so far there have been found in India some 80,000 inscriptions, long and short, covering a period of about 2,300 years. Of them more than 50,000 are found south of the Vindhyas, of which again, about 40,000 have been found in Karnataka, Andhra and Tamil Nadu alone, their dates ranging from about the third century B.C. to almost modern times. They are engraved on rocks, boulders, walls of temples, pillars, loose slabs, some of them half or fully buried under earth. Hundreds of inscriptions engraved on plates, usually of copper and occasionally of silver have also been recovered. Even after nearly a century of intensive epigraphical collection, one cannot claim that we have got copies of all the epigraphic records scattered all over the country. Fresh inscriptions are still being discovered every year.

Colonel Colin Mackenzie who was serving in South India as Surveyor-General of the British East India Company in the first two decades of the last century may virtually be called the father of South Indian epigraphical work, though some individual antiquarian enthusiasts like Chambers (1788), Goldingham (1798), Babington (1828) and Braddock showed great interest in the study of some of the outstanding ancient monuments in South India and the inscriptions contained in
them. Mackenzie collected a large number of inscriptions on stone and copper plates from different parts of South India, besides local histories, Kāḷīptasa, Śiḥalamāḥāmyas and many similar works for writing a comprehensive history of India. But he did not live long enough to do his cherished work!

But it was from about the beginning of the second half of the last century, and particularly after the appointment of Alexander Cunningham as the Archaeological Surveyor of India for a second time in 1870, that archaeological and epigraphical work began to receive regular attention in South India as in other parts of the country. In 1881 an Archaeological Survey for South India was constituted and amalgamated with that of Western India and placed under the charge of Burgess. A little earlier Robert Sewell of the Madras Provincial Civil Service had been asked to compile, among others, a basic list of all antiquarian remains in the old Madras Presidency; and that formed the basis of the work of Burgess. With the appointment of Alexander Rae as his Assistant in 1882, Madurai, Mahabalipuram Kanchipuram and Hampi were surveyed in the next few years. In 1899 the Archaeological Survey of India was reorganised, and Madras along with Coorg was made one Survey Circle. As in the other four circles in the country, the Madras Circle was required to devote itself to conservation work, excavation being considered by the Government as of secondary importance, though in course of time it came to be recognised more and more that it was “in exploration and study of purely Indian remains, in the probing of archaic mounds, in the excavation of old Indian cities and in copying and reading of ancient inscriptions that a good deal of the work of the archaeologists will in future live.” Epigraphy began to receive greater attention in South India with J. F. Fleet’s appointment in 1883 as Epigraphist for the Government of India and E. Hultsch’s appointment as an Epigraphist for the Madras area in 1886. From the commencement of the present century the Archaeological Survey of India became a permanent Department of the Government of India and with it the Epigraphical Branch.

The collection, decipherment and study of inscriptions in the country has thus been going on for nearly a century. But, as said earlier, still there may be many more inscriptions in metal, stone and potsherds which have to be collected. As a result of the collection and study of fresh inscriptions our knowledge of the history, culture and institutions of South India is expanding; and in many places we notice that we have to revise some of our old views or theories about a number of chronological and other problems relating
to the history of the country. It also happens at times that new discoveries instead of giving solutions to the problems on hand, further enlarge their magnitude or create altogether new ones. For instance, we are now able to reconstruct the history of the Ikṣvākus of Vijayapuri and the Viṣṇukūṇḍins in Andhradesa with the help of a number of new inscriptions recovered in recent years. Likewise there has been in recent times such a large accession of new historical material got from new Pāṇḍya inscriptions that we have of necessity to reconsider what has been said or written on the dynastic history of the Pāṇḍyas or the Pallavas. A few years ago was found an inscription engraved on the corbel of a pillar in the rock cut cave temple at Malaiyadyikurichchi in the Tirunelveli district, which is the earliest inscription of the Pāṇḍya dynasty so far discovered. It is dated in the seventeenth regnal year of the Pāṇḍya king Māraṇa Cēndan and written in the Tamil characters of the seventh century A.D.\(^3\) The record which mentions the excavation of a rock-cut temple by the king showed the parallel development of rock-cut architecture in the extreme south along with that of the Pallavas in the north, as gleaned from the Mandagapattu inscriptions\(^4\) of Pallava Mahēndravarman I. Another record of the same Pāṇḍya king dated in his fiftieth regnal year comes from the Vaigai river bed at Madurai.\(^4\) It records the foundation of a township called Maṅgalapuram and the construction of a sluice to the Vaigai river, named Arikēsariyan (probably after the name of his son Arikēsari). Both the above records confirm the historicity of the early Pāṇḍya king Cēndan, who was previously known only from the copper plate charters of his successors, separated by about a century. But more important than that, it is to be noted that in the light of the high regnal year for the king found in the latter of the two records, the chronology of the early Pāṇḍya kings has to be modified since the earlier writers have given him only a reign of 25 years. From the palaeography of the inscription this king can be placed in the latter half of the seventh century A.D.

Another valuable inscription recently found is a copper plate one from Dalavaypuram in the Koilpatti taluk in the Tirunelveli district.\(^5\) It records the grant of two villages clubbed together, to several Brahmāṇas and is dated in the forty-fifth regnal year of Parāntaka Vīra Nārāyaṇa. According to the inscription this Parāntaka Vīra Nārāyaṇa made the grant when Varaguna (II), his brother, was ruling in some sort of retirement. Both of them are said to be the sons of Śrīvallabha and grandsons of Parāntaka Śaṭāiyan (Varaguna I).

Formerly it was considered that Parāntaka Vīra Nārāyaṇa succeeded his brother on the Pāṇḍya throne. But the high regnal year assigned to him in this record and the fairly long reigns of his father
and grandfather necessitate the revision of the hitherto held views regarding the position of Vīra Nārāyaṇa and the assumption that both the brothers ruled simultaneously as co-rulers. Since Varaguṇa II ascended the throne in c. 862 A.D., Vīra Nārāyaṇa may also be taken to have ruled from that year itself. This record suggests also for the first time the dynastic connection between the Telugu Cōḍa family and the Pāṇḍyas of Madurai. Parāntaka Vīra Nārāyaṇa is said to be the son of Akkanimmaṇi, the daughter of Śrīkaṇṭharaṇa of the Pottappi family. Śrīkaṇṭha himself is spoken of as the nephew (tirunarugav) of Māṇābharaṇa. The titles of Śrīkaṇṭha viz., Toṇḍaiyarkōn and Mallaiyarkōn recorded in the plates give a clue to the possible temporary occupation of Toṇḍai-maṇḍalam by the Telugu-Cōḍa ruler.

Again the Sivakasi plates discovered at Sivakasi, Ramanathapuram district, is dated in the year opposite to the second regnal year of king Vīra Pāṇḍya. The record is in Sanskrit and Tamil and written in the Grantha and Vaṭṭeluttu characters of about the tenth century and contains a royal grant of land to a Brāhmaṇa scholar. The inscription is important for the genealogy it gives in the Sanskrit portion; Tīvra Kōpa; his son, Māṇābharaṇa; and his sons Sundara Pāṇḍya and Vīra Pāṇḍya. The Tamil portion states that Vīra Pāṇḍya was born of a Kēraḷa princess. The following identifications are suggested with much plausibility; Tīvra Kōpa with Parāntaka Neḍūṇaḷajīyāya (Varaguṇa I), Śrivallabha with his namesake, Mahākulācalaj and Māṇābharaṇa with Parāntaka Vīra Nārāyaṇa and his son Rajasimha respectively and Vīra Pāṇḍya with his namesake with the title Cōḷa-talaik-kōṇḍān. Thus the charter for the first time establishes the connection of Vīra Pāṇḍya with the main line and reveals that there were two Pāṇḍya princes of the main line to oppose Cōḷa Parāntaka’s aggressive designs in the south.

Likewise there have been found in recent years a few important and new evidences on early Pallava history. The Manchikallu (Guntur district) inscription of Pallava Simhavaranman is one such, assignable on palaeographical grounds to the second half of the third century A.D. It records some presents made by Simhavaranman of the Pallava family and Bhāradaṃja gotra “in favour of the tāirthikas (probably priests of the temple) of the lord, the illustrious Jivaśivasvāmin after having performed sānti and svastirāyana for his own victory (and) the increase of his merit and prowess.” The importance of the inscription lies in the fact that it is the earliest epigraphic record of the Pallava family which seems to suggest that on account of his presence in the Guntur area he could have extended Pallava power over the Krishna-Guntur
region and annexed it to the territories of the Pallavas of Kanchi. “Further the close resemblance between the palaeography and language of the present epigraph and the Ikṣvāku records would further suggest that it was the Ikṣvākus who were supplanted from the Krishna-Guntur region by the Pallavas.” Probably it was this Simhavarman that was responsible for the destruction of that city and its Buddhist establishments.

The newly found Sakrepatna plates* of Simhavarman (II) is an important addition to the Sanskrit charters of the early Pallavas and throw welcome light on the history of the early Pallavas. The plates are dated in the forty-first regnal year of the king. The record, not only gives the latest regnal year of the king but also indicates that during the reign of Simhavarman (II) Pallava sway extended as far as the modern Shimoga district, Karnataka State, in the west.

Till some years ago it was possible to give only conjectural dates to the Pallava kings like Paramēśvaravarman I and his son Narasimhavarman II. The Vunna Guruvayapalem plates of Paramēśvaravarman I dated in his nineteenth regnal year is the first record of the king which has a verifiable date and helps us in fixing his date of accession about A.D. 670.* Likewise the Reyuru grant of his son Narasimhavarman II helps us in fixing the date of his accession in A.D. 689*.

Again till lately there was no unanimity of opinion among scholars about the exact date of the accession of Nandivarman Pallavamalla who came after Paramēśvaravarman II on the Pallava throne. J. Dubreuil after considering various factors and the then known events concluded that his accession must have taken place in A.D. 717.11 Gopalan thought that it was in A.D. 71018. N. Venkataramanayya felt that it could not have been earlier than A.D. 72518. While M. Somasekhara Sarma suggested A.D. 727, K. V. Subrahmanya Aiyar14 and R. Satyanathier pushed it back respectively to A.D. 696 and 71018. But the Ulchala stone inscription16 discovered a few years ago dated in the thirty-fifth regnal year of the Western Cājukya king Vijayāditya (A.D. 730–1) recording his son Vikramāditya II’s expedition to Kāñcēl and levy of tribute from the Pallava king Paramēśvaravarman II shows that Nandivarman’s reign could not have commenced earlier than A.D. 731, even granting that Paramēśvaravarman died in that year itself.

Two sets of copper plates have been recovered recently from Tirutani, (Chingleput district, Tamil Nadu), one belonging to the reign of Pallava Aparājitavarman and the second, to the reign of Čōja Parāntaka I. The Pallava copper plate is very significant because it is
the only copper plate record of Aparājitavarman, the last known ruler of the Pallava line. This record solves a much discussed problem in the genealogy and chronology of the later Pallavas. The plates furnish the information that Aparājīta was a son of Kampavarman. Hitherto it was presumed that Kampavarman and Aparājīta, as also Nṛpatungavarman, were all brothers and sons of Nandivarman III. The plates also state that there were conflicts between Kampa and Nṛpatunga.

A best instance of the cropping up of new problems by the discovery of new inscriptions may be a few hero-stone inscriptions of the Pallava times brought to light by the Department of Archaeology, Tamil Nadu State from the Chengam taluk of the North Arcot district. The names of many overlord kings mentioned in those inscriptions are reminiscent of Pallava names. They record high regnal years for those rulers. These records have now created a problem regarding the chronology of the Pallava family. If these Chengam chiefs were to be identified with their namesakes in the regular Pallava genealogy, the dates and reign periods of the Pallava kings may have to be revised. The problem is yet to be tackled. It is to be noted here that in the inscriptions of the adjacent Kongu country many rulers of later times are mentioned with the names and titles of those of the imperial Cōjās and Āṇḍyās, though they were not the Cōjās or Āṇḍyās.

Instances of the kind mentioned above may be multiplied. They clearly show that much work still remains to be done with regard to collection of epigraphical material; and though considerable progress has been made in the reconstruction of the ancient history of South India, our knowledge of the general course of its history is still not full.

Not only is it so with regard to the political history of the region: it is equally true of other aspects of South Indian history. For example the value of epigraphical material for a study of art-history is inestimable. The inscriptions not only record elaborate details regarding the construction of temples, carving of images, endowments of gifts, etc., but are also useful for purposes of dating them. If chronology is the eye of history it is equally so of art-history. Hitherto scholars were mostly dependent on stylistic features for determining the antiquity of images; though admirably useful, the stylistic characteristics by themselves do not offer fully dependable data for their dating. It is enough to point out that the flowing of the yajnopavita over the right arm of the image, cylindrical shape of the kirīṭa etc., that are normally considered to be the features of Pallava sculptures are to be found in many Cōjā images; similarly the appearance of flames in the weapons held in hands which is believed to be a Cōjā feature can be found in Pallava carvings. For classifying specimens of art on the basis of
chronology, style thus proves to be a risky feature, where as inscriptions are free from such risks. The dates of many temples are now fixed, at least approximately with the aid of epigraphs. Greater and more extensive use of epigraphical material remains to be handled in art-historical studies and if this is done we can, instead of depending on the slippery ground of style for the dating of works of art, study the numerous styles into which the art ramified in time and space with the help of dated or datable sculptures.

Mention should also be made in this connection of labelled sculptures i.e., carved images with explanatory epigraphs. The practice of revealing the identity of the image by incising its name on it was initiated in Bharhut and this continued, if not widely followed, for several centuries. At Amaravati also one can find a rare example of this tradition wherein the river Nirañjana is shown with an inscribed label below. In the Ādivarśha cave temple at Mamallapuram, beneath the carvings of the of portraits the Pallava kings Simhaviśṇu and Mahendravarman, there are the Tamil labels Simhaviśṇu-potrādhirājan and Mahendra-potrādhirājan; it is needless to say that but for these explanatory labels the identity of these kings will remain a matter of speculation. However, even now the speculations continue in another form (e.g.) the king Simhaviśṇu-potrādhirājan is variously taken to be Simhaviśṇu, father of Mahendravarman I, Narasimhaviśṇu, the conqueror of Vatapi and Narasimhavarman II, Rājasimha.

In the temple of Vaikunathapernmāḷ at Kanchipuram, built probably under Nandivarman II Pallavamalla, there are rows of historical sculptures which are unique in content; and below each panel is a label inscription, though some of them are mutilated or worn out; and even in this state they are helpful for reasonable interpretations of delineated historical scenes. In the early Cōḻa temples we do not come across instances of inscribed sculptures but in the late Cōḻa period the practice was probably revived. The divinities occupying devakōṭjas or niches in the temples at Chidambaram, Darasuram, etc., are labelled. In a few places where the different dance forms are shown each karaṇa is indicated by incised letters, though some believe that they were inscribed at a later period. Inscribed bronzes have been discovered from Nagapattinam; and their palaeography is helpful in corroborating the date of the images fixed with the aid of other details. The instances noted above are only stray and casual and emphasize the need for a proper study of art-history in the light of inscriptions which is an essential desideratum.

All that has been written on the economic and social conditions in the area upto the end of the Vijayanagar hegemony is largely based on the notices made in the Annual Reports on South Indian Epigraphy and
the available literary evidence, both indigenous and foreign. But out of about 50,000 inscriptions so far reported in South India only about one fifth of them have been published. But even these published inscriptions belonging to different periods, dynasties and regions in the area contain a wealth of information on various facets of the life in South India which require careful study and interpretation. Further there have been found in them numerous terms to denote taxes, dues, customary collections, etc. Various terms have been used to denote the tenures under which lands were held. They differed from region to region and period to period. The sources of law, different kinds of laws, their interpretation and administration, and their connection with the social and economic conditions in the country constitute another important aspect of the history of South India which requires detailed and careful study. Likewise irrigation, water supply, industry, trade, etc. The social history of South India is of absorbing interest and much useful material for the subject is contained in the inscriptions. The drift of the people from one region to another, the formation of new settlements and colonies and the impact of the same on the older population in the area are all topics that may have to engage the historian of ancient and medieval South India. The system of education in the country and the progress of learning with particular reference to the types of education that received encouragement may be another aspect of the social history of South India that may require attention. For the study of the evolution of language also the inscriptions are of more than ordinary value. Not only these. The history of religious cults and the methods of temple organization, worship and rituals are of equal interest and importance. For a study of many of such topics and aspects of life in South India the importance of inscriptions cannot be overemphasized.

One of the problems in South Indian history relates to chronology and the dating of inscriptions. The practice of dating inscriptions commenced rather late in South India, though it was not unknown in the area. There were different ways of dating records. In the lower Deccan the Śātavāhana and Ikṣvāku inscriptions made mention of the regnal year of the king, the season and the day of a particular fortnight. For instance an inscription of Śri Viṣṇupurusadatta of the Ikṣvāku dynasty is dated on the fifth day of the sixth fortnight of the rainy season in his eighteenth regnal year. The early Pallavas also followed the same practice as may be seen, for instance, from the Hirahadagalli grant of Śivaskandavarman which is dated on the fifth day of the sixth fortnight of the rainy season in his eighth regnal year. The Uruvapalli grant of Yuvanahārāja Viṣṇugopa is dated on the tenth day of the dark fortnight in the month of Pauṣya in the
eleventh regnal year of Simhavarma Mahārāja, while the Omgodu grant of Skandavarman is dated on the thirteenth day of the third fortnight in the winter season of the victorious thirty-third year of the king. The Sakrepatna grant of Simhavarma (II) is dated on the tenth day of the dark fortnight of the month of Prauṭhapapada in the forty-first year of his reign. The week day is not mentioned in any of them. But it is the Vunna Guravayapalem grant of Pallava Paramēśvaravarman I that mentions the week day for the first time when it refers to the thirteenth day of the bright fortnight of the Pauṣṭya month in his nineteenth regnal year as having fallen on a Sunday, equivalent to 22nd December, A.D. 686.

Some records, particularly of the Pāṇḍyas mention the Kaliyuga, as for instance, the Anaimalai record of Varaguṇa I, and furnish a valuable chronological landmark for early Pāṇḍya history. The Kali year quoted in the record is given as 3871, which is equivalent to A.D. 770. Some inscriptions refer to a particular year of a king combined with a specified number of days. Thus an inscription mentions the fourth year plus the 2,501st day of the reign of the king Māraṇjaḍayyan showing that the date of the record was the eleventh year of the king. This practice was followed in some Cōja inscriptions also. In a few inscriptions of the Cōja kings some astronomical details are given along with their regnal years. Thus an inscription of Parakēśarivarman Parāntaka I, which is dated in his fortieth regnal year gives the following astronomical details, Karkaṭaka, dark half, Saturday, Navami and Rōhipi, equivalent to 25th July, A.D. 946.

Though the Šaka era was not unknown in South India as suggested by the evidence of the Lokavibhāga, which is mentioned as having been completed in the twenty-second year of the Pallava king Simhavarma corresponding to A.D. 458, it is quoted in the inscriptions in the Tamil country rather late. It was used in the Deccan still earlier. The first inscription in the Tamil area to be recorded in that era is the Aivarmalai inscription of Varaguṇa II, dated Šaka 792 equivalent to the eighth year of his reign. This particular inscription is valuable for fixing the date of the accession of the king (A.D. 862). The Cōja inscriptions did not usually mention the Šaka era. The Pāṇḍya practice appears to have been the result of their contact with the Gangas of Talakāḍu, Cājukyas of Vāṭāpi and the Rāṣṭrakūṭas of Malkhed who used that era, and with whom the Pāṇḍyas had close contacts. Usually the Šaka year is given as expired (for instance Šakābdam 1378 n mēl sellā minra—‘in the year current after Šaka 1378 had expired’. The practice of referring to the Šaka year as current is very rare. In many cases
the Śaka year is given along with the cyclic year and the necessary astronomical details regarding a year.

One of the chief methods of dating followed in Pāṇḍya inscriptions was by mentioning two dates in their inscription which is usually called the edirām āḍṇu method. Thus we get, for instance, two inscriptions of Maṇḍājaṇayian, one dated in ninth opposite to the fourth year of the king with a few astronomical details like Vṛścika, Monday, Aśvati (equivalent to 14th November, A. D. 875) and the other also of the same ninth opposite to the fourth year of the king, with astronomical details of date such as Dhanus, Śatayam and Tuesday (equivalent to 6th December, A. D. 875). The real significance of the reckoning of the year by the mention of two years has baffled scholars. The date of the grant referred to in inscriptions with such double dates may possibly be fixed by adding the two figures. The clue to this is found in the larger Sinnamanur plates of the Pāṇḍya king Rājasimha I. The date of the grant is mentioned as tṛṇḍāvadī edir padināṅkāvadu (in the year second opposite to the fourteenth) in the Tamil portion while it gives ṣodase rāja vārge (in the sixteenth regnal year) in the Sanskrit portion. This inscription shows that by comparing the date given in the Sanskrit and Tamil portions we get the regnal year.

Thus we have rather a crude solution for arriving at the exact date of the inscriptions in which such a method was adopted. However, the real significance of such a dating procedure is still not clear. Various explanations are offered as to why this system of dating was adopted by the Pāṇḍyas. But none of them is quite satisfactory. An inscription of the Cōla king Rājadhiraja I from Ennayiram in the South Arcot district states that it took three years and one hundred and three days for an order issued by the king to reach the Sabhā of the village. The Tiruvalangadu plates of Rajendra Cōla I, registering an order of the king made in his sixth year was written on copper plate after his twelfth regnal year, as will be evident from the Sanskrit portion of the praśasti in the grant mentioning his expedition to the Ganges which took place in the twelfth year of his reign. From these it may be presumed that of the two dates found in the Pāṇḍya inscriptions the first refers to the year in which the order was made and the second represents the interval that elapsed in executing the order after it was made. Some inscriptions which however, are not many, do not give two dates but one date followed by a number of opposite years going even to five, as for example, 4 + 1 + 1 + 1 + 1. Probably, the additional
dates represent the different stages through which the matter had to pass.

Another era that was popular in the Kerala area for a number of years was the Kollam era. There are different views regarding its origin. One theory associating it with the conversion of Ĉeramān Perumaľ to Islam is contradicted by the account of Ĉeramān's life given by the Periyapurāṇam and also by the absence of evidence by travellers like Sulaiman, Al Kazwini and Marco Polo. Another theory says that it was inaugurated by the Veṇāḻ king Udayamārtṟṟṟavarma through an ad hoc assembly of astrologers convened at Kollam fixing its commencement on 15th August, A.D.825. But this is based on legendary lore. The third view connects the origin with a promulgation by Śrī Śankarācārya. But this does not explain the words Kollam iṉṟi which mark this era. Attempts to show that Kollam was an emporium of trade long before the rise of the Kollam Era are not successful as no such reference is found in early Tamil literature. Nor do the early Greek geographers attest to it. That Kollam is referred to in the records of the Chinese Tang dynasty (A. D. 618–907) does not prove that it existed before the ninth century A. D. On the evidence of the Kottayam plates, Kollam seems to have been founded by the Christian merchant Maruvan Sapir Isodakapurai as a commercial town and the plates seem to have been engraved about the middle of the 9th century A. D.

Naralokavīrā, a general of Kulottuṅga Coľa destroyed Kollam and inaugurated a new era called Kollam alinā āṇḍu. This clearly proves that the previous era is undoubtedly associated with the founding of Kollam. Referring to an expedition from Delhi, the Pāṇḍyyan chronicles say that it came in Śaka 1246, equivalent to 227 of an unknown era. Working backwards, the unknown era can be equated with the Kollam alinā āṇḍu commenced by Naralokavīrā in A.D.1096-7. The Kollam era could not be associated with Tiruvǒṇam (Onam--national festival of Kerala), as suggested by some for the name of the era cannot be explained in that context. Everything considered, the genesis of the era is correctly explained by the words Kōḷḷam iṉṟi as reinforced by the fact that two centuries later the destruction of the town was commemorated by an era Kollam alinā.88

In the Kerala region a few other systems of dating were also followed. One of such eras mentioned is the pudṟ vaippu era, which was probably founded to mark the throwing up of the island of Vaippeen by the sea. The Palaiyam plates which register an agreement between the king of Cochin and the Dutch East India Company (Lenda Kummuñji) made in 1663 is dated in 322nd year
of the *pudurvaippu* era. Obviously the island was thrown up in 1341 A.D. Likewise some records are dated to commemorate local events, as for instance, the taking of Kāndaltura Śalai by Rājarāja. Similarly eras were founded to commemorate events relating to some temples. The consecrations of the temples of Tirukkulasekharapuram and Tirukkandiyur were taken as starting points of two eras. Some inscriptions in Tamil were dated in the *Viyaḷa vaṭṭam* which was a twelve year Jupiter cycle. According to this the year was named after the house of Zodiac in which the planet stayed, for example *mēsaviyāṭaṅ*, etc. Usually the planet stays in a house for a year. The Tamil inscriptions of Bhāskara Rvaivarman are dated in that Cycle.

In a few inscriptions dates are indicated not by numerical figures, but by some letters of the alphabet or words which have numerical values. There are two such systems of numeral notations called respectively *kaṭapayādi* and *siddha māтриka*. In the former system the consonants of the Sanskrit alphabet are assigned consecutively the numbers 1 to 9 and 0. In the latter system each of the letters with the exception of *r*, *f*, *j* and *l* the vowels are assigned the number consecutively from 1 to 12. Sometimes the numerals are expressed by certain words which have a fixed number of things, beings or ideas. For instance, the Śaka year 1461 would be expressed as Śaka candra ras-āmarendra gaṇīte meaning in the Śaka year counted by *Candra* (1), *rasa* (6) and *amarendra* (14).

The Hijri era was also used for some time in Tamil Nadu when the Sultanate of Madura flourished in the fourteenth century. Since some of the Hindu rulers accepted the overlordship of the Sultans of Madura, they also used the era occasionally.

An important aspect of South Indian epigraphy relates to the palaeography of the inscriptions. By the time of the commencement of the Christian era, the language spoken by the people of the extreme south of India, which was obviously Tamil, had developed considerably as is borne out by the Śangam literary works. There is evidence to believe that writing was also known during the period. The inscriptions which were also engraved on rocks on the sides of caverns or near them were intended to be read by the literate people; so, atleast some sections among them must have been able to read and understand them. The *Tolkāppiyam*, a work on Tamil grammar and the *Tirukkuṟaḷ* mention written forms of character. The Jain works the *Samanvāyāṅga sutta* and the *Paṇṇavaṇasutta* as also the Buddhist work *Lālitaavistara*
mention many scripts as having been in use in the country, of which Dráviḍi or Dāmili was one.

It was Burnell who first started the study of South Indian palaeography in his monograph on the subject published in 1874. But many problems could not be solved at that time on account of the paucity of materials for a study of the subject. Buhler who studied the inscriptions engraved on the relic caskets from Bhattiprolu in the Krishna district, Andhra Pradesh, felt that they were in the Brāhma script of the Dráviḍi variety and assigned them to a period slightly later than the period of Aśoka. In the course of the present century some seventy-five inscriptions written in the Dāmili variety of the Brāhma script have been found in a number of natural caverns in hills in the districts of Tirunelveli, Madurai, Ramanathapuram, Tiruchirappalli, Coimbatore, Salem and Chingleput in the Tamil Nadu State, as also at Malakonda in the Nellore district, Andhra Pradesh. These inscriptions which resemble in many respects the casket inscriptions from Bhattiprolu in their script may be assigned to a period from the third century B.C. to the late third or early fourth century A.D. Most of these inscriptions are donative records or dedicative ones which contain the names of persons who made the caverns fit for occupation or the names of monks who occupied them. Obviously they were intended for the Buddhist, Jaina or Ājivika monks who resided in them.

Some of these label inscriptions have been studied by scholars like H. Krishna Sastri, K. V. Subrahmanya Ayyar and C. Narayana Rao. K. V. Subrahmanya Ayyar with commendable ingenuity fixed the values of the new symbols as those of the letters peculiar to the Tamil language such as i (ṅ), l (p), l (ṭ), r (ţ), n (ṅ), etc. He was the first scholar to read and interpret the records as written in the Tamil language. C. Narayana Rao took the language to be definitely Prākrit, restored them in Sanskrit and tried to explain and interpret the inscriptions. But his reading and interpretation of these enigmatic inscriptions are not convincing, seem to be far fetched and in very many cases not applicable to the area, period and people who were supposed to be the authors of these inscriptions, or for whom they were intended. The difficulty in understanding and interpreting these inscriptions and their language are explained as follows by a recent writer: "These records have still remained an unsolved riddle, though they were discovered over four decades ago. The contributory factors for this state of affairs are these: peculiar forms of the Brāhma alphabet, crude and archaic nature of the language which may be undeveloped variety of Prākrit(?) , difficulty in the grouping of syllables and words, prepossession with regard to their Buddhist origin to the exclusion of their Jaina relationship." 42
But more recent studies made regarding the language and script of these inscriptions lead us to the following conclusions. The language of the inscriptions is basically Tamil, though different from the Tamil language used in the Sangam literary works. Possibly the inscriptions represent the colloquial language used by some groups of people or the groups to whom reference is made in them and contain a good proportion of Prākṛt words. Probably the view that the language employed in many of these lithic records is Tamil in its formative stages may not be quite easy of acceptance, though it betrays much unsteadiness in its grammatical and other features showing that it was less homogeneous and regular in its characteristics. Its difference from literary Tamil from the point of style was obviously due to the fact that "those who have been responsible for the records in question were obviously Buddhist and/or Jaina (and Ājivika?) monks using a hybrid jargon with great admiration for Pāli and/or Prākṛt and they cannot be surely suspected of a strong inclination towards a standardised, polished and correct literary usage." From the third century B.C., Buddhist, Jaina and Ājivika teachers who came to South India and settled down in different localities, learnt the local languages and moved with the people, speaking to them obviously in their own languages, doing religious work among them and winning the affection and respect of at least some of them. The language of these inscriptions is that of these religious teachers and their followers in the Tamil country. It has to be explained in the background of the religion of the people who either occupied the caves or made donations for them.

In the course of archaeological excavations conducted in a few places in the Tamil country, there have been found a number of potsherds with inscriptions written in the script of the epigraphs found in the caverns in South India. Such excavated sites are Arikamedu near Pondicherry, Alagarai and Uraiyr on the banks of the river Kaveri in the Tiruchirappalli district, and Kanchipuram in the Chingleput district. The inscriptions are written on potsherds of the black-and-red ware and the red ware varieties and are usually assigned to a period from about the second century B.C. to the third or fourth century A.D. The occurrence of these sherds in the lowermost strata of the excavated trenches coupled with the associated finds like beads and semi-precious stones and shell objects suggest an early period for them, i.e., the end of the first century or the beginning of the second century A.D. This is further strengthened by the fact that the inscribed potsherds from Arikamedu are found along with other stratified objects like the rouletted ware of Roman origin assignable to the first or second century A.D. There is close similarity between the script employed in the cavern inscriptions
and those on the potsherds. But while the former have religious associations, the latter do not generally appear to have much religious purpose.

Detailed reference may be made here to some potsherd inscriptions obtained from a few excavations done in Tamil Nadu in recent years. The Alagarai excavations have yielded potsherds with inscriptions. One of them contains three letters *ku ta ta*. The potsherd is a broken piece and the last letter *ta* in it is at the very end of the piece. Therefore it is an incomplete inscription; and by supplying the letter *n* at the end, the inscription may be read as *kūttai*, which in Tamil means 'dancer'. The second inscription which is well carved contains only one letter and reads *ka*.

The most important of the potsherd inscriptions got in the course of the excavations at Uraiyr is written below the rim portion of a big pot, which is unfortunately broken and contains thirteen letters on the whole. The height of each letter is about 3/4 of an inch. The first ten letters of the inscription may be read as *mu la na pe dv a na ta na na*. That portion of the inscription may be taken as *Antānan* of Mūlānpāṇu. The first ten letters are followed by three more, the reading of which is difficult. The first of the three letters may be read as *ra* or *na*; the second as *ma* and the third as *na*. Thus the three letters may be read as *ramanai* or *umaranai*. But the real interpretation of the whole inscription is difficult on account of the broken nature of the sherd in which the last letter is not seen fully.

Another inscription which is engraved on a second potsherd contains four letters clearly incised which may be read as *pu na ka na*. The second, third and fourth letters appear to make a suffix to a name. Since during the early centuries of the Christian era the Nāgas were one of the tribal people and were influential in the area and the names of some of the Sangam poets end with the suffix *nākan*, the word *nākan* may be taken as a suffix to the name. *Pū* stands for the name of the person and his full name appears to have been *Pūnākai*.

In the earlier levels of one of the trenches put at Kanchipuram, and belonging to the second or third century A.D. has been found an important inscribed potsherd which contains five letters *Pu ta la si ta*. Probably it stands for the name of a Buddhist monk and can be read as *Putralasita*. It may be of interest to note here that the sherd has been found at a level in which the flooring of what
appears to have been a vihāra and the relics of the basement of what was probably a stūpa were exposed.

Though the Drāviḍi inscriptions in the Tamil country cannot be compared with later inscriptions they are important in their own way. The cavern inscriptions mainly record donations of caves and rock-beds for the convenience of ascetics who were in most cases Jaina, by kings, merchants and others. In the religious orders were monks, nuns, lay disciples, etc. Reference is made in them, to a few monks like Kaniyānanta Śiriyar, Kavutti Iten, Kaśyapan Cenkapiyan, etc. They mention the names of a few dynasties of rulers or chieftains like Calivan, Vaijuti, Kutałan and Anavan and Neduñceļiyan, the last being one of the early Pāṇḍiya kings. Ātan was probably the name of a family of chieftains. The merchants who were associated with these donations were well organised as guilds which were known as nigamas. Mention is made of some political and administrative divisions in the Tamil country like the Öyma-naļu, besides cities like Karūr and Madurai. It is not known wherefrom this practice of making and dedicating caves to monks and others of the religious order was taken. It is not improbable that Sri Lanka served as a source of inspiration to Tamil Nadu in that respect, since these inscriptions are found largely only in the southern districts of the State and hundreds of similar inscriptions of about the same period are found in Sri Lanka also.

Epigraphical records in the Tamil country after the period of the Brāhma labels discussed above become available only after the commencement of the seventh century A.D. The intervening period is comparatively very poor in the epigraphical field so far as is known at present. Only a few records attributable to that period have been found. They are in the Grantha, Tamil or Vaiṭṭeluttu scripts. The inscriptions in the Grantha script are one label of the fifth century A.D. and four labels of the sixth century A.D., all found in Tiruchirappalli. The inscriptions in the Tamil script are two labels of which one is repeated in four other places, all again in Tiruchirappalli and assigned to the sixth century A.D. The inscriptions in the Vaiṭṭeluttu script are an epitaph of the fourth century A.D. at Tirunāṭharkunrū in the South Arcot district and the other of the seventh century found at Tiruchirappalli written twice. However, the recent discovery by the Tamil Nadu State Department of Archaeology, of a few hero-stone inscriptions from the Chengam taluk of the North Arcot district throws significant light on the distribution of the Vaiṭṭeluttu script in the Tamil land. These inscriptions engraved in Vaiṭṭeluttu characters comparable palaeographically to those of the Pāṇḍyan Vaiṭṭeluttu records betray some Kannāja influence on the language used.
The Pallava-Pāṇḍya period of the seventh and eighth centuries formed the most creative period for the development of later inscriptions. Varieties of script are found used in the inscriptions of the period. They are (i) the Grantha script employed for writing the Sanskrit portion and Sanskrit letters occurring in the Tamil portion of the records (ii) the Tamil script sometimes referred to as Grantha-Tamil used for writing the Tamil records in the northern part of the country by the Pallavas and their contemporaries and successors and (iii) the Vaṭṭeljuttu script used for writing largely in the southern part of the country, that is the Pāṇḍya territory and the adjacent areas, till their final conquest and annexation to the Cōja empire in the eleventh century A.D. It may be noted in this connection that in writing words of Tamil origin occurring in the Sanskrit portions of the records only the Grantha or the Grantha-Tamil is used while the Vaṭṭeljuttu script is employed in writing the Tamil portions in such inscriptions.

All these three varieties of script are derived from the Brāhmī. The details as to when and how these varieties separated from the parental Brāhmī and evolved as independent scripts are not clearly known. But if a surmise is possible, the evolution may be traced through and with the help of the few inscriptions of the intervening period. They are the Tirunatharkunru epitaph and the labels at Tiruchirappalli. Fortunately the labels at the latter place are found recorded in all the three varieties.

B. Numismatics

The scientific treatment of South Indian Numismatics is still in its infant stage on account of several factors. Only a small proportion of coins have been discovered so far, and not all of them are available for study, for some of them are in the custody of private coin collectors. Moreover, identification of coins through the legends on them is risky with regard to South Indian numismatics, as the issues lack not only variety but also the coin legends are short and enigmatic. The question of the metrology of the coins is also a problem in the study of South Indian numismatics since there is not much of uniformity followed in the weight system. Besides one notices that the symbols of different dynasties came to be embossed on some coins to show that the issuer conquered those kingdoms. Further there were different authorities and organisations who issued coins almost simultaneously and such coins were current at the same time. Their mutual relationship is not clear. Further the literary sources give very little information about the systems of coinage in the country through the ages unlike those of North India. The excavations so far conducted in South India also have
not yielded much information on them. Though the inscriptions in the South make reference to different coins with their denominations, weights etc., not much work has been done to compare them with the extant types of coins that are available. Thus, though numismatics is considered one of the important sources of information for reconstructing history, in South India it does not fulfil its functions fully largely on account of the above reasons. Therefore in the history of South Indian Numismatics there are many gaps and no chronological and cogent account can be given about it in the present state of our knowledge and availability of material. All that can be done is to classify and study the coins on a dynastic basis.

However, the excavations at Nagarjunakonda and a few other places in Andhra Pradesh have brought to light a few coins of the Ikṣvākhu dynasty and helped scholars add a few more names of rulers to the already known members of the dynasty. Another South Indian dynasty, the reconstruction of the history of which has been made possible by numismatics, is the Satavahana dynasty. Large hoards of coins belonging to various members of this dynasty have been classified and studied by Rama Rao and published in one of the volumes of the Madras University Journal. Later the coinage of the Satavahanas and their coins from excavations have been studied in considerable detail by scholars like K. D. Bajpai, Parameswari Lal Gupta, Karthikeya Sarma, Ajay Mitra Sastri, P. R. K. Prasad, Nisar Ahmad, Shobhana Gokale, A. N. Lahiris and others. The recent excavations at Kanchipuram also yielded some coins belonging to the members of the dynasty. In the Tamil country the only kingdom for the study of which much information is available from numismatics is that of Vijayanagar. Thousands of coins of this dynasty are preserved in the Andhra Pradesh Government Museum and a detailed study of them has been recently published by N. Ramesan. The metals used for coins of higher value were gold and silver while for coins of lower denominations lead, potin and copper appear to have been used.

Punch Marked Coins

Let us now briefly discuss some of the important aspects of the system of coinage in South India in the early and medieval periods in the light of the material available on hand. The punch marked coins form the earliest known system of coinage in India and are found to have been in use and circulation throughout the country from Taxila in the north-west to Tirunelveli in the south. These are irregularly shaped pieces of silver with some symbols stamped on them. They are also called Purāgas or edlings. They are of various shapes such as oblong, square, circular, angular etc., with marks of punches on either or both sides.
The discovery of punch marked coins has been reported from several places in South India and some of them are preserved in the Government Museum, Madras. Some of these hoards of coins are from places like Gudivada and Singavaram (Krishna district), Venne village, Bhimlipatam, Rothulapalaem and Vizagapatnam (Vizagapatnam district), Kanniakuttai (Salem district), Pennar and Alampalaiyam (Coimbatore district), Mambalam (Madras City), Kayadi (Chingleput district), Tondaimanattam (South Arcot district), Vembavur (Tiruchirapalli district), Bodinaikkanur (Madurai district) and Vira-singamani (Tirunelveli district). Besides there are several coins from many unidentified places.

The origin of the punch marked coins is still shrouded in mystery and many theories have been put forward regarding the same. According to one view, the coins were of indigenous origin and issued by local rulers. According to another view their origin is traced to some foreign source and many arguments and counter arguments have been forward by scholars on this question. One thing to be noted in this connection is that most of the symbols punched on the coins are more or less similar all over the country with a few exceptions, without being affected by geographical or local variations. The noteworthy character tends to suggest that the origin of the coins is to be traced somewhere within the boundaries of India and not outside. A thorough grouping and classification of such symbols will throw some light on this most vital problem.

Yet another difficulty lies in the identification and interpretation of the symbols; it is not known whether they represent dynastic emblems or marks of authority or authority of other institutions or organizations. Some religious significance is also attached to such symbols like the sun, moon, star, trisūla, svastika etc.

With regard to the chronology of the South Indian punch marked coins, as said earlier, no tangible evidence is available either from the literary sources of the contemporary period or from archaeology. However, the following points may be noted.

The occurrence of the silver dinarius of Augustus in association with the coins from the hoards at Pennar and other Roman coins datable to the middle of first century A.D. from the hoards at Tondaimanattam and Mambalam goes to prove that the circulation of the punch marked coins was current in that period at least in the regions round about these places. This is further confirmed by the occurrence
of a few coins belonging to the Śatavāhana period (first century A.D.) in the excavations at Chandravalli. This is the first place from which we have got punch marked coins from excavations conducted so far in South India. But how long they remained in circulation in these parts of the country is difficult to say. If archaeological excavations are conducted in the region in and around the Madurai and Tirunelveli districts, the coins from which area form the bulk of the total collection in the Government Museum, Madras we may get more light on the continuity of the circulation of these coins in the area. The excavations conducted so far are confined largely to a few places to the north of the Kāvēri region in Tamil Nadu and they have not yielded a considerable number of Roman coins. The fixing of the lower time limit for these coins has also posed problems. In this connection it may be mentioned that though the symbols and weights of some of the South Indian punch marked coins bear some features which are similar to those of the North Indian varieties, usually ascribed to the pre-Mauryan and Mauryan periods, one has to take into account the political factors and local conditions in it before arriving at any conclusion about the same in the region. For instance, the frequent occurrence of the sun, mount, bull and caitya symbols is noticed on coins obtained both from North and South India. In the north they are ascribed to 300 B.C. or even earlier; but we cannot be sure about the date of the South Indian coins, because we do not know whether they were contemporaneous with the North Indian varieties or were earlier or even later. Sometimes these coins are dated according to the interpretation of the symbols in relation to their political significance. For example, the peacock-on-mount symbol is attributed to the Mauryan period simply on account of the fact that it was one of the symbols used by the dynasty. It may be correct as far as the coins found within the Mauryan Empire are concerned; but it is doubtful if the coins bearing the same symbol obtained from the extreme south (for instance, the Madurai district) can be fitted into the same chronological frame. It has to be decided only after taking into consideration the then existing political conditions in the area. The attempts made so far by scholars to find a solution to this problem relate mainly to the North Indian coins. Yet another point, is that the symbols convey not only religious significance but also supply some useful astronomical and other information of non-religious interest. Some of these symbols may even be traced to Harappan times. Therefore the methods and means applied so far to tackle this most baffling problem in the history of Indian numismatics, though fruitful to some extent, could not satisfactorily fix the chronology of the punch marked coins of South India.
The possibility of finding a solution to this most vital problem of South Indian punch marked coins with the help of the new light shed on it by archaeological evidence, available in the form of numerous graffiti symbols found on potsherds belonging to the early period may now be considered. Hundreds of such graffiti marks have been brought to light thanks to recent spade work in South India, but the work of their classification and interpretation has not yet been taken up seriously. However, a comparative study of some of the graffiti symbols with similar ones found on the punch marked coins may enable us to suggest a tentative chronological sequence for these coins.

The pottery which bears these graffiti marks are the black-and-red ware, the black polished ware, the russet-coated painted ware and the red slipped ware which, on the basis of excavations are ascribed to a period from 400 or 300 B.C. to 300 or 400 A.D. in South India. A good number of the graffiti marks are very similar to the punch marked coin symbols, conveying subjects of both religious and secular interest.

The symbols like the sun, crescent, mount, triśūla, ladder, conventionalised animals, fish, trees, human figurines and a number of other symbols like plus marks, cross marks, etc., are found both on the potsherds and on the punch marked coins of South India. On the basis of the similarity of symbols found on the potsherds of the period and the punch marked coins, a lower time limit may be suggested for the appearance or the existence of the punch marked coins in South India. Since the earliest date for the pottery which bears the graffiti marks in the South is ascribable to c. 300 B.C. on the basis of excavations we may, on the analogy of the symbols seen above, suggest that the punch marked coins of South India would have been either contemporaneous with them or even earlier. This may not be far wrong in the light of the evidence supplied by a ring inscribed in Aṣokan characters (about 200 B.C.) and found in association with punch marked coins from the Kolhapur hoard in South India. Their circulation could not have come to an end abruptly; but they could have continued to remain in circulation a few centuries after the Christian era, i.e., up to c. 4th century A.D. It should also be noted that the graffiti marks discussed above are not met with in the pottery of either the period before c. 300 B.C. or the period after the fourth century A.D.¹⁷

In the light of the above discussion, we may tentatively ascribe a period from the fourth or third century B.C. to about the fourth century A.D. for the punch marked coins in South India. The problem is complicated and does not admit of easy and definite solution in the present state of our knowledge of the subject. All the available evidence, both literary and archaeological has to be collected and collated
The symbols on the punch marked coins and the *graffiti* marks on potsherds of the early period have to be properly classified, studied and interpreted before any definite idea can be formed of the chronology of the coins. The material is scattered and the studies on the subject are still to begin.

Till recently there was a gap in our knowledge of the history of South Indian numismatics between the period of the punch-marked coins and that of the Pallava-Pañḍya issues. The recent discovery of a hoard of over hundred lead coins with Tamil Brāhmi legends from Andipatti in the Chengam taluk in the North Arcot district, Tamil Nadu, helps us considerably in bridging the gap. The coins which are in the collections of the Government Museum, Madras have not yet been published in detail. The legend on them reads *Aṭiṇan Eṭirān Śēndan* from which it may be deduced that they were issued by a Śēndan. Considering the palaeography of the legend on the coins, they are assignable to the second century A.D. The symbols usually seen on Śatavāhana coins like mount, wavy line, etc., are seen on them. This numismatic discovery is of considerable palaeographical significance because the letter *e* in *etirān* has a dot inside it. In *sūtra* 16 of the Tolkāppiyam its author Tolkāppiyar, the earliest known Tamil Grammarian, states that *e* and *o* have dots added to them (*ekara okaratiyar-ka'yun arṛē*); i.e., the letter *e* with dot should be pronounced as short *e*. The Andipatti hoard has conclusively demonstrated that the old Tamil letter *e* did have a dot as laid down by Tolkāppiyar. It is of interest that the letters in the *Drāvīḍi* inscriptions in the Tamil country exhibit the same characteristics. Though in some of the Sangam works there are references to gold and copper coins and weights such as *pon, kalaiṭṭu*, etc., no indigenous coins pertaining to the period or to any ruler of this period has been discovered, apart from the punch marked coins mentioned above. It may also be said that in South India unlike in North India, the development from punch marked system to the die-system was seemingly indigenous in character devoid of any distinct external influence.

Along with these coins in the Tamil Brāhmi characters mention should be made of the recent view that one of the languages in the bilingual silver issues of the Śatavāhana king Vasiṣṭhiputra Śatakṛṣi is Tamil. These coins were studied by Rapson, Altekar, Sircar and Dinkar Rao. Sircar who read the legend on the reverse of the coins as *Arahanasṭa Vaḥtī Makaṇaṛa Ṭīru Ḫatakaniṣṭha* (i.e., of the king Śatakṛṣi, the son of Vasiṣṭhi) took the language of the inscription as Telugu of the ancient Dravidian dialect as may be seen from the use of such words as *arahanamakana* and *ṭīru*. Since the letter read as *ḥa* by Sircar, does not appear to have the bottom curve turned to the
right and as it resembles ca of the early Tamil Brāhmi inscriptions, R. Nagaswamy reads Arahān as Arasan and postulates that the language of the legend is Tamil. Following the method adopted by Bühler in deciphering the Bhattiprolu script he reads ma kan as makan and, feels that the whole legend should be read as Aracanasā Vacititt kakanasā tiru Cakkananira. Here also as in the Andipatti coins one finds the pratice of marking the pure consonant with a dot (pu/l). The discovery that Tamil was employed along with Prākṛt as an additional language in some of the Śatavāhana coins outside Tamil Nadu is of consider-able significance.

It is surprising to note that the coins of the Pallavas have not been discovered in large numbers so far or reported as being in private collections. Some coins with the bull or lion with the legend Śrī Bhara or Śrī nidhi have been considered to have been issued by the Pallava kings Mahendravarman and Narasimhavarm Var Rājasimha. A few coins of lead, roughly circular in shape with the figure of a Pallava bull enclosed in a beaded circle below a linga in the obverse and a crude elephant in the reverse have been found in the excavations conducted at Kanchipuram. They belong probably to the fourth to sixth century A.D. It may also be mentioned that a coin mould was also found at the place.

Recently certain copper coins—thin die struck pieces of copper bearing on the obverse the figure of a bull and some stray letters and on the reverse a symbol such as tree, ship, star, crab or fish—assigned to the Kurumbars or the Kalabhras by Elliot—are considered to be those of the Pallavas. Some Bull-type coins bearing a ship on their reverse, resembling the famous Ship-type coins of the Śatavāhanas, are also assigned to this dynasty.

In some of the seals on the rings holding the copper plates issued by the rulers of the dynasty, the lion emblem is found. Besides, the Lion was a favourite motif in the Pallava monuments. Considering these, some issues, die struck in gold, base silver and copper with a maned Lion within a circle on the obverse and the symbols like vase flanked by lamp stands, cakra, bow, fish, umbrella, mountain, horse, etc., on the reverse are attributed to the Pallavas. However, there is a view that such coins belonged only to the Vishṇukūṇḍins.

In the course of the explorations at Kaverippumpattinam a few copper coins of the Cōjas of the Sangam age were discovered. They are found to have the figure of a tiger on one side and an elephant or fish on the other. The available and known coins pertaining to the Imperial Cōjas are not many in number and supply very little information; however, it is believed that a large number of Cōja coins are
in private collections, the access to which is not very easy for scholars. The available coins can be classified under a few series such as those of Uttama Coja, Rajaraja, Rajendra, Rajadhiraja, Kulottunga etc. Both the literary and epigraphical sources of the period mention different coins and standards of weights which were then in circulation and a careful study of them reveals the following:

1. Both gold and copper coins were issued during the period.

2. The different types of coins issued by the rulers with different names are: kulaṇju, māḍai, kāsu, pon, paṇam, tiramam and so on, each one of them having its own standard of weight and value.

3. The coins usually bear the emblem of a tiger on the obverse and a standing human figure on the reverse.

Kalāṇju: The standard of the best gold coin of Uttama Cōja is recorded as 50 to 60 grains which more or less comes close to the average weight of gold gadyaṇa coins of the Deccan (about 58 grains). The kaḷañju of 20 mahājādi was equivalent to 72 grains and at times went up to 80. It is apparently this unit of bullion weight that is employed in an inscription of the thirteenth year of Parāntaka I which equates the kaḷañju with the niśka⁴⁸. Whenever payment was made the kaḷañju seems to have been employed and finds mention in inscriptions.

Māḍai: There seem to have been many varieties of this type of coin with varying standards of weight at different periods. One such piece was Madhurāntakaḍēvan-māḍai, which was equivalent in weight to one kaḷañju. It is also to be noted that this coin served for testing gold. Though it is mentioned in the records of Rājarājadeva, the name suggests the possibility of its issue being associated with Madhurāntaka Uttama Cōja, the predecessor of the former. There are also other types of māḍai associated with the names of kings like Rājarāja and Rājendra Cōja which probably indicate that the names of the kings who issued them were found on these coins. But it is unfortunate that we are not in a position to say anything about the uniformity of their standard. For instance the Madhurāntakaṇ-māḍai which was in circulation during the reign of Kulottunga I was equivalent to the kaḷañju of the fineness of 9½ māri or two kāsus. From the time of Kulottunga I it seems that several types of māḍais were issued probably by local chieftains and feudatories in the empire. In the epigraphical records they are referred to as Jayamāḍai, Uttamagana-māḍai, Cōmara-māḍai, biruda-māḍai, Nakki-māḍai, Bhujabala-māḍai, Paḷampuḷi-māḍai,
Gaṇḍagōpāḷaṇ-māḏai, Gaṇḍagōpāḷaṇ-paḻa-māḏai, Gaṇḍagōpāḷaṇ-pudu-māḏai, Nellūr-māḏai, etc.

Kāsu: Like the māḏai, the kāsu was another coin current in the Coḷa empire and varied in standard of weight and name from time to time and place to place. The epigraphical records name them as anṛāqu-nar-kāsu, paḻankāsu, anṛāqu-(nar)-paḻankāsu, ḫakāsu, karunkāsu, ḫakkarunkāsu, etc. Some times the names of the rulers were given in these types of kāsus as prefix i.e. Rājarājan-kāsu. It is believed that the standard kāsu was introduced into the Tamil country from Sri Lanka. It was probably due to the close contacts between Sri Lanka and the Tamil country and particularly Madurai from the time of Parantaka I who invaded Sri Lanka. We also know that in the ‘Ceylon type of coins’ a huge human figure is standing on the obverse and seated on the reverse.⁴⁹

Besides the above mentioned ones, coins like the paṇam, anṛāqu-nar-paṇam, varāhan-paṇam, tiramam, tinaram, kāṇam, besides achchu were also in circulation varying in weight and value in the Coḷa empire as gleaned from inscriptions. It is also interesting to mention here the recent excavations at Kaverippumattainam have yielded a few coins of copper belonging to Rājarāja I⁵⁰.

Regarding the system of coinage in the Pāṇḍya empire, though a number of coins with the fish emblem on the obverse side were discovered in the Madurai and Tirunelveli districts, their systematic study and analysis have not been taken up so far. Therefore we are not in a position to know much about the Pāṇḍya issues of coins. The coins issued by the Pāṇḍyas in the early Christian era were squarish copper issues of various sizes, weighing between 30 and 144 grains. These specimens generally exhibit stylised fish diagram on the reverse and grouped on the basis of symbols shown on the obverse such as elephant, bull, tree-in-railing and fish. Usually these obverse symbols are found in the midst of several other symbols such as cakra, trident, six peaked hill, svastika and lamp. These Pāṇḍya coins are dated between 200 B. C. and 300 A.D.

Besides, a succession of round copper coins are also attributed to the Pāṇḍyas. The earlier series of coins were crude, tiny pieces with obverse symbols like svastika, trident, etc. and seemingly standing figure, floral design or three peaked hill on the reverse. These issues were followed by small coins bearing a standing figure on one side and the figure of a fighter on the other. Then come coins with standing and seated figure on either side and having the common titles of the Pāṇḍya kings. Some of the names on the coins are Avanita Śēkaran,
VIJAYANAGAR COINS

Avani pendran, Kōdanḏarāman, Sundara Pāṇḍya, etc. In the coins of the Pāṇḍya kings of the fourteenth century we get legends which read Samara-Kōlākalan Kōnērirāyan, Bhuvanaika viran etc. Not much is known about the coins of the Ceras. A treasure trove of thirtyone coins with the legend Vira Kēraṇa found from the Tirunelveli district may probably belong to Vīra Kēraṇavarman of the tenth or eleventh century.

The last Hindu empire that ruled over South India after the Pāṇḍyas was that of Vijayanagar and a large number of types of coins were issued during the period. Of the four dynasties that ruled over the empire namely the Sangama, the Sājuva, Tuḷuva and Araviṇḍu, the first, third and fourth followed a sound system of currency in the country. Both gold, silver and copper coins were in circulation; they were also further divided into denominations of lesser value. For the first time during the period a systematised form of currency with standard weights was in circulation. As said earlier, the literary and epigraphical records form the main bulk of sources and give some glimpses into the then existing system of coinage in the country; besides it may also be mentioned here that the accounts of certain foreign travellers like Abdur Razzaq and Paes etc., who visited the Vijayanagar Empire in the fifteenth and sixteenth centuries give some account of the main currency and the smaller denominations prevalent in the empire.

The main items under different heads that constituted the currency of the Vijayanagar empire are as follows:

a. Gadyāṇa or pon or pagoḍa or varāhan
b. Pratāpa or māḏai or māḍa
c. Kaṭi
(d. Paṇa
(e. Haga
   Tāra (silver)

a. Paṇam
b. Jital
c. Kāsu

(all made of silver)

Of the above mentioned gold coins, the gadyāṇa and varāha weighed about 50–52 grains, the kaṭi about half of the varāha, the paṇam 1/10 of a varāha and the haga ⅓ of a paṇa. The silver coin tāra weighed 1/15 of a paṇa and the copper ones were all pieces with lesser value. Their weight seems to have varied from region to region according to local conditions.
One important aspect of the Vijayanagar coins is that they bear multifarious symbols representing the religious faith of the kings. The Śaiva deities like Śiva, Umā, Maheśvara, Pārvatī and the Vaiṣṇava deities like Lord Venkaṭesa, Hanumān, Śri Rāma, Lakṣmī Nārāyaṇa and emblems like those of the elephant, lion, bull, garuḍa, and varāha are some of the examples found on the coins of different dynasties of the Vijayanagar kings. These symbols are useful for the study of the religious conditions in the empire during the period.

Yet another aspect is that it is for the first time that we hear of the existence of several private and state owned mints in the country and also an official who was in charge of the control of taxes on mints. The references to such mints are found in some of the expressions like Bārakūru Gadyāṇa, Mangalūru Gadyāṇa etc., which clearly show the name of the place from which the coins were minted or issued. It is also interesting to observe that some of the local chieftains were also permitted to mint coins in their own names. Hence the existence of a variety of coins in different parts of the Vijayanagar Empire differing from one another.

Besides these indigenous coins, a number of foreign coins have been found in hoards and in excavations in different parts of South India. Among them prominent mention may be made of Roman coins belonging to the period of the Roman emperors Arcadius and Honorius which have been found in large numbers in some parts of South India. Similarly Chinese coins have been reported from Chandravalli, Arikamedu and in some places in the Thanjavur district. The recent coin hoards from the Thanjavur district consist of Chinese coins starting from the second century B.C. down to the 13th century A.D. However, the exact currency value of these foreign coins in relation to the local ones is not clear.

NOTES

1. *Imperial Gazetteer of India*, volume ii, p.1
2. *Annual Report on Indian Epigraphy (ARE)*, 1959-60, no. 358
3. *ARE*, 1905, no. 56; *Epigraphia I-dica (EI)*, xvii, no. 5
7. *EI*, xxxii, pp. 87-90
8. *Ibid*, xxxviii, no. 18, pp. 98-105
10. Ibid, xxix, pp. 93ff.
11. The Pallavas, pp. 60-66
12. The Pallavas of Kanchi, p. 119
14. Ibid. ix, p. 219
15. EI, xx, p. 50; Historical Sketches of Ancient Dekkan, ii, p.6
16. History and Culture of the Indian People, iii, p. 282.
17. ARE, 1941-42, no. 20 (also Appendix E of 1943-44)
18. Chengam Naṉukarkaḷ (Tamil) (Ed.) R. Nagaswamy
19. EI, xx, p. 21
20. Ibid., i, p. 6
21. Indian Antiquary (IA), v, pp. 50 ff.
Simhavarma mahārājasya vijjaya-samvatsare ekādase pauṣya māsi kṛṣṇa-pakṣe dasamyām...
22. EI, xv, no. 11 (A), pp. 249 ff., ll. 14-15
Vijaya Samvatsare tratise 33 hemanta pakṣe tritiye 3 trayodāṣ-yām likhitamidam sāsanam...
23. EI, xxxvii, no. 18, pp. 98-105
24. Ibid, xxxii, p. 97
26. SII, xiv, no. 10
27. Ibid, vii, no. 35
28. Ibid, xiv, no. 22
29. Ibid, no. 12, ll. 1-3
Kōmāraṇḍaḷaiyarku yāṇḍu nāḷaḷaḍi k-keḍi-ondadānadu vṛṣeika nāṭruru tingai-kilamai perra asvati mudalāga...
30. Ibid, no. 12-B, 1-1
Kōmāraṇḍaḷaiyarku yāṇḍu 4 vadin edir 9 amāṇḍu danu nayirru cevūykkilamai perra sadaya(ma)ttu nāḷ...
31. Ibid, xii, no. 206
32. ARE, 1917, no. 330; Ibid, part ii, p. 181
33. SII, iii, p. 204
34. ARE, 1907, no. 358
35. For a discussion on the question see ‘The Kollam Era’ by K. K. Pillay in the Professor Sundaram Pillai Commemoration Volume, pp 73-78
36. Travancore Archaeological Series, i, pp. 31 ff.
37. S. Desikavinayakam Pillai, Kāndaṭūr Śālai, pp. 18-20
38. Tirukkulasēkhara purattu-t-talikku-c-cellā ninra-yāṇḍu nūrru toṇṇittaŋju ivṇāṇḍu makara-nāyarru (in the month of Makara in the year one hundred and ninety five after the consecration of the temple at Tirukkulasēkharapuram—TAS, vi, p. 193) and Tirukkaŋdiyur Mahādevarku sarvādityam sey-d-aruji-c-cellā ninra yāṇḍu munnūrru-t-tonnūrru nālām āṇḍai meda viyājattill (in the year three hundred and ninety four counted from the consecration (sarvādityam) of Mahadeva at Tirukkandiyur when the Jupiter stood in the Meṣa or Aries—TAS, i, p. 290

39. TAS, ii, pp. 31 ff.

40. EI, xxiv, p. 290

41. ARE, 1920, no. 160; dated in the 751st year Hijri, Arpasī month in the reign of the Pāṇḍya Vīra-Sundara ‘who was pleased to take every country’.

42. P. B. Desai, Jainism in South India and some Jaina epigraphs’ p. 29, n. 3


44. Journal of the Madras University, (Humanities Section), 1962; T. V. Mahalingam, South Indian Polaeography (1968)

45. Indian Archaeology—A Review, 1963


47. A few graffiti marks are also found on the pottery of the fifth and sixth century A.D. But they are probably the survivals of the earlier period.

48. ARE, 1912, no. 181

49. K. A. Nilakanta Sastri is of the view that the Ceylon standard could have been adopted in the Tamil country much earlier than the time of Rājarāja I (The Cōḷas, p. 617 and n. 33)

50. Indian Archaeology 1961-62—A Review.
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III
ARCHITECTURE AND SCULPTURE

Art, a branch of aesthetics, is a material record indicating definite stages in the intellectual evolution of man. Like any other branch of aesthetics, art in any form gives pleasure and refinement to the mind. To a historian a piece of ancient art is also indicative of the significant trends in the history of the culture which produced it. The story of the evolution and development of the arts, chiefly those of architecture, stone carving and metal casting, is thus an integral part of the story of the evolution of man and hence an aspect of history itself. Thus art, like archaeological artifacts, forms an important source material for writing history. In any survey of the history of a country or region or its archaeological wealth a review of its architectural and artistic traditions is therefore necessary.

In the last lecture the problems in dating sculptures, as also monuments, on stylistic grounds were touched upon; and it was shown how inscriptions can be of some help in understanding the evolutionary trends in art traditions through the ages. But not all monuments of all ages contain inscriptions recording the dates of their foundation or additions made to them in different periods. Therefore in the present state of our knowledge we have to depend also on the features and styles of the monuments of different periods to understand the artistic development. It should also be borne in mind that any periodization in art history in India and dating of monuments and sculptures on stylistic features is coupled with certain difficulties largely due to the persistence of diverse art norms, motifs and designs of one period in subsequent periods. In this lecture attention is paid largely not to detailed descriptions of representative monuments or sculptures of a particular period, but to a survey of how art traditions were evolved, experiments initiated, improvements achieved and different traditions and ideas mingled. In short the present survey is aimed at giving an art student certain basic ideas about the features and traditions in the realms of art and architecture that were current in different periods in Tamil Nadu.*

* We owe the beginnings of the study of South Indian art and architecture to a number of foreign scholars like Col. Mackenzie, Burgess, Fergusson, Cousens, Cunningham, Rae, Longhurst, J. Dubreuil, Rowland, Percy Brown besides Ananda Coomaraswamy and others. But in the absence of a detailed study of each monument none of them was able to give a full picture of the main trends in the evolution of South Indian art and architecture. Monographs on some important Hindu and Jain temples and some of their aspects have been published by scholars like K. A. Nilakanta Sastri, T. N. Ramachandran, C. Sivaramamurti, K. K. Pillay, K. R. Srinivasan,
A. Architecture

Architecture is one of the most sublime expressions of the artistic and religious impulses of mankind through the ages. Its history in India has been eventful and continuous right from the earliest times as exemplified by copious literary references to various forms of architecture and many urban centres with numerous buildings. The evolution and growth of Indian architecture is a story of absorbing interest on account of the ramifications it underwent in time and space. It is generally admitted that in India all art including that of architecture, like all life, is related to spirituality and religion. Indian architecture is thus largely religious in character and the earliest and extant monuments are caityas, vihāras, stūpas of the Buddhists or Jain monuments or Śaiva or Vaishnava temples. Tamilian religious architecture is predominantly Hindu, the monuments of the heterodox sects being very few. The archaeological excavations in the Tamil country—at Arikkamedu, Kaverippumpattinam, Uraiyyur, Kanchipuram, etc.—have brought to light certain aspects of early secular architecture; but here, as in other parts of India, it is the religious architecture that admits of a more comprehensive and continuous study.

The continuity in the development of architecture and the different forms that the structures assumed through the long history of India necessitated the codification of architectural rules and the stipulation of canonical injunctions regarding the building of religious edifices and the carving of sculptures. It was considered by our forefathers, that art in any form was never an end in itself, but a means to an end. They had definite ideas to convey to the onlooker through their pieces of art and hence artistic achievements always combined in themselves both artistic embellishments and ‘priestly instructions’. This resulted in the birth of several treatises on architecture. Of these one of the most ancient is the Vāstuśāstra, considered to be a part of the Atharva Veda. Varāhamihira’s Bṛhatśamhitā, composed during the sixth century A.D. is

K. V. Soundara Rajan, P. R. Srinivasan, R. Nagaswamy, H. Sarkar, K. V. Raman, Michael Lockwood, Gift Siromoney, etc. But more planned work has to be done for a proper appraisal of the evolutionary trends in the art history of South India as also Tamil Nadu.

It is only in recent years that such surveys have been initiated by the Archaeological Survey of India as a result of which the Temple Survey Project (South) Unit has brought out an exhaustive account of the cave temples of the Pallavas by K. R. Srinivasan. In his private capacity S. R. Balasubrahmanyam has made a comprehensive study of the Cola temples and written four volumes on them of which three have been published. Douglas Barrett has studied in detail the early Cola architecture and sculpture (A. D. 866–1014). But the study and survey of Pandya monuments is yet in its infant stage.
another important text containing agamic injunctions. The *Agni purāṇa*, *Matsya-purāṇa* and the *Garuda-purāṇa* composed probably during the Gupta period contain several passages dealing with a number of types of constructions. The *Viṣṇudharmottara*, *Hayaśirṣa-pañcarātra* and *Vaikhanasagama*, all assignable to the period between the seventh and ninth centuries, also deal with different forms of architecture. During the eleventh century A.D. many more works were composed including the *Samarāṅgana-sūtradhara* and the *Aparājitaparīkṣa* by Bhojarāja, *Mānasollāsa* by Someśvara and other texts like the *Śaradātilaka*, *Bṛhat-silpa-sāstra*, *Vāstuvidyā*, *Manuṣyālaya-candrika*, *Īśaṇa-gurudeva-paddhati*, etc. Assignable to the fifteenth century are the *Kāsyapa-pasilpa*, *Mānasāra*’s work *Vāṣṭuṣrayavallabha* and *Mayāmata*, the last two composed by Mandana, a great sculptor architect of Rajasthan. The types of temples enumerated in these texts are indeed many and bear testimony to the evolved architectural patterns during different periods. Generally speaking the most important architectural *āngas* (zones) of a temple as described in these texts are the *adhiṣṭhāna* (basement), *pāda* or *bhīṣṭi* (pillars or walls), *prastara* (entablature), *grīva* (clerestory), *sikhara* (roof) and *stūpi* (finial).

Like these *Āgamas* and works of an allied nature, ancient Tamil literature is also of considerable value for a study of the architectural development in this part of the country. But these works do not provide adequate descriptions of types of temples but only contain casual notices of structures and certain architectural terms. In classics like the *Paṭṭinappalai*, *Maduraikkāṇji*, *Perumbāṉāṟṟuppaṭai*, *Ahanānūru*, *Śilappadikāram*, etc., mention is made of such architectural examples as *kōṭṭam* (temple), *kōyil* (palace), *mādam* (mansion), ṭūṟapāvayil, *gōpuram* (gateways), etc., in cities like Puhār, Madurai, Uraiṉūr, Kaicī and Karūr. The *Śilappadikāram* refers to the architects who were experts in temple building and to the *dvārapālas* (gate keepers) in them. Unfortunately none of these has survived to corroborate the glorious picture that the literature presents. The Śiva saint Appar, who flourished in the first half of the seventh century, mentions in one of his devotional hymns as many as eight types of temples:

*Perukkāru saḍaikkapindīna Perumāṇ sērum
Perukkōṭīl elupadindōḍēṭṭum marrūn
Karakkōyiḷ kāḍiṉ-nil-sūḷ jñāḷāra-kōyil
Karuppariyal poruppanaṟyā kō-kuḍikkoṭīyil
Irukkōḍī maraiyavargal valipatṭēṭṭum īḷāńkiyil
Maṅikkōyil Āḷakkōyil Tirukkōyil Śivan-uraiyūn
Kōyil-sūḷindu tāḷnīṟaiḷjattivinaṟgaṭ tirunāṟē*

In this verse one can discern such types as *Perukkoṭīyil*, *Karakoṭīyil*, *Jñāḷakkōyil*, *Kō-kuḍikkoṭīyil*, *Īḷamkoṭīyil*, *Maṅikkōyil*, *Āḷakkōyil* and
Tirukkōyil. In other places Appar mentions other types of temples like Mādakkōyil, Tūṅgānal-mādam and Pūnkōyil. It is indeed difficult in the present state of our knowledge to identify the temples of these different types, though the Tūṅgānal-mādam is obviously the same as the gaja-prṣṭha or hasti-prṣṭha referring to the apsidal shrine. The term Mādakkōyil probably denotes the structures with the garbhagṛha in the first floor instead of the ground floor. It is noteworthy that in his devotional hymns Appar mentions the temples at Tirukkatchur as Ālak-kōyil, at Tirukkadambai as Iṭumkōyil, at Tiruvarur as Pūnkōyil and at Tirukkadambur as Karakkōyil.

The different types of rock-cut monoliths at Mamallapuram are clearly indicative of five of the many types of temple architecture. The character of the shrine chamber and the vimāna rising above each of them was considerably influenced by the individuality of the gods or goddesses enshrined in them. The Bhīmaratha for example, was evidently scooped out for a reclining Anantaśayi, as may be judged from its ārataśra pattern. The same pattern was adopted for the shrine of the Saptamātrkās who were parivārādevatas (attendant divinities) in early Čōja temples, as they were arranged side by side lengthwise.

With these preliminary observations the beginnings of the architecture building in the Tamil country may now be considered.

1. Architecture during the period from c. A.D. 600 to 850
   a. Rock-cut caves and monoliths.

For all practical purposes the story of Tamilian architecture starts with the Pallavas of the Simhaviṣṇu line. All of their early experiments are in the rock-cut media and their art-historical significance can hardly be exaggerated. While all the other rock-cut excavations in India are attempts in easily tractable varieties of stone, the Pallava sculptors who had the inevitable choice of hard granite, revived the ancient Mauryan tradition of scooping in hard rocks. Viewed in terms of the material tackled, the Pallava caves are in continuation of the traditions of the Barabar and Nagarjun hills under the Mauryan Emperors Aśoka and his grandson Daśaratha, nearly a thousand years earlier.

Mahendravarman I (A.D. 610–30), the artist-king is believed to have initiated rock architecture in the Tamil country in the light of his inscription in the cave at Mandagappattu stating that he caused the construction of the Laksitāyatana shrine for the Hindu Trinity without the use of brick, timber, metal and mortar.* Mahendravarman’s name

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* While some believe that some of the caves in the Pandya country farther down in the South – particularly the cave at Pillaiyarpattil – may be anterior to the excavations of Mahendravarman I, a consensus of considered opinion favours the first and earlier view.
is associated with a large number of rock-cut enterprises. The presence of his inscriptions in such cave temples as the Pañcapiṇḍava at Pallavaram, Mahendravīṣṇugṛha at Mahendravadi, the northern cave temple at Mamandur, Lalitākura-pallavesvaragṛha at Tiruchirapalli and the Avanibhājana-pallavesvara shrine at Siyamangalam clearly indicates that they were scooped out in his reign; the Vasanteśvaram at Vallam was also excavated by a subordinate of Mahendravarman as may be gleaned from an epigraph in it. The two inscriptions in the Śatrumalleśvarīśaya at Dalavanur are also assignable to Mahendra. Besides these the cave temples at Kuranganilmuttam, Vēllappakkam, Aragadandallur and the Rudravālīśvara cave at Mamandur are stylistically attributed to the reign of Mahendravarman and usually may be recognised as of the 'Mahendra style'.

Stylistically the caves of the reign of Mahendravarman are simple in plan with very little plastic embellishment—features that are to be found even in some of the later excavations, and hence go by the name of the caves of ‘Mahendra variety’. In the caves of this type the excavation consists of a maṇṭapa with a single or a few shrines. In many cases the maṇṭapa is divided into two—the ardha-maṇṭapa and mukha-
maṇṭapa—by a row of pillars. Apart from this row of pillars another row is seen in front. The pillars are equidistant and have square sections both on base and top with the portion in between chamfered octagonally. In the square section reliefs of lotus medallions are noticed. The pillars and pilasters carry on top massive corbels with beams. The cornice in all the caves except in those at Pallavaram and Dalavanur are not curved. Though certain innovations were introduced in the caves of the time of Narasimhavarman I Māmalla (c. A. D. 630-668) the so called ‘Mahendra style’ persisted for several years, as may be gleaned from such excavations as the Kotikkāl-maṇṭapa and Dharmarāja-maṇṭapa at Mamallapuram, Orukāl-maṇṭapa at Tirukkalukknuram, Narasimha cave at Singaperumalkoyil, Raṅganatha cave at Singavaram, Śikhari-pallavesvaragṛha at Melachcheri, Atirāpacīḍa cave at Saluvankuppam, a larger and a smaller unfinished cave at Mamandur, a Śiva and Viṣṇu cave at Vallam and a Viṣṇu rock-cut cave at Kilmavilangai.

In the caves excavated during the reign of Narasimhavarman I Māmalla a few remarkable developments are noticed. The entablature is almost completely finished in these unlike in those of the ‘Mahendra variety’. Besides kūḍu arches in the cornice, the entablature carried śalas, karpa-kūṭus and alpa-nāṣikas. The pillars in these caves are both taller and slender than those of the previous period. The most conspicuous feature is the strutting figure of a lion or vyāja as the base of the pillar. Whereas all the caves of the ‘Mahendra variety’, excepting
the Lalitāṅkura-pallaveśvaragṛha (the upper rock-cut cave) at Tiruchirapalli are devoid of sculptural decoration on the walls, those of the ‘Māmalla variety’ register a distinct improvement in this regard. The walls of the maṇṭapas of these caves yield themselves to large bas-reliefs which uphold the grandeur of Pallava plastic art. The typical examples in this Māmalla style are the Kōṇeri maṇṭapa, Varāha-maṇṭapa, Mahiṣāmardhani-maṇṭapa, Trimūrti cave, Ādivarāha cave, Rāmnūja-maṇṭapa etc.—all at Mamallapuram-and Narasimhavaran II’s Yāḷi-maṇṭapa at Saluvankuppam, three miles north of Mamallapuram.

A significant branch of rock-cut architecture that developed during the reign of Māmalla is what is known as monoliths. These are cut-out monolithic shrines and depict the external aspects of contemporary brick-and-timber structures. The rudiments of this form of rock-architecture are traceable to the carved out stūpas in the caves of Western India and the vimāna form in the Tawa cave at Udayagiri in Central India, though it was at Mamallapuram that it found an eloquent expression. These are popularly known as rathas and called after the five Pāṇḍava brothers (the last two of them being twins) and Draupadi, their wife. Besides these, there are other monoliths at the place known as Gaṅgeśa ratha, Valayankuṭṭai ratha and two Pīḷāri rathas. As these monoliths are scooped out models in live rock of different architectural designs, their value for a study for the plan and different āṅgas (zones) in and details of the vimāna can hardly be overestimated. The Dharmaraja-ratha is an example of triśata-prāśada (three storeyed), with a square vimāna and an octagonal dome. The Arjuna-ratha is similar to this, but is a dvitāla-prāśada (two storeyed). The Bhīmaratha is an instance of ayatāśra vimāna with a wagon-top roof. This is single storeyed unlike the Gaṅgeśa ratha, another instance of ayatāśra vimāna which is double storeyed. The Draupadi ratha is an example of kūṭāgāra (hut shaped) and is square on plan. Of the six architectural āṅgas, viz., adhīṣṭhāna, pāda or bhiṣṭi, prastara, grīva, sikhara and stūpi the third and the fourth are absent here. The roof of this ratha is domical. The Sahādeva ratha represents the dryāśra (apsidal) form with its back resembling that of an elephant (gajapṛṣṭha). This is two storeyed.

Interestingly, the Pāṇḍyas in the extreme south, developed a rock-cut tradition of their own, resembling that of the Pallavas in several respects but with notable variations. The cave shrine at Malaiyadikurichi is assignable to the second half of the seventh century and the Narasimha cave at Anamalai, and the Subrahmanya cave at Tirupparankunram are on the same ground datable respectively to A.D. 770—773. Of the other rock-cut excavations in the south mention must be made of those at Tiruttangal and Piranmalai in the Ramanathapuram district and Kudumiyamalai and Sittannavasal (Jaina) in the Pudukkottai district.
To this may be added the cut-out free standing monolithic temple, Vettuvan-Koil at Kalugumalai. Though largely similar to the Pallava caves in plan and design these Pāṇḍya examples differ from them on account of certain features, such as the introduction of the rock-cut liṅga and Nandi and sculptural representations of Gaṇeśa and the Saptamātrikas. (These features are predominantly seen in the contemporary Ĉājuška excavations). The pillars are large and reminiscent of those of the ‘Mahendra variety’ with corbels generally with a plain level. The Muttaraiya lineage, a minor dynasty that ruled in the region in between the Pallava and Pāṇḍya kingdoms has also its modest, albeit, significant contribution to rock-architecture. Their cave temples are almost completely identical with the Pāṇḍya ones and are at Tiruvellaiar, Narttamalai, Kunnandarkovil, Puvalaiikkudi, etc. Mention must also be made of the Atiya cave at Namakkal in the Salem district referred to in an inscription in it as Atyaṇḍra Viṣṇuṛga and assignable on palaeographical grounds to about the middle of the eighth century A. D. Like the caves of Māmallā this is also rich in sculptures.

b. Structural temples

In the Tamil country the reign of Pallava Paramēṣvaravarman I (c. A. D. 669—690-1), grandson of Narasimhavarman I witnessed new experimentation in the erection of structural temples in preference to cut-in caves and cut-out monoliths. A few pillars in the typical ‘Mahendra variety’, some of them with labels containing some titles of Pallava Mahendravarman I found in the Ekāmranātha temple at Kanchipuram (since removed to the Government Museum, Madras) seem to indicate that even during the early decades of the seventh century structural edifices were built. The presence of pillars of the Pallava style at Sivanvayil, Kuram, Vayalur and Tiruppur, all in the Chingleput district, appears to confirm this.

It is possible to trace the extant proto-types of structural temples in the heartland of the Pallava kingdom, i. e., in the Toṇḍaimāṇḍalam region. For instance, in the Vedagiriśvara temple at Tirukkalukunram the main cella is a dolmenoid orthostat and consists of three big slabs as walls with another slab as roof. On the inner surface of these slabs are reliefs of Somāskanda on the hindwall—a characteristic feature of Pallava temples—and Caṇḍiśekhara, Daḵšiṇāmūrti and Nandi on the other walls. This curious structure, anticipating larger structural shrines in the years to come, is assigned on the evidence of the presence of Somāskanda relief to the period of Paramēṣvaravarman I.*

* Presently this dolmenoid type of shrine is encaused by moulded stone work evidently of the later Cola times. Originally the encausement was probably of brick and stucco.
PALLAVA STRUCTURAL TEMPLES

Fortunately one gets a few epigraphical evidences regarding the construction of temples during the reign of this ruler. The Sirambakkam epigraph dated in the first year of Paramesvaravarman I mentions the construction of a temple. The Kuram plates of the same king provide the interesting information of the acquisition of land for a brickkiln for burning bricks for the building of temples. The extant Vidya Vinīta Pallavaśvararagṛha shrine at the village of Kuram (referred to in the copper plates mentioned above) has an interesting and early feature viz., a series of vertical and horizontal slabs constituting the bhīṣṭi. The Tirunagesvara temple at Kallambakkam is architecturally of the same type as the Kuram shrine and may be an early Pallava structural edifice. Thus it is evident that the structural medium was clearly getting introduced during the years of Paramesvaravarman I and quite a few early structural shrines in the Toṇḍaimandalam region must belong to this period.

While these are modest enterprises in structural media a grand movement of erecting comparatively larger temples starts with Narasimhavarman II Rājasimha. While the temples of Kailasanātha at Kanchipuram, Tājagiriśvara at Panamalai and the Shore temple at Mamallapuram are indisputably assignable to his reign on inscriptive grounds, a large number of other temples like the Mukundanāyanar and Olakkaṇṭeśvara at Mamallapuram, the Piravātana, Irvātana, Airāvatesvara, Tripurāntaka, etc., at Kanchipuram are stylistically similar to the Rājasimha group of temples. The temples of Vaikuṇṭhapurumāḷ, Mukteśvara and Mātangēśvara at Kanchipuram are said to be slightly later and belong to the reign of Nandivarman II Pallavamalla. A marked stylistic advancement is discernible in these monuments.

The Shore temple complex at Mamallapuram contains in all three shrines-two of Śiva wedging in between them a maṇḍapa-shrine of Viṣṇu. The last mentioned is rectangular in plan without a superstructure. Of the two vimānas extant in the temple complex the western one is of sama-caturasra tritāla variety and the eastern one of sama-caturasra-catustāla variety though the wall of the prākāra with a row of kūṭas and sālas provide the inclusion of an additional tala at the bottom. The octagonal sikhara in both the shrines is of the Drāviḍa order. The Kailāsanātha at Kanchipuram is also a sama-caturasra-catustāla vimāna and is an example of sandara-prāsāda containing two walls providing an ambulatory. A row of kūṭas, koṭhas and paṭjaras are noticed in the storeys. Seven shrubries are integrated with the cells, four at the corners and three at the sides. Besides these there are rows of peristylar shrines abutting the compound wall on all the sides.
The Ta\=jagir\=i\=
\=svara at Panamalai is an example of sama-caturasra-tritala-
vim\=ana with attached oblong sub-shrines on three sides. The little
shrines of Irav\=atanes\=vara, Tripur\=antakes\=vara, Matange\=svara and Muk-
tes\=vara are interesting studies; the former two are sama-caturasra-dvi-
tala-vim\=anas with N\=agara types of sikharas, while the latter two are
sama-caturasra-tritala-vim\=anas with Vesara type of Vritta-sikharas.

The pillars in these structural temples are with rampant lions gene-
really and with elephants, n\=agas and bh\=utas occasionally. Niches are
present in Pallava monuments, both rock-cut and structural, and are
rather wide and the makara-torapa decoration on their top is flat; the
makaras have floriated tails overflowing on the sides. The corbels are
generally curved in profile with taranga (wave moulding) ornament and
median band.

The plan of the early structural temples is simple and show only an
a dho-ma\=ntapa in front of the garbha-gri\=ha though in the larger temple
of Kail\=asan\=atha a free standing ma\=ntapa in the axial order was also
built. The absence of rows of k\=utas and s\=alas on the entablature of the
first storey of the vim\=ana and the lack of the h\=ara on the uppermost
tier are said to be distinguishing features of R\=ajasimha’s structural tem-
ples. It is in these structural temples that a great amount or sculptural
decoration is noticed. The whole of the exterior wall of the shrines are
decked with carvings of different deities a few of which appear to be
fresh inceptions from the C\=ajukya area. It is of interest to note that
all the structural temples of the Pallavas are built of soft varieties of
stone, granite being used sparingly. In some of the temples constructed
by R\=ajasimha granite was used in the up\=ana, pa\=ntik\=a and some of the
other mouldings of the adhi\=st\=h\=ana to give strength to the construc-
tion.

A noteworthy feature in two of the structural edifices is the faint
suggestion of gopuras or structures rising over the gateways. These are
inconspicuous in all early temples and assume prominence only during
the mid and later C\=oja periods. The gopura in the Kail\=asan\=atha temple
is just a foot high from the top of the compound wall; this temple also
appears to have a similar gateway in the rear wall of the pr\=ak\=ara. That
the Shore Temple complex had a gopura on the west is indicated by its
plan; the s\=ala above the entrance way on the eastern side is in all prob-
ability the precursor of later gopuras.

2. Architecture during the period from c. A. D. 850-1300

With the revival of the C\=oja Empire under Vij\=ayalaya (c. A. D. 850
-70) Tamilian architecture enters a new phase. For nearly five hundred
years almost the whole of the Tamil country besides parts of modern
Andhra, Karnataka and Kerala were under their hegemony and studded with hundreds of temples. Such a widespread movement of temple building was till then unknown to South Indian history; and not without justification therefore this period is acclaimed as the most fruitful epoch in South Indian art history.* A study of the architectural details of the Cōḷa monuments clearly betrays stylistic ramifications. Cōḷa temples are broadly divisible into three groups; the first group belonging to the period from the accession of Vijayalaya to the accession of Rājarāja I (i.e. from c. A.D. 850 to A.D. 985); the second group assignable to the period from the accession of Rājarāja I to the accession of Kulottunga I (i.e., from c. A.D. 985 to A.D. 1070); and the third group comprising the period from the accession of Kulottunga I to the decline and fall of the Cōḷa Empire under Rājarāja III and Rājendra III (i.e., from c. A. D. 1070 to A. D. 1280).

In stylistic features the early Cōḷa temples break away from the structural temples of the Pallavas and anticipate the larger temples of the mid and later Cōḷa periods. The lowermost tier of the vimāṇa which is found extended to the ardha-mantapa in front of the central shrine in Pallava temples is restricted to the shrine alone in Cōḷa temples, the Vijayalayaśāhīvara at Narttamalai being an interesting exception. The kumuda moulding in the adhiṣṭhāna which is chamfered in Pallava temples continues to be so in the Cōḷa period for some time but soon gets a rounded shape. The cornice which in many Pallava monuments is only a projecting tier gets a flexed appearance in Cōḷa temples. The lion and vyalā motifs in pillars characteristic of the former are dispensed with in the latter. Further the pillars and pilasters in the latter are comparatively much expanded with changes in the shape of the idal below. The corbels get an angular profile and is bevelled resulting in a triangular tenon-like projection. The space in niches in the walls of early Cōḷa temples is narrower unlike in the early Pallava monuments and like a few late Pallava structures. The showel headed finials of the kūdus of the Pallava temples is replaced by lion-headed ones in the Cōḷa period. Again unlike the Pallava shrines those of the Cōḷa period are

* At the same time it deserves to be remembered that not all the temples in the south can be attributed to the Colas for in the southern parts of Tamil Nadu there are a good number of Pandya structures which deserve careful study from the point of view of the architectural trends they show. Among them mention may be made of the temples at Uraikosamangalai, Kaliyappatti, Vizalur, Enadi, Kovilpatti, Trirappattur, Ukkirankottai, etc., roughly assignable to the second half of the ninth century A.D. These along with other contemporary and later constructions of the Pandya kings await systematic study at the hands of art historians. Similarly attempts are being made in recent years to distinguish the artistic creations of minor dynasties like the Muttaraiyars, Irukkuvels, etc., whose territories were wedged in between those of the Colas and Pandyas.
devoid of extravagant sculptural embellishment on the exterior of the shrine walls, clearly demonstrating a taste for plain space.

A noteworthy feature in the early Cōḷa temple complex is the introduction of subshrines for the Parivāra-devatas, viz., Gaṇeśa, Subrahmaṇya, Śūrya, Candra, Saptamātrikas, Jyeṣṭhā, Cāṇḍikeśvara and Nandi—a feature which is also found in the Viraṭānēśvara temple at Tiruttani, a late Pallava shrine, chronologically coeval with the early Cōḷa period and hence with an amalgam of Pallava and Cōḷa characteristics. The gopuras in the early Cōḷa temples continue to be small and are overshadowed by the rising vimāna. Invariably all temples are small in size and simple in plan. Extant shrines of the period bearing the above characteristics in varying degrees are many; among them mention must be made of the Vijayalaya-cōḷiśvaram at Nattamalai, the Avanikandarppa iśvaram at Kilaiyur, Koraṅganāththa at Srinivasanallur, Nāgeśvara at Kumbhakonam (central shrine), Mullai-vaṇanāṭha at Tirukkarugavur, the Kadaṅavaneśvara at Erumbur, Brahmapuriśvāra at Pullamangai, Naltupai iśvaram at Punjai, Mūvakkoyil at Kodumbalur besides a number of smaller temples in the Pudukkottai area. These temples are either single storeyed with a globular sikhara or two or three storeyed possessing all the architectural angas.

The temples that were built under Āditya II and Uttama-cōḷa, and particularly those under the patronage of Śembiyān Mahādēvi, show a few significant changes or improvements in architecture. The temples at Tirukkodikka-val, Śembiyanmahadevi, Anangur, Aduturai, Tirunarayur, Kuttalam, etc.—all in the Thanjavur district—which were built by the pious Śembiyan Mahādēvi have a greater number of niches in the exterior of the shrine walls accommodating images of Nāṭarāja, Agastya, Bhikṣāṇa, Ardhanārīśvara etc. At Śembiyanmahadevi and in the Acalaśvara shrine at Tiruvallur there are more niches enshrining portrait sculptures, a feature which is already noticed in the Nāgeśvara and Koranganāṭha shrines, built during the early half of the first phase of the early Cōḷa period. It has also been shown that another characteristic feature of the temples of the later phases of the early Cōḷa period is the introduction of a ‘false antarāḷa’.

The reigns of Rājarāja I and Rājendra I, particularly that of the former, carry the early Cōḷa architectural traditions to the late Cōḷa period. Numerous are the temples attributable to this middle Cōḷa period on fairly reasonable grounds, though only a few of them are the most recondite examples. The rest are small in size and almost uniform in plan and are much like earlier temples, though a few architectural features distinguish them from earlier edifices. Among the temples of
this class mention must be made of the shrines of Uttarakailasa in the temple of Pañcanadeśvara at Tiruvadi, Vaidyanatha at Tirumalavadi, the Cōjaśvara at Melpadi, Kṣetrapaladeva at Tiruvalanjadi, the Haratīrtheśvara at Tiruvarangulam, the little shrines at Dadapuram, etc.

The most typically representative temples of this period are the Bṛhadīśvaras at Thanjavur and Gangaikondacholapuram. In these are encountered certain architectural characteristics indicating a tendency to 'improve' and elaborate the earlier details. In the first place there is a significant change in the adhiṣṭhāna. The pitha is ornamented with pilasters and carry a kapota. The introduction of a kapota may be said to be a distinguishing feature of temples of this period and is unknown to early temples with the solitary exception of the Brahmapuriśvara at Pullamangai. The other usual members of the basement are elaborated to conform to the dimensions of the prāśāda. The vertical walls rising over the adhiṣṭhāna are divided into two by a cornice, massive and curved, with several kūḍu decorations and this provides the appearance of two storeys as in the early temple of Koraṅganātha at Srinivasanallur.

The walls of these temples have a greater number of niches enshrining images of the various avasaras of Śiva. A semi-circular arch (tiruvācci) the centre of which is identical with that of the kūḍu appears beneath the architrave and over the niche. The floriated tails of the crocodiles on the sides of the arch are reminiscent of the makara-toranas of the Pallava period and it is only in the late Cōja period that it disappears. Another distinguishing feature of the temples of the middle phase of Cōja architecture is the introduction of kumha-pañjara in between the niches. It is in the form of a pillar or tree issuing from a vase (kumbha). Technically this is not a kumbha-pañjara because the pañjara element occurs as a top member only in monuments built from the fourteenth century onwards. In the Thanjavur temple the kumbha is crowned not by a pañjara but by a 'sort of capital with brackets of rearing horses supporting an ornament which in general resembles the tiruvācci described above and takes the shape of a flower bearing flames or arabesques.' The kūḍus in the cornice are crowned by a lion mask and contain low reliefs of deities. The corbels are of 'the simple level and tenon type; the chamferring being on the extreme thirds of the width of the corbel leaving the middle third in the form of an angular and pendentive tenon in between.'

In spite of considerable stylistic advancement the temple complex in the middle Cōja period is dominated by the vimāna and not the gopura. The twin gopuras at Thanjavur called Rājarāja Tiruvāsal and Kēraḷaṁtanak Tiruvāsal in inscriptions and architecturally coeval with the
prāsāda, no doubt mark a new era in the evolution of the South Indian gopura but are overshadowed by the sky-scraping vimāna rising majestically to a height of 190 feet. The gopura of the temple at Gangaikonda cholapuram is not extant; but its basement reveals that it was smaller than the vimāna in height. Though not as tall as several late Cōja and still later gopuras, the Thanjavur pair is obviously taller than all the previous towers and is decked for the first time, with sculptures delineating the different sports and iconographic forms of deities.

A notable large change in the temple complex is effected during this period by the increasing importance of a separate shrine for goddess. One does not come across many shrines for the goddess in the early Cōja period though Durgā had a chamber of her own. Even in the Thanjavur temple the Devī shrine is a later addition and does not seem to be earlier than the 13th century. It is from the reign of Rājendra Cōja (I) that Tirukkāmakōṭṭams, as the Devī shrines were called, were popular and regularly built to enshrine the goddess separately.

Temples of the final phase of Cōja architecture which are more natural in style are many among which the Airāvatesvara at Darasuram and the Kampaharesvara at Tribhuvanam, both near Kumbhakonam in the Thanjavur district, are the typically representative examples. Besides, interesting developments in architectural style, a marked elaboration of the temple complex, is a feature common to all the temples of this phase. It appears that temples had a number of prākāras with gopura entrances to each. The torus (kumudu) moulding in the basement is rounded and has a smooth surface, though in a few cases like the Kampaharesvara at Tribhuvanam it is decorated with vertical grooves or ribs. The makara-toranas over the niches in the walls and in the adhisṭhāna are semicircular and in some cases exaggeratedly tall and narrow with reverse curves on each side. The pāda and phalaka in the pilasters are tetragonal, the survival of an early Cōja feature. It is in the intervening members of the pilasters that the beginnings of the polygonal section is noticed. The phalaka in the temples of this period is thinner than that in earlier shrines. The doucine (padma) below the phalaka, which is inverted and smooth in early temples, becomes now well-developed with expanding petals. The central tenon of the corbel in late Cōja temples are like that of the Brhadiśvara at Thanjavur but the chamfered parts on either side develop into a ‘madalai’ in anticipation of the future pūgpadōdī. The kumbha-pañjāras in these temples are much developed and carry on top over the abacus the superstructure of a pañjāra. The pillars in the maṭtapaś of these temples (like the Airāvatesvara at Darasuram) have attached pilasters on their sides with yalis and elephants as their bases. This is called Aniyottikal.
Another interesting feature noticeable in the temples of the late Coṇa period is the increased height of the gopura which is taller than the vimāna. The temples of Kampaharesvara at Tribhuvanam and the Tyagarāja at Tiruvarur which have all the characteristics of a late Coṇa temple have squat gopuras; but these are exceptions. The five storeyed gopuras at Tiruvenkadu, Uyyakondan-Tirumalai, Tiruchchengattankudi and Kumbhakonam (Nāgaśvara temple) must belong to the late Coṇa variety. Besides the gopura, pillared maṇṭapas were also built within the temple complex, some of which are shaped in the form of a chariot by the addition of wheels and horses and elephants. Such chariot-maṇṭapas are unknown in the earlier periods. Examples of ratha-shaped maṇṭapas are met with in the Nāgaśvara and Śaṅkara temples at Kumbhakonam, besides the shrines at Palayarai, Vriddhachalam, Tiruvarur, Darasuram, Taramangalam, etc.

3. Architecture after c. A. D. 1300

With the birth of the Vijayanagar Empire under the Śangama brothers and the extension of its hegemony over the Tamil country temple architecture and sculpture acquire fresh and significant characteristics. There is a further elaboration of the temple complex and a development in every one of its architectural components. The rulers of the Vijayanagar dynasty and their many viceroys in different parts of the Empire were busy more with making additions to the existing temples than building fresh ones. There is perhaps not even a single old monument in the Tamil country to which an addition was not made during the Vijayanagar period. The most significant and the typically representative work of the Vijayanagar architects are to be found in Kanchipuram, Tiruvannamalai, Chidambaram, Kumbhakonam, Madurai, Srirangam and Vellore, not to mention a host of other places.

These temples contain many a maṇṭapa within the temple complex—a feature necessitated by the multiplication and elaboration of religious and ceremonial observances. The Kalyāṇa-maṇṭapa, Sopāna-maṇṭapa, Dāvana-maṇṭapa, Snapanā-maṇṭapa, Alanākāra-maṇṭapa, etc., are the usual maṇṭapas, among which the first is the most famous and invariably added to temples during the period. These maṇṭapas are pillared halls, open or closed, and contain either a shrine or a raised platform over a huge tortoise either in the centre or at one end. The Kalyāṇa-maṇṭapas at Vellore and Srirangam are fairly large and remarkable for their prodigal sculptural decoration; in these every part of the pillar is decked with either a relief of a deity representing some iconographic form or other or a mythological legend or atleast diverse types of archi-
tectural patterns. The crowning feature is the presence of the bold reliefs of riders attached to pillars and riding on a horse or lion or yāḷi.

The pillar is one of the architectural components that undergo interesting changes during the Vijayanagar period also. The fluted type of simple pillars is generally dispensed with and its place is taken by huge and monolithic ones; as noticed above a frequent and striking type of pillar design is that in which ‘the shaft becomes merely a central core for the attachment of an involved group of statuary, often of heroic size and chiselled entirely in the round, having as its most conspicuous element a furiously rearing horse, rampant hippogryph, or, upraised animal of a supernatural kind’. A second variety is the pattern of the monolithic pillar having a central column with mystical and slender miniature columnettes reminiscent of the Gothic nook-shafts. The shaft is composed of miniature shrines and arranged in zones one above the other in less complicated pattern of column. Equally attractive is the category of shafts that are divided into many cubical motifs separated by bands chamferred into eight or sixteen sides. Pillars of all varieties have ornamental brackets forming their capitals below each of which is a pendent. The lust for the richness of detail that animated the Vijayanagar age elaborated this pendent into a ‘volute which terminates as an invented lotus bud’.

The niches in the temples of the Vijayanagar period are not surmounted by toraṇas of various types and patterns as in Pallava and early and late Cōḷa monuments but by paṇḍara design. This paṇḍara is a sala with an elongated roof surmounted by a row of finials. The upper part of the niche is plain and simple except perhaps for the kūḍu which is sculptured in a few of the paṇḍaras. The inside space of the niche is narrower now than in the late Cōḷa period, and what is significant is that it does not enshrine any image but remains simply an ornamental feature. The kūḍus are topped by a lion-mask as in Cōḷa temples but are empty.

Perhaps the most striking characteristic of the Vijayanagar temples is their huge prākāras with entrance gate-ways over which rise imposing towers. In size the temples of this period are larger than those of the preceding epochs and necessarily therefore the prākāras, usually more than one, are large. It is in these prākāras that the maṇḍapas noted above are built. The gopuras rising over the dvāras in the prākāra walls easily overshadow the vimāṇas rising over the central cela. Though this feature is already noticed in temples of the late Cōḷa period it is in the Vijayanagar monuments that it reaches its logical extent. The gopuras are generally seven or nine-storeyed and are large and tall though a few short and stunted towers are not wanting. The most typi-
cal gopuras of this period are some of those found at Kanchipuram, Srirangam, and Tiruvannamalai. The main gopura of the Ēkāmranātha temple at Kanchipuram, and probably the northern gopura at Chidambaram are attributable to the Vijayanagar Emperor Kṛṣṇadevarāya, whose inscriptions are found in them. Generally speaking the Vijayanagar gopuras are rich with such architectural models as śālas, karṇa-kūṭas and alpa-nāsikas rather than sculptural decorations. The base of the gopura and the bhīṭṭi rising over it and below the cornice, however, contain niches with fairly bold reliefs of gods and goddesses.

The Vijayanagar pattern of architecture was vigorously continued by the Nāyak rulers of Madurai, Thanjavur and Gingee in the Tamil country, among whom the first contributed more than the other two. Certain minor but interesting innovations and elaborations were made by the Nāyaks of Madurai. In the temples built or repaired by them as the ones at Madurai, Srivilliputtur, Ramesvaram and Tirunelveli the corbels of the pillars show at their ends a plantain flower-like motif. The gopuras continue to be tall and perhaps taller than the Vijayanagar towers as exemplified by the Vaṭapatraśāyi gopura at Srivilliputtur which is eleven storeyed. The corridors in the temples of the Nāyak period are provided with ceilings which are invariably painted.

B. SCULPTURE

a. Pallava Sculptures

The art of sculpture in a developed scale in the Tamil country, like that of architecture, begins only with the Pallavas, though it was not unknown in the earlier period. Like all Indian sculpture, Pallava sculpture is overwhelmingly figurative in its subject matter. The human figure was the main pivot of the Pallava sculptural art with its remarkable sublimity and sensuousness. The Pallava human frame is an ‘aggrandised and simplified’ edition of the Amaravati physiognomy bearing the ‘heavy impress’ of the form of the rock-cut reliefs of the Deccan. In it “the lines develop into contours, the contours merge and die away in delicacy of lines with surprising ease and skill and surpassing lack of effort.” The type of the figure is leonine with broad shoulders and an attenuated waist. A striking and happy simplicity of form and contour has been achieved by a conscious suppression of smaller anatomical details. In the rendering of the human frame the intention of the Pallava craftsmen was to “idealise and generalise human anatomy to the essentials of major forms, ignoring trivial details and evolving a power of synthetic presentation of form which is denied to those who work from a posing model and which comes spontaneously to those cultivating a memory of the essentials of forms.” What is emphasized in the carvings of Mamallapuram and Kanchipuram is the
frame of the body at the expense of decorative details like costume and ornaments though they are not altogether wanting.

The Pallava reliefs differ in several ways from the sculptures of the West Indian and Deccan caves, though they are cut in the same way. The main pivot of the rock-cut sculptural art in the Deccan was the heavy and earth bound type of human figure. It is sturdy and solid bordering at times on stiffness too. As against this—especially the massiveness, poise and strength of the figures at Ellora and Elephanta—the Pallava physiognomy is slender, agitated and light. This is because of the Pallava inheritance of the Amaravati heritage with its emphasis on elegant attenuation of forms and animated gestures of movements. The fuller type of the face at Elephanta and Ellora assumes a flatter and narrower shape in the Pallava domain. It is not difficult to recognise that in the rock-cut caves in the Deccan chisels are hammered in deep cuts with an inner slant which results in the creation of the volume in a full rounded form, though the sculptures are but reliefs. The Pallava reliefs, though not low, are not as bold as the West Indian ones; and the reason for this was perhaps the inevitable choice of the hard rock in which they are carved.

As said earlier, with the solitary exception of the Lalitāṅkura-Pallavēśvaragṛha at Tiruchirappalli, the other rock-hewn caves of Mahendravarman I are devoid of much sculptural embellishment. Sculptures in these caves mostly consist of a pair of dvārapālas guarding the entrances and almost invariably leaning on their clubs; and a glance of their types in different caves would reveal the successful attempts made by the Pallava craftsmen in perfecting physiognomy. The fierce and forbidding warriors of Mandagappattu obtain a graceful pose of the abhanīga flexion at Vallam, while at Mahendravadi they are distinguished by a refined and free-standing posture. More than many of these pairs of carvings illustrating the successive stages in the evolution of Pallava plastic art, the one that makes the onlooker spell bound is the Ganga-vatāraga panel at Tiruchirappalli. The masterly realism and consummate craftsmanship with which the cosmic event of Gangā’s advent is rendered here makes it verily a lively tapestry in stone. *

* This Gangadhara sculpture has been taken by Michael Lockwood and his colleagues, Gift Sirooney and Dayanandan “as a portrait or representation of the king himself” (i. e. Pallava Mahendravarman I). They interpret the inscriptions in the cave which record the carving of the image under study to mean that “the king Mahendra had an image of god carved which image was at the same time a portrait or representation of the king himself.” It is also suggested on the basis of their study and interpretation that the practice of making ‘God-king’ images which was common
When compared with the simplicity and general paucity of sculptures in the excavations of Mahendravarman the provision of numerous carvings in the caves and monoliths of his son and grandson Narasimhavarman I and Paramesvaravarman I, is indeed striking. Not only the side and back walls of the interior of the caves and the outer walls of the monoliths are now provided with sculptures depicting scenes from many a mythological legend but even large rocks lend themselves to the carving of open air bas-reliefs of colossal dimensions. The earlier sculptures of the reign of Mahendravarman I, realistic as they are, obtain a discernible maturity in perfection in these figures.

The dvārapālas of this Māmalla phase are seen inside the caves flanking the entrances of shrines unlike some of Mahendravarman's shown outside on the facade of the caves. Not only do they dispense with the heavy clubs of the Mahendra variety but turn straight towards the shrine, unlike many dvārapālas of earlier caves which behold the onlooker. Their figures are both vigorous and tender and at times exhibit a pleasing slenderness and grace. Other sculptures of this phase of Pallava art, as well as those in the structural temples that were built subsequently, consist mostly of divinities, Śaiva and Vaiṣṇava. The numerous sports, incarnations and iconographic forms of Viṣṇu and many an aspect of Śiva rendered in stone in these monuments bespeak the evolved iconography of the period.

Now to the characteristic features of Pallava sculptures. Till the middle of the eighth century A.D. which may be approximately taken to be the period when most of the Pallava structural temples were completed the images are characterised by a striking naturalism in pose and an attenuated physiognomy. A rather longer face, double chin and a flat nose are the chief physiognomic traits. Even the front of the torso is at times flat. Costumes and ornaments are simple and not many; and, as seen earlier, it was the deliberate aim of the sculptor to subordinate decorative details to the frame of the body. As a result drapery is invariably simple and consists of a girdle with its main loop hanging in a broad curve and the left hand projecting obliquely upwards from near the middle in front. As said earlier, the shape of the yajñahopavita—its running over the right arm—is generally taken to be a much dependable stylistic clue. No doubt a large number of Pallava images

in the eastern colonies of India existed in India also and probably originated in it. (See Mahabalipuram Studies, pp. 34-41).

If this is accepted the present image would also be one of the earliest portraits in Tamil Nadu. In this connection it may also be pointed out that Pallava sculptures in general are abstract and schematic and there is not noticed much detectable difference between the representation of gods and portraits among them.
have it running over their right arms but this mode of representation, unlike a few other stylistic features of Pallava sculptures, has travelled to succeeding ages as well, thereby limiting one's exclusive dependence on it. In fact there are many Cōḷa images with yajñopavita running over their right arm.

When sculptures are of the deities, they are endowed with their iconographic cognizances, which are either held by them naturally in the hands or placed immediately above them. Here also it is often said that in the Viṣṇu images of this period flames do not appear in the emblems held. The emblems held in the several carvings of Viṣṇu and his incarnations in the outerwall of the sanctum of the Vaikuṇṭha-perumāḷ temple at Kanchipuram, attributed to the time of Nandivarman II Pallavamalla and the still earlier temple of Kailāsanātha, built by Narasimhavarman II Rājasimha at the same place, have recognisable flames at the sides and above. Of the weapons of Viṣṇu the discus is always shown in the Pallava period in profile signifying that it is in the prayogam form—a pattern which is continued in a few early Cōḷa images also.

When the Pallavas were engaged in such a prolific sculptural activity in the Toṇḍaimaṇḍalam and in the regions immediately to the south of it, the Pāṇḍyas in the extreme south were busy making their own contributions. The chief centres of Pāṇḍya art are Tirumalaipuram, Tirupparankunram, Kunnakkudi, Chokkampatti, Kalugumalai, etc. Stylistically and in decorative details, in conception and in execution the Pāṇḍya carvings are not much different from the Pallava reliefs and appear to be just another edition of Pallava art, though in the realm of iconography it seems to strike a slightly different note. The provision of a mrdanga instead of the viṇā to the Dakṣināmūrti figure in the monolithic rock-cut excavation at Kalugumalai and the decoration of Viṣṇu with kannavīra—an ornament usually associated with goddesses and minor gods only—at Kalugumalai are instances in point. The contributions of the minor dynasties like the Muttaraiyars and the Adigaimans combine in some respects the art and iconographic traditions of both the Pallavas and Pāṇḍyas.

b. Cōḷa Sculptures

With the revival of the Cōḷa Empire under Vijayālaya Tamilian art also enters a new phase. Though strictly speaking Cōḷa sculptural art is only a continuation and development of that of the Pallavas and the early Pāṇḍyas, it developed certain distinct stylistic characteristics. The abundance of early Cōḷa sculptures with a few diversifications in style and the want of adequate investigations on them render it rather
difficult to speak of their general features in any authoritative manner. However, some of the characteristics are too obvious to be overlooked.

Sculpture under the Cōḷaśas is relieved of its architectonic context and it may even be said that it is “subsidiary to architecture”. The style may be characterised as ‘fluent’ thanks to the continuous experience in the art of stone cutting and carving from about A. D. 600. The striking attenuation of the Pallava period is replaced now by very subtle rhythmic quality, and what is more Cōḷa sculptures are pleasingly delicate in outline. A flat upper torso, protuberance on the knees and a soft and supple form are some of the interesting physiognomical traits shared by a large number of Cōḷa specimens.

The two most significant features that elevate Cōḷa sculptures to the status of a great art consist in their humanism and the freedom from pose. As observed earlier, it is not difficult to realise that Pallava sculptures are abstract and schematic and that there is not much of difference between Pallava representations of gods and portraits. It is in Cōḷa art that one encounters an attractive conception of life and beauty; it is in Cōḷa art that one finds the spirit of humanism pervading all through. In other words the gods remain gods and the portraits remain portraits. In the art of portraiture the individual is not merged in a type and each image has an individuality of its own. Again while Pallava images, particularly the rock-cut carvings, are stiff and heavy and even disproportionate at times, Cōḷa images are characterised by a pleasing freedom of pose.

Cōḷa sculptures are endowed with naturalistic and a somewhat elaborate treatment of decorative details. While these details in Pallava images are suggested by soft lines which, not infrequently, merge in the modelling, they are in bold and emphatic lines in the carvings of the period under review. The kāṭisūtra in the Pallava figures is simple and consists of a flat band around the waist with a broad and semicircular loop falling below over the thighs. The ends of this kāṭisūtra in the shape of a long loop with free ends is seen on either side of the image. A long strip extending up to the ankles is found below the side loops of the kāṭisūra. Some scholars feel that the lion-head clasp which is invariably found in Cōḷa images was absent in the Pallava period but this detail is seen even in the Kailāsanātha temple at Kanchipuram built under Narasimhavarman II Rajāśimha. In the period of transition from Pallava to Cōḷa the lower loop which is semicircular in shape is found running halfway diagonally on either side forming a smaller semicircle at the median point alone. In the early Cōḷa period not only the side loops and tassels are thinner near the kāṭisūtra but
the long strip extending downwards from it is seen divided into two and reaching the knee or even below it. The neck ornaments of the Pallava figures are invariably simple and hárás worn are usually two in number. While one of them is a neck chain, the other is a flat kañṭhi with a tassel suspended from it. In the early Cōṇa period this kañṭhi becomes somewhat broad and decked with flower designs. The yajñopavita, which is broad and ribbon-like in Pallava sculptures flowing either over the right arm or in the normal way, becomes sinewy in the early Cōṇa period, though the ribbon-shape and clasp continue. The Skandhamāla (shoulder tassel) which is absent in Pallava images makes its debut only in the early Cōṇa period.

Before we pass on to consider art under the later Cōṇas the technique of early Cōṇa sculpture may be discussed. While Pallava carvings are bas-reliefs, Cōṇa images are largely fully in the round, though examples in the alto-relievo method are not wanting; the forms of even the reliefs that are undetached from the blocks from which they have been carved stand out boldly thanks to the technical skill of the execution. This is, however, not to deny the currency of the unifacial (ardha-citra) representation of images in the beginning stages of the evolution of free standing sculptures. Instances of independent Cōṇa sculptures appearing like reliefs, "torn" from their architectural context on the walls of shrines and with the space between the arms cut away providing the impression of an image in the round but with the provision of "stays" to connect the iconographic cognizances held by the arms with the shoulders, are not altogether wanting. These are interesting examples of sculptures in the round continuing the technique of reliefs; and the practice of carving statues of this class has continued even after the birth and wide vogue of images fully in the round.

It is rather difficult to speak of the general characteristics of late Cōṇa sculptures as is the case with the early Cōṇa sculptures because of their enormous numbers. They display interesting variations in style and decorative details. More than one school of late Cōṇa sculpture appear to have persisted, one preserving the classical tradition of the early period and the others attempting to conventionalise in varying degrees in anticipation of the grotesque stylization that is to characterise the future. The tendency to elaborate and ‘improve’, a feature noticed in architecture is extended to the decorative details of the images.

The composition is generally large and subordinate figures are seen within the niche unlike the early Cōṇa examples where they flank the devakoṣṭha. Prabhā-arch is noticed behind the head of the principal figures in many of the upper-tier sculptures in temples. Generally the
images are in bold relief, though round ones are not wanting. Figures are shown frontally, and profiles are rare.

Some of the specimens of the period are poor in depth of conception, and formal and weak in their presentation of themes. The torso becomes thick and squatty, unlike the elegant and natural shape of it in early Cōja sculptures. The under garment which is invariably brought down below the knees encumbers the effect of the modelling of the limbs.

While the lower loop in the kājīsūtras of the early Cōja sculptures are semicircular, it ceases to be so in the late Cōja period but falls straight half-way on both sides immediately below the upper-band, and is held tight by two ribbon bands proceeding from a lion-mouth clasp on either side, whence it flows down to form, not a median loop, but what one might call a median square pattern. The side tassels and strips become a little more stylised and of the two long strips on either side, one is definitely short, ending half-way near the knee, while the other runs the usual length. The skandhamāla (shoulder tassel) is found on both the shoulders in late Cōja sculptures. The pipal-leaf decoration of the earlier period is replaced by a thick stand. The neck ornamentation is much elaborated. The flowing hārā cuts across and runs below the kapiṭhi. It is composed of a series of circular heads or pearls. The strands in the yajñopavīta multiply and the clasp loses the double-bell shape, it being replaced by a short series of packed and thick rings. The loop and tassels are, however, still present in the yajñopavīta. In late Cōja images, especially metal icons, a long tassel-like decoration covers the ear half-way. The makuṭa (head gear) is cylindrical, though it acquires a slightly conical shape towards the top.

c. Vijayanagar sculptures

The decline and fall of the Cōja Empire had inevitable impact on the art and architecture of the Tamil country for it meant the withdrawal of a powerful patronising agency. However, the rise of the Vijayanagar rulers in the lower Deccan and their eventual supremacy over Tamil Nadu was a welcome phenomenon with the resultant encouragement to various arts. The sculptural art of the Vijayanagar period commands one's attention not so much for its aesthetic qualities as for its prodigious output and the diverse themes it chose to represent.

The icons of gods and goddesses, it may be pointed out, are comparatively more Vaiṣṇava than Śaiva and this is the natural result of the favour enjoyed by the former during the period, without, however, any prejudice to the latter. The ten incarnations of Viṣṇu, numerous sports of Kṛṣṇa and incidents from the Rāmāyana and the Mahābhārata are to
be encountered in reliefs either in the pillars in the maṇṭapas or in other places in the temple.

Perhaps a very significant introduction during the Vijayanagar period is the Ganga—Yamuna motif. This relates to two feminine figures in bold relief on both sides of the entrance under the gopura of the temple, one of them representing the river goddess Ganga and the other Yamuna, both generally on their respective vahanas. From the mouth of the vahana rises a thick plant, comes round the figure and rises above with involute circles in which are sculptural reliefs of the ten incarnations of Viṣṇu. This practice of representing the river goddesses at the entrances had been in vogue in North India from the Gupta period onwards, but was introduced in the South only under the Vijayanagar rulers.

Vijayanagar art is striking also in its depiction of scenes from contemporary life particularly on the social side. In them one encounters scenes of dances and kōṭṭam or hunting, besides other things. Though animal sculpture is common to all phases of Indian art it reaches an acme of development now and is figured in groups and panels. Reliefs of elephants, horses, tigers, monkeys, bears and varieties of birds are carved in larger numbers in a realistic manner. The art of the period is rich in decorative designs, floral patterns and spiralling tendrils. Though the repetition of these decorative motifs are conventional, they have a charm of their own.

A greater number of portrait sculptures are met with, though in these the individual is merged in a type, the images not coming anywhere near the early Cōja portraits either in conception or in naturalistic treatment. These are carved in relief in pillars and pilasters and a few of them are either in too bold a relief or fully in the round.

Vijayanagar sculptures, it is easy to recognise, are very much conventionalised in every detail. They are very formal and rigid and lack the naturalness and softness of the sculptures of the earlier periods. The pose is stiff and the face becomes expressionless. The nose becomes pointed and the cheeks are vertically grooved. The elaboration of draperies, ornaments and other decorative devices, started during the late Cōja period, is continued now with greater vigour. The kaṭisūtra is much stylised and the two faces of the makara in it are turned away from each other. Two ribbon ends and strings issue from the mouths of the makara and gracefully flow across the band of the kaṭisūtra. The side loops and tassels also undergo interesting changes. A knob appears on the loops and the free ends of the ribbon near the waist-band and the long strip on the sides multiply themselves. The yaṣṭopavita continues to multiply as in the later Cōja period; the bell-shaped clasp
Fig. 1. The peninsular palaeolithic or Madras industry, Acheulian types,
All from Attrampakkam terrace
(Adopted from Ancient India, No. 9 p. 59)
Fig 2. The peninsular palaeolithic or Madras industry, Acheulian types
All from Attrampakkam terrace
(Adopted from Ancient India, No 9. p. 59)
Fig 3. Typical Neolithic tools from Sanganakallu—Bellary (Karnataka State).
(Adopted from "The Personality of India" Baroda. Fig 15)
TERDAL-1965
NEOLITHIC BURIAL

Fig. 5
(Adopted from Purātattva, No. 3)
Fig. 5 Burial urn (in situ), Amirtamangalam

By Courtesy: Archaeological Survey of India
EATYTHSRJNA

Fig. 6. Inscribed potsherd from Uraiya
(Adapted from “Early South Indian Palaeography,” University of Madras, 1967)
Fig. 7 Seal and plates of the Pallankoll set of Copper plates of Pallava Simhavarma III
Fig. 8 Mandagappattu Cave of Mahendravarman I
By Courtesy: Archaeological Survey of India

Fig. 9 Apsidal Siva temple, Kuram (dilapidated)
By Courtesy: Archaeological Survey of India
Fig. 10 Talagiriśvara temple, Panamalai
Fig. 11 Vettuvankoli, Kalugumalai
By Courtesy: Archaeological Survey of India

Fig. 12 Details of Vimāna
Śiva temple, Pullamangai
Fig. 13 Brihadisvara temple, Thanjavur
By Courtesy: Archaeological Survey of India

Fig. 14 Rājarājēśvara temple, Darasuram (foreground: Ratha-mantapa)
By Courtesy: Archaeological Survey of India
Fig. 15 Squat Gopura, Tiruvarur

By Courtesy: Archaeological Survey of India

Fig. 16 Row of pillars in the Kalyana-mantapa, Vellore temple
disappears and a single ring is generally shown as a clasp through which the jajñopavīta passes. Though the makuṭa is generally cylindrical in many cases, it acquires a conical shape in the period as is noticed in the skandhamālā (shoulder tassel). This ornamental tassel develops into two strands, one simply banding and the other encircling the shoulder. The armlets and bracelets are very simple in shape and consist generally of beads. While pādāsaras are the only leg ornaments noticed in earlier sculptures, occasionally a tight fitting or coil-shaped band over the ankles is seen in Vijayanagar sculptures. The conch and wheel in the hands of Viṣṇu are conventionalised and flames and other appendages are noticed in them. Though the beginnings of these are traceable to earlier periods it is in the Vijayanagar period that they are very prominent. The tilaka or the nāma, the mark on the forehead, which has much philosophical and religious import, is not usually found in earlier periods, but makes its appearance in the Vijayanagar carvings.
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