

INDOLOGICAL ESSAYS

Commemorative Volume II

for

GIFT SIROMONEY

edited by

Michael Lockwood

Department of Statistics
Madras Christian College

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PREFACE

Gift Siromoney was associated with the Madras Christian College for thirty-eight years, first as a student in the Honours course in mathematics, and then as a faculty member. When the statistics department was started in 1970, Dr. Siromoney was its guiding spirit and first chairman.

In the following years, he received national and international recognition for his work in statistics and, in collaboration with his wife, Dr. Rani Siromoney, in such rarefied areas as Formal Grammars and Automata Theory. The first Commemorative Volume for Gift Siromoney, *A Perspective in Theoretical Computer Science* (1989), represents a broad area in which he made distinguished contributions. The total range of his research was remarkable. The selection of his research work in this volume—a selection just in the field of Indology—will afford a glimpse of his multifaceted mind.

One of the articles included describes many of the trees and flowering plants of our beautiful campus, and notes the significance that these had for the ancients as expressed in early Tamil literature.

Opinion polls conducted in our state of Tamil Nadu in 1972 by faculty and students of the statistics department covered political and other topics. The study on deities and devotees in this volume is based on responses to questions included in these two polls. The kind of information revealed in this study is available nowhere else.

Dr. Siromoney's name will always be connected with Mahabalipuram. He introduced many of us to this fascinating treasure-site of ancient monuments; and, together with his colleagues, he produced pioneering studies, applying computer iconometric techniques for the first time to Indian monuments. The article, here, on "Temple Carvings of South India" is an example of this type of research. It was first published in a journal of the I.B.M. Corporation.

His love of birds finds expression in his wry, short, and incisive account of the Neophron Vultures of Tirukkalukunram—perhaps the most famous birds of South India.

His boyhood fascination with cryptography was the foundation of his insight into the origin of the Brāhmī script. (Brāhmī is the parent of all Indian scripts—barring the recently introduced ones, such as the Roman/English and Arabic, and the most ancient, the Indus.) One day in 1977—Monday morning, April 11th, to be exact—he and I were traveling on his motorcycle to Teneri to visit an archaeological site. We had been discussing various theories on the origin of the Brāhmī script. Suddenly, he pulled off to the side of the road, and, in the dust of the roadside, he traced out the diagrams that became the basis of our paper on the invention of the Brāhmī script.

His active involvement with both Indian and western music led to his discovery of the oldest (early 8th century, A.D.) representation or portrayal in South India of a bowed instrument: "A Pallava Musical Instrument".

His research 'in the field' included the discovery of some early Tamil Brāhmī inscriptions and his noting the occurrence of the *puḷḷi* (the dot) in them. Such a paper may seem arcane and of little concern to other areas of learning. But a more precise dating of such an important literary work as the *Tolkāppiyam* is now possible because of his pioneering observation of the *puḷḷi*! And the date so arrived at will be a surprise to many.

Dr. Siromoney's research, as can be seen, was not only inter-disciplinary in range and source of stimulus, but also inter-personal in practice. Directly and indirectly, he did more to promote research in our College than any other individual—stimulating and encouraging his students, younger colleagues, and peers in innumerable ways. His warm friendliness extended far beyond the College to people from all walks of life, from the very young to the very old.

The contributors to this volume were friends of Professor Siromoney, and fellow researchers. The papers are offered here as a token of their esteem and are dedicated to his memory.

I wish to thank the members of the Editorial Committee for their counsel: Dr. C.T. Kurien, Mr. Iravatham Mahadevan, and Drs. K.V. Raman, P. Dayanandan, and Abdul Huq.

Tamparam

Michael Lockwood

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CONTRIBUTED PAPERS

THE JAIN SHRINE AT CHITTANNAVASAL : SOME RECONSIDERATIONS

S. Theodore Baskaran

The Site

The mile long, bald, rocky hill at Chittannavasal¹ village, Pudukottai District (10°36' N and 28°43' E) in Tamilnadu is an archaeologist's delight. There are caverns, inscriptions, springs and a rock-cut shrine with paintings. At the foot of the hill is a pre-historic burial site, strewn with dolmens and megaliths. The tunnel in the womb of the hill, leading from one cavern to the other, would interest speleologists.

Chittannavasal is 6 km from Annavasal on the Pudukottai-Annavasal road. Annavasal, now a panchayat village (pop. 5906), was known as Annalvayil during the Cholas and was the headquarters of a *kurram*, an administrative unit of the kingdom.² The term 'Annal' refers to Arugan, the first tirthankara. There is a tank in disuse called *Palli-uranai*³ (the tank of the Jain temple) and there is a tirthankara sculpture on the bank. Considering these evidences, we can observe that Annavasal was a Jain centre, and a suburb of this place was Chittannavasal (Chiru-Annalvayil or the smaller Annalvayil)⁴. An inscription of the 9th century A.D. on the south of the rock-cut cave, chiselled on the surface of the hill, refers to the shrine as the 'temple of Arhat of Annalvayil' (*annalvayil arivar kovil* — *Arivar* is a Tamilized form of the word *Arhat*). Annavasal town, which was originally near the hill, seems to have moved away to its present location.

The Remains

The cavern on top of the hill contains rock-cut beds and tell-tale inscriptions in the brahmi script. The hill had been inhabited by Jain monks for about 1500 years from the 3rd

century B.C. Ascetics came from Mithila in the north⁵ and Oymanadu (present Tindivanam near Madras) in the south.⁶ Located at a strategic point on one of the trunk routes of ancient Tamilnadu, the hill had been used as a watch-tower.⁷ There is a rock-cut shrine at the northern end, scooped out of the western face of the hill. The interior of this shrine contains the famous Chittannavasal frescos, the subject of this paper.

The face of the hill has been levelled off to obtain an even scarp and then the cave has been scooped out. The rock-cut shrine consists of a square sanctum with three relief sculptures of seated jinas on the back wall and a rectangular front hall (*ardha mandapa*) with two bas reliefs of two seated tirthankaras, of which one is Parsavanatha, the 23rd tirthankara.

Early notices

The frescos in this rock-cut cave were taken note of by scholars at the turn of this century. The earliest known attempt to study them was made in 1910 by K. Venkataranga Naidu, the curator of the Pudukottai Museum.⁸ In 1916 Radhakrishna Ayyer also reported the murals and observed that they "look as fresh as though they were only ten or twenty years old".⁹ In 1918 Jouveau-Dubreuil, who was then working on Pallava monuments, wrote to his friend Gopinatha Rao in Pudukottai to visit Chittannavasal village and report on the rock-cut shrine there. Rao visited the site in December 1918, saw the frescos and reported to Dubreuil in a letter dated 27.1.1919. He wrote: "These paintings are perhaps as old as the shrine and are in fairly good state of preservation and need being copied fully". Dubreuil himself visited the shrine on 3.1.1920 and drew the attention of historians and artists through a privately printed note, released in Pudukottai on 13.11.1920.¹⁰ This was later published in the Pudukottai State Gazette.¹¹ M.S.S. Sharma, an artist from Pudukottai, made the first copies of these frescos in 1922.¹² A.H. Longhurst, the Superintendent of the Archaeological Survey of India, Southern Circle, visited the monument and published a note in the Annual Bibliography of

Indian Archaeology for 1930.¹³ The Pudukottai Durbar took interest in the frescos and commissioned S. Paramasivam, Archaeological Chemist in the Madras Museum, to restore and preserve the paintings.¹⁴ Alexander Totenham, who was the Resident at Pudukottai, put up a portico to protect the cave. He transported some later-day granite pillars from Kudimiyamalai by bullock carts and erected this addition.

The authorship of the shrine

On the basis of architectural features Jouveau-Dubreuil had assigned a Mahendravarman I authorship to this cave. Dubreuil, who did meritorious and pioneering work in the field of archaeology in South India did not have as much epigraphical and archaeological data as is the privilege of the present day scholars. Therefore, convinced by the apparent similarity in style, he labelled it a Pallava work. But surprisingly, still the theory of Dubreuil persists, though proved incorrect by more than one scholar.¹⁵ The implication of Dubreuil's theory is that the earlier layer of painting observed in this cave was commissioned by Mahendravarman I. Therefore, it becomes necessary here to examine this view.

On the stylistic plane, the feature that rules out a Mahendravarman authorship of Chittannavasal shrine is the sanctum with relief sculptures. The caves excavated by Mahendravarman I did not feature any sculpture in the sanctum and the object of worship was something made out of perishable material like wood or stucco.¹⁶ The cave shrine at Mandagapattu has been identified, on epigraphical grounds, as the first rock-cut shrine of Mahendravarman when he has already given up Jainism and had been converted a Śaivite.¹⁷ So it is difficult to argue that he cut a Jain shrine after his conversion to Śaivism.

The Pandyas, who had military encounters and marital alliances with the Pallavas, introduced rock-cut architecture in their territory also, and some of these rock-cut shrines are very

similar to Chittannavasal cave.¹⁸ The sequence of rock architecture persisted in the Pandya country long after it had run its course in Tondaimandalam. The Chittannavasal shrine is to be placed in this non-Pallava group. The architectural features of similar non-Pallava rock-cut shrines at Tirumayam, Pillayarpatti, Pudukottai and Kundrakudi support this view. In fact, there is a rock-cut cave at Tirukalakudi, 35 km from Chittannavasal, which is very similar to the Chittannavasal shrine, stylistically.¹⁹ In the light of these facts, Dubreuil's view on the authorship of the Chittannavasal Jain shrine cannot be sustained. His area of study was mostly confined to Tondaimandalam (present Chingelput, North Arcot and South Arcot districts). After closely observing the monuments here and by using a seriation method, he put forth the developmental sequence of rock and masonry architecture. This sequence has been used by subsequent scholars faithfully as a standard to arrive at the relative chronology of monuments all over Tamilnadu. Now that we know about Pandya and other non-Pallava rock-cut works, it is clear that Dubreuil's classification of the temples of Tamilnadu based on his seriation method, needs to be thoroughly re-examined.²⁰

The Paintings

The entire cave, the ceiling, the pillars and the relief sculptures have all been covered with paintings originally. A major portion of the ceiling paintings are intact and three patches on the pillars, though faded and indistinct, have survived. The paintings on the sculptures have disappeared but bits of plaster in the nooks and crannies witness to the painting layer that once covered them. The Tamil inscription on the southern side records details of the renovation work, including painting the hall, carried out by Ilan Cauthaman, a pontiff from Madurai, during the reign of the Pandya king Srimara Sri Vallabha (A.D. 815-62). It is evident that the shrine existed from earlier times. The record goes on to say that the sculpture of Rishabanatha was also painted over.²¹ The symbols of the tirthankaras

(*lañchana*) which distinguish the otherwise similar, iconographically speaking, images of the tirthankaras from one another, would have been painted under each figure but are now missing. Below the figure of Parsavanatha, for example a serpent would have been painted. It is on record that when the paintings were copied for the first time in 1922, colours were observed on these sculptures.²²

The pillars are massive at the top and bottom, with an octagonal middle portion, like the early Pallava pillars. Of the two pillars, the one on the left, as you face the cave, bears one fragmentary painting and the other on the right, two fragments of paintings. The painting on the left pillar is on the front side of the upper cubical portion (*saduram*) and portrays a danseuse. Only the upper portion of the figure remains, pale and faded. The outline is deep red and the general colouration, as it is now, is yellowish red. A particular moment in her dance has been captured in all its classicality. The girl is elaborately coiffured and abundantly jewelled. The head is thrown back slightly. Flowers are stuck in the hair-do, a practice that is peculiar to South India, and one that persists to this day. The arching eye-brows are thin; the eyes slender and elongated, and the look, dreamy and distant. The forehead is bare without any tilak, nor is there any nose ornament. The ear-rings are round and heavy (*patra kundala*) suggesting distended ear-lobes.²³ She sports a variety of neck ornaments; including one that closes tightly around the neck. Bangles are seen on both hands. The breasts are bare and naturalistic. She is striking the *añchita* pose of Bharatanātya.

On the front part of the pillar, on the right, is another painting of a danseuse. Though this is more damaged, the head and torso can be made out clearly. The dancer here is striking the *latavrischika* pose of Bharatanātya,²⁴ the left hand thrown away from the body, parallel to the ground and the other held in the 'fear-not' gesture. The jewellery, the details of which are lost, appears similar to the other figure. The similarity of

these figures with the others in Pallava paintings elsewhere is close. The treatment of figures, effectively suggesting suppleness by a mere backward curve at the tip, can be observed in the frolicking ganas in the fragmentary paintings in the cells at the Kailāsanātha temple at Kāñchīpuram. The treatment of the face, particularly the eyes, are reminiscent of the Pārvaṭī figures in Tālagirisvara temple at Panamalai.

The Subject of the painting

The relevance of the painting of dancing girls, in an ascetic shrine, has to be examined in the context of the main theme of the paintings here. The theme is *samavasarana*, the celestial theatre in the centre of which is Lakshmivara Mandapa from where a tirthankara delivers his maiden sermon. *Meru Mandira Puranam*, a Jain Tamil classic of the 14th century A.D., describes the route to this mandapa in great detail. The devotees pass through seven regions and the first one is called *dvijabhumi*; here, on either side of the path, are podia on which celestial dancers are performing.²⁵ It is this idea that is depicted here on either side of the entrance as one moves towards the sanctum.

The lateral side on the pillar on the right retains a remnant of a painting portraying a royal personage, with bejewelled crown (*kirita makuta*) and a woman standing closely behind him. This painting has been variously identified, as Ardhanārīśvara,²⁶ as Mahendravarman and as Śrīmara Śrī Vallabha, the Pandya.²⁷ As the theory of Mahendravarman authorship has already been found untenable, only the last identification deserves examination here. The only evidence to support this view is the Tamil inscription found on the rock south of the cave, which we will call the Ilan Cauthaman inscription, for the sake of constancy. It records the renovation work of the shrine carried out by Ilan Cauthaman during the reign of Śrīmara Śrī Vallabha; obviously this is too slender evidence to conclude that the painting portrays the Pandya and his queen. The purpose of mentioning Śrī Vallabha's name is

only chronological and therefore to suggest that the figure is his, would be far-fetched. With the available evidence it is not possible to say anything except merely to record the existence of this painting and to describe it. It could well portray a scene from Jain mythology or a scene relating to the shrine.

The Lotus Pond scene

The most important painting is on the ceiling of the front hall, right in front of the sanctum. Jain and Buddhist shrines are conceived as symbols of the world as a cave, of the cosmic mountain and the idea of heaven is expressed in the form of paintings and sculptures on the ceiling. Featuring a celestial scene on the ceiling was only one of the methods adopted by the early Jain builders to evoke the image of heaven; domes and other architectural features were some of the other methods.²⁸ Such a representation of heaven over the ceiling of the room leading on to the tirthankara in the sanctum has a specific theological significance and we have one such arrangement here at Chittannavasal.

The major portion of the ceiling is covered with a painting depicting a lotus pond, with men, animals, birds and fish. As the ceiling is not very high, the comfortable way to study the painting is to lie on one's back and look up. Here the artists portray the region of the lotus pond (*khatika bhumi*) one of the seven regions that surround, like a moat, the mythical *samavasarana* structure. The devotees on their way to listen to the tirthankara have to cross the moat. It is this crossing-the-moat scene that is featured here. The portrayal closely follows to the last detail the description of the pond in the *Meru Mandira Puranam*. It says that though the pond looks like a sprawling ocean, it is only knee deep; the bottom of the moat is even and could be crossed without any danger. As the devotees wade across the moat, they gather flowers to be offered to the Jina.²⁹

The rectangular mural stretches from South to North, with the top portion on the eastern side. The predominant colours

are dark green, yellow and ochre. The whole composition is filled with details and the artists have succeeded in packing as much detail as possible into that limited space, without a jarring note. The fish, swimming amidst the lotus stems and peering from underneath the leaves, have been effectively used to suggest water. The coiled stems of lotus and the fish that swim among them, convincingly give the idea of water being crystal clear and transparent. There is no attempt to suggest water through any colour, and this end is achieved by the portrayal of fish and the submerged lotus stems. In fact, there is no trace of blue at all in the whole composition. The floating lotus leaves mark the surface of water. An occasional lotus shoots above the surface and sways in the wind, exposing its underside.

The pond brims with life. The fish and the waterfowl belong to the pond while the men and the animals are just passing through to get to the Lakshmivara Mandapa for the divine discourse. The birds are greatly disturbed by the intrusion, and their agitation is effectively conveyed by open beaks, bulging eyes and raised wings. The fish also react the same way to the disturbance. The devotees and the animals are moving across the pond from right to left, all facing the other bank. The three men are busy collecting flowers; the one on the extreme left has a basket and the other two have made neat bouquets, carefully tying the bunch of flowers with a lotus stem.

Their all facing the same direction suggests movement towards the same destination. They have been depicted in a most naturalistic manner, going about their work so gracefully. The devotee on the extreme left wears only a triangular piece of cloth covering the pubic region, held in place by a string around the waist, a practice that is still in vogue in South India. The other two wear a loin cloth around their waist. Locks of hair fall on their shoulders and their distended ear-lobes have been meticulously drawn. Bangles can be observed on their arms.

This is not a bathing scene, as identified by T.N. Ramachandran.³⁰ A bather is very unlikely to go about

with a basket of flowers or with bouquets. The triangular piece of cloth worn by one of the devotees alone cannot indicate that they are all bathing. This type of lower garment, referred to as *kovana adai* in Tamil classics, was one of the acceptable forms of dress in ancient Tamilnadu. Siva is featured with a *kovana adai* in the Dharmaraja Ratham at Mahabalipuram.³¹ This dress can still be seen on farmers working in the fields in this part of the country, understandable in a hot climate. Nor are the buffaloes and the elephants bathing. If the artists had intended to portray such a scene they could have easily achieved this by showing the elephants spouting water through their trunks on their backs. The buffaloes could have been shown wallowing contentedly in the pond, something they love to do on a hot day. Instead we see here purposeful looking animals all facing one direction and moving towards the bank. And all this is described in the *Meru Mandira Puranam*.

The animals—buffaloes and elephants—which are all facing the same direction, are on their way to the mandapa where special enclosures are allotted for wild and domestic animals. Jain theology extends 'citizenship' to animals also. This feeling of fellowship with animals is the origin of the principle of non-violence (*ahimsa*) in Jainism. For a Jain, external appearances do not make any difference as far as the universality of life force is concerned.³² By portraying animals along with devotees on their trek towards the mandapa, the artists are simply giving a visual expression to the well-known Jain tenet that all living beings are fundamentally fellow-beings. There are three elephants and two buffaloes in this scene, all facing left, like the devotees.

The Chittannavasal artists so convincing in portraying animals, have not been as effective when the subject handled is birds. The water-fowl are depicted here with baffling taxonomical details which make identification difficult. The beak is sharp, very unlike a duck, and the feet are not webbed; the wings are stubby and short, rather like a dodo's. The only

definite observation that can be made is that it is some kind of a water-fowl that is represented here. (Very similar depictions of water-fowl can be seen in the Chola frescos in the Big Temple at Thanjavur.) But this lack of accuracy on the part of the artists is not difficult to understand. They could encounter, in close quarters, buffaloes and elephants and could draw them with great accuracy. But it was different with waterfowl, and the artists were content to give a general idea of birds in a lotus pond. But all the birds here are similar and it is clear that only one species has been represented here. There is also nothing here to suggest any mythical bird like *chakravaka* or *sarasa*. Moreover, the scene we see here is so earthly and true to life, that any mythical creature would have been totally out of place in this composition. However, the mythical *annam* (the nearest living species to this bird is the swan) has been portrayed, complete with an elaborately floriated tail, elsewhere in the shrine.

As you lie on the rock-floor, the impact of the fresco slowly begins to register. There is no basic design in the composition of the lotus pond scene; but the full frame has been covered with equal concentration of the subjects. It is only a section of the lotus pond that is depicted in this work the whole scene seems to flow in and out of the frame ever so smoothly. This form of composition gives greater freedom to the artists and is one that is best suited when the subject handled is of the nature of a landscape. Where the subject is illustrative in character, with just a few objects, a basic design could be followed, as at Ajanta. This can also be said of the Thanjavur Chola frescos. But here the nature of the painting, its thematic content, is different, and the form is also different. In fact, the movement in the mural is also unusual: it is from right to left.

Not only the form but even the perspective is unique. Views from different angles have been harmoniously superimposed, and the result is that you have more details in

that limited wall-space than would have been possible otherwise. The artists' sense of economy of space is evident in this work. The general perspective of the lotus pond, the leaves and the submerged roots has been depicted from a bird's-eye viewpoint; the men, the animals, the flowers and some of the leaves have been shown from an eye-level viewpoint. The fish have been shown in side-view, as if seen through a transparent aquarium wall. (In a pond, this angle could be had only underwater.) Such superimposition of views from different angles is achieved here with remarkable ease and there is no strain on the eyes. Nothing strikes one as being odd, and the balance achieved in the total composition is one of grace and elegance.

The same technique of presenting views from different angles was practiced by the cubist artists of this century. But the composition of a cubist painting is rather in the nature of spreading open two pages of a book: two angles of views are depicted side by side. But here in Chittannavasal the different views have been shown overlapping one another, blending together imperceptibly. The primitive lines in a cubist work are geometrical, but here the lines are wavy and fluid, flowing in smooth circles and curvy lines, with an ease that is very close to abandon. And the realistic nature of the subjects handled is retained intact. But we are not able to say whether this multiple-plane view was consciously adopted as a technique or was born out of expediency, in the absence of any other method to suggest distance and volume in a mural. Foreshortening, as a method of suggesting depth, has not been adopted here. We will not be able to examine this aspect unless more examples of murals of this period are accessible for scrutiny.

The crossing-of-the-moat sequence is of deep theological significance. The life-moat (*jīva*), whatever external form it may have, be it animal or human, has to cross a number of barriers before it attains ultimate liberation, free from the entanglement of *karma*. On the ritual plane, a Jain layman has to go through a number of graduated system of rules and vows

before he could become an ascetic himself; and he does this in slow degrees.³³ The story of the *samavasarana* structure illustrates this barrier-crossing aspect of Jain theology in an allegorical manner. A devotee journeying towards the central hall where the tirthankara (literally 'the crossing-maker') preaches, has to cross the seven regions, including the *khatiabhumi* or the lotus-pond region.

The other remains of paintings

The rest of the ceiling and the corbels have been covered with small circular designs as space fillers. This practice of filling up vacant area in the ceiling with carpet designs was common, and examples can be seen at Armamalai and at Tirumalai, both in North Arcot district.³⁴ In the space under the cornice is painted the figure of an *annam*. The ceiling between the two pillars is covered with conventionalized floral patterns. Lotuses rendered in pale yellow have been featured inside green circles. This design anticipates, in a pronounced manner, the floral design panel at Armamalai; only, the latter is an enlarged version and the colours are still very crisp and bright.

On the back wall of the sanctum of the Chittannavasal shrine are three relief sculptures of men in yogic postures. One of them has an umbrella overhead and this is probably Rishabanatha, to whom the shrine is dedicated. All these sculptures would have been painted over originally, complete with *lanchana* or other identification marks. Now only the bare sculptures remain.

The ceiling of the sanctum is fully covered with murals, different in character from the paintings of the front hall. Here it is in the nature of a canopy, with repeated motives, and has been executed meticulously, like a miniature painting, with an eye for details. This carpet pattern is like a vast kolam, of thick lines with square and circle designs alternating. The square is about 7.5. cm and the circle is 12 cm in diameter. These designs are referred to as *kannarai* and *thottarai* in ancient Tamil

literature.³⁵ Inside this square is a design like the *dharmachakra*, a Jain symbol. The circle contains a cross-like design. On either side of the upper portion of the cross sit two laymen, shown as if engaged in conversation. Below them are two rampant lions, sitting back to back. The background of this motif is red and the figures are coloured mustard and outlined in black. This canopy painting is meant to be a composition by itself and not a mere space-filler. The designs are so close a repetition of each other that the question about the possible use of stencil arises. However, to state anything definite a much closer examination of the mural than is attempted here is necessary.

The Earlier layer

A fascinating feature of the ceiling mural in the sanctum is the earlier layer which can be noticed in certain spots where the edges of the canopy painting have fallen off, particularly in the north-western corner. In this earlier layer also the subject is a lotus pond. The colours have faded and are uniformly dull. The existence of an earlier layer raises some interesting questions. Did Ilan Cauthaman, while renovating the sanctum, cover the earlier lotus pond mural with a canopy design and then reproduce the same subject in the ceiling of the front hall? If so, why was the lotus pond thus 'shifted'?

The Date

Much discussion has gone on about the date of the paintings and their sequence. The crucial evidence in this direction is the 17-line Ilan Cauthaman inscription. It records the renovation work carried out by Ilan Cauthaman during the reign of Pandya king Śrīmara Śrī Vallabha. Interpreting this inscription K.R. Srinivasan suggests that it was the front hall (*ardha mandapa*) which was renovated by Ilan Cauthaman, that the lotus panel in the front hall was done during this renovation and that the first layer of paintings in the sanctum is the earliest. The mention of a renovation clearly proves that the

shrine existed already. The 16th line of the inscription records that the repairs were carried out to the *aga mandapa* a term which translates as 'the inner hall'. This could only mean the sanctum. The implication of this interpretation is that renovation was carried out in the sanctum also. Srinivasan pointing this out, also observes that there is a slight but clear stylistic difference between the sculptures of the seated figures in the front hall and the three similar sculptures in the sanctum.³⁶ The layers of painting in the sanctum will support this argument. Then the earlier layer of painting that can be seen at the periphery of the carpet designs must be contemporaneous with the excavation of the shrine. Fortunately for the historian there has been no further attempt at renovation since Ilan Cauthaman and therefore the dating question has not been complicated further.³⁷ Infra red photographs of the paintings in the front hall, where most of the paintings are, do not reveal more than one layer or any attempt at retouching.³⁸

Taking off from this point, it has been suggested that the earlier layer in the sanctum is coeval with the original excavation of the shrine and therefore can be assigned to 7th century A.D. This idea is only a different version of the Mahendravarman I authorship theory. In the light of the arguments given earlier to show that the cave is non-Pallava in character there is no strong ground to suppose that the stylistic similarities of this cave and those of the early Pallava could be taken as a clue for the date of the excavation of the cave. The chronological sequence of rock-architecture was different in the Pandya country. The Tiruparankunram cave temple scooped out in A.D. 773 by a minister of Parantaka Nedunjadayan, the Pandya king, the Narasimha cave temple at Anamalai done by a minister of the same king and the Malayadipatti cave temple excavated in A.D. 812 by Vidul Vidugu Mutharaiyan are further evidences for this argument.

It is clear that the Pandyas and some local chieftains were excavating cave temples even as the Pallavas were building

their free-standing structural temples. There is no evidence to support the theory that the sequence of rock-architecture and the appearance of structural temples were uniform throughout the Tamil area. It should not be forgotten here that the same sequence had run its course much earlier in the northern Deccan. Therefore, we observe that with the available data there is very little evidence to suggest anything about the time gap between the two layers of paintings in the sanctum.

The Ilan Cauthaman inscription, however, indicates that all the other paintings in this cave, except the earlier layer in the sanctum, belong to the 9th century A.D. Śrīmara Śrī Vallabha, during whose reign the renovation work was done, ruled from A.D. 815 to 862. Another pointer for dating are the two inscriptions, each a single line, in *vatteluttu* on the eastern face of the two pillars. These inscriptions can be seen where the plaster has peeled off, baring the rock surface. Therefore the paintings of the front hall, which in their original state would have covered these inscriptions, have been assigned to a period not later than A.D. 800.³⁹

The renovation work appears to have been a co-operative effort. An inscription found on a stone slab in front of the cave speaks of one Cadiradevan who provided the doors for the shrine. On a rock south of the shrine is a four-line fragmentary inscription which mentions the name of an artisan Vardhamana Malagan and a weaver named Nagayasan, who also contributed to the repair works.⁴⁰ The significant pointer here is that all the inscriptions which refer to the renovation work are, on palaeographical grounds, dated in the 9th century A.D. Therefore, it can be stated that the paintings of Chittannavasal cave, except the earlier layer, belong to the first half of the 9th century.

The Technique

Numerous references to wall painting in classical Tamil literature show that the art of mural painting had undergone

centuries of evolution. The *Manimekalai* makes a pointed reference to a manual on painting.⁴¹ And even as Mahendravarman was scooping out his rock-cut temples, the mural painting technique had reached near perfection in the Tamil country.

S. Paramasivan, Archaeological Chemist, was commissioned to conserve the frescos in South India, and as a first step he began to study the technique, so that he could formulate preservation methods best suited to each site. In order to delve deep into the mysteries of the ancient artists' craftsmanship, he chemically analysed and investigated the frescos, from Ajanta to Chittannavasal. His findings were published in a series of scientific papers in the late thirties.⁴² On the basis of his extensive field and laboratory work, Paramasivan divided the methods of all frescos in India broadly into two groups, the Northern and Southern techniques. The Southern technique, essentially fresco in character, with slight local variations, has been adopted in all the murals in Tamilnadu while the Northern technique, tempera in character, has been followed in Ajanta and Bagh.

He termed the technique used by the Chittannavasal artists as fresco secco. Fresco buono or true fresco makes its appearance in the Chola murals in the Brihadisvara Temple at Thanjavur, which incidentally is the only true fresco method so far observed in India. Here the pigments are mixed with water. When the pigments are mixed with lime, as at Chittannavasal, then it is the fresco secco method. This technique adopted at Chittannavasal is very similar to the process used in the Pallava murals at Mamandur and Kanchipuram.

When Paramasivan undertook the restoration work of the Chittannavasal murals, he found a thick film of algae and lichen on the paintings, a growth that had been facilitated by the damp air of the cave. These accretions had to be removed by extensive brushing over and the paintings withstood the strain of this rough treatment well. Archaeologists found patches of

tracing papers stuck on the murals by over enthusiastic artists who tried to copy the murals in the early thirties.⁴³ They had also applied egg white on the fresco to give a temporary gloss. Paramasivan washed the paintings with water to get these accretions off. Being frescos they were not damaged by this water treatment.

In the fresco secco method, first a plaster base is prepared and applied to the rock or wall surface. This base is referred to by chemists as 'support'. It consists of two layers: first a layer incorporating coarse sand and then a second layer of fine sand. (This is a feature commonly observed in the frescos of Europe also.) As the rock surface is uneven at the Chittannavasal cave, there is wide variation in the thickness of this plaster base from 1 mm to 8 mm. This base is hardy, much stronger than at Ajanta. The principal binding medium in preparing this base has been lime, though there is evidence of the use of gum also. Gum was probably used in the preparation of black pigment.

The single distinctive characteristic of the fresco technique is that the artist painted even as the base was wet. In this way the pigments chemically interacted with the plaster base and adhered firmly. At Chittannavasal it was observed that the second layer of plaster had been applied even as the first one was still wet, and over this wet ground, the painting had been executed. The rock surface does not absorb water from the plaster base and thus the artists get longer time to work as the ground takes longer to dry. This technique also minimises the chances of efflorescence on the surface of frescos because there is no chance of water seeping through from the 'support'. When painting is done on such wet plaster, the lime in which the pigments are mixed absorb carbon dioxide from the atmosphere even as the plaster dries up. A thin, shiny layer of carbonate of lime that is so developed fixes the pigments onto the plaster base. This layer in addition to protecting the pigments imparts to them a certain brightness. It also makes the fresco insoluble in water.

Paramasivan also analysed the pigments. The white pigment has been traced to lime, and, black, to wood charcoal or lamp-black. Yellow and red were derived from ochre, and blue, from ultramarine. Green was extracted from terre-verte. Red was achieved merely by heating yellow ochre. The predominant source of pigments here is ochre, which is an amorphous iron hydroxide occurring as a product of weathering of all iron-bearing minerals. It is found in powder form in the rocky outcroppings near Chittannavasal. A geological report records the occurrence of kankar, a raw material for good quality lime, in the rocky hills around this area.⁴⁴

In fresco work, the time factor is crucial. Preparing the ground and executing pictorial work on the ground would have had to be done in one continuous process. So the pigments must have been prepared at the site itself. At the cave temple of Tirukalakudi I observed a 'palate' chiselled on the rock floor. (This cave is exactly similar in style and proportion to Chittannavasal shrine.) This palate was in the form of a number of holes, about 15 cm wide and 20 cm deep, clustered in one spot, in the shape of a grinding stone of a south Indian kitchen (*ural*). Similar holes can be seen on the rock floor in front of Chittannavasal rock shrine also, just 6 metres from the steps. There are clear signs in these holes of them having been worn out due to use. Did the artists grind the pigments here, and when one hole was worn out, abandon it and cut a new one?

While the laboratory has yielded so much information on how the artists did it, little is known about the implements they used. *Narrinai* compares a brush of an artist to *padhiri* flower (*Streptospermum suaveolens*) and the same poem speaks of pigments also. There are references to palate and brush in a number of other Sangam classics.

Notes

1. The official spelling as in Census Handbook 1981, has been adopted here.

2. Suresh B. Pillai, "Chittannavasal the abode of Jains", *Asian Travels*, Vol. 2, No. 9, 1974.
3. *The Manual of Pudukottai State*, 1944, Vol. II, p. 1092.
4. This is a common toponymical phenomenon in Tamilnadu. Examples: Amur and Chithamur, Alapakkam and Chithalapakkam (both in the South) and Athur and Chithathur (in Salem District).
5. T.N. Ramachandran, "Cave Temple and paintings of Sittannavasal", *Lalit Kala* 9, 1961, p. 38.
6. Suresh B. Pillai, *loc. cit.*
7. Suresh B. Pillai, *loc. cit.*
8. S.R. Balasubramanyam, "A Note on the fresco painting at Sittannavasal", *Journal of Oriental Research*, Vol. IX, 1935.
9. S. Radhakrishna Ayyer, *A General History of Pudukottai State*, 1916.
10. G. Jouveau-Dubreuil, "Pallava Paintings", *Indian Antiquary*, Vol. LII, 1923, p. 45.
11. S.R. Balasubramanyam, *loc. cit.*
12. M.S. Sundara Sharma, "Sittannavasal Frescos I", *Triveni*, Vol. II, No. 6, 1929, p. 726.
13. S.R. Balasubramanyam, *loc. cit.*
14. S. Paramasivam, "Studies in Indian painting", *Journal of the Madras University*, Vol. XIII, No. 1, 1940, p. 7.
15. T.N. Ramachandran, *loc. cit.*
K.R. Srinivasan, "South Indian Painting—A Note on the Date of the Sittannavasal Paintings", *Proceedings of the Indian History Congress*, 7th Session, Madras, 1944.
K.R. Venkataraman, "A Note on the Sittannavasal and Kudimiyamalai Monuments", *Transactions of the Archaeological Society of South India*, 1956-57.
16. K.R. Srinivasan, *loc. cit.*, p. 39 and p. 132.
17. K.R. Venkataraman, *loc. cit.*

18. P.R. Srinivasan, "Early Pallava Paintings at Panamalai and their relationship to the paintings at Sittannavasal", *Proceedings and Transactions of the All India Oriental Conference*, 1955.
K.R. Srinivasan has not taken Ladankoil rock-cut cave at Anaimalai near Madurai into consideration while arguing the case for Mahendravarman authorship. He states that there is no parallel to Chittannavasal cave in the Pandya country and lists this fact as one of the points in favour of his argument.
Also see H. Sarkar, "A Pandya rock-cut cave at Manapadu on Pearl fishery coast", *Damalica*, No. 1, Dec. 1970, which provides a list of similar Pandya caves.
19. C. Sivaramamurthy, *Royal Conquests and Cultural Migrations*, 1955, p. 12.
20. Suresh B. Pillai, "Criticism on the study of Dravidian Architecture", *Fourth All India University Tamil Teachers' Conference, Trivandrum*, 1972.
21. T.N. Ramachandran, *loc. cit.*, p. 37.
22. M.S. Sundara Sharma, "Sittannavasal Frescos II", *Triveni*, Vol. III, No. 1, 1930.
23. For a discussion on the practice of having distended ear-lobes in ancient Tamilnadu, see Mayilai Seeni Venkatasamy, *Nun Kalaikal*, 1967, p. 114. (Tamil)
24. This pose symbolises dropping to earth and also the jumping of birds.
Gopinath and S.V. Rama Rao, *The Classical Poses of India*, 1955.
25. *Meru Mandira Puranam*, stanzas 1066, 1068 and 1078. (Tamil)
26. N.C. Mehta, *Studies in Indian Painting*, p. 24.
27. T.N. Ramachandran, *loc. cit.*, p. 49.
28. Klaus Fischer, "Flat ceilings and radial vaults in Jaina temples, images of heaven", *Adyar Library Bulletin*, Vol. XXXVIII, 1974.

29. *Meru Mandira Puranam*, 1056.
30. T.N. Ramachandran, *loc. cit.*, pp. 41 and 42.
31. Gift Siromoney, "Mahapalipuram Costumes and Jewellery", *Madras Christian College Magazine*, Vol. XXXIX, 1970, p. 83.
32. Heinrich Zimmer, *Philosophies of India*, 1956, p. 250.
33. Heinrich Zimmer, *loc. cit.*, p. 224.
34. S.T. Baskaran, "Paintings and other remains of Armamalai cave", *AARP* 8 (Art and Archaeology Research Papers, London), December, 1975.
35. Gift Siromoney, *op. cit.*
36. K.R. Srinivasan, "Some Non-Pallava cave temples with musical Inscriptions", *Damalica*, No. 1, 1970.
37. P.R. Srinivasan, "The Pillar Inscriptions of Sittannavasal and their bearing on the date of its paintings", *Lalit Kala*, 1961, No. 9.
38. S. Paramasivan, in private conversations with me on a number days during January-February, 1974, at Madras.
39. P.R. Srinivasan, *loc. cit.*
40. See *Inscriptions of Pudukotta State*, No. 7.
41. *Manimekalai* 2: 30-32. For more references to paintings in ancient Tamil literature see Mayilai Seeni Venkatasamy's *Thamizhar Valartha Azhagu Kalaikal* 1956, pp. 61-67.
42. S. Paramasivan, "The mural painting in the cave temple at Sittannavasal—an investigation into the method", *Technical Studies*, Vol. III, No. 2, 1939, (Harvard University).
Paramasivan, "The technique of the painting process in the cave temple at Sittannavasal", *Nature*, Vol. 139, p. 114, 1937 (U.S.A.).
43. K.R. Srinivasan gave this information during his presidential talk at a meeting of the Archaeological

Society of South India at the Madras Museum on
28.6.1971.

44. *A Manual of the Pudukottai State*, Vol. I, p. 12, 1938.



Fig. 1. Danseuse on the left pillar of the ardha mandapa.
- Courtesy, Archaeological Survey of India



Fig. 2. Detail from the lotus pond scene - a devotee crossing the moat on
his way to Samavasarana.
- Courtesy, Archaeological Survey of India



Fig. 3. Parsavanatha, the 23rd Tirthankara, in the ardha mandapa.
– Courtesy, Archaeological Survey of India



Fig. 4. A stylised figure of a swan painted under the cornice in the ardha mandapa.
– Courtesy, Archaeological Survey of India

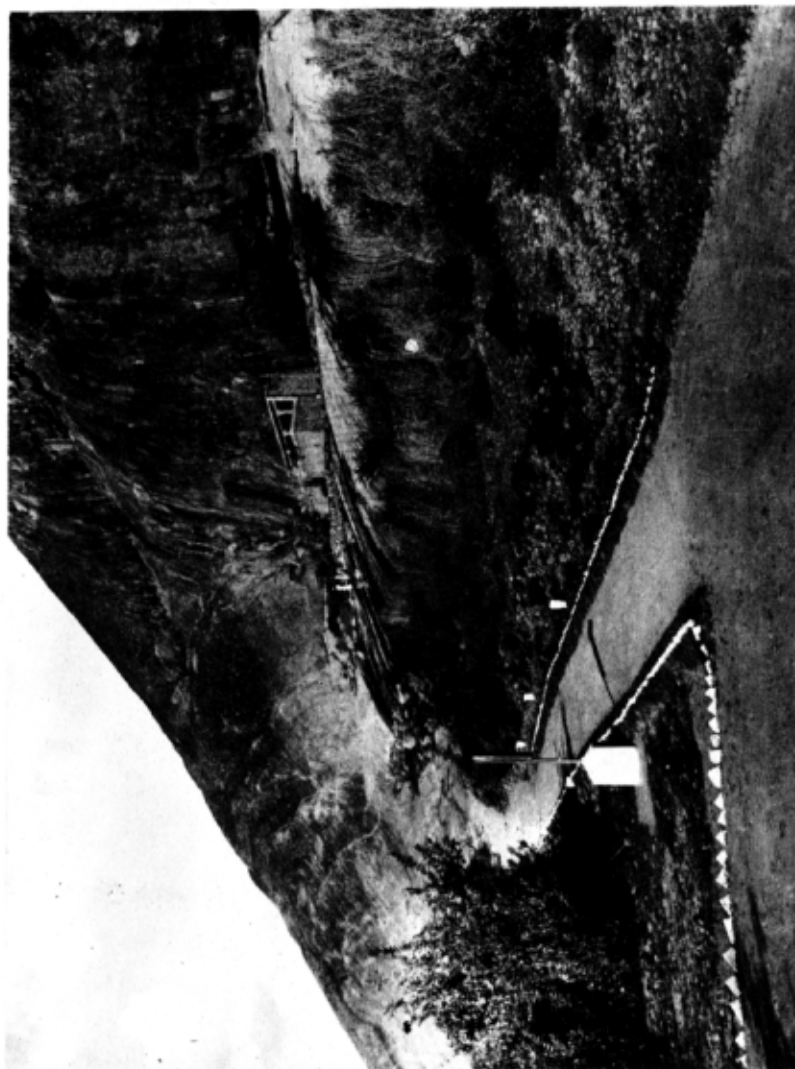


Fig. 5. A view of the rock-cut Jain shrine of Sittannavasal.
— Courtesy, Archaeological Survey of India

2

ORIGIN AND MEANING OF THE *TINAI* CONCEPT IN *CANKAM* TAMIL LITERATURE

P. Dayanandan

The collection of ancient Tamil literary works, popularly known as *Caṅkam* literature, is a source of valuable information on the language, arts, socio-economic, political and religious milieu of the people living in South India some 2000 years ago.¹⁻⁴ Scholars have also succeeded in varying degrees to cull out information on philosophical concepts, astronomy, mathematics, warfare and natural history of plants and animals found in *Caṅkam* literature.^{5,6} In this paper I suggest that *Caṅkam* literature is essentially a treatise on human ecology⁷ summarising as it were the drama of human occupation of this region known as Tamil Country or *Tamiḷakam* for over 100,000 years. It is also suggested that the poetic convention of this period, the so-called *tiṇai* poetry, originated as a sophisticated response to counter the entry of the Aryan caste system, and to affirm the fellowship of all human beings. The few centuries that preceded and followed the beginning of the Christian era, when the core of *Caṅkam* literature emerged, were momentous periods in the cultural history of *Tamiḷakam*. By then folk traditions had already been transformed into refined literature and grammar. The Tamil Brahmi script was rapidly evolving and writing could find full expression well before the close of the *Caṅkam* period. A literate people, with unique cultural attributes which had evolved over thousands of years, were now exposed to Aryan customs and the strong influences of Hinduism, Jainism and Buddhism. A new approach to the study of the *Caṅkam* classics is necessary to understand the intellectual and popular response of the Tamils to the ferment of this period.

Caṅkam literature consists of *Tolkāppiyam*, and a total of 2,381 poems grouped into two major categories, the eight anthologies (*Eṭṭuttokai*), and the ten long songs (*Pattuppāṭi*).

Tolkāppiyam, which is a work of grammar and poetic conventions, is generally believed to have been written before 300 B.C.⁸ The poems of the eight anthologies, excepting perhaps those of *Kalittokai* and *Paripāṭal*, might have been written in the first and second centuries A.D. while the two latter and almost all of the ten long poems were written probably towards the end of the second century.⁴ Although we describe this collection of classical writings as *Caṅkam* literature, the term *Caṅkam* was never used in the ancient writings. It was first used in the ninth century A.D. by Nakkirar in his commentary on *Iraiyaṅār Akapporuḷ*. Nakkirar's view of the existence of three ancient *Caṅkams* (Academies) was elaborated by later commentators who attributed the extant literature to the second and third *Caṅkams*, those of the first supposedly having perished in a deluge.

The cultural history and the world view of the early Tamils can be understood only when the elusive concept of 'tinaṭ' is fully comprehended. Although Tolkappiyar defined *tinaṭ* and its components in *Poruḷ Atikāram* it appears to be an ancient term, the meaning of which might have already undergone considerable transformation. In the post-Tolkappiyar period the concept of *tinaṭ* became the single most dominant literary and cultural notion to shape poetry and prose. The term has been used variously to describe the human (*uyar tinaṭ*) and the non-human (*al tinaṭ*); the poetic convention governing the 'inner' (*akattiṇai*) and 'outer' (*purattiṇai*) aspects of human life; and the poetry woven around five kinds of landscape and five different states of love (*aintinaṭ*) namely, forests and faithful living (*mullait tinaṭ*), mountains and lover's union (*kuṇiṇci tinaṭ*), wasteland and separation (*pālait tinaṭ*), farm lands and sulking (*maruta tinaṭ*), and seashore and pining (*neytal tinaṭ*). Five of the eight anthologies consist exclusively of *akam* poems while two others, *Puraṇāṇūru* and *Patirūppattu*, deal only with the *puram* theme. *Paripāṭal* is a mixture of *akam* and *puram* poems.

Tolkappiyar recognised seven *tinaṭ* states each for *akam* and *puram* themes. The strong association of land, time and

plants with most of the *tinaṭ* conditions is lacking in the case of two of the *akam* themes, namely, *kaikkilai* and *peruntinaṭ*, that deal with mismatched love relationships. Perhaps these were later additions indicative of a tendency to classify every aspect of human life. *Puṇṇoruḷ venpāmālai*, a later theoretical work in verse lists as many as twelve *purattiṇai* situations! Tolkappiyar assigned specific land locations for *mullai*, *kuṇiṇci*, *marutam* and *neytal* but not for *pālai*. Later works, for example *Cilappatikāram*, considered that mountainous and forest regions could turn into desert or barren lands when ravaged by drought or fire. However, as will be seen later, Tolkappiyar might have intentionally not assigned a specific land region to *pālait tinaṭ*.

Tinaṭ As a Concept of Human Ecosystem

Ecology is the study of interactions among organisms and between organisms and their environment. If one were to accord a central place in this definition to the human organism much of *Caṅkam* literature could be readily perceived as a treatise on human ecology.^{6,7} The difference between modern ecology and *Caṅkam* ecology is that the former is a rigorous science while the latter is more of an art. Ecologists consider a system in which organisms interact with all other components of that system, both living and non-living, an *ecosystem*. This all inclusive term can be applied to the concept of *tinaṭ* with some justification, particularly when emphasis is placed on the human component as the principal focus of study. In this ecosystem the human elements (*uri*) interact with the native elements (*karu*) and the primal elements (*mutal*). It is a triangular relationship, and as if to compensate for the inherent superiority found in terms such as *mutal* (first) and *karu* (germ) Tolkappiyar ranked them in just the opposite order of importance giving *uri*, the human element the first place. The five major human elements of *akattiṇai* are: lover's union, faithful domestic life, unfaithfulness, pining, and separation. In *puram* poetry human feelings are expressed mostly in acts of valour. The *karu* or generative principles with which the human elements

interact may be creations of the human beings themselves, such as occupations, and musical instruments and modes, elements of nature such as kinds of foods, plants and animals. Gods too are part of this assortment of generative principles and, as such, are only next in importance to love and valour. The third component of this ecosystem, the primal or basic principles (*mutal*), includes the land (*nilam*, *kaḷam* and *ulakam*), seasons and time.

The concept of *tiṇai*, then, is essentially ecological. Human life, both in its most personal aspects of love relationships and most outward expressions as in war, was seen as an integral part of the land, the life and the ever-changing yet cyclical seasons and time. The concept was so natural that it was bound to influence Tamil culture profoundly. The preeminent position that flowers occupy in the lives of Indian people today is a direct legacy of the *tiṇai* concept. The hillocks where Murugan is worshipped today are reminiscent of the immense *kuṇṇi* mountains, symbols of beauty. Although Tolkāppiyar did not consider language itself as a *karu poruḷ*, it has assumed such a role in the course of time, now occupying a dominant position in the cultural life of the Tamils. In a modern equivalent, the feeling of reverence (*uri*) towards one's language (*karu*) is intimately associated with such primal elements (*mutal*) as the sea, land and rivers in Sundaram Pillai's song of invocation⁹ sung today at the beginning of formal meetings throughout Tamil Nadu. In the *Caṅkam* period so much attention was paid to the *karu* components of animals and plants that several of the poems describe them in such detail and accuracy as to be of scientific value to biologists.¹⁰

Early Tamil literature, particularly the *tiṇai* poems, convey to us something of the long history of human interactions with the land in South India, perhaps, the whole of Peninsular India. People have lived in this region continuously for at least 100,000 years. The earliest evidence of our kind, *Homo sapiens*, is derived from abundant paleolithic stone tools from

Attrampakkam and other sites on the Kortrallaiyar river near Madras. These people must have lived along the river banks, with adjacent dense scrub jungle, and not far from the shores of the Bay of Bengal. For thousands of years the early people would have enjoyed living in land equivalent to the *mullai* of *Caṅkam* literature. Fish, birds and small fruits must have been available in plenty. Perhaps the blooming of the colourful *kāntal* (*Gloriosa superba*) in the rainy season inspired the imagination of the early settlers even in this hoary past. Although stone tools are available in plenty we have no evidence of living sites in this region. However, living sites of paleolithic people have recently been found in Hunsgi near Gulbarga in Karnataka State.¹¹

The story of human origins is now fairly well documented¹² and the ancestors of the people settled in Attrampakkam, as those of people everywhere else in the world, evolved in south and east Africa, in regions such as modern Ethiopia, Tanzania and Kenya. Anthropologists believe that an ancestral species of human beings, *Homo habilis*, who evolved about 1,800,000 years ago not only used stone tools but also practised rituals and enjoyed folklore. Their descendents, *Homo erectus*, who learned to control fire, were the first group to leave the African homeland and migrate to Europe, China and Southeast Asia. Recent findings of fossilised skull fragments from the Narmada valley suggest that *Homo erectus* could have penetrated into the Deccan even before the evolution of *Homo sapiens*.¹³ One does not have to invoke the discredited theory of Lost Lemuria to claim antiquity for human beings in *Tamilakam*. One hundred thousand years of human occupation is a long time indeed for biological as well as cultural evolution to shape the unique attributes of people in South India.

Paleolithic stone implements also occur in other places in Tamil Nadu:¹⁴ in Thakkolam in North Arcot district, Athirampattinam and Thanjavur in Thanjavur district, Parkkur in Salem district and Aviyur and T. Puthupatti in Madurai

district. A single stone axe found in Sri Lanka suggests that paleolithic people might have entered the island at this date by crossing the narrow stretch of sea. A gradual change in technology, from lower paleolithic to mesolithic, occurred over a long period of 90,000 years. This might have been a period of immigration and emigration of many groups of people resulting in cultural contacts and gene exchange through interbreeding.

Many sites of microliths used by the mesolithic people are known in Andhra Pradesh, Kerala, Karnataka and Tamil Nadu.¹¹ About 8,000 years ago fishing communities of mesolithic people lived along the coast of Thirunelveli. The landscape of these people would have been typical of what the *Caṅkam* poets would later immortalise in their *neytal* songs. Microlithic technology was soon replaced by the neolithic polished stone axe technology. By about 3,000 B.C. neolithic settlements were common in many parts of South India. Excavations in Paiyampalli in North Arcot district reveal that the neolithic settlers preferred terraces of low hills in regions of low rainfall. The *Kuṛiñci* type of dense mountainous region was not preferred at this stage. The low hills colonised by the neolithic people were like the *mullai* region of the *Caṅkam* poems.

The neolithic people domesticated cattle and cultivated horsegram (*Dolichos biflorus*) and *varaku* millet (*Paspalum scrobiculatum*). Evidence of rice cultivation is available but only at a late date from Hallur in Karnataka (about 1100 B.C.) It is likely that as the mesolithic people along the sea shore imbibed a taste of *neytal* landscape the neolithic settlers actually expressed the beauty of this landscape in their songs. Sitting in front of their circular mud houses along the hill slopes, late in the evenings, the neolithic *mullai* folk might have sung ballads on the river that stretched below, or the deer that stood on the grassy patch, or the smell of the rain or the *konṇrai* (*Cassia fistula*) bursting forth with yellow flowers in April. Perhaps they were singing in praise of their leader who led a successful

expedition of cattle raid, a theme that would later become part of *veṭci tiṇai* in *puṇam* poetry.

Early people would have sought habitats that offered both food and security. South India was a land of forests of different types. There were no grasslands providing open country. The only habitats providing food as well as some open space were the *neytal* and *mullai* tracts. As agricultural practices improved and the polished stone axes were used to fell small trees, people would have gradually cleared the vegetation of the *mullai* region and transformed it into farm lands (*marutam*). Perhaps about 3,000 years ago small groups of people dared the wild animals and the dense forests and penetrated the *kuṛiñci* lands. This region offered honey, jack fruit, and small animals for hunting. Small patches of land could also be cleared for cultivation of millets. The cool and mighty mountains of the *kuṛiñci* region with waterfalls, peacocks and elephants, the *vēṅkai* (*Pterocarpus marsupium*) in bloom and noisy bamboo would have set the mood for love songs of *kuṛiñci tiṇai*. It is hard to believe that with abundant food in such a variety of landscapes, people would have sought to settle in dry and unproductive *pālai* regions. Such desert-like regions might never have existed in this region. However, as population pressure increased and clearing of forests and fires transformed productive regions into less productive tracts the *pālai* region emerged as the fifth landscape in the Tamil Country.

Both the antiquity of human occupation and the variety of habitats available for settlement were responsible for the development of the ecosystem consciousness that found expression in *tiṇai* poetry. However, a distinction must be made between the concept of ecosystem found in early Tamil literature and the expressing of this concept in a unique poetic convention, namely, the *tiṇai convention*. It is remarkable that people could clearly discern their place in their ecosystem and express this relationship in their poems. It is equally remarkable that at a specific period in the history of the Tamils the ecological ideas

embedded in their poems could be used to challenge alien customs, thus giving rise to the convention of writing *tinai* poetry.

In pre- and proto-historic periods, human societies everywhere would have been sound components of their ecosystems. However, the uniqueness of the *tinai* concept of living in the Tamil Country could have evolved due to several complementary factors falling under two major categories: the antiquity of people and the variety of environmental niches. In the first place, the region had witnessed an association between people and land for at least 100,000 years. Besides local evolutionary trends among people settled in different regions there would have been innumerable contacts between them and new waves of immigrants. This would have resulted in the exchange of ideas and technologies as well as in intermarriages, all enriching the cultural and biological evolution of the people. Long before Tolkappiyar's time the racial make up of Peninsular India was one of hybrid population mostly of Negroid and Austroloid strains originating from Africa and Mediterranean lands.¹⁵ Among the other minor racial strains that had entered into the gene pool were the Alpine and Dinaric types from Central Asian mountain regions, the Armenoid and the Mongolian elements. Thus, the Tamil Country had long been a melting pot of a hybrid population reconciled to the diversity of the human species as well as the diversity of the physical environment.

The land itself offered varied settings from low jungles to vast stretches of seashore; from river banks to deciduous forests to high mountains and thick evergreen forests. The Coromandal coast, where the earliest evidence of paleolithic people is found, experienced northeast (retreating southwest) monsoon rains from October to December, while the West coast received heavy rains during the southwest monsoon season of June to September. Between these two regions lay settlements that received intermediate precipitation. The season and the

amount of rainfall would have controlled patterns of plant growth, availability of stored water, activities of animals and in turn all human activities including cultivation, gathering, grazing and social and cultural activities. Between Kanyakumari and the Vindhyas, and between the east and the west coast only weeks to months would have been all that people needed to move, settle, barter and, most of all, exchange the experiences of life in different ecosystems of the Tamil Country.

Origins of The *Tinai* Poetic Convention

Why was *Canikam* poetry so overwhelmingly a poetry of the ecosystem? Why did Tolkappiyar or his predecessors formulate the *tinai* convention, and why were Tamil poets and commentators preoccupied with ideas of *tinai*? Certainly, people did live in a variety of ecosystems; and certainly grammar and metre characterised early Tamil poetry as would be expected of poetry in any sophisticated language. But why were the two so intimately linked that one could not write poetry without invoking the appropriate *tinai*? The answer, though reflected in *Canikam* literature, is not to be sought in the development of Tamil literature or language but in the cultural history of this period. Prior to Tolkappiyar the last major wave of yet another ethnic group had entered the Tamil Country. The Aryans had arrived. They had brought with them unique customs, religion and rituals and a powerful language. We might never know whether they came to obtain converts for their religion,¹⁶ or find a new home to live. There is no evidence in Tamil literature that they came to conquer with military might or that there were major conflicts or violence. The Tamils probably welcomed them and appreciated their myths and lifestyle and the eagerness with which they learnt their Tamil language. After all they were just another variant group to be added to the already existing diversity of human population. Yet, there was one thing about the Aryans that was alien and dramatically opposed to the Tamil way of life—the practice of caste system.

The convention of *tinai* poetry probably originated as a response to the introduction of the caste system. The *tinai*

ecosystem concept was a subtle and civilised mode of protesting against the existence or spread of a system that classified people into hierarchical caste groups. How does one protest against the customs of those who have become a part of one's own society? The early Tamils did this by invoking the *tiṇai* concept of viewing people not hierarchically but horizontally as one among the components of different ecosystems. People were not to be classified on the basis of their colour or occupation into four caste groups but on the basis of their living in four ecosystems — *mullai*, *manutām*, *kuṇiṇci* and *neytal*. The *pālai* landscape was brought into poetic convention as a protest against considering some people, the so-called panchamas, as even outside of the four-fold caste grouping. The *tiṇai* convention, then, was a deliberate act of codifying the existing poetic wealth and facility to make people perceive the natural diversity of the human family and to urge them not to classify human beings but to appreciate the similarities in their *akam* and *puṇam* lives even as they lived in such distinct physiographic divisions of land as the forest, mountains, country side, coastal belts and deserts. Viewed in this perspective *tiṇai* poetry assumes an altogether new dimension as a literary masterpiece, an exposition of human ecology, and a distillation of ethics and philosophy of the early Tamils.

Pillay¹⁷ has suggested that the Aryans might have entered the Tamil Country around the 4th century B.C. The Buddhists and Jains too would have been there about this period each offering unique religious and ethical codes that the Tamils had to ponder over and respond to. The Aryan migration could have been in waves of large numbers of people including brahmins as well as members of the other Aryan caste groups. Tolkappiyar refers to *antaṇar*, *aracar*, *vanikar* and *vēḷāḷar* as four classes of people, thus indicating knowledge of the varṇa system, although, as pointed out by Ramachandran,¹⁸ Tolkappiyar's four classes do not parallel the Aryan caste groups. Brahminical traditions were commonplace during the period of the anthologies.^{4,17} Many Aryans appear to have fully identified with

the ethos of the local people to the extent that they bore little resemblance to the northern ideal of a brahmin. Parānar and Kapilar were leading brahmin poets of the *Caṅkam* period and more than 10% of the *Caṅkam* poets might have been brahmins¹⁷ who followed the *tiṇai* convention of writing poetry.

It is a fact that caste distinctions and untouchability did get entrenched in the Tamil Country, perhaps around the 6th century A.D., as elsewhere in India.¹⁶ If the *tiṇai* convention was a rebuttal to the Aryan caste concepts, one would not only expect the presence of Aryans in the pre-*Caṅkam* period but also rudiments of the caste concepts in the early Tamil literature. Reference has already been made to Tolkappiyar characterising four classes: *aracar*, *antaṇar*, *vanikar* and *vēḷāḷar*. Other terms in the *Tolkappiyam* such as *atiyōr*, *uyamōr*, *viṇaivalar* and *iḷintōr* have been interpreted by commentators and recent authors as evidence of the existence of caste. Kothilmozhan¹⁹ has argued that these terms were not used to describe castes. He has also pointed out that the *pāṇar* was not considered low in social status and that the dwelling place *cēri* was not associated with specific caste groups, and that there is no evidence for untouchability during Tolkappiyar's time. Other names for people such as *pārppāṇ* (counsellor), *aṇṇaṇ* (sage), *tapataṇ* (ascetic) and *mēlōr* (person of high character) need not be interpreted as caste-based terms but could have referred to any person from the different occupational groups of Tolkappiyar's period. This is also evident from Abraham's observations that *kiḷavaṇ*, the central figure or hero in *Caṅkam* poetry can hail from any strata of society and can be poor too; he may be a hunter, shepherd, craftsman or a servant.²⁰

While caste groups were non-existent during the early *Caṅkam* period there were many occupational classes. Among these were *kūttar* (actors), *pāṇar* (musicians), *viṇali* (dancer), *tuṭiyar*, *paraiyar*, *pulaiyar*, *mallar*, *kaṭampar*, *vēṭṭuvar*, *kuṇavar*, *āyar*, *kōvalar*, *uḷavar*, *paratavar*, and *kaḷvar*. Gadgil²¹ has suggested that the emergence of the Hindu caste society may be traced to

increased population of people competing for limited resources and evolving a system of resource sharing by different groups. In the Tamil Country, resource sharing might have been a factor responsible for subgroups such as *veṭṭuvar* and *kuṟavar* in the *kuṟiñci* landscape. However, these were not caste divisions, although centuries later they were fitted into the emerging caste classifications.

One might imagine a perplexed intellectual community of Tamils in the 5th or 4th century B.C. trying to respond to the alien caste concept by a variety of means. Perhaps the issue was debated in one or all of the three *Caṅkams*. A philosopher-poet among them might have asserted, as did Mangudikilar in *Puṟaṇāṇūru* 335, that there were no greater groups than the four: *tuṭiyaṇ*, *pāṇaṇ*, *paraiaṇ* and *kaṭampaṇ*. Others might have affirmed as did Kaniyan Pūṅkuṇṇan in *Puṟaṇāṇūru*: "All lands are one, and all people our kin." (Also translated: "Every place is ours; all are our kin", and "I am a native of the world; all are my kin".) The most concerted effort, however, was that of codifying the poetry of the ecosystem into *tiṇai* convention.

Classifying people into caste groups was countered by classifying people as part of their ecosystems. The implication of the *tiṇai* classification was the affirmation of the unity of the human family and by implication negation of any divisive classification. Once classification became an accepted part of a poetic convention, it was but natural that classification *per se* should dominate literature at some later stage. *Akattiṇai* and *puṟattiṇai* might have indicated not only the inner and outer aspects of human life but also the south and the north, the Tamil and Sanskrit traditions that were now coexisting. As *kaikkilai* and *peruntṇai* were added to the five original situations in *akam* poetry, *pāṇ* and *kāñci* were added to the five *tiṇai* in *puṟam* poetry. These artificial later additions, even during the period of Tolkappiyar, resulted in further attempts at classification. Thus, each one of the 7 *puṟattiṇai* had 8 to 21 *tuṟai*, altogether 138 *tuṟai* units!

Akam poetry, which appears to have received great attention during Tolkappiyar's period, was ideally suited for conveying the notion that all lands were one and all people their kin. There was a strong element of anonymity in the songs; dramatis personae were few and were never mentioned by name. Thus, anonymity became implied universality. Often poets too did not sign their names and were instead known by their poems, as 'The poet of the foam on rocks' or 'The poet of the red earth and pouring rain.' Built into the brevity of the *Caṅkam* poems was the technique of comparing or contrasting the immense primal elements (earth, sky, mountain, etc.) with the *uripponu* of individual emotional states. The codifiers might have seen the frailty of human beings preoccupied with stratifying people in a world that demanded cosmic perspectives. In a later poem, the author who took the name of the celebrated brahmin poet of the *Caṅkam* period, Kapilar, invoked the cosmic elements in his vehement protest against the caste system:

Doth the rain fall only on a chosen few?
Doth the wind passing over some, refresh a chosen few?
Doth the mighty earth say of some, "I will not bear them"?
Doth the radiant sun say of some, "I will not warm them"?
Is food found for higher castes in the cultivated lands?
And for the lower castes in the wilderness?
Does wealth or poverty or gain of pious acts,
Or death come otherwise upon this earth to some?
Caste is but one, family is but one,
Death is but one, birth is but one,
The God-head worshipped is but one. (Translated by

G.U. Pope)

Such songs of protest became a common feature of Tamil literature in every age. The art of classification was used effectively to counter the tendency to classify human beings. A poem in *Nalvaṭi* asserted that there were only two castes, that which gave and the other that did not. The five *tiṇai* situations were not intended to portray five parallel caste groups but to refute such categorisation. The concept of *tiṇaimayakkam*

(intermixing of *tiṇai*) was introduced to show that even the ecosystem concept had inherent artificiality built into it. After all, lovers union, faithful living, sulking, pining, and separation all would have been experiences (*uripponu!*) common to all people irrespective of the lands they occupied.

Caṅkam literature is more than literary masterpieces; it contains also treatises on human ecology and the philosophy of the Tamils. The *tiṇai* poems hold more information than the drama of human life in their inner and outer aspects staged on five different landscapes. Tolkappiyar himself invites our attention to the 'inner meaning' or 'inner substance' (*uḷḷurai*) of the *tiṇai* convention. The 'inner substance' of *tiṇai* poetry can be understood only from an historic perspective of the events occurring in the Tamil Country around 500 B.C. The inner meaning of the *tiṇai* classification is the simultaneous rejection of the caste classification and the offering of a healthier alternative in tune with nature. If *tiṇai* poetry does indeed reflect the reaction of the Tamils to the caste system, the initial response might have been expressed well before Tolkāppiyar's time. Even Tolkāppiyar might not have been fully aware of the significance of the *tiṇai* convention devised by his predecessors. The ideas presented in this article, if further substantiated, could help in relative dating of *Caṅkam* works as belonging to the pre-codification, codification and post-codification periods. One would expect much interpolation and even subversion of the original ideas in the last phase.

Future studies could relate the information found in early Tamil literature to ecology as well as to such traditional fields as geography, archaeology and anthropology. Early Tamil literature should be of great interest to the emerging field of Environmental Sociology²² as it offers a world view of a 2000 year old culture that is not anthropocentric as in traditional sociological writings. Recently, Selvamony²³ has suggested that *tiṇai* should be considered as an alternate social order that is as relevant to modern society as it was to the early Tamil

society. New approaches to the study and interpretations of *Caṅkam* literature will reveal the significance of Tamil Culture in the shaping of the civilization of India.

(The ideas presented here evolved from a paper presented by the author under the title "The Role of Vegetation in Human Ecology" in a symposium on Human Ecology held on January 26-27, 1979, at the Madras Christian College, and from a paper on the Origin and Meaning of *Caṅkam* Landscape Poetry read in 1981 at the Southeast Asian Studies Center, University of Michigan. Dr. Gift Siromoney was as much a scholar of early Tamil literature as he was of many other different fields. I believe that the subject of this paper is appropriate to our commemoration of him, for like the *Caṅkam* Tamils, Dr. Siromoney considered the whole world as his and all people as his kin. I am much indebted to Dr. Nirmal Selvamony for sharing his deep insight and knowledge of early Tamil culture.)

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NEWLY DISCOVERED MONUMENTS OF KING RĀJASIMHA'S AT MĀMALLAPURAM

Michael Lockwood

The little shrine and sculptures discovered by the Archaeological Survey of India beneath the sands, immediately to the north of the main complex of the Shore Temple, Māmallapuram, are important new additions to the known works of the Pallava king, Narasimhavarman-II, more commonly referred to by his title, Rājasiṃha.

The center of interest in the area uncovered is a small cylindrical shrine which stands in the focal point of the protective stone wall which curves around it on the southern side. Positioned against this wall on the southern side is a massive image of the Varāha (Boar) Avatār of Lord Viṣṇu, shown here completely in animal form, with its snout rooting downward into the ocean. Water is indicated by the lotuses under its body. This image is carved in the round from the bedrock.

INSCRIPTIONS

On the front face of the pedestal of the Varāha image are written three of Narasimhavarman's titles: Śrī Rājasiṃhaḥ, Śrī Raṇajayaḥ, Śrībharaḥ. On the west flank of the pedestal is inscribed: Śrī Citrakārmukaḥ. These four titles, along with the honorific 'Śrī', may be translated as: 'The illustrious Lion King', 'The illustrious Victor in Battle', 'The Upholder of Prosperity', and 'The illustrious Wonderful Archer'.

These four titles appear in other inscriptions of Rājasiṃha's elsewhere in the Shore Temple, itself, and in Kanchipuram and Panamalai.

In Kanchi

The four titles are among the *birudas* inscribed on the façades of three of the little shrines surrounding the main

Kailāsanātha Temple.¹ 'Śrī Rājasiṃhaḥ' is the first title engraved on shrine No. 1. 'Śrī Raṇajayaḥ' is the third title on the same shrine. 'Śrībharaḥ' is the third title on the third shrine; and 'Śrī Citrakārmukaḥ', the second on shrine 14. (The shrine numbers which I am using are the ones engraved on them by the A.S.I.) Again, these same four titles appear in the final verse (v. 12) of King Narasiṃha's inscription around the outside of the shrine of the Rājasiṃhēśvara Temple (the main vimāna of what is today called the Kailāsanātha Temple, Kanchi). The verse reads:

Rājasiṃhō Raṇajaya[h] Śrībharaś-Citrakārmukaḥ [/*]

Ēkavīraś-ciraṃ pātu [Śi]va-cūḍāmaṇi-mahīm [//12//*]

May Rājasiṃha, the Victor in Battle, the Upholder of Prosperity,
the Wonderful Archer,

The First among Heroes (Ēkavīra), who has Śiva for his
crest-jewel (Śivacūḍāmaṇi) for a long time
protect the earth! (12)

In Panamalai

In a cavern near the hill at Panamalai, there is a slab inscription which repeats just this one verse (No. 12 of the Kailāsanātha inscription).

In Māmallapuram

This same verse is part of Rājasiṃha's inscription on the balipīḍas (the stone altars for offerings) for the three shrines of the main complex of the Shore Temple.

On the inner face of three upper rim stone slabs on the southern curve of this retaining wall are the fragments of another inscription of King Rājasiṃha's in the following order:

t-[Ma]hēśvara-śikhāmaṇi-dīpta-mauli-

Rājasiṃhō yaḥ kṣatrasimha iti viśruta-puṇya-kīrttiḥ jāya-

[ryyu]ddhārjjunō nikhila-lōka-narē-

These lines are identical with passages found in Rājasimha's Vāyalūr Pillar Inscription, but they are in a jumbled order. The relevant verse from the Vāyalūr Inscription, in correct order, reads:

Śrī-Pallavānvaya-kulācala-Rājasimhō

yaḥ kṣatrasimha iti viśruta-puṇya-kīrttiḥ /

Jīyāt-Mahēśvara-śikhāmaṇi-dīpta-maulir-

yyuddhārjjunō nikhila-lōka-Narēndrasimhaḥ //

From this complete verse, we can see that the Māmallapuram slabs are physically in the wrong order. They should be reposition to read, from left to right:

... Rājasimhō yaḥ kṣatrasimha iti viśruta-puṇya-kīrttiḥ jīyā-

t-[Ma]hēśvara-śikhāmaṇi-dīpta-mauli-

[ryy]uddhārjjunō nikhila-lōka-narē...

The complete verse may be translated as follows:

The Royal Lion (Rājasimha) of the mountain of the
Pallava family,

Whose well-merited fame is widespread as the
Lion-of-Warriors (Kṣatrasimha),

Whose crown gleams (with the splendor of) Mahēśvara's
crest-jewel, who is the Arjuna-of-War,

Long live that Lion-King, (ruler) of the entire world!
(nikhila- lōka-Narē[ndrasimha])

Thus, the surviving lines of the inscription newly discovered at Māmallapuram may be translated:

... the Royal Lion (Rājasimha)

Whose well-merited fame is widespread as the Lion of
Warriors (Kṣatrasimha),

Whose crown gleams (with the splendor of) Mahēśvara's
crest-jewel, who is the Arjuna-of-War,

Long live that [Lion]-King, (ruler) of the entire world!
(nikhila-lōka-Narē[ndrasimha])

This verse repeats King Rājasimha's devotion to Mahēśvara (Śiva). It is, therefore, interesting to find such a striking image of the Varāha Avatār of Viṣṇu among these monuments. Unfortunately, this sculpture has been deliberately broken into pieces at some time in the distant past. More than one series of wedge holes were chiseled into the back and flank of the Boar, and then the stone was split apart. The A.S.I. have been able to reassemble the pieces of the image so that we now have a good idea of the original form.

CYLINDRICAL SHRINE

This little shrine is very unusual. Its adhiṣṭhāna—the part from the moulded base up to the floor of the miniature sanctum—has been carved out of the bedrock, a fine quality, beige gneiss. The rest of the shrine is made up of three carved blocks of another type of stone placed one on top of the other on this fixed base. These three blocks were lying scattered under the sand until the A.S.I. cleared the area, found them and refitted them, forming, once again, a complete shrine.

The first block, which forms the main walls of the sanctum (the pāda), with four pilasters having rampant yālīs with riders carved in front of each, rises from the base of the sanctum to the top of the pilasters.

The second block forms the cover to the sanctum, together with overhanging cornice (kapōta) and the narrow neck (grīvā). The cornice is decorated with four horse-shoe shaped 'windows', unfinished in detail, which are positioned, one each, over a pilaster. On the upper surface of the cornice is a ring of four little, horned yālī busts alternating with four little ganas (goblins). The grīvā has four conch-blowing ganas carved directly above the yālīs on the cornice.

The third block forms the crowning cupola (śikhara), with four horse-shoe 'windows' (nāsikās or kuḍas) carved on the east, south, west, and north sides. A miniature bas-relief image of Gaṇapati is found within each of these 'windows'.

The topmost finial (stūpī) is missing.

Every part of this little shrine is round on the outside except for two sub-plinth mouldings (upānas) at its very base. The lowest of these mouldings forms a regular octagon; the one just above it has sixteen sides.

It is an interesting fact that another example of a slender, cylindrical shrine is found carved in high relief under the great arches of the Gaṇeśa Ratha, Māmallapuram. This rendition of a cylindrical shrine is severely simple, lacking ornamentation such as pilasters, yālis, and gaṇas.

On the eastern side of the shrine is the opening to the cubical sanctum. On the back wall of this tiny cell is carved an image of Ardhanārī (the hermaphrodite, composite image of Śiva and his consort, Umā). The right half of the figure is Śiva; the left half, Umā. This figure is seated on the bull, Nandī. Ardhanārī holds a vīṇā (lute) diagonally across the chest.

I must add that these details are not clear in the little image of Ardhanārī of this shrine. One must be acquainted with this form of the god/dess as portrayed by Pallava artists elsewhere. One of the finest, clearest, and most accessible examples of Vīṇādhara Ardhanārī is found carved on the outer, western side of the Kailāsanātha Temple (main vimāna), Kanchi. The largest and most impressive panel showing just this form of Ardhanārī, seated on Nandī, holding a vīṇā, is found on the inner left wall of the sanctum sanctorum of the Vēdagiriśvara Temple, Tirukkalukkunram. However, a visitor to this temple might not even notice this masterwork of Pallava art because there is such dim light within the sanctum.

Historically, there was a close connection from the time of Rājasiṃha (if not earlier) between the Śiva temples at Tirukkalukkunram and the Shore Temple (Śiva shrines), Māllapuram. For hundreds of years, the deity was brought from Tirukkalukkunram to Māmallapuram in a ritual annual ceremony. In recent years, however, this custom has been abandoned due

to friction between dominant groups in each place (Śaivites in Tirukkalukkunram; Vaiṣṇavites in Māmallapuram).

The extraordinarily slender, cylindrical shape of the newly discovered shrine suggests that it is a novel expression of the Līṅgodbhava theme. That the Ardhanārī form of the Almighty is at the heart of the Divine's creative power, symbolized by the Līṅga form, would be most appropriate. The suggestiveness of this interpretation would incorporate into the Līṅgodbhava myth the image of the Boar nearby—Vishṇu took this form to dig downward to try to find the lower limit of the pillar (Līṅga). Will an image of the sacred Goose (Hamsa—the corresponding form of Brahmā) also be found in the sands nearby?

CISTERN

To the north of the little shrine, at ground level, there is a small circular cistern carved out of stone. Recessed into its eastern side is a small bas-relief carving of a royal lady seated at ease on a throne, with two attendant females standing behind.

RETAINING WALL

Some observers have proposed that the wall around the little shrine was the wall of a spacious temple, apsidal in form, and that the little cylindrical shrine was the central object of worship within this much larger temple.

This view seems to me to be mistaken for the following two reasons. First, the wall is stepped—a characteristic more appropriate to a retaining wall (to keep sand out) than to a wall of a temple's sanctum (vimāna). Second, the inscriptions on the Varāha image's pedestal and on the inner face of the wall would indicate that there was sufficient light to read the inscriptions, and that people moved freely within the confines of the wall. This freedom would not have been there if this were the sacred area within the sanctum of an apsidal temple.

CHRONOLOGY

We learn from the Cīrūr Grant (copper plates) of the Pallava king, Nṛpatuṅgavarman, that one of his predecessors, King Narasiṃhavarman-I, "built out of stone, on the ocean, an abode for the one who possesses the mighty discus (Viṣṇu) to recline in."

Siṃha Śrī-Narasimha ity-ari-kula-stambēramāṇām-abhūd-
yaś-śāyā-gr̥ham-aśmabhir-jjalanidhau cakrē Mahā-cakriṇaḥ //7//⁵

The great poet Daṇḍin, in the latter half of the 7th century, A.D., tells of his visit to the Reclining Viṣṇu image on the sea-shore at Māmāllapuram. It is evident from his account that the two Śiva sanctums had not at that time been built by king Rājasimha. Daṇḍin speaks of the image of Viṣṇu as having been made by the 'ancients'. Therefore, I would suggest that the Viṣṇu image was carved in a period even earlier than the reign of Narasiṃha-I (Mahāmalla)—probably during the reign of Siṃhaviṣṇu, Mahāmalla's grandfather—and that it originally was in the open air or housed in a shrine built of bricks. Then, in the reign of Narasiṃha-I, the king had a superstructure built of stone blocks. Next—five or so decades later—Rājasimha first created the little cylindrical shrine, the 'Lingodbhava Ardhanārīśvara', establishing the presence of Śiva and Umā in this holy place, along with an image of Varāha, and, then, at some later date, he radically transformed the site by constructing two Śiva shrines, one (the Kṣatriyasimhēśvara) in front of, and the other (the Rājasimhēśvara) in back of the Reclining Viṣṇu shrine. At the same time that Rājasimha built these two Śiva temple towers, he rebuilt the superstructure of the Viṣṇu shrine and named it 'Narapatiśimha-Pallava-Visṇu-Gṛham', incorporating this shrine architecturally and visually into the prākāra wall of the larger, east-facing Śiva shrine, the 'Kṣatriyasimhēśvara'. The assortment of shrines on the shore of Māmāllapuram was, thus, finally, brought to the number which we see today at this place.

Notes

1. All of these titles have been transcribed and translated in my book, *Māmāllapuram and the Pallavas* (Madras: C.L.S., 1982), pp. 104-115.
2. First published by E. Hultzsch in *South-Indian Inscriptions* (1890), Vol. 1, pp. 12-13.
3. *Epigraphia Indica*, Vol. 18, pp. 145-152.
4. We have described this panel in *Mahabalipuram Studies* (Madras: C.L.S., 1974), pp. 23-27.
5. See *Copper Plate Inscriptions of the State Museum*, Vol. 3, edited by N. Ramesan (Hyderabad: Govt. of Andhra Pradesh, 1972), pp. 170-71.



Fig. 1. Newly discovered monuments - general view.
 - Photos by Michael Lockwood



Fig. 2. The cylindrical shrine.



Fig. 3. The shrine and the Varaha image.



Fig. 4. The mini well.



Fig. 5. Ardhanari.



Fig. 6. Varaha.

GRAFFITI ON POTTERY AND THE BRAHMI SCRIPT

A.V. Narasimha Murthy

Graffiti on Indian pottery has still remained as an enigmatic feature in archaeological studies.¹ Attempts by archaeologists and excavators to study the graffiti have been quite inadequate. Usually, the excavation reports contain a small note on these graffiti marks which are mostly descriptive in nature and supported by one or two illustrations of the same.² This is because the designs of the pottery in the form of graffiti might not throw any direct light on the nature of the culture or even the nature of the pottery. Thus, most of the graffiti material recovered from excavations has not been properly documented or studied.

The credit of recognising graffiti on pottery should go to Robert Bruce Foote.³ Later Ghulam Yazdani noticed some marks on the pottery which he obtained from megalithic cairn circles at Raigir in the then Hyderabad State.⁴ He was fascinated by the uniqueness of these marks and thought that they were peculiar to the megalithic site at Raigir. However, with this problem in mind he visited the Madras Government Museum and examined the pottery exhibited there. To his joy he found similar marks on the pottery exhibited in the Madras Government Museum. He made a study of these marks and compared them with such marks found in India and outside. He even compared these marks with Egyptian hieroglyphics and to the Etruscan script.⁵ He also compared these marks with the Bhattiprolu casket inscription. Unfortunately he missed the main point while making these comparisons because the number of marks he obtained could not go beyond a few signs. However, he was satisfied that these marks were the new features of the megalithic burials of the Deccan.



Fig. 7. Relief image of cylindrical shrine in the facade of the Ganesa Ratha.

However, the most important study of graffiti marks was done by B.B. Lal in 1960.⁶ This was a comprehensive study, as he collected graffiti from almost all the known sites reported so far. These symbols were grouped into 61 types. The main aim of the study was to trace the antiquity of graffiti from Harappan times to the megalithic. In fact, Lal lamented at that time that unless a comprehensive concordance were compiled of all the graffiti symbols, and made available, not much significant work could be done in this direction. Unfortunately that wish still remains unfulfilled even after thirty years. These thirty years have seen new excavations, and consequently new graffiti marks have been added to our knowledge. Hence, an attempt is made here to bring to the knowledge of scholars new graffiti marks that have come to light during this period and to show the similarity of about twenty of these marks to the Brahmi script of the Asokan period.

The word similarity has been intentionally used here, realising the difficulty in proving the hypothesis. As pointed out above, all the graffiti marks have not been available for study because of the lack of a concordance of graffiti. Even the published reports of excavations where a note on graffiti is appended, it is generally true that the selection of marks was based upon the preference and liking of the authors. Not all the graffiti are either illustrated or commented upon. Only the significant and more attractive according to the excavator are illustrated.

Another problem is the chronological setting of the pottery on which the graffiti appears. While shapes and other details are described in chronological order, giving the details of the culture to which the pottery belongs, in the case of graffiti these details are not given. In a way, this is understandable because the emphasis in the latter case is on the graffiti mark and not on the pottery. Often it becomes difficult to understand whether a particular graffiti occurs on megalithic or neolithic pottery, unless it is specifically stated.

Now let us refer to some technical aspects of graffiti found on pottery. Generally these marks are pre-firing, but post-firing samples are also available. They occur on the pottery found at habitation as well as burial sites. There is no restriction of any particular symbol to a particular culture or type of burial. They seem to be common as far as megalithic typology is concerned. Even the shapes and fabric of the pottery do not seem to have any relationship with the type of symbols. The same type of graffiti occurs on big storage jars of coarse fabric as well as on shallow bowls of fine fabric. The graffiti can be traced back to the Harappan period; it continues in later periods until the early historic times. However, megalithic pottery has shown the greatest variety. It slowly diminishes as we come to the early historical period.

This universal nature of graffiti is of particular interest to us. It shows that these marks were easily understood all over the country over a long period of time. The change in culture did not obliterate this practice but it continued with greater variety at times. Whatever might have been their meaning and significance, graffiti was quite popular in India upto the early centuries of the christian era. As one observes these marks closely, one important factor becomes clear: that the pictographic marks slowly disappear and by the time we come to the megalithic period, we are practically left with geometric designs of various types. This can easily be taken as a progressive evolution of these marks. In other words, as culture developed the potters seem to have given up the pictographic symbols and preferred linear symbols. Circular or semi-circular marks are very rare if not non-existent.

Now, let us see if the significance of these graffiti helps us in analysing and understanding our problem. Some scholars thought that these marks were individual potter's marks and that they represented the initial letters of the potter's names.⁷ This was objected to because some symbols were found in widely separated places in India. But one thing was ignored in this

connection. The same symbol used in two different far off places or widely separated areas need not refer to the same person or potter. For example, R in Karnataka may refer to Ramu while the same letter may mean Raman in Tamilnadu and Ranjan in Kashmir. Thus the objection to the initial letter theory seems to rest on flimsy grounds. In fact all the pictographs and ideographs worked in a similar way in widely separated cultures in far off geographical areas.

Another theory was put forward by Hunt who thought that these marks had a ritualistic significance as found in the megalithic burials.⁸ But this has been proved wrong because these marks are found on non-burial pottery also. All the burials have not yielded graffiti as a rule. Graffiti are absent in the megalithic pottery from habitation deposits at Chandravalli and Arikamedu. However, they are present in the corresponding layers at Maski and Brahmagiri. From these evidences it becomes clear that graffiti cannot be taken as having ritualistic significance. Another point of view is that these marks may represent totemic symbols of the people who made the pottery or used them. But the graffiti are highly varied and number in the hundreds at each site. For example, a small site like T. Narasipur has given evidence of 196 different types of graffiti. It is unthinkable that there were 196 different totems in the T. Narasipur population. Generally, totemic symbols consist of animals, trees, birds, and things of use and the like and graffiti marks do not fall into this category.

Thus, of the three theories regarding graffiti, the ritualistic theory and the totemic theory have been rejected by the contradictions present in the nature of the evidence of graffiti. The only theory that has not been fully contradicted is the one representing graffiti as potter's or owner's marks. Indirectly this gives graffiti the status of a proto-script if not script itself.

It is generally accepted by a majority of Indologists that the Brahmi script originated in India around 8th-6th century B.C. This is the period when the megalithic culture in south


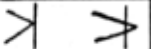

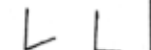

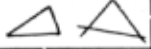








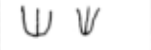

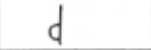


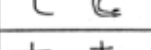




India or the iron age in north India was in a flourishing state. In fact the variety of graffiti is greater in this period. By this time, a time which almost coincides with the period of the Sutras, it was felt necessary to have a perfect script for writing non-vedic texts. Then what was the base? The universally understood and accepted graffiti was obviously the best contender for this honour. It had already attained the near status of a script being used to represent the names of the potters, though not fully but by writing the initial letter. It also was free from ambiguous pictographs or ideographs. Hence further selection was made from among these graffiti marks. All ambiguous, cumbersome, difficult and roundish forms were given up and only straight, linear, simple and unambiguous marks of graffiti were selected from among the hundreds of symbols which were quite well known by them. We can refer to this as the stage of standardisation of the Brahmi script.






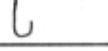
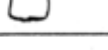
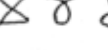
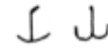

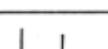

We may postulate four stages in the development of the above process. The first stage is that of Harappa, which in course of time spread into different parts as chalcolithic graffiti. The latter shows a development in the sense that pictographs become fewer and fewer. The third stage is the megalithic stage which is a further development, as it practically has no pictographic and archaic symbols in it. The fourth stage is the stage of standardisation which coincides with the beginning of Brahmi.

The chart below shows about fifty percent of the Brahmi letters that can be derived from graffiti of different stages and different areas. As we have already remarked, the list of graffiti that we have used is neither complete nor exhaustive. Once a concordance of all the graffiti marks is prepared, we will be in a position to identify more letters, perhaps all the Brahmi letters. Graffiti have to be studied from this point of view. As the potters were already acquainted with the technique of writing graffiti, they had no difficulty in writing Brahmi letters on pottery, particularly the Tamil Brahmi inscriptions found in

plenty in Tamilnadu.⁹ Had we not deciphered the Tamil Brahmi on pot-sherds, the obvious chance was that we would have called them also graffiti.

In the chart below, we have marked only those Brahmi letters which are similar to the graffiti. The references to sites and cultures have also been noted. It is the fond hope of this author that younger research scholars will pick up this line of enquiry and arrive at more satisfactory results regarding the relationship between Brahmi and graffiti.

S.No.	BRAHMI	GRAFFITI	SITES
1	A 		URAIYUR ¹⁰
2	U 		T.NARASIPUR, URAIYUR, ALAGARAI ¹¹
3	E 		BRAHMAGIRI ¹²
4	O 		NAGARJUNAKONDA ¹³
5	K 		ALAGARAI ¹⁴ , URAIYUR ¹⁵ , BRAHMAGIRI ¹⁶
6	KH 		MASKI ¹⁷
7	G 		URAIYUR ¹⁸
8	GH 		T.NARASIPUR ¹⁹ , URAIYUR ²⁰
9	C 		T.NARASIPUR ²¹
10	CH 		T.NARASIPUR ²²
11	T 		URAIYUR ²³
12	N 		LAKSHMAPURA, PANDAVAPURA ²⁴
13	J 		T.NARASIPURA ²⁵

14	T 		HYDERABAD MUSEUM ²⁶
15	DH 		MASKI ²⁷
16	N 		ALAGARAI ²⁸
17	P 		T.NARASIPUR ²⁹
18	B 		T.NARASIPUR ³⁰
19	M 		T.NARASIPUR, URAIYUR ³¹
20	Y 		NAVDATOLI, YRAIYUR ³²
21	R 		NAGARJUNAKONDA, URAIYUR ³³
22	S 		RANGAPUR, PRAKASH, SANUR, FEROKE, URAIYUR ³⁴

References

1. The *Oxford English Dictionary* defines graffiti as drawing or writing scratched on walls, etc., especially on ancient walls as at Pompeii; and decorations by scratches through plaster showing different colours under the surface.
2. This can be illustrated from the following reports:
K.V. Raman (ed.), *Excavations at Uraiyur* (1965-69), Madras, 1988. This report has a small section on graffiti, pp. 75-82. The graffiti have been divided into 69 various symbols and are illustrated (Fig. 25). T.V. Mahalingam, *Excavations in the Lower Kaveri Valley*. This report has two small notes on graffiti, one each for Tirukkamuliyur and Alagarai, (pp. 46-47 and 100-104). He also notes some similarities of these marks with those studied by Lal and Yazdani. M. Seshadri in his report on the T. Narasipur excavations devotes half a page to graffiti

but states: "since any systematic classification of these marks is not possible all the marks are reproduced here without any attempt at any classification" (p. 56). He has illustrated 186 different marks (plates 59 to 63). B.K. Thapar gave great importance to graffiti found on pottery at Maski excavations, vide *Ancient India*, No. 13, pp. 86-88. In fact, he discussed the significance of graffiti in general and also analysed them burial-wise. He also suggested a typological classification of graffiti in order to discover a relation between the type of the megalithic monument and the graffiti. Further, he studied only graffiti of the megalithic period. The same author has illustrated ten different types of graffiti found at excavations in Prakash, a chalcolithic site, vide *Ancient India*, Nos. 20 and 21, pp. 66-68.

3. Robert Bruce Foote, *Catalogue of Prehistoric Antiquities*, Madras, 1901, plates XVII and XXXV.
4. *Annual Report of the Archaeological Department of H.E.H. Nizam's Dominions* for the years 1915-16 and 1916-17, pp. 9-10 and 5-8 respectively.
5. "Megalithic Remains of the Deccan—New Features of Them", in *Journal of Hyderabad Archaeological Society*, 1917, pp. 56-79.
6. B.B. Lal, "From the Megalithic to the Harappan—Tracing back the graffiti on pottery", in *Ancient India*, No. 16, p. 4.
7. R.B. Foote; *op. cit.*, Pl. XVII.
8. E.H. Hunt, "Hyderabad Cairn burials and their significance", in the *Journal of the Royal Anthropological Institute*, Vol. LIV, pp. 140-56.
9. I. Mahadevan, "Corpus of Tamil Brahmi Inscriptions", *Seminar On Inscriptions*, 1966, R. Nagaswamy (ed.), pp. 57-73; and also T.V. Mahalingam, *Early South Indian Palaeography*, pp. 310-11.
10. K.V. Raman (ed.), *Excavations at Uraiyur*, Figure 25, No. 7 (reverse); it is described as a horizontal line

cutting through two oblique lines, on a fragment of Black and Red ware sherd.

11. M. Seshadri, *Excavations at T. Narasipur*, p. 160, mark No. 73 (reverse) and Uriyur No. 31 (reverse), Fig. 25; the former is from the megalithic pottery while the latter is from the Black and Red sherd; T.V. Mahalingam, *Excavations at Lower Kaveri Valley*, p. 100, No. 4.
12. This is from the megalithic level at Brahmagiri; see *Ancient India*, No. 4, p. 246, Fig. 31, No. 2.
13. R. Subrahmanyam, *Nagarjunakonda*, Vol. I. This is from the neolithic pottery.
14. T.V. Mahalingam, *op. cit.* p. 104, No. 44.
15. K.V. Raman (ed.), *op. cit.*, Fig. 25, mark No. 2 engraved on the neck portion of black and red ware sherd.
16. *Ancient India*, No. 4, p. 246, symbol No. 9 on megalithic pottery.
17. *Ibid*, No. 13, p. 68, mark 7 (reverse) on megalithic pottery.
18. This is found in many sites in many variants; it occurs in chalcolithic pottery at Korat, megalithic pottery at the Hyderabad Museum and also at Uriyur: Uraiyur specimen No. 6 in Fig. 25, in K.V. Raman, *op. cit.*
19. M. Seshadri, *op. cit.*, p. 56, Nos. 78, 79 and 83. They are also found in slightly different types from the same site as Nos. 74 and 80.
20. K.V. Raman, *op. cit.* At Uraiyur it also resembles a trident; it is on a Black and Red sherd, p. 78, No. 17.
21. M. Seshadri, *op. cit.*, specimen No. 65. It occurs in T. Narasipur along with three straight lines separately marked.
22. *Ibid*. There are many variants of this mark at T. Narasipur, as in numbers 142, 145 and 151, p. 168.
23. K.V. Raman (ed.), *op. cit.* Both the variants of this mark occur in Uraiyur as specimens Nos. 61 and 62; No. 63

is also similar, Fig. 25, p. 76. The former is on a Red Ware sherd, whereas the latter is on a piece of russet coated painted ware.

24. Both variants occur in the megalithic pottery at Lakshmapura and Pandavapura, both near Mysore.
25. From a sherd of the neolithic period; surface collection during exploration.
26. This occurs on the megalithic pottery at the Hyderabad Museum.
27. Both variants are found at Maski on megalithic pottery, *Ancient India*, No. 13, p. 88, numbers 4 and 11. The mark is also found at Tirukkampuliyur excavations: T.V. Mahalingam, *op. cit.*, p. 46.
28. This is found in Alagarai as specimen No. 28, p. 108. T.V. Mahalingam describes this as an inverted Brahmi letter *no*.
29. This mark occurs in many varieties either alone or in combination with other marks at T. Narasipur; mark No. 52 (inverted), p. 166 in M. Seshadri, *op. cit.*
30. This is found in the megalithic context at T. Narasipur (exploration).
31. This is a very popular mark and occurs in many varieties at Uriyur and T. Narasipur. Marks 43, 44 and 49 from Uriyur can be cited as good examples; specimens 149 and 150 are good examples for the roundish type from T. Narasipur.
32. This is found in two varieties: the former on the chalcolithic pottery from Navdatoli and the latter from pottery found at the Uriyur excavations (specimen No. 15).
33. Such marks are common in most of the sites. It occurs at Nagarjunakonda, vide R. Subrahmanyam, *Nagarjunakonda*, Vol. I, Figs. 91 and 126.
34. This is found in many varieties with slight variations at Rangapur, Sanur, Uraiur and Feroke.

THE ORAL-LITERATE DIMENSION IN INDIAN CULTURE

R. Narasimhan

Introduction

During the last couple of decades or more a variety of issues relating to orality and literacy have been raised and widely studied in the West by humanists, anthropologists, sociologists, psychologists, and educationists. In a series of highly influential articles and books, Goody & Watt (1962), Goody (1977), Havelock (1963, 1982), Olson (1986), Ong (1982), and others have argued persuasively that Western European culture changed in an essential way subsequent to the invention of alphabetic script by the Greeks a few centuries prior to Plato's time. The main thrust of their arguments may be summed up in the form of a *literacy hypothesis* made up of the following three assertions:

1. *alphabetic* literacy was the essential determinant of the changes in the Greek culture of post-Homeric times;
2. *writing* (i.e., *script-literacy*) per se is the causal factor responsible for the cognitive, and the related cultural, consequences of literacy;
3. the *textual tradition* associated with the theory and practice of hermeneutics was the essential factor responsible for the development of the scientific tradition of Western Europe.

The literacy hypothesis in the above extreme form has been severely criticized by a variety of scholars by pointing out that the assertions constituting the hypothesis cannot be sustained either historically, or culturally, or cognitively.

In an earlier paper (Narasimhan 1987) I have argued that characterizing the nature and implications of literacy requires a far more ramified and complex conceptual framework than what the 'literacy hypothesis' implies. As discussed in that paper, the Indian tradition in its historical context, and also the Indian cultural practices as they continue to flourish now, are convincing illustrations of the need for such a framework.

Indian tradition is an oral tradition. Nevertheless, it functions within a highly literate framework. This may, on the surface, seem like a contradiction. But the fact is that, despite undervaluing 'writing' as a technology, the Indian tradition has been able to give rise to complex ideas, art forms, and craft skills, which are normally considered to be products of literacy. Articulations usually unavailable to oral societies have been made accessible within the Indian tradition through a variety of intellectually sophisticated techniques. While at one level Indian intellectual tradition was highly speculative, at another level the tradition has been very performance-conscious. Explicit grammars defining correct performances have been elaborated and oral instructional techniques perfected to pass on practices in an uncorrupted form from generation to generation.

In the paper cited earlier two examples were discussed in some detail to illustrate this process of underpinning orality with literacy:

1. the elaborate mnemotechnics that were devised to preserve the authenticity of *Rgveda* as a text as it was handed down the generations through purely oral means,
- and 2. in the absence of written notational schemes, the invention and use of oral notational schemes to teach performing arts.

In the paper, the latter effort was explicitly illustrated through a discussion of the use of *Bols* in teaching tabla playing. In

both cases, the respective mnemotechnics play an essential role in *instruction* as well as in *learning*.

Literate aids to performance are standard features of the Indian cultural scene and are not restricted to 'high' culture. We can see them equally well exemplified in folk performances and in the learning and practice of craft skills. As a convincing illustration of the former, the cognitive and instructional issues involved in drawing kolam patterns in South India --- a folk practice --- was investigated by Gift Siromoney in a pioneering series of studies. Unfortunately most of his studies on learning and reproducing kolam patterns have not been published. We shall discuss in the next section briefly some interesting results of Siromoney's investigations on kolam. In the final section we shall make some general observations on the need to undertake systematic studies to understand more precisely the links between the oral and the literate in Indian cultural practices.

(South Indian Kolam Patterns)

(Kolam is a traditional Indian folk art widely used to decorate the thresholds and courtyards in front of family residences.) Although kolam (termed *rangoli* in the north of India) is practised in most parts of India, the geometric patterns that constitute the kolams and the manner of constructing them vary from region to region. (The South Indian traditional patterns are to a very large extent 'figures' made up of thin lines threading in complex ways a grid of dots that constitute the 'ground'.) Two such kolam patterns are illustrated in Figures 1 and 2. As can be seen, the figure in a kolam could be made up of a single, unsegmented, closed thread of line (as in Figure 2), or it could be made up of the superimposition of two or more closed threads of lines, each constituting one component of the global kolam pattern (as in Figure 1).

(Kolam drawing is practised extensively in South India by women of all ages. Children, mostly girls, learn the art of drawing kolam patterns from childhood and could acquire an astonishingly large repertoire of designs which they can draw readily from memory.) Several interesting issues for study may

be raised concerning this folk art: for instance, about its history, about its diffusion from one region to another, about the manner of learning and memorizing the individual designs, and their reproduction. (Gift Siromoney and his students carried out a variety of very interesting studies both in the field and in the laboratory to answer some of these questions.)

Concerning the history of the custom Siromoney (1978) has pointed out that the earliest references to kolam drawing in Tamil literature cannot be traced farther back than the 16th Century. In *Madurai Meenakshiammai Kuram* (16th Century), and later in *Thiru Kutraala Kuravanji* (17th Century), references to the custom occur including the manner of preparation of the surface before constructing the kolam patterns. Siromoney notes that "there is no reference to kolam in Tamil word-lists called *Nigantus*, in earlier Tamil literature, in ancient paintings, or in travellers' accounts" (1978, p.11).

(The formal mathematical properties of kolam patterns have been investigated in pioneering studies by Siromoney and his colleagues at the Madras Christian College (MCC). Formal language theory has been successfully applied to the study of these folk art patterns and a new class of formal grammars, called matrix grammars, has been devised by the MCC investigators to describe kolam patterns. Classes of kolam patterns as illustrated in Figure 3 can be considered as sentences of 2-dimensional picture languages with formally definable syntactic rules. Formal properties of such languages have been extensively studied in a series of published papers by Gift Siromoney, his colleagues, and his students (Siromoney et al 1972, 1974). Making use of the underlying syntax rules they have also devised computer programs for mechanical generation of kolam patterns belonging to particular languages.)

(These investigations clearly establish the complex grammatical properties of traditional kolam patterns.) In this sense, kolam drawing, although it is a folk art, has a highly literate basis. An interesting question in this context is: "What is the cognitive underpinning of this folk practice?" In other words, considering that a large proportion of the highly skilled

practitioners of this folk art are nonliterate adults and children, how do they learn these syntactically complex patterns, how do they remember them, and how do they reproduce them from memory when they are called upon to draw them as part of their normal living?

Recall that we earlier noted that a complex kolam pattern forms a 'figure' over a 'ground' made up of a grid of dots. These dots -- called *pullis* in Tamil -- clearly serve as props or aids facilitating the learning as well as the reproduction process. Learning, memorizing, and reproducing are easier for kolam patterns that can be parsed readily, i.e., that can be decomposed into their constituent units. This can be immediately verified by looking at the patterns shown in Figures 1 and 2. The latter is far more difficult to learn, remember, and draw than the former. In fact, the latter is difficult even to copy.

That (*pullis*, in practice, act as aids by forming a skeletal framework) for a kolam pattern, and that (skilled kolam practitioners, in fact, remember the patterns in terms of their parsed constituent units) was demonstrated by Siromoney in a series of elegant experiments. A prerequisite to such a demonstration is our ability to take (snapshots of stages in the reproduction process as the kolam practitioner draws a given kolam pattern.) Siromoney devised an ingenious, but simple and inexpensive, technique to accomplish this.)

(Siromoney's snapshot technique works as follows. Stack, say, 7 sheets of paper and interleave them with black carbon paper. Use a red ballpoint pen for drawing the kolam pattern. The subject starts the kolam drawing on the top sheet. At the end of the first stage (or, after a predetermined time interval), remove the top sheet and the carbon underneath it. The subject continues to draw the kolam pattern on the second sheet which is now the top sheet. At the end of the second stage, the current top sheet together with its carbon is removed. This process is continued through all the seven stages. Clearly, each sheet (after the completion of the kolam drawing) will contain all the parts drawn during the previous stages in black (due to carbon papers) and the part added in the current stage in red.

In a series of experiments skilled kolam practitioners were tested by Siromoney by asking them to draw pre-identified kolam patterns from memory. Their drawing strategies were recorded using the snapshot technique described above. It was found that the practitioners invariably drew the *pullis* first to define the grid. The kolam patterns were constructed over the grid stage by stage in a manner conforming to the natural segmentability of the pattern. Typical stages in drawing two kolam patterns --- one simple in structure and the second much more complex --- are shown in Figures 4 and 5.)

In other experiments Siromoney was able to show that kolam practitioners and naive individuals (not familiar with such patterns) differ in their capacity to copy (unfamiliar) kolam patterns. They also differ in their capacity to discriminate between similar and different kolam patterns on brief exposure. Expertise in kolam drawing is, thus, of the nature of a skill and exhibits all the attributes that psychologists associate with skill-acquisition and performance. Although the performance of this skill results in products (i.e., kolam patterns) that possess complex grammatical properties, the practitioners of the skill are, themselves, unaware of this fact since, as we saw earlier, (a large proportion of the practitioners are nonliterate.) In this, kolam drawing skill would seem to be similar to skills such as language skill and elementary arithmetic skill. (At the cognitive level we understand very little about the mechanisms and processes that subserve such skills.) It is also of some interest to note that, although there is a very large repertoire of traditional kolam patterns, there is no clear indication of how they arose. The kolam practitioners themselves do not seem to be adept at, or even motivated to, innovate new patterns.

Need to Study the Oral-Literate Dimension in India

Orality in the Indian tradition is pervasively underpinned by literacy. We have so far seen illustrations of this in three different domains: preservation and transmission through purely oral means of authentic versions of sacred texts; the use of oral

notations and mnemonics in teaching and learning performing arts (i.e., classical dance and music); and, finally, the acquisition and practice of folk-art skills such as kolam drawing. Each one of these cases exemplifies the informed use of literate props to achieve complex, rule-constrained behaviour by not-necessarily literate individuals. Yet another domain where we find similar use of literate aids is in the acquisition and deployment of craft skills. A case that has been studied in detail by scholars is sculpting of religious images. To quote from a recent paper by Mosteller (1987) :

. . . common to both the [iconographic] texts and surviving practice is the use of what can be called a 'system of construction'. In the case of surviving practice, this constructive system . . . both composes and proportions the image. In the living tradition such devices function mnemonically: the device is used by the young artists to memorize the forms of specific images. Thus, whenever an image is carved it is always recreated in the same way it was memorized, that is, in relation to the device of the constructive system [p. 56].

Vatsyayan (1983) discusses in great detail the use of constructional systems in Indian tradition based on circles and squares.

Designs in craft work necessarily have to conform to rules. Such rules may be constrained by abstract aesthetic principles imposed by tradition. They may also be constrained by the material and tools used to realize physical objects based on the designs. A deep question is this: how are such rules formulated and how are they made accessible to the craftsmen so that at the implementation level conformance to these rules is ensured? The more abstract and theoretical the rules and principles, and the less literate the craftsmen, the translation of the principles to practice at the level of craft techniques makes it essential to devise clever mnemonic and constructional aids. The Indian tradition seems to have coped with this problem through a variety of sophisticated means. A systematic study of such

underpinnings of orality by literacy and their contributions to shaping instructional methodologies still remains to be undertaken in India.

Such systematic studies are of primary importance to become aware of the potentials for literacy that lie buried beneath the oral aspects of tradition-bound performance. Explicitly articulating the literate props supporting orality should suggest means for promoting literacy-consciousness at the social level. This is a necessary first step to the successful introduction of improved tools, techniques and designs in order to upgrade craft efforts with better and more modern technology.

Pacey (1974) gives an extremely interesting and significant illustration of such a transformation of craft to technology in his account of the development of architectural technology in Western Europe during the period 1100-1300 A.D. During this period, primarily in the context of cathedral building, architectural methods were transformed gradually from craft practices to engineering-based technology. Design increasingly became a central issue in cathedral building, and the principles governing design came to be explicitly articulated and increasingly based on technical and engineering considerations. Constructional practices came to depend on new tools and new modes of visualization such as architectural drawings drawn to scale or with the explicit indication of measurements, and so on.

The greatest challenge faced by traditional societies such as India is to find ways of making technological choices available to craft workers and others practising traditional skills so that they can devise alternative lifestyles for themselves consistent with their creative potentials and preferences. A clear understanding of the equations that currently exist between the oral and the literate in these societies should help in meeting this challenge halfway.

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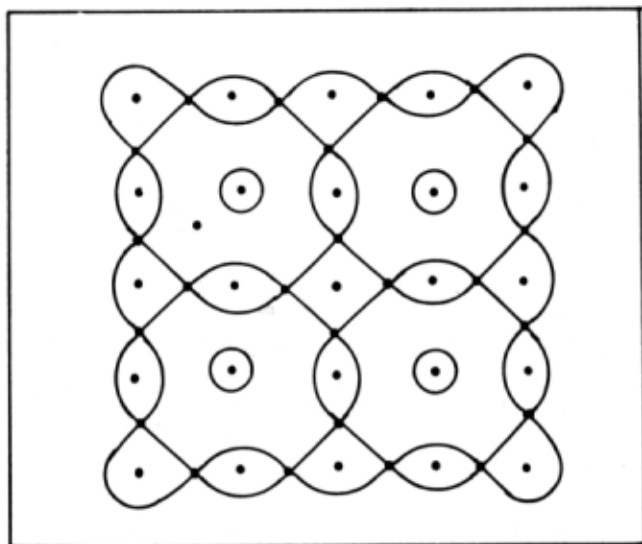


Fig. 1.

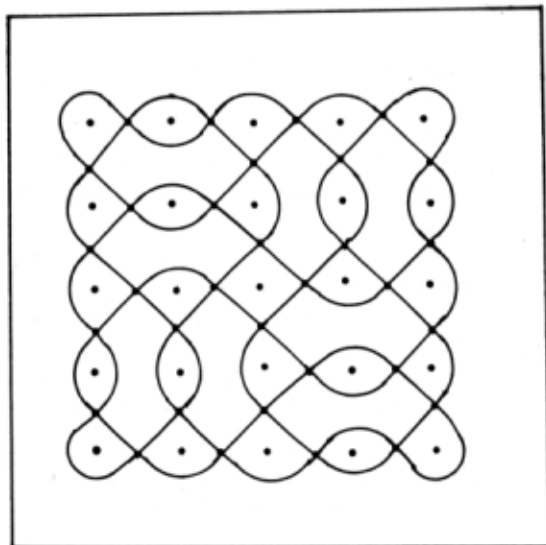


Fig. 2.

Examples of kolam patterns

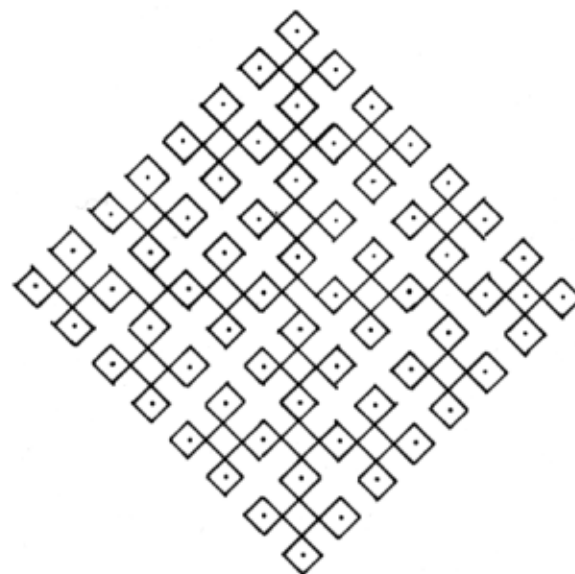
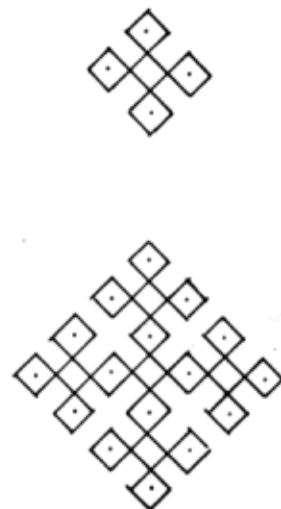


Fig. 3. A 'language' of kolam patterns



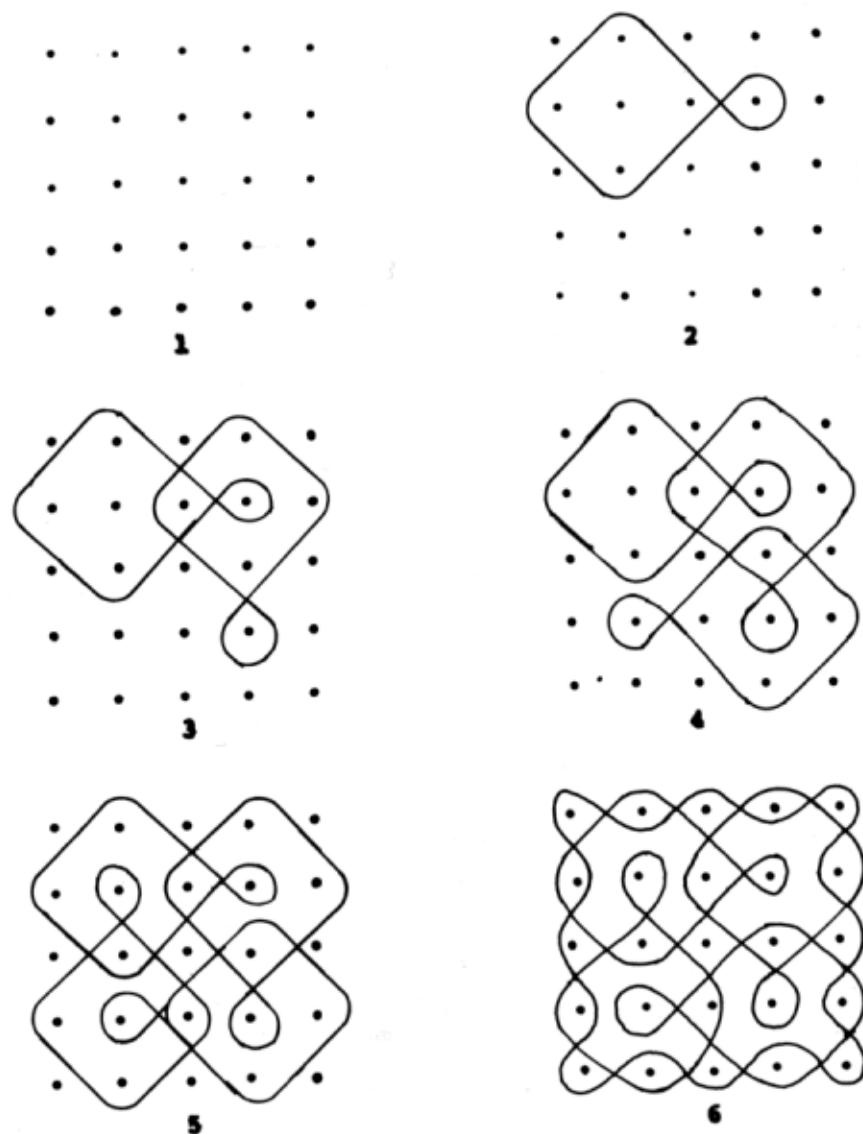


Fig. 4. Stages in drawing a kolam pattern.

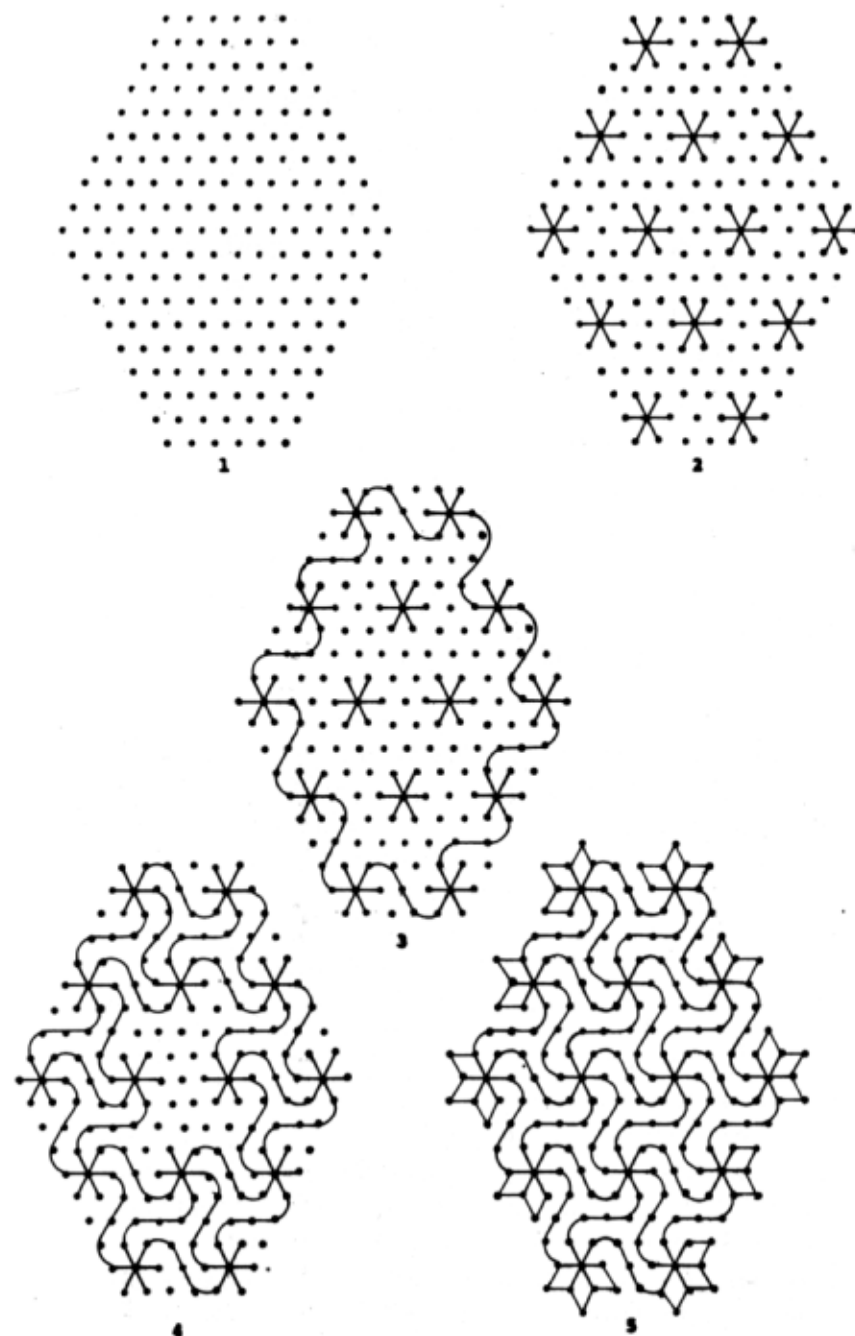


Fig. 5. Stages in drawing a complex kolam pattern.

PORTRAIT SCULPTURES OF RĀJASIMHA PALLAVA

V. Narayanaswamy

It is common knowledge that famous poets and leaders are honoured now-a-days with statues at strategic centres of every city. Was this custom in vogue in the past and if so, where were they displayed and with what import?

The excavations at the Indus Valley sites yielded some stone images, but whom they represent remains still an undeciphered mystery. In the South, *Silapadikāram*, a Sangam classic, reveals the erection of a statue for Kannagi by Senguttuvan. Rāmānuja, the propounder of Visishtadvaita, himself consented to have his image chiselled and now we have superb pratimas of Rāmānuja in three places, Sriperumbudur, Srirangam and Tirumalai.

Sculpture was once the poor man's book, and it explained something traditional. In India, figures have never been regarded as mere works of Art. Every object sculpted was meant to fulfill a significant demand. The *Bhavisya Purāṇa* not only sanctions such portraits but also enumerates such images among the various articles of gifts. Not only that. It even recommends that while gifting such self portrait images, the images of their dear ones may also be included (*Priya Jana Sakitha*).

But it should not be construed that the sanction for erection of such images was universal. An equal number of scriptures exist prohibiting this custom. The *Sukra Needhi* condemns erection of statues for mortals as Asvargya (unsāstric). An image was carved for Vedanta Desika too, but it was not installed under the plea that it violated religious injunctions. It will be interesting to note that in Greece, Plotinus refused to allow his portrait to be made, because it was, after all, an image of an image. It can be deduced that there were two

cults diametrically opposite to each other, one prohibiting such images and another sanctioning them.

Such sanctions probably tempted the Pallava kings not only to carve their images but also to include their queens (*Priya*). At Mahābalipuram we find kings Simhavishṇu and Mahendravarman not alone, but with their spouses.

In the capital city of Kāñchi, Pallava Monarch Rājāsīmha built the Rājāsīmheśvaram (Kailāsanātha Temple) and studded the corridors with superb sculptures of the various aspects of Śiva. But he took an extraordinary delight in allotting several niches to Somāskanda images.

The Somāskanda panel (Sa + Umā + Skanda) portray Siva seated on a throne with his Devi, Umā, with the child Skanda sandwiched between them.

Till now it has been assumed that all the images were representations of Divinity and in Somāskanda-like panels, where the baby Skanda was absent it was presumed to be Umā-Maheśvara, as they faithfully resemble the Śiva and Devi of all Somāskanda panels.

But on careful scrutiny, it will be found that three niches contain images with a difference from that of the divine Umā-Maheśvara. The central panel at the rear of the Mahendravarma Gṛiha facing west, and two cells in the south-west corner of the ambulatory passage contain this oddity. None of the male figures (which are otherwise replicas of Somāskanda) are endowed with four arms, the tell-tale emblem of Divinity. On the contrary, they sport only two arms, as any mortal. In the images of the South-West Corner one wields a heavy club and the other holds a royal sceptre. While all the other images have been provided with four arms, there must be a specific reason for endowing some with only two arms. It is evident that they do not represent Umā-Maheśvara but only the royal builder — Rājāsīmha and his Queen.

This Custom of equating a King with Divinity by not only assigning a niche in a Shrine but also carving his image in a Divine mould is echoed in the songs of the Orthodox Nammalvar:

திருவுடை மன்னரைக் காணில்

திருமாலைக் கண்டேனே

Tiruvuṭai Maṇṇaraik Kaṇil

Tirumālaik Kaṇṭēṇē

(Seeing the King I feel I am seeing God.)

In *Tevāram*, the line, "Arikēcariyāy Pōrri ...", is a eulogy both praising God and King. The name of the Pandian King was Arikēsari.

This practice slowly fell into oblivion as evidenced by a later date panel displaying a Rājasimha portrait in the temple of Tinnanur. An immaterial temple erected not by chisel and hammer but by the heart throbs of a poor saint, Poosalār, a contemporary of Rājasimha, has been record in later periods. Legends declare that King Rājasimha had to postpone the day of consecration of his Rājasimheśvaram at Kāñchi, as it synchronised with that of the temple of Poosalār at Tinnanur. This event is depicted in a stone panel embedded in the outer wall of the prākāra, portraying Poosalār worshipping Śiva with the Kadava King Rājasimha and his Queen Rāgapatākā witnessing it in humble adoration. In this sculpture, the royal couple are depicted as ordinary mortals without any presumption to divine status.

This cult has not entirely vanished but is peeping out now and then. In the Tirupathi Govindaraja shrine, we can see the portrait of a Yadava ruler (13th cent. A.D.) with a Sudarśana Chakra. In North India, the king was elevated to a divine status in paintings. Rajah Sidhsen (1684-1727) of Mandi State was eulogised as a mountain of a man, strong enough to crush a coconut with bare hands and a devotee of Siva. The

painter excelled this eulogy by identifying this ruler with Śiva and endowing him with four arms, attiring him in a tiger skin, garlanding him with dhatura leaves, and rudrāksha beads. A drum (Uṭukkai) and a Triśūla completes his resemblance to Śiva.



Fig. 1. King Rajasimha and his queen paying homage to Saint Poosalār - depicted in a temple of Poosalār at Tinnanur. - Photos by V. Narayanaswamy



Fig. 2. King Rajasimha and his queen, depicted on rear wall of Mahendravarma Shrine, Kailasanatha Temple, Kanchi.



Fig. 3. King Rajasimha and his queen - depicted in the south-west corner of the Kailasanatha Temple, Kanchi.

SOME RARE SCULPTURES FROM THE PALLAVA TEMPLES AT KĀNCHI

K.V. Raman and B. Sasi Sekaran

The structural temples of Rajasimha portray iconographic forms in large numbers, of which some of them are unique and found only at Kānchi. This paper analyses three such forms, viz., the Jalandhara Samhāra, Mahākāla and the presence of two dogs in the Gangādhara Panel at Kānchi.

The Jalandhara Samhāra (Fig. 1)

The Śaiva systems refer to Śiva as a great Yogi and Universal teacher. They also regard him as the first acharya and trace their lineage from him. The north and the south walls of the main shrine of the temples of Rajasimha elucidate the Yogic quality of Śiva by illuminating the Jalandhara Samhāra on the former and the Dakṣiṇāmūrti on the latter. Jalandhara represents the fury of Śiva. The violent anger, which is destructive, has been portrayed in the form of an asura. This *tāmasic* quality is a major impediment for a Yogi in the realization of his self. Śiva as a great Yogi destroys his *tāmasic* quality through meditation. The South wall reveals him as a Universal teacher, Dakṣiṇāmūrti, who not only conquered Kāla, but also enlightened the great sages hitherto afflicted with illusion.

Jalandhara symbolizes the violent anger of Śiva. Brahmā gave him the name Jalandhara because of his birth near the ocean. Jalandhara could only be destroyed by Śiva, the great Yogi, who could control it through subduing his mind. According to the *Śiva Purāṇa*, Indra and Bṛhaspati went to Kailāsa to see Śiva. A naked Yogi with matted hair and radiant face blocked the way. Indra not recognising Śiva asked the Yogi who he was and received no reply. Enraged, Indra threatened him with his thunderbolt, and this resulted in Indra losing

control of his arm through paralysis. Śiva cast off his fury into the ocean so that it could not hurt Indra.¹ It assumed the form of a boy. Because he was the mind-born son (Mānasa-putra) of Rudra he cried terribly. On hearing his cry, Brahmā descended from heaven and named the boy Jalandhara in commemoration of his birth in the ocean, and appointed him the emperor of the demons. Jalandhara, symbolising Rudra's mind in revolt, subdued all, including Brahmā, Viṣṇu and the other Gods. The Gods prayed to Śiva for help. The trident-bearing Lord evolved a discus, terrible weapon, by drawing sportingly on the surface of the sheet of water with the toe of his leg and asked Jalandhara to lift it. Jalandhara seized the discus and placed it on his shoulders with great difficulty and while doing so was cut into pieces.²

The Jalandhara-Samhāra is found only in the temples of the Pallavas and rarely seen in the temples of the later days. The Jalandhara Samhāra panel from the Kailāsanātha temple is more elaborate than those found in the other Pallava temples. The panel depicts Śiva seated in Yogāsana with Yogic belt around his knees. His upper right and left hands hold the *akṣamāla* and *kamaṇḍalu* and the two lower arms are placed over the knees. Jalandhara, his mind born son, representing his anger, is shown lying below him with dishevelled hair, with the discus cutting into his shoulder. The Sun and the Moon are shown standing in *añjali* behind him. The side niches on either side of the main niche show Brahmā and Viṣṇu standing in *añjali* and praising this great victory of Śiva. While the Dakṣiṇāmūrti form of Śiva has been adapted and portrayed by successive rulers in their temples, the Jalandhara Samhāra, implying the initiation of Śiva as a great Yogi who has conquered his senses, does not figure after its initial appearance in the art of the Pallavas.

The Mahākāla (Fig. 2)

The *Mattavilāsa* of Mahendra I refers to the Ekāmrānātha temple at Kanchi as a great Kāpālīka centre. The Kāpālīka,

mentioned in this drama, is described as a resident of this temple.³ The early literature mentions the Kāpālikas as Mahāvratins, because of their observance of the Kāpālika vow, a mythical act said to be observed by Siva for the sin incurred by cutting off the fifth head of Brahmā. The Kāpālikas worshipped the Bhairava form of Śiva, and the cremation ground (*śmaśāna*) was the place usually associated with the ritual enactment of the Kāpālika vow. The association of the Kāpālikas with the Ekāmrānātha is brought to mind by the presence of two structures bearing the name Kaccimāyana and Vālīśvara. The Vālīśvara is the earlier of these two shrines, and K.R. Srinivasan dates this shrine to the time of Rājasimha on stylistic ground.⁴ A fragmentary Chola inscription lying nearby further strengthens this by mentioning the grant made to the temple of Rājasimhēśvarattu-Mahādeva.⁵

The presiding deity of this shrine now goes under the name Vālīśvara. Unlike other Pallava temples, the Vālīśvara enshrines a panel of seated Śiva and Umā on the back wall of its cella. The stylistic feature of the bas-relief shows its Pallava origin. As against the Umāsahita panel which is pacific (Saumya) in nature, this panel is in terrific (Ugra) form. The God and Goddess are sitting on a Simhāsana with their right leg bent and placed on a *pīṭha*. The back right hand holds the *Sula* and the left hand has *Katvāṅga*, the front right hand has the sword and the front left hand has the *Kapāla*. Kāla is standing on the right side of the pedestal while Mrtyu is on the left side. The iconographic feature of this panel reveals the adherence to the details mentioned in the *Lalitōpākhyāna* text.⁶ According to this work Mahākāla and Mahākālī should be seated on a Simhāsana, and Mahākāla, the swallower of the Universe, should have by his side Kāla and Mrtyu. The presence of a temple dedicated to Mahākāla and Mahākālī inside the Ekāmrānātha temple complex authenticates Mahendra's reference to the Kāpālikas and their association with the temple in his work *Mattavilāsa*. The literary and inscriptional sources mention the existence of temples dedicated to the Kāpālika faith. The

iconographic evidence of this dedication has been found only at Kāñchi in the form of Mahākāla and his consort.

It is surmised that the original name of the shrine should have been Kapālīśvara. The people of the later days evidently failed to understand the significance of the association of the Kāpālikas with this temple. This resulted in the corrupting of the name Kapālīśvara into Vālīśvara. In order to substantiate the new name a new myth has been invented making the Vānara king, Vālī, the worshipper of the deities of this shrine.

Gaṅgādhara (Fig. 3)

The Śiva Gaṅgādhara is one of the themes that inspired the interest of the Pallava kings, Mahendra I and his successors, as found in their creations at Trichy, Mamallapuram and Kanchi. An interesting feature of the Gaṅgādhara theme at the Kailāsanātha Temple is the depiction of two dogs in the central niche on the back wall of the main Shrine. Nowhere else do we find this aspect in the sculptural depiction. The association of dogs with Rudra, Sun, Moon and Yama is seen in the *Ṛg-Vēda*. The *Ṛg-Vēda* mentions that Rudra, as Vāstoṣpati, the guardian of the house of Varuna, assumes the form of the dog of heaven.⁷ The Sun and the Moon are the other two identified in the *Ṛg-Vēda* as the watch-dogs of heaven. It calls them Sarameyas indicating their origin from Sarama. As the watch-dogs of heaven, the Sarameyas (Sun and Moon) devour or shorten the life of man.⁸ The *Yajur-Vēda* pays homage to Rudra as a mountaineer, a hunter and also the leader of dogs. The *Atharva-Vēda* considers the dogs of Rudra as terrific and are said to devour without masticating. Yama is the other God with whom the hounds are associated in the *Ṛg-Vēda*. It mentions the dogs as the two brindled hounds of Yama, and they are identified as the guardians of the netherworld.⁹ The hounds, as the messengers of Yama and the guardians of the netherworld, show the path to mortals who have died. In the later Samhitas, the two messengers of Yama are identified with Mrtyu and Nṛti.¹⁰



Fig. 2. Mahakala and Mahakali, Valisvara Shrine, Ekambaresvara Temple, Kanchi.



Fig. 3. Gangadhara, Kailasanatha Temple, Kanchi.

DHAMĀNA KAḌA CHAITYA : ITS ROLE IN THE SPREAD OF BUDDHA'S PREACHINGS, GROWTH OF ART AND RELIGION*

I.K. SARMA

In no other part of the country does one find such a proliferation of Buddhist sites as in Āndhra right from Mauryan times. The region had close contacts with the Magadhan nuclei. Buddhism appears to have had its roots in Dakṣiṇāpatha from the times of the Master. In particular, Dhamānaḱaḍa was not only an important seat (*Sthāna*), but an early centre of Buddhist religion and art. Several innovations were made here to popularise the creed through the medium of sculptural arts and architecture. This paper highlights certain early manifestations of the Buddhist religion in this region.

*** *** *** ***

The present day twin villages of Amaravati-Dharanikota (Lat. 16° 34' N; Long. 80° 21' E) situated about 33 km. north of Guntur town in Āndhra Pradesh, formed part of an ancient township called *Dhamānaḱaḍa* or *Dhanakaḱaḍa*. Colonel Colin Mackenzie was the first to record the antiquarian wealth of this site early in 1797, and thereafter the site lured many art historians, archaeologists and epigraphists. In this short paper I would like to dilate, with the help of inscriptions, art objects, literary and traditional accounts, on the importance of this earliest centre of Buddhism in Dakṣiṇāpatha.

I. Epigraphical References

This place is found mentioned on the earliest architectural and sculptured members from the *Mahāchaitya* site assigned to the Mauryan period.

* Paper read at the International Seminar on the Buddhist Architecture and National Cultures in Asia – Acharya Narendra Sarnath, Varanasi (7-11, March, 1989).

1. Sculptured Stele:

(Field No. 304, Museum Accession No. 44.1.)

This pillar was found at the *Stūpa*¹ during the year 1958-59. It has four facets. All the four sides contain sculptured scenes bearing short label inscriptions under each frame. Though obliquely broken at the top, this important stele was perhaps originally set up at the frontage of the eastern *torāṇa* gateway-entrance of the *Mahā stūpa* of the Aśokan times, for from this very place an Aśokan Pillar edict part was reported². We are concerned here with the second facet of the stele, that is, the one facing north, which depicted a scene with the label-inscription reading "*Dhamāna-kaḍa vaṁda nāmagoṭhi*". (Pl. 2)

The other scenes with the inscribed toponyms under each of them were favourite resorts of Buddha, connected with the biographical events of the Master. The portrayal of *Dhamānaḱaḍa* in this scheme is not only very realistic but of great importance. The depiction of the river Krishṇā³, particularly its north-easterly bend is true even today. The flowers and *pāduka*-like objects shown on the waters of the Krishṇā suggest the Master's descent along the river tract. The label "*Dhamānaḱaḍa*" thus confirms the scene above in very clear terms.

In another context I have stated that the place name *Dhamānaḱaḍa* was after the name of the King *Ḍamaka*⁴ found in a rock brow inscription at an important early Buddhist site called Vaddamanu, 10 km. east of Amaravati. Since the reading of the name is clearly *Samaka*⁵, my observation stands revised. It is noteworthy that like King *Khubiraka* of the Bhattiprolu records, *Samaka* also appears to be an independent ruler during the Mauryan times.

2. On another fragmentary sculptured piece the label records "*Dhamānaḱaḍa kasa nigamasa*"⁶ in 2nd cent. B.C. Brāhmī characters.

3. Another slab contains the text in Brāhmī, *Dhana kaḱa kasa nigamasa*⁷, in early 2nd cent. B.C. characters.

4. On a pillar we get "*Dhana (ka) ḍasa mahāvihāre*".⁸

5. On a sculpture fragment of the times of Gautamīputra Yagñā Śrī the record reads "Dhana-kaṭa mahā chetiya"⁹ or "Dhanakaṭa ka chetiya".

6 & 7. In early centuries A.D., the name is *Dhanakaṭa* or *Dhanakaṭa*¹⁰; actually, it refers to *Dhanakaṭakasa Upāsakasa*, and a contracted form, *Dhana*, is noted from an inscription of the third cent. A.D.¹¹ King Vāsisthīputra¹² Puṣumāvi made this place his eastern capital and called himself *Dhanakaṭaka Sāminehi*.

8 & 9. The older form is clearly retained in an inscription of the 19th regnal year of the Ikshvāku king, Vīrapurushadatta¹³, from Uppugundur (Prakasam District), which refers to a resident of this place as "*Dhamṇakaṭa Vathavasa*" (4th cent. A.D.). Slightly later, in the Maydavolu inscription of Pallava Śivaskandavarman¹⁴ (4-5th cent. A.D.), we come across a reference to *Dhamṇakaṭa*. Much later, from records of the 11th cent. A.D., we hear the place being referred to as *Dhānya-ghaṭaka*. An inscription of a Koṭa chief, Mahāmaṇḍaleśvara Koṭa Rāja¹⁵ (1182 A.D.), clearly describes the importance of the place:

*Asti śrī dhānya kaṭakam puram surapurāṭpuram
yatrāmāreśvaraḥ śambhuramāreśvara pūjitaḥ |
Buddhodevasya sannidhyāt tatra dhātro prapūjitaḥ
chaitya matyunnatam yatra nānā chitra suchitritam ||*

Obviously Dhanakaṭaka continued to be a great centre of Buddhism as well as Śaivism. The place came to be known also as Amarāvathī sometime after 1132 A.D. The fortified area was separately called Dharaṇīkoṭa.

II. Literary & Traditional Accounts, Foreign Notices, Etc.

*Gaṇḍavyūha*¹⁶, a Prakṛit work, of the 3rd cent. A.D., speaks of *Dhānya-Kara* as a great city of *Dakṣiṇāpatha* and a seat of Mañjuśrī. From the *Mañjuśrīmūlakalpa*, we learn that at this place the relics of Buddha were enshrined in the *Stūpa*: *Śrī dhānyakaṭaka chaitye jinadhātu dhare bhuvi*¹⁷. This earliest

Vaipulyasūtra, which contains many elements of *Mantrayāna*, however, does not speak of the third turning of the wheel of law although it is familiar with the Buddhist base of *Dhānyakaṭaka*.

The Chinese pilgrim Hiuen Tsang¹⁸ visited the headquarters of the country called *Tena-ka-che-ka*, i.e., *Dhānyakaṭaka* (in 639 A.D.) in Ta-An-To-Lo, that is, Great Āndhra. He stayed at this place for nearly a year and learnt *Abhidhamma*. Hiuen Tsang records a tradition that Buddha visited Āndhra and preached *Dhamma*: "Near the south-west of the monastery was the Asoka tope where Buddha preached, displayed miracles and received into his religion a countless multitude"¹⁹. According to Tibetan traditions, Śākyamuni promulgated the *Kālachakra* system at *Dhānyakaṭaka*²⁰.

Helmut Hoffmann²¹ asserts that the *Kālachakra mūlāntara*, and the *Mantrayāna*, in general, were preached by Buddha himself at the well-known and famous *stūpa* of *Dhānyakaṭaka*. The text reads:

*Gṛdhrakūṭe yatha śāstra prajñāparamita nayā,
Tatha mantrāṇāṃ proktā śrī dhānye dharmadeśanā.*

As the instruction of the Dharma by the teacher has been preached in the case of the "method of the perfection of wisdom" in the *Gṛdhrakūṭa* (Rājagṛha), so in the case of the "method of spells" at *Śrī Dhānya (kaṭaka)*.

This took place on *Vaiśākha Pūrṇimā*. Hence, the Tibetan tradition has shifted the anniversary of Buddha to *Jyēṣṭha Su Saptamī*; Enlightenment and *Parinirvāṇa* on *Jyēṣṭha Su Pūrṇimā*. While according to the *Sthavira* tradition, birth, enlightenment, and *Parinirvāṇa* were on *Vaiśākha Pūrṇimā*. Both the traditions, however, agree that *Dharma-Chakra Pravartana* was on the *Āshāḍha Paurṇamī* day.

Other literary references that indirectly point to the Buddha's direct affiliation with coastal Āndhra may be

mentioned here. The Muchilinda Nagara referred to in the *Mahāvamsā* (Chapter 36, p. 144) was identified as the port city of Machilipattanam by P.S. Sastry²², and the episode of the Nāga king, Muchalinda, protecting Buddha from a great storm soon after the enlightenment (sixth week) has a direct bearing on the turning of the Kālachakra at Śrī Dhānyakaṭaka by Buddha. Buddha perhaps reached the place through the ancient sea route and then travelled from Machilipattanam to Dhānyakaṭaka through the river Krishṇā as pictured in the sculptured stele detailed above. The Jātaka story relating²³ to Buddha's previous birth as Sumedha, in the city of Śrī Dhānyakaṭaka thus gains added significance.

There were frequent exchanges between Magadha and Āndhra. The *Kathāvathu* and *Abidhammapīṭaka* speak of *Andhaka* hegemony extending upto Magadha, *Andhaka Vinda* near Magadha, *Andhaka vana* near Śrāvastī, etc. Though there is no reliable proof that Buddha went to the Āndhra region, Dhānyakataka became the most important stronghold of the Mahāsāṅghikas, and almost all the branches were found mentioned here only. According to the *Aṣṭasahasrikā Prajñāpāramitā*, Mahāyāna originated perhaps in Āndhra at this very place and developed the *Trikayas*²⁴. *Dharmakāya*, i.e., Buddha, was of special interest and identified as the very epitome of *Dhamma*, which necessarily lead to his deification. *Tāntrikas* attribute many *mantras* and *sādhana*s to Buddha and Dhānyakaṭaka was regarded as a centre of such practices (*Mantrasiddhi*).

Lokesh Chandra²⁵ opines that "the cradle of Pāramitayāna and Vajrayāna was in South India around Śrīparvata. Dhānyakaṭaka, Potala and Oḍḍiyāna which are in Āndhra Pradesh and Tamil Nadu". The earliest seats of *Tāntrik* Buddhism were not Bengal, Orissa or Assam but Oḍḍiyāna and Āndhradēsa.

There is no doubt that the *chaitya* of Dhamnākaḍa was regarded as the most important and sacred edifice-*Chetikiyānam*

*Mahāchētiyasa*²⁶. *Chaityakas*, a prominent school among *Mahāsāṅghikas*, flourished in Āndhra, right from the Mauryan period and specialised in the practice of raising *stūpas*, decorating them, and offering worship²⁷. The idea of developing the symbol of 'chakra' into an architectural entity was motivated by "some ideological concept harmonised with architectural requirements"²⁸. It symbolised a great event connected to Buddha's life, most likely Buddha's turning of the wheel of spells (Kālachakra) at Śrī Dhānya Kaṭaka. The *Vajrayāna* thinkers tell us that Buddha set in motion the *Kālachakrayāna* sixteen years after his enlightenment.

This being so, the toponym *Dhamnākaḍa*, with its variant *Dhanyakaṭaka*, originated due to its being a prominent seat of *Dhamma* right from the times of the Master. An inscription of early centuries A.D., in fact, mentions the *Mahāstūpa* specifically as a seat of *Dhamma*²⁹, "*Dhammasthāna*", where a lamp pillar *Diva Khabho* was caused to be erected at its foot. The name *Dhanakaṭa* and *Dhana* came into vogue later from the times of the Sātavāhanas. *Dhana* and *Dhānya* connote wealth and plenitude.

Although the name *Dharaṇikoṭa* seems at first to have been derived from *Dhana Kaṭaka*, it is distinct both in its derivation and meaning. *Koṭa* is fort and *Dhāraṇi* means earth — earthen fortification. But *Dhāraṇis* in the Buddhist context have a different connotation. These are talismans for holding the Buddhist *mantras*. Thus *Tāntrik Vajrayāna* cults have already got entrenched here.

III. New Evidences from Archaeological Excavations

Excavations at the citadel area of Dharaṇikoṭa revealed an ancient port with a man-made navigational channel³⁰ and an earlier wooden wharf (later on brickbuilt), platforms, etc. It appears to be an important Indo-Western trade station as revealed from the imported materials such as glass objects of

various colours and of the millifiori technique datable to the early centuries B.C. Roman coins and imported pottery ware like Arretine, Rouletted, and Amphorae, etc., of the first-second centuries A.D., testify to its international linkage.

The C₁₄ dates show that Dharaṇikoṭa rose to prominence right from *circa* 400 B.C.³¹ (TFR-246, 247). Latest excavations (1974) by me, closer to the *Mahāchaitya* site, fully corroborate the above dating. The pre and earliest levels near the *Mahā stūpa* yielded large quantities of NBP ware, Black-and-Red ware and iron, which go a long way to prove that early Buddhism backed by trade engulfed this region. It was but natural that the Buddhist monks from the North-eastern nuclei reached Dhānyakāṭaka in pursuit of propagating the teachings of the Master before the Mauryan impact. According to the inscriptions, pilgrims from every walk of life and from far off places like Rājagriha and Pāṭalīputra gave munificent gifts to the *Mahāchaitya* and decorated it. Adverting to the inscribed stele mentioned at the beginning, it is necessary to bring to the fore certain events depicted on it. The scenes portrayed here relate to Vaiśālī, Śrāvastī and Dhanakāṭaka on three of the facets, whereas the fourth one is mutilated. It is relevant here to ponder over the likely narration on the fourth face as well, for that would be vital in reconstructing the sequence in chronological order of the life of the Master. A. Ghosh and H. Sarkar regarded the Vaiśālī and Kuśinagara scene as the first in order (Pl. 4) and proceeded clock-wise; hence the Śrāvastī scene was taken as the second, Dhamnakaṭa as the third, and the fourth, the defaced one. It may be pointed out that each individual scene was depicted vertically in sequential order from bottom upwards as they happened in their respective places. This narration admirably confirms the biographical events of the Master³³.

This stele was perhaps set up at the threshold of the main entrance (eastern) on the right side as one enters through the imposing *torāṇa* gateway. The scenes depicted on its four facets have to be taken anti-clockwise and not clockwise.

The damaged facet (the fourth one of A. Ghosh and H. Sarkar), will be the first one in this order (Pl. 1). This faced east. It may seem to be purely a conjecture, but nevertheless it is essential to an understanding of the subject of the carvings portrayed on the four facets of the stele in their proper chronological sequence and in a synoptic perspective. In this attempt a sculptured fragment, somewhat mutilated (Pl. 5), but with labelled scenes, was reckoned as a rare specimen³⁴ of the early phase of Amarāvātī art. This fragment is now among the exhibits in the Madras Museum³⁵. Though we cannot be certain as to the point whether this fragment is a part of the stele or of another octagonal pillar as presumed by T.N. Ramachandran³⁶, the manner of depiction, labelling of the scene, the size and art style of the figures point to its being part and parcel of the damaged carving (Fig. 1). I have examined most minutely this sculpture and found that this broken piece could be fitted well to the stele of Amarāvātī, if only it is possible to detach it from the Museum pedestal and send it to the Site Museum of Amarāvātī for careful mending.

As for the themes of the carving, one may identify the following (Pl. V-A, B Fig. 1): (1) Prince Siddhārtha showing his skill as archer; (2) the going in Flight (*gamma*) of young Prince Siddhārtha, from Kapilavastu, in the middle of the night, on the horse (Kāṇṭhaka), passing beyond the three Kingdoms arriving at the river bank called Anomā; on reaching the opposite shore he takes leave of Chhandaka, the charioteer and the horse (*mahābhiniṣhkramaṇa*); (3) the labelled scene "Nerañjara", i.e., the river Nairāñjana, where Bodhisattva rested during six years of austerities, begging food from the nearby village Uruvilvā (modern Urel, Bodhgaya, Dt. Gaya, Bihar).

The remaining portion of the carving³⁷ may have contained scenes portraying the Enlightenment (*Bodhi*), Māra's attack, First sermon (*Mṛgadāva*) and Rājagriha³⁸ where Buddha took his abode variously at Yashtivana, Veṇuvana, Sītavana and Grīdhraṇḍa hill.

The second facet, i.e., the north-facing one, depicts in greater detail Dhānyakāṭaka (Pl. 2). The upper portion being damaged, only one scene with the label, *Dhammākaḍa vandanāma goṭhī*, is extant. The third facet, i.e., west-face, narrates the Śrāvastī and Jetavana incidents (Pl. 3). The last and fourth facet, i.e., the south-face, is the most important and is well preserved. It has, in all, six scenes depicting the last three months of Buddha's life beginning with Vaiśālī and ending with the *Mahāparinirvāṇa* at Kuśinagara³⁹ (Pl. 4).

Here, again, it is quite significant to note that even the words and phrases in each of the explanatory labels are virtually stereotyped versions occurring in the early Buddhist texts⁴⁰. For example: (1) *Vesālīya viharāti Mahāvana Kūḍagā (ra) śālāya*; (2) *osaṭṭho*; (3) *nāgāpalogana*; etc. It is well known that all the *Vaiśālī Chaityas* (*Udena*, *Gotamaka*, *Sattamabaka Bahuputta*, *Sārandāda* and *Chāpala*) were favourite resorts often praised by Buddha himself. There is no doubt that the *Vaiśālī Chaityas* were existing during Gotama's time. Their pictorial depiction is seen only on the Amarāvati stele and nowhere else. In this unique biographical scene, the choice portrayal of Dhammākaḍa before the Śrāvastī incidents and perhaps after the Rājagriha events, may not be without significance. The realistic depiction of the river Krishṇā just as it is today, particularly its north-easterly turn, the flowers and *pāduka*-like objects shown in the waters, suggestive of the Master's descent along the river course, call for careful consideration. Such symbolic depictions in Buddhist sculptures stood for the presence of Buddha.

Thus, the four facets of this unique stele pictured a connected biography of the Master from Birth to Enlightenment to *Mahāparinirvāṇa*. In this scheme, *Dhammākaḍa's* depiction assumes great significance. The literary accounts and traditions pointing to Buddha's direct association with Āndhradēsa, the intimate contact maintained by *Dhammākaḍa goshṭhis* and *nigamas* with the centers of the North-East, right from the formative period of Buddhism, leave no doubt about the crucial

role played by this *Dhamma-sthāna* in moulding the life, teachings and subsequent legends connected with Gautama Buddha. The numerous epigraphs and works of art embellishing the splendid architecture of this place stand witness to these historic events at every stage.

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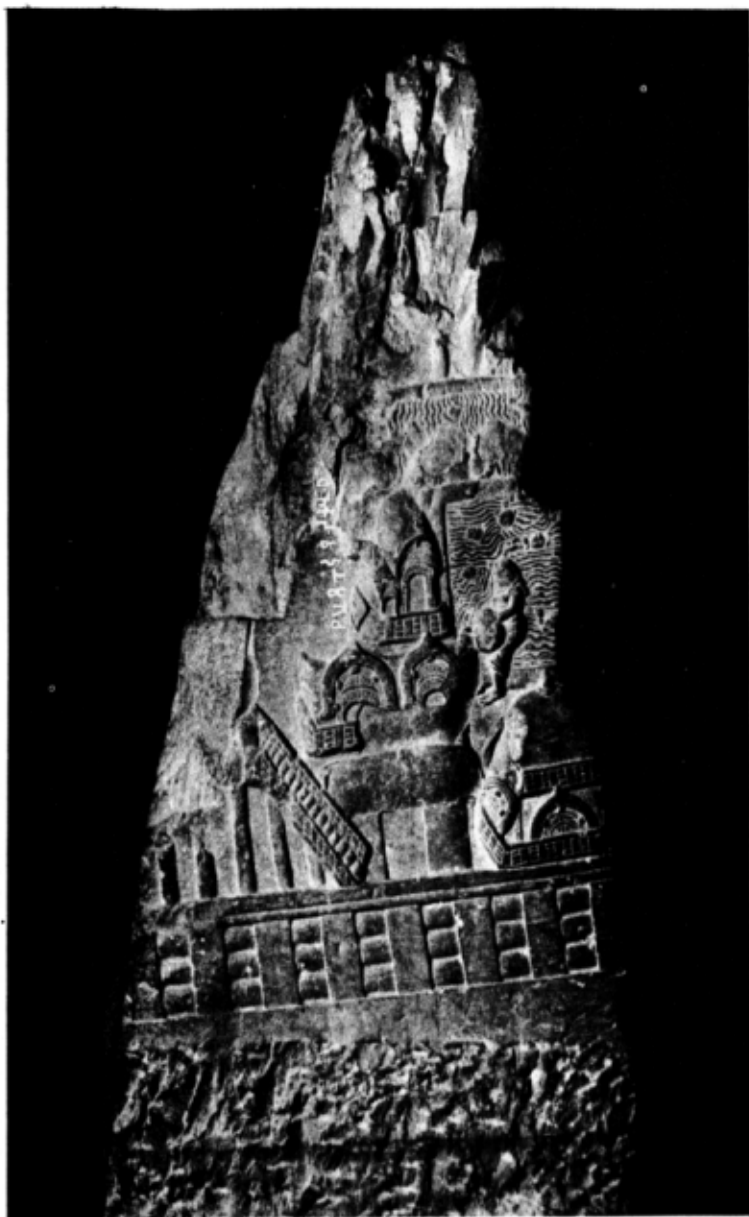
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Pl. 1. Amaravati stele, First facet (broken), East facing.
 – Courtesy, Archaeological Survey of India



Pl. 2. Amaravati stela, Second facet, Dhamnakada scene, North facing.
 - Courtesy, Archaeological Survey of India



Pl. 3. Amaravati stela, Third facet, Sravasti & Jetaavana scenes, West facing
 - Courtesy, Archaeological Survey of India



Fig. 1. Amaravati sculpture: Neranjana river and gamana scenes, Madras Govt. Museum.

RITUAL VESSELS IN THE TEMPLES OF TAMILNADU

P. Shanmugam

The domestic utensils used by the people of ancient periods have been studied by archaeologists on the basis of ceramic material found in the excavated sites. Many excavation reports contain a section on the ceramic utensils with a description of their type, manufacturing techniques, shapes and sizes. The utility value of these utensils has not been studied in detail. It is to be noted that metal utensils have received very little attention though many of them have been unearthed in several excavations in Tamilnadu. The material contained in the Sangam literature of the Tamil country has not been fully utilised by scholars, although it refers to many domestic vessels. They were commonly known as *kalam*, *pāṭṭiram* and *pāṇḍam*. Some specific types of ceramic vessels are known by different names like *akal*, *vaṭṭi*, *maṇḍai*, *tasumbu*, *kuḷisai*, *pāṇai*, *vayā*, *kuḍam* and *tāḷi*. Some of the pot-sherds excavated from ancient sites with Tamil-Brahmi inscriptions on them bore the name of utensils. A few dishes excavated from Kodumanal (Periyar District, Tamilnadu)¹ bore the name of the utensil as *akal*, a name given to the ceramic dish in the Sangam literature.

For the medieval period the study of utensils and their utility has not been investigated, though there are some epigraphical and literary material. Some sculptures and paintings provide some evidence in this regard. The inscriptional material reflect mostly the ritual vessels donated to temples by kings, queens and their relatives. Sometimes individuals have also donated ritual vessels to the temples. The evidence with regard to domestic utensils in the medieval period literature and inscriptions is meagre. However there is ample scope for studying the household utensils in this period. A study of these utensils—both in the temple and the house—will help us in

identifying the religious and social importance and the utility of many of the utensils and could place them in the correct perspective. Such a study will also help us to explain the different ideas of keeping food in the Tamil country.

In the daily services and rituals in temples many utensils were used. These utensils were considered most sacred and were handled by the priest. The ritual vessels were collectively called *tirupparikalāṅgaḷ* in medieval Tamil inscriptions,² of which the first segment *tiru* indicated sacredness. E. Hultsch has translated the phrase into 'sacred vessels'.³ The *Tamil Lexicon* gives two shades of meaning to the word *parikalam* as follows:- a) the remains of the offerings of garland, food, etc., made to a deity or a guru and b) the plate or eating plate or vessel used by a holy person. From a study of inscriptional material and the different items of vessels mentioned therein we may understand that it denoted all sacred vessels used in temple rituals and services.

The ritual vessels donated to temples were made of gold, silver, copper, bronze and bell-metal. A list of such vessels is appended at the end. From the list one may easily find out the preference of the metals used in making sacred vessels. The gold vessels are mostly salvers (plates), bowls, water-pots, small cups, sacred ash receptacles, spouted vessels and spittoons. All the above vessels excepting the spouted vessels were also made in silver. A majority of utensils (gold 20 + silver 21 = 41 types) donated to the temples were made in these two precious metals. Copper utensils included a few types of salvers, bowls, water-pots and spittoons (total = 8 types). The use of zinc was very much limited to spouted vessels, ladles, all types of stands, incense burners and boxes (*peṭṭi*) (total = 13 types). It is clear that salvers bowls, water pots, small cups, sacred ash vessels were not made of that metal. The bell-metal utensils include a few salvers, ladles and a lid. For the other types bell-metal was not used.

The inscriptions mention that many of these vessels were donated to temples in Thanjavur and Tiruvaiyaru by Rajaraja I.⁴

His sister Kundavai also donated many gold vessels to the Brihadisvara temple at Thanjavur.⁵ The inscriptions, especially from Thanjavur and Tiruvaiyaru, describe the number of vessels donated with their weight. The *prasasti* of Vikramachola also informs us about the donation of a number of ritual vessels of gold to the temple at Chidambaram.⁶ Though these inscriptions give minute details about their weight, the utilitarian purpose for which these different utensils were donated has not been mentioned. However, in some other inscriptions the purpose for which these utensils were granted are mentioned.

Among the vessels, a few varieties of salvers may be considered first. The *taḷigai* could be a large vessel, like a big dish. It had a base also.⁷ It is a sacred dish used only in the presence of the deity at times of services and rituals. It is clear from a Vridhachalam inscription that the *taḷigai* was used to keep the sacred food for presenting it to the deity.⁸ The word *taḷigai*, though it means a dish, was not a popular name used to refer to any eating plate, but was used to name the sacred dish only. Sometimes the sacred food kept in the dish was also called *taḷigai*.

Another kind of a salver is *tālam*. It could be a smaller one in size than the *taḷigai*. It was also used to keep the sacred food offered to the deity on the *śrībali* ceremony as mentioned in some inscriptions. The sacred food was kept in a *tālam* and was distributed to the various minor deities at the time of *śrībali* ceremony. Sometimes in the *tālam* was installed an image of the presiding deity which was taken around the temple. To facilitate the installation of the deity there will be a pedestal in the middle of the *tālam*. From a Rajaraja I inscription in the Brihadisvara temple we learn that the *tālam* had a pedestal in the form of a lotus (*padmāsana-śrībali-tālam*).⁹

The *taṭṭam* was another salver which may be smaller in size than the other two mentioned above. Gold, silver, copper and bell-metal salvers were donated to the temple. It could have served as an eating plate.

The sacred water-pots are known as *kalasam* and *kalasappāṇai*. It was also known sometimes as *kudam*. All the above water pots are globular in shape. The *kalasam* and *kalasappāṇai* are two sacred vessels smaller in size than the *kudam*, which must be a larger vessel to carry and store water. The *kalasams* were used to bring sacred water for the bathing ceremony of the deity. In Lalgudi, 108 *kalasams* were donated with the purpose of bringing water for conducting the *snāpana* (bathing) ceremony in the temple on the sacred day of *dakṣiṇāyana*.¹⁰ One of the *kalasappāṇai* had a base and a beak-like projection for pouring the sacred water.¹¹ *Kuḍam* is a more common term for a water-pot.

Many bowls are known to have been used in the temples. *Vaṭṭil* was a deep bowl used to keep sacred food and vegetables. In some cases water or liquid substances were also kept in the vessels. The following four different *vaṭṭils* are mentioned: a) *vaṭṭil*, b) *oṭṭu-vaṭṭil*, c) *māṇa-vaṭṭil* and d) *tāraitṭāl-vaṭṭil*.¹² The *vaṭṭil* could be an ordinary deep bowl. The *oṭṭu-vaṭṭil* could be a combination of two or more ones used to keep and distribute the sacred food. The *māṇa-vaṭṭil* is difficult to determine. However, it has been explained by E. Hultsch as a measuring vessel.¹³ The *tāraitṭāl-vaṭṭil* could be a shallow bowl with holes at the bottom. This could have been used to pour a shower of water on the deity at the time of the bathing ceremony. The *vaṭṭil* had a pair of *karukku* and another pair of lion's feet, the purpose of which limbs is not clear.¹⁴ A group of shallow vessels are known collectively as *vaṭṭagai*. Two types are known. They are *kai-vaṭṭagai* and *mūḱku-vaṭṭagai*. The *kai-vaṭṭagai* could be a small vessel with a handle. A *kai-vaṭṭagai* without a beak is known from a Tiruvaiyaru inscription.¹⁵ The *mūḱku-vaṭṭagai* could be a small vessel with a beak-like projection for pouring liquid substances.

Three small cup-like vessels are known. They are a) *choppu*, b) *ilaich-choppu* and c) *karandigaich-choppu*. A *choppu* was used to keep small objects. *Karandigaich-choppu* could be

a small cup in which the lime-paste (*chuṇṇam*) for using along with betel leaves was kept. The vessel had a lid and a base.¹⁶ Another *choppu* had a hinge attached to the lid for easy movement.¹⁷ *Ilaich-choppu* could be another small vessel used to keep betel leaves. One of these *ilaich-choppu*'s had four legs in the form of a *yāli* (a mythical animal).¹⁸

Two vessels with spouts are mentioned in the inscriptions. They are *keṇḍi* and *tārai-keṇḍi*. These vessels are globular pots with a spout. Both these vessels are used to pour the sacred water for *pūja* services in the temple.

Three ladles are known. They are mentioned as a) *saṭṭuvam*, b) *saruvam* and c) *saruvach-chattī*. From the Vridhachalam inscription it is clear that a *saruvam* was used to distribute the sacred food.¹⁹ A big shallow ladle is the *saruvach-chattī*. Pot-stands and pan-supports are also known. They are used for keeping different vessels secure and are known by various names. The *saṅgu-kāl* was a small stand used probably to keep the sacred *saṅgu* (conch). The *saṭṭi-kāl* was a stand used to keep a cooking pot. *Tārak-kāl* was a stand made out of zinc (*tārā*). *Aṭṭavaṇaik-kāl* was a stand with legs crossed. The *āḱku-pāṇaik-kāl* and *pāṇaik-kāl* are two stands used to keep big vessels or urns.

Among the sacred spittoons the following four types are found: a) *paḍikkam*, b) *kāṣāṇji*, c) *kāḷam* and d) *pingāḷam*. All four represent a small cup-like vessel with a wide open mouth. The differences among these vessels are not clear. These vessels are kept in the *garbhagriha* for ritual purpose. After the deity had taken the sacred food the betel ceremony would be followed. Hence the spittoons were kept in the *garbhagriha* for the ritual use of the deity.

Among other sacred *pūja* vessels used in the temple rituals, the *maḍal* may be mentioned first. It is a small cup-like vessel whose mouth was shaped like an ovoid, and was used to keep the sacred ash for distribution among the devotees of

Śiva. It could also be used to keep sacred flowers for use in the *garbhagriha*. A *maḍal* made of gold was presented to the temple at Tiruvaiyaru by Rajaraja I.²⁰ A silver *maḍal* was presented by him on another occasion to the temple at Thanjavur.²¹ A gold *maḍal* was donated to the temple at Thanjavur by Rajendra I.²² Though the inscriptions are not clear about the shape of the *maḍal*, three different types are found from the inscriptions. They are a) *neḍu-maḍal*, b) *kuṟu-maḍal* and c) *pushkarapatti-maḍal*. All the references are from the Thanjavur temple. The *neḍu-maḍal* and *kuṟu-maḍal* could mean long and short vessels respectively. The *pushkarapatti-maḍal* could be a big vessel with a base.²³

The incense burners are referred to as *dūpa-pāttiram* and *dūpa-maṇi*. One *dūpa-pāttiram* made of copper and another one made of bell-metal were donated to the temple at Tiruvaiyaru by Rajaraja I. *Dūpa-pāttiram* could be a shallow vessel without a lid. The *dūpa-maṇi* could be a small rounded vessel with holes on the lid for the smoke to escape.

A small circular plate used for the presentation of offerings in front of the deity at the time of ritual service is known as *tiruvālatti-taṭṭam*. This plate with incense and other sacred materials could be placed in front of the deity. At times the plate was waved in front of the deity. Two such plates made of copper were endowed to the temple at Tirusulam by Kulottunga III.²⁴

References and notes

1. The site was excavated by the Tamil University and the information was given to me by Dr. Y. Subbarayalu, Professor of Epigraphy, who conducted the excavation.
2. *SII*, V, 521.
3. *SII*, II, p. 419.
4. *SII*, V, 521; *SII*, II, 1, 2, 90, 91.
5. *SII*, II, 2.

6. *SII*, VII, 773, 1.8.
7. *SII*, II, 1.
8. *SII*, XIX, 397.
9. *SII*, II, 2.
10. *SII*, XIX, 356.
11. *SII*, II, 1.
12. *SII*, XIX, 174.
13. *SII*, II, p. 10, 1.32.
14. *SII*, II, 1.
15. *SII*, V, 521.
16. *SII*, II, 1.
17. *SII*, II, 2.
18. *SII*, II, 1.
19. *SII*, XIX, 397.
20. *SII*, V, 521.
21. *SII*, II, 91.
22. *SII*, II, 90.
23. *SII*, II, 2.
24. *SII*, VII, 537.

Appendix 1. Types of ritual vessels used in the
Temples of Tamil Nadu.

Name of the utensil	gold	silver	copper	zinc	bell metal
Salvers					
Taḷigai	+	+	+		+
Tālam	+	+	+		
Taṭṭam	+	+	+		+
Tiruvālatti-taṭṭu			+		
Ilait-taṭṭu		+			+
Tavukkai	+				
Bowls					
Maṇḍai	+	+			
Vaṭṭil	+	+	+		
Oṭṭu-vaṭṭil	+				
Māṇa-vaṭṭil	+	+			
Tāraittāl-vaṭṭil	+				
Kai-vaṭṭagai		+	+		
Mūkkū-vaṭṭagai		+			
Water-pots					
Kalasam	+	+	+		
Kalasap-pāṇai	+	+			
Kudam	+	+			
Small cups					
Karaṇḍikaich-choppu	+				
Ilaich-choppu	+				
Choppu		+			
Sacred ash receptacles					
Maḍal	+	+			
Neḍu-maḍal		+			
Kūru-maḍal	+	+			
Pushkarapatti-maḍal	+				

Name of the utensil	gold	silver	copper	zinc	bell metal
Spouted vessels					
Keṇḍi	+			+	
Tārai-keṇḍi				+	
Spittoons					
Paḍikkam	+	+			
Kālāñji	+				
Kālam		+	+		
Piṅgālam		+			
Ladles					
Saṭṭuvam		+			+
Saruvam				+	
Saruvach-chaṭṭi				+	
Ney-muttai (?)		+			
Lids					
Kakamukil					+
Pot-stands					
Saṅgu-kāl					+
Saṭṭik-kāl					+
Tarai-kāl					+
Aṭṭanaik-kāl					+
Ākku-pāṇaik-kāl					+
Pāṇaik-kāl					+
Incense burners					
Dūpa-pāttiram					+
Dūpa-maṇi					+
Boxes					
Pettāgam					+

Devangana Desai illustrates an interesting panel in her *Erotic sculpture of India*. The sculpture (F 118) shows ascetics worshipping the Goddess and her symbolic form in the Chowsath Yogini temple at Bheraghat. The female organ is portrayed separately and prominently below the Goddess—and two ascetics are seen worshipping it. The worship of the Yoni (*pudendum*) and its association with the Chousath Yogini temple, clearly indicate its *tantric* character. This evidently illustrates an extreme form of *Śakti* (*Durgā*) *upāsana* (worship)¹².

The *Śrī Vidyā Upāsakas* or *Śāktas* (*Śakti* worshippers) may, perhaps, perceive in this cult image an exposition of the *Kuṇḍalini* aspect of their mode of worship. The site of *Mūlādhāra* which is in the Yoni region, and which is conceived symbolically as a four-petalled *Kamala* (lotus) is exhibited in its barest physical form here. Here lies the base of the *Kuṇḍalini*¹³ strand in the form of a three and a half curl *Maṇḍala* (*Chakra*-circle). Ascending upwards, through the intervening five sites or loci (viz., *Svādhishṭhāna*, *Maṇipūraka*, *Anāhata*, *Viśuddhi*, *Ājñā*) is the ultimate *Sahasrāra* (thousand petalled or spoked) *chakra*. The head portion of the sculpture above the neck is replaced by the thousand (many) petalled *Kamala* symbolically representing this *chakra*. Thus the local names '*Chakrāyī*' and '*Kamalamukhi*' seem to be apt, devoid of the sophistication and symbolism of the initiated *sādhaka*. The 105th name (*nāma*) in the '*Śrī Lalitā Sahasranāma Stōtra*' (the thousand names for the incantation of the *Dēvi*) describes her as one that has mounted the thousand-petalled lotus—*Sahasrāmbujānuḍāyayī*; while the 108th name describes her as seated over and above the six *chakras* of the *Kuṇḍalini* ascent *Shaḍchakrōparī samsthītāyī* (the six *chakras* enumerated above).

This preamble leads us on to a fuller consideration of *Korravai* as known to the Tamils of yore. Literary sources reveal her primarily as the goddess of victory and success both in war and chase. She is propitiated not only by various offerings including animal sacrifices, pre-eminently the buffalo, but more

often by the warrior or hunter offering at her feet his own head severed by his own hands. The numerous sculptures dating from the 7th to 13th centuries A.D. depict the man that had taken the vow sitting at the feet of the goddess, holding his head by the tuft or top-knot of hair by one hand and hacking it off with a sword held by the other hand. The *Maṇimēkalai*, in the chapter dealing with the *Chakravāḷa-k-kōṭṭam*,¹⁴ the precincts of the *Dēvi*'s shrine, surrounded by a circular enclosure wall, goes one step further in the description of the act of fulfilment of the vow by the devotee. His tuft of hair gathered at the top is secured by a tight string at the top of a bent bamboo pole, fixed in the earth so that the severed head goes aloft automatically with the bent bamboo pole springing back to its erect position. The goddess so propitiated is called *Kāḍaamar-selvi* (*Durgā*, denizen of the forest and sister of *Vishnu*). This sacrifice was performed in the *Munṇil* or open yard in front of her shrine.

This kind of vow was called *kaḍaniruttal* or *sūrtal* and was taken by the warrior class especially by the *Maṇavars*, *Kaḷḷars*, *Mallars* and *Eyinars*, when they desired victory in their king's or chief's wars and success in cattle raids or in the retrieval of captured cattle, as also in big game hunting. The goddess is believed to have always gone in front of them assuring protection and victory. Besides stray mention in the earlier works of the *Saṅgam* epoch, the *Silappadikāram* epic, in the cantos *Vetṭuvavan* (ch. XII) and *Indiraviḷavu-ūr-eḍutta-kāthai* (ch. V), the much later works of the 12th century *Takkayāgapparaṇi* and *Kaliṅgatu-p-parani* (*Koyil*, 21) give more elaborate details. The Sanskrit work *Daśakumāra-carita* mentions the practice in the context of the narration of *Saiva Vrittānta* of *Upakarmavarman*. The *Kālikā-purāṇa* (ch. 70) describes also the rituals connected with such human sacrifices. In sculptural representation, the more ubiquitous form of *Durgā* (*Vindhyāvasini* is the name found in the texts) standing on the severed buffalo head or on a *padmapīṭha* is shown with the hero or warrior sitting at her feet and in the act of cutting

Kōḍi-amman temple in Karuttittankudi a suburb of Thanjavur town and the main deity in worship to day is an *ashṭabhuja* (eight-armed) Durgā. As in the Mamallapuram cave-temple, there are two *dvārapālikas* here also. They are called Pachchaikkālī and Pavala-k-kālī meaning Kālī of dark green hue (*syāma*) and coral-red hue (*rakta pravala*) respectively. In the Mamallapuram cave-temple of Durgā the deity was evidently a painted mural. This is evident from traces of painted plaster still extant on the hind wall of the sanctum. However, the two *dvārapālikas* guarding either side of the sanctum entrance are bas-reliefs cut out of the rock itself. One cannot say for certain, now, whether the painted form in the sanctum was nude or not and what were its iconic features.

This consideration would lead us to discuss the name *Korri*, and its honorific plural form *Korriyār*. Both the cognomens mean Durgā, as also pertain to pregnancy and delivery of the young one by the mother. In common parlance, *Korri* means the cow with the just-delivered calf as well as the baby calf itself. *Korriyār* is said to mean the deity (goddess) concerned with, or propitiated for, such delivery or calving. This, taken in association with the concept of Mother goddess and fertility, assumes distinct significance. The goddess herself is the primaeval Mother and symbol of fertility and progeny.

In her full exposition the delivering mother is nude; and such nude depiction of the goddess is also well known. One such broken sculpture in the Nagarjunakonda Museum (3rd-4th centuries A.D.) is, unfortunately, found with torso above the hip-line and the head and arms missing. This female deity is squatting on her haunches, with bent knees, and the thighs spread wide apart exposing and dilating the *pudendum* fully. The bottom, hip and waist are so shaped that, with the girdle ornament round the waist, it presents the total appearance of a *pūṃaghata* or *pūṃakumbha* (pot of fullness, plenty and fertility) with its lower conical apex, bulged body and narrow pot-neck. A similar sculpture (12th century A.D.), housed in a shrine of recent origin in Darasuram, is locally called *Chakrāyi*,⁶

where the termination 'Ayi', in Tamil, means 'Mother'.⁷ This sculpture also represents a nude goddess seated in a frog-like posture, with legs wide apart and showing her *Yōni* prominently. The physiological human head is missing in this specimen. Her large and rounded bosom is well depicted and she carries a lotus in each of her two hands bent up at the elbow. A fuller specimen, almost complete, comes from the Badami site Museum, where, in place of a human head, there is a fully blossoming lotus, with outer whorls of petals fully everted, and the inner whorls introverted, converging on the central torus (*Karṇikā*). She is locally called Kamalamukhi on that score. The sculpture is of the 7th century. The Darasuram headless specimen must have had a lotus head also, now missing. To quote Nagaswamy,⁸ "The Goddess is worshipped by all sections of the people including Brahmins". The Saurashtra community (weaver class) is greatly devoted to her worship. Women, particularly after childbirth, take the tender baby to the temple, place it before the goddess and propitiate her. This is a pointer to her association with the fertility cult.

"The Worship of such a deity in Northern India, from the early centuries of the Christian era, is attested by similar sculptures found at Bitā, Kausambi, and Thusi in Uttar Pradesh, at Nagarjunakonda in Andhra Pradesh, and at Ter and Nevasa in Maharashtra".⁹ The inscribed sculpture from Nagarjunakonda¹⁰ refers to the consecration of the deity by a queen who is called *Avidhavā* and *Jivatputrā*—one whose husband is alive, *Sumāṅgali*, and whose child is alive. The inscription seems to suggest that the deity was consecrated for a happy life with husband and for the longevity of her child.

"A similar sculpture of excellent proportions and carved with a sense of aesthetic perfection, is now preserved in the site Museum at Badami. It is a classical example of early Chalukyan art and is assignable to the seventh century A.D. Another Chalukyan example is now in the Alampur site Museum".¹¹ The sculpture at Darasuram bears a close resemblance to this.

KORRAVAI OF THE TAMILS

K.R. Srinivasan

The Tamils identify Mōḍi or Mōḍu, the ancient Mother Goddess, or the primordial or primaeval Mother, the Progenitor of the Universe (*aṇḍam*), Akhilāṇḍa Kōṭi Brahmanḍa Jananī (*akilam ellām īṇṇatāi*) and Palaiyōl, the ancient lady with Korra vai - Durgā. The *Perumbāṇṇṇup-paḍai* (l. 458) describes the Devi as *mā-mōṭṭu-t tuṇṇāṅaiyan* Śelvi (the *śelvi* famous for her *tuṇṇāṅai* dance), with the large abdomen, *enceinte* with the entire universe. The *Tiru-muruku-āṇṇup-paḍai* (l. 56) presents her malevolent form as one with heavy bosom and pregnant abdomen (womb) *piṇar mōṭṭu* reputed again for her *tuṇṇāṅai* dance. The *Paṭṭina-p-pālai* (l. 14) uses the adjectival form of the word in describing a fully pregnant buffalo as *mōṭṭu-erumai*. The Tamil lexicons, deriving Mōḍi from Motu, give the meanings of Mōḍi as *Kāḍukāl* and Durgā. The concept of Dēvi-Durgā as the Divine Mother is evident in the very first invocation as Śrī Mātā (sacred Mother), the first cognomen among the thousand names in the *Lalitā Sahasranāma* (*Lālīṭopakhyaṇa*). One is reminded here of the Buddhist Śrī Mā and the Sinhalese Siri Māvo. She is also the *Ambā* or *Ambikā* (Tamil *Amman*) of Brahminical Hinduism and Jainism alike. She is *Ajje* of the Jains. The Tamil equivalent is *Aiyai* as found in about fifteen contexts in the epic *Silappadikāram*¹ and once only in the *Ahanāṇṇūru* and that too as a personal name after that of the goddess Aiyai.

Kāḍukāl, *Kāḍukiṭāl*, *Kānanāḍi*, *Kāḍurai Kaḍavuḷ* and the like terms are synonyms denoting the Dēvi as the denizen of the forests - *Vanadurgā*. She has become the *Kāṭṭeri* of the popular village genre of goddesses of folklore.

Ayirai appears to be another aspect of the goddess. Among the many references to *Ayirai* it is only from the *Paḍiṇṇu-p-pattu* (*Padikam-3*) (117-8) and the later *Silappadikāram*

(28-45) that we get a glimpse of this deity.² In both works the incident of the Chera king Vel Keḷu Kuṭṭuvan bathing in the two seas (east and west) in the daylight hours of the same day and worshipping (*para-i*) *Ayirai*, possibly made or got painted for the occasion (*maṇṇi*) in her fearsome or monstrous form (*uru-keḷu-marapin*). If the interpretation is correct, this should have been at the cape, Kumarikkōḍu (*Kanyakumari*), or in its vicinity. Besides these two early literary references, she can be inferred from the toponyms of some sites in Tamilnadu. The original name of Darasuram (*Rājarājēśvaram*) and the precursor of the present Dhola temple built by Rājarāja II Chola, the *Airāvātēśvara*, was called *Ayirattali* (temple of *Ayirai*). The present Siva temple is called *Ayirāvātēśvaram*—the *Īśvara* temple of *Ayirāpati*—the toponym.³ Another *Ayirāvātēśvaram* is known from Sendalai-Niyamam (also in the Thanjavur district), an ancient mercantile centre and the capital of the Muttaraiars. There is a temple to the goddess called *Ayirattamman* (*Ayirattamman Kōvil*) in Palayankotti (Tirunelveli) in which buffalo sacrifices were common till recently. A sect (clan) of the Kallars of the Pāppā nāṭṭu Kallar branch in Thanjavur and vicinity of Darasuram has even to-day the surname '*Ayira-p-piriyar*' (beloved of *Ayirai*).⁴

Ayirai-malai was a hill in Cheranadu with a shrine for *Ayirai* from Tirukkattup-palli, again, another *Ayirapatēśvara* is known. Thus *Ayirāpati* or *Ayirāvati* seems to denote a place of former *Ayirai* worship and more toponyms may come to light as result of diligent search.

The names Kōṭari, Kōṭavi, Kōṭi Śrī,⁵ Kōḍi are significant in this context. Kōṭari means Durgā as well as nude woman; while kōṭavi is said to mean a naked woman with dishevelled hair, and Kōṭi, Kōṭi Śrī are epithets of Durgā. The rock-cut Pallava cave-temple dedicated solely to Durgā in Mamallapuram (7th century A.D.) is even today called by the local people as *Kōṭi-k-kal-maṇḍapam*, meaning the Maṇḍapam-like stone temple of Kōṭi (Durgā). There is also a temple called in Tamil,

off his head or a part of body, his left wrist or thumb, as found in the example in the Singavaram rock-out cave-temple.¹⁵

The *Kalittokai* (89-8) mentions the goddess as *Perum-kāṭṭu-k-Korri* which means Korri of the great forest or funeral ground. Korri, after the name of the goddess is often found also used as a personal name. We have the classic instance of one Nakkan Korri, wife of Sāttan Gaṇapati, the *sāmanta* (minister) of the Pandya emperor. She, according to an inscription in the Pandya rock-cut cave temple in Tirupparankunram, caused in A.D. 778 the independent shrine of Durgā to be excavated in that same cave-temple while her husband was remodelling the cave-temple itself (originally Jaina) into one dedicated to Śiva and Viṣṇu, and, in addition, having the image of Gaṇapati (the name is borne by himself) carved in a niche adjoining the (third) Durgā shrine of his wife. Likewise, appropriate to her name, Nakkan Korri excavated the shrine for Korri-Durgā. While thus the second part, Korri, of her name is clear by itself, the first part is interesting too. 'Nakkan' after the Sanskrit *Nagna* means 'naked' or 'nude' and we have earlier discussed this aspect of the goddess as Korri.¹⁶

The *Tolkappiyam* (III, 62-2) mentions a *Korṇavai nilai* in celebration after the conclusion of a fight (Maram). The *Tirumurukāṇṇuppadai* (l. 258) refers to Murugan (Skanda) as the son of *Veṇṇivēl-pōrk-korṇavai*, the goddess of victory in war. The *Paripāḍal* (11 l. 100) describes the *Korṇavai kōlam*, the disguise of a woman as the goddess herself going to the freshet of the Vaigai river in spate for *jalakṛīḍa*, or *nīrviḷaiyāṭṭu*. The *Silappadikāram* (12 *Vēṭṭuvavari*, ll. 20-40) describes another scene of an Eyinar girl being decked and dressed, in the precinct of the *Aiyai* shrine (*Aiyai kōṭṭam*), to play the role of Korṇavai and being led ceremonially by attendant maids and the people with all paraphernalia in procession (with torch, incense, bell, etc.) with drum and trumpet to the fore-court of the Korṇavai shrine. She was made to stand by the sacrificial altar, on which the heroic Eyinars offered their severed heads. Inspired she goes

into a hypnotic trance (*āveśam* or *maruḷ*). This, in being a serious ceremonial ritual, contrasts with the *Paripāḍal* context, where the suggestion is one of sport, pleasantry, joy and amusement in a water festival. This latter is called *Kumari-k-kōlam* (the disguise as the *Kumari*).

The *Silappadikāram* (12 *Vēṭṭuvavari*, ll. 55-72) gives an almost iconographic description of Korṇavai. As further supplemented by another description in the same epic (ch. 20, *Valakkuraitta-kathai*, ll. 33-40), the whole can be summarized as below.

Korṇavai is described as having a body, the colour dark blue of which resembles that of the flower of *Kāyā* (*Memecylon edule*—botanical name), with lips red like the coral and a row of teeth glistening white (like a string of pearls), with third eye on the crescent-like forehead, as holding the discus (*chakra*) and conch (*śaṅkha*), sword and *śūla* (trident), and bow which was the *Mēru* (Nedumalai) strung with the snake *Vāsuki* as *nān* (bow-string), as wearing the skin of a tiger and a belt (*mēkalai*) of lion skin, a *kaḷal* (hero's calf-band) on one leg and the *silambu* (jingling women's anklet) on the other, with the coiffure of *jaṭā* (tresses) secured and adorned by a little serpent and the crescent moon, as covering herself with the hide of an elephant as *uttarīya*, wearing a snake as her breast-band (*Kuchabandha*—brassiere or *Kachchai*) and carrying a lion standard.

She is the beautiful dame Korṇavai, the wielder in her powerful hand of the victorious *vēl* or *śūlam*, who stands in triumph or victory on the nape of the decapitated buffalo Mahisha with fresh blood still gushing out. She is the goddess of victory in war, and she is the one worshipped by many as Amari (eternal goddess), Kumari (youthful maiden), Gauri, Samari (goddess of war), Śūli (wielder of the trident), Nīli (of dark blue colour), the younger sister of Māl (Viṣṇu), Aiyai, Seyyavaḷ (Lakshmi—goddess of prosperity), Pāykalaippāvai—beautiful rider on the darting deer (*pāykalai*), wearer of the

Dakshajā, Āryā, Kumāri, Sati, Śivā, Mahādēvi, Sarvāṇi, Sarvamaṅgalā, Bhavāni, Mahishamardani, Bhūtanāyikā, Mēnādrija, etc. In his own commentary on the above, Hemachandra quotes Sesha, giving 108 names of the goddess. These include names like Prakūshmaṇḍi, Rēvati, Haimavati, Bahuputri, Skanda-mātā, Jayā, Vijayā, Jayanti, Sinivali, Ekānasi (Ekānamśa?), Sunanda, Sashthi, etc. Even in the Brahminical tradition Durgā was known both as Ambikā and Kūshmaṇḍi.

Reverting to Korṟavai again, one may note that by the time of the twin epics, the *Silappadikāram* and the *Maṇimēkalai*, the Tamils had come to recognize the goddess as Aiyai and Korṟavai. In the oft mentioned (above) *Silappadikāram* context (Ch. 12, *Veṭṭuvavari*) the Eyinār maiden is said to have been decked in the garb of the goddess Kumari in the precincts of the Aiyai Kōṭṭam (Temple of Aiyai) itself and brought in procession with all pomp and ceremony to the *Muṟṟam* (frontyard) of the temple, where the assembled devotees invoked the goddess Korṟavai by chanting her different names. It was here again that those Eyinars that had taken a vow were to discharge their debt to the goddess (*Kaḍaniruttul*) by self-immolation and decapitation by their own hands to offer the severed head on the sacrificial altar at the feet of the goddess. This act of discharging their debt or *kaḍaṇ* seems to have been special to the militant warrior-hunter class — the Maṟavar, Mallar, Eyinar, Veṭṭuvar and the like. Other Tamil literary works of the *Saṅgam* and post-*Saṅgam* epochs up to as late as the 13th century A.D. and contemporary inscriptions echo this fact. The sculptural reproductions in stone are as numerous from the 7th century onwards to the close of the 13th century of the Christian era.

Another noteworthy feature, rather uncommon elsewhere, is that the devotees extol the goddess, amidst numerous other names in three stances. She is the One standing on the nape of the severed head of the buffalo (Mahisha), the One mounted on the darting deer or stag (*pāy-kalai*) or antelope

(*Krishṇamṛiga*) that has twisted or screwed horns (*tiri talai-k-kōṭṭu*) as opposed to the branched antler of the stag, and again the One mounted on the fierce lion and having the insignia of a lion on her flag or standard. The references to her cervine mount are much more numerous than those to her leonine mount, in the literary contexts dating from the commencement of the Christian era to the close of the 13th century. This is also amply reflected in sculpture dating from the 7th century, with the advent of stone sculpture in Tamilnadu, to the 13th-14th centuries A.D. Later forms represent her only as Simhavāhani — mounted on the lion.

The coincidental and coeval nature of these two features, namely, the head offering by devotees by the decapitation of their own heads, by their own hands (*Śirōpushpa* offering or *Navakaṇḍam*), and the cervine mount, seems to indicate two main aspects of a cult that disappeared in later times, when the lion mount and buffalo sacrifice came to predominate. It may also be remarked here in this context that in the full sculptural depiction of Durgā slaying Mahisha, the Asura, in Tamilnadu, which of yore, included the present Kerala, too, and its immediate surroundings, there is another peculiarity. In the TAMILIAN depictions the therio-anthropomorphic form of the Asura is almost totally human but with a buffalo neck and head, while in the regions beyond, as in Karnataka, the Deccan, and the North, it is the reverse case. The Asura has the body and limbs of a buffalo, but with a human head. The known examples of either type are too numerous to be even mentioned here.

In conclusion, a closer and final look at the nomenclature of Tamil Aiyai and Korṟavai may be made. The synonyms of the same cognomen, from the three languages of Sanskrit, Prakrit and Tamil would come in for brief consideration. The name Ajjē in Prakrit (Ajji in Kannada), as the earlier noted case in Tamilisation, yields the name Aiyai easily. This is by the interchange of 'ja' and 'ya' consonants, as allowed and actually occurring between two different linguistic groups, and

Having surveyed the cult of Dēvi, and particularly that of Korravai in Tamilnadu, mainly from indigenous source material, one may take a wider sweep in the search for related material that would add more information. Prof. U.P. Shah, in his very learned paper on "The Origin of the Jaina Goddess Ambikā,"¹⁸ has also dealt with Korravai in northern literature.

Prof. Shah postulates that Ambikā, variously addressed as Ambā, Āmrā, Kūshmāṇḍinī, Simhavāhini and Ambikā, and who is addressed as Āmra-Kūshmāṇḍinī in all other texts,¹⁹ developed into the Jaina Yakshi Ambikā as a result of the contribution of elements of, perhaps, three different concepts of the Dēvi. They are, first, a Mother Goddess (Ambā = Mother), probably a form of Durgā riding on a lion or a prototype of the Brahminical Durgā; secondly, some goddess associated with mangoes and the mango tree (āmra = mango); thirdly some goddess associated with the Kūshmāṇḍa (Kūshmāṇḍa = the fruit of the Pūṣani creeper, in Tamil). A *Mantra* (chant) pertaining to Ambikā is:

Ambē, Ambikē, Ambālikē na mā nayati Kaścana /

*Sa Satyāśvakāḥ Subhadrikām Kāmpilavāsinīm //*²⁰

Ambikā is again equated in the *Amara-kōśa* (I-37-38) as follows:

Śivā Bhavanī Rudrāṇī Sarvāṇī Sarva Maṅgala /

Aparna Pārvaṭī Durgā Mṛdāni Caṇḍika - Ambikā //

According to Hindu iconography, Ambikā is generally seated on a lion; she is three-eyed and holds a mirror in her right hand, while the left is in the *Varada* pose; her two other upper hands hold a sword and a shield.²¹ A four-armed icon of Jaina Ambikā preserved in the Lucknow Museum is represented as holding *pustaka* (book) and *darpaṇa* (mirror) in her two upper hands while holding the *āmra* (Āmra lumbi - bunch of mangoes)²² and a child in her two lower hands.

Regarding the equation of Ambikā with Korravai, Prof. Shah quotes the following from the *Anuyōgadvāra-sūtra* (su. 20) and comments on it:

... tēyasa jalantē Indassa vā Khandassa vā

Ruddassa vā Śivassa vā Vēsamanassa vā Dēvassa vā

Nāgassa vā Jakkassa vā Bhūyassa vā Mugandassa vā

Ajjē vā (Duggē vā) Koṭṭakiriyaē vā Voalevana - sammaj

jana aṇavari sindhūra puppa gandha mallai aum dūrva

vassayim Karente ...

Haribhadra Suri's commentary on this reads: " ... Ārya prasanta rūpā Durgā Koṭṭakiriya saiva Mahishānidhā", and the Cūmi on the above passage (possibly by Jinadasa Mahattara, 7th century A.D.) reads: "Durgayāḥ pūrva rūpam Āmra Kūshmāṇivat (Āmra - Kūshmāṇḍivat) tadhātitha Ajjā bhannati saiva mahisha vyāpādana Kālaprabhṛti tadrūpasthita Koṭṭavya (Koṭṭakiriya) bhavanti..."

Prof. Shah continues: "Thus the *Anuyōgadvāra-sūtra* refers to the worship of Indra, Rudra, Skanda, Śiva, Vaiśramana Dēva, Nāga, Yaksha, Bhūta, Mukunda (Baladēva according to Masadhari Hemaprabha), Āryā and Koṭṭakiriya. Āryā is explained as a pacific (*śānta*) form of Durgā while Koṭṭakiriya (Koṭṭavi of the cūmi) is the terrific form of Durgā, destroying the Mahisha demon (Mahishāsura-marddini). The author of the cūmi further adds that Āryā, the original form of Durgā is like Āmra (Ambā) the Kūshmāṇḍinī. The close similarity of the Brahminical Durgā (Āryā) and the Jaina Ambikā was obvious to the author of the Cūmi. This was also known to writers like Haribhadra Suri".²³

In his *Abhidāna-cintāmaṇi-kōśa* (2.117-199, pp. 84-87), Hemachandra Acharya gives the synonyms of Durgā as Gaurī, Kālī, Pārvaṭī, Mātṛī, Aparnā, Rudrāṇī, Ambikā, Umā, Tryambakā, Durgā, Caṇḍī, Simhayānā, Mṛdānī, Kātyāyanī,

anklet, the one who presides over all knowledge and arts (*Āykalaiṭṭāṭṭai*), Aruṅgala-p-pāvai (mistress of precious gems and treasures of jewels and all wealth), who occupies half of the body of the god with a (third) eye in his forehead, in whose coiffure of tresses rests the young moon (crescent), who is Aiyai, who is the Jñānakkolundu (lady of wisdom), wielder of the conch and discus, rider on the ferocious lion of fiery eyes, who shines as the jyōti (beacon of light) in the hearts of Śiva, Viṣṇu and Brahmā as the very brilliance of the sun, who, as his feminine counterpart, partakes half the body of the God (Śiva) who bears Gaṅgā and the crescent moon on his Jaṭā, who is praised by the *Vēdas* (*Maṇai*), who danced at the time of the victory of the *Dēvas* and the discomfiture of the *Asuras*, the *Kumari-k-kottu*. She is also described as Nangai the youngest of the six *Mātās*—meaning *Chañḍikā* or *Piḍāri*. In contemporary sculptural grouping of the *Saptamātrikas* in a line or series, beginning with *Brāhmi*, the seventh *mātr* takes her place as *Chañḍikā* or *Chāmuṇḍā* at the end. The *Maṇimēkalai* (20: 11-7) says that the abode of *Andari* (Lady of the Heavens) or *Antari* was the *Vindhyā* mountain and refers to the *Vinda Kaṭikai* (*Vindhya Ghaṭikā*) that was guarding *Vindam* (*Vindhyas*). This would attest to the *Vindhya-vāsinī* aspect of *Durgā*. This is reminiscent of the *Chausath Yōgini* group presided over by *Durgā* as in *Bheraghat* (*Madhya Pradesh*). The *Śilpa* texts adopt this nomenclature—*Vindhya-vāsinī* for *Durgā* in several contexts. She is also praised as the dancer of the *Marakkāṭṭam* (dance on stilts) in her fight with the *asuras*.

Besides being named *Palaiyōl* (Ancient Lady), *Kaḍukāl*, *Kāḍukiṭṭāl*, and *Kāḍamar Selvi*, all denoting her *Vindhya-vāsinī* aspect, she is also called *Muḍiyōl* or *Muḍiyāl* (*Maṇimēkalai*, 17-88, 21-3, 22-3), meaning the Lady of great age and signifying the antiquity of her worship.

Such conceptualizations are found in the varied iconography of the Tamils from the beginning of 7th century A.D., coinciding with the advent of stone as the medium of

iconic and artistic and architectural expression. The concepts and the resulting icons when studied in close relation to the corpus of contemporary literature of the various chronological strata are of a revealing nature.¹⁷ For instance, reference to Gaṇapati is totally absent in the entire corpus of literature of the *Saṅgam* epoch, and even in the epics, *Silappadikāram* and *Mānimēkalai*, that are for various reasons to be dated as post-*Saṅgam* works. Gaṇapati appears for the first time in c. 700 A.D. as the deity next to *Chāmuṇḍā*, the seventh in the *Saptamātrika* group, and in the next century, only, as an independent deity in worship. Gaṇēśa, as an independent sculpture in the pantheon, is found depicted in the rock-cut cave-temples of the *Mutharaiyar* and *Pandya* genre of the 8th-9th centuries A.D. in southern *Tamilnadu*. While he comes to occupy the niche or *dēvakōshṭha* on the southern outer wall face of the *ardhamaṇḍapa* fronting the sanctum shrine (*garbhagṛiha*) of the *Vimāna* of the later *Pallava* period (8th century and after) in *Tondaimandalam* of Northern *Tamilnadu*. Thereafter it becomes a fixed axiom in the Southern *Vimāna* Architecture of the *Tamil* country that while Gaṇēśa is to be housed in the niche on the south face of the *Ardhamāṇḍapa*'s south wall, *Durgā* as *Vindhya-vāsinī* should be housed in the niche on the north face of the *Ardhamāṇḍapa*'s north wall. Correspondingly the earlier *Śilpa* texts of Śaiva and *Vaiṣṇava* (both *Vaikanasa* and *Pancharatra*) persuasions of the South came to prescribe this feature as essential. Thus, both in practice and in accordance with the canon of textual prescription, this is found to be continued though the centuries to the present day. This mutual concordance of evidence, literary, textual (canonical) and of actual practice, helps in dating one or the other of the three in relation to the other two. Later *Tamil* literary sources, dating from and after the 7th century, for example the hymns of the *Nayanmars*, are replete with references to Gaṇapati and his cult. He is taken to be the son of *Durgā* (*Dēvi*) and Śiva—"*Vināyakasya Jananīmupatishṭhēt-tatō Ambikā*" (*Yāgnavalkyasmṛti*, Ch. IX, *Achāra-ādhyāya*).

in the same language or group, as Sanskrit and Hindi and other northern derivatives. But judging from the references given earlier, if they are any sure indication, the Tamil (Dravidic) form Aiyai seems to be earlier and original while the Prakrit Ajjē is derivative. But in suggesting this, one has still to exhaust all available references in these two linguistic sources before arriving at a final conclusion. One has to remember in this context the fact of the southward migration of people, culture, and major religious cults (Ājivaka, Jaina, Bauddha, besides Vedic Hinduism) recorded from about the 4th century B.C. (if not a little earlier) and their impact on the firmly established indigenous people, culture, and religion resulting in a mutual give and take form of acculturation by peaceful penetration and co-existence and amalgamation of traditions and cults.

The Tamil cognomen Korṛavai and its synonyms and cognates in Sanskrit and Prakrit studied together seem to indicate more certain conclusions. For brevity and easy reference they may be tabulated as below:

	Tamil	Prakrit	Sanskrit
1	Korṛavai	Koṭṭaviyā	Kōṭavi
2	Korṛiyār	Koṭṭakiriya	Kōṭari
3	Korṛi	Koṭṭari	Kōṭi

The Sanskrit names *Kōṭavi*, *Kōṭari* and *Kōṭi* are cognates of the Prakrit, *Koṭṭaviyā*, *Koṭṭakiriya* and *Koṭṭari*, and these two sets are synonymous with the Tamil forms *Korṛavai*, *Korṛiyār* and *Korṛi*. While the mutual indebtedness of these two languages, Sanskrit and Prakrit, belonging to one and the same linguistic stock, need not concern us here, it is the relation of either or both to Tamil of the different 'Dravidian' stock that interests us. If the original nomenclature was a Sanskrit name or a Prakrit name one would normally expect the name in Tamil to be *Kōṭṭavai*, *Kōṭṭari* and *Kōṭṭani*. But actually the names are *Korṛavai*, *Korṛiyār* and *Korṛi*, with the doubled hard consonant

'r' peculiar to Tamil (and its kin), in the place of 'ṭa'. The Tamil forms with the hard 'r' cannot be spelt or pronounced either in Sanskrit or Prakrit normally, or in any northern dialect of Sanskritic derivation which are devoid of, and strangers to, the short vowel 'o', as in the Dravidic, and equally to the hard consonant 'ṭ' and the rule of doubling of the consonants in a compound word of two syllables. Though we do not claim to be experts in linguistics and comparative philology, we may observe here what is seemingly patent. In the derivation from Tamil to Sanskrit or Prakrit, the short 'o' was substituted by the long 'ō' and the hard consonant 'ṭ' (not available in their alphabet), replaced by 'ṭ'. If this much is conceded, one can presume the earliest forms would have been Dravidic: *Korṛavai*, *Korṛiyār*, and *Korṛi*.

This excursion into names brings us back to *Mā*, *Siri-Mā* and *Ambā* and *Ambika* and the Tamil forms *Ammā* and *Amman*, though *Mōḍi* (*Mōṭṭu*) seems to be a primordial Tamil name in that sense. The eternal Mother or the 'Ever potential Mother' is meant in the sense of 'Pregnancy and potentiality to yield offspring'—in one word 'Fertility'. Even the heavily overcast sky, pregnant with rain cloud, is described as '*Mōḍam*' in Tamil, because of its potentiality of sending down fertilising rain. All the above leads one to presume that while Aiyai is the pacific form of Durgā, *Korṛavai* is her irate or malevolent form. As Kumari she is a young girl in her teens, and thus wears a Kuchabandha (brassiere or *Mār-k-kachchu* in Tamil) in all her representations as Durgā, and as Chamuṇḍā in the Saptamātrika group.

References

1. *Silappadikāram*: 10-99, 246; 11-151; 216: 12-1-4: 12-5-1; 14-16; 16-12,
Ahanānūru 6-3—Tittan's daughter Aiyai—Ajjē = Aiyai, since 'ja' and 'ya' are interchangeable.
2. 'Ayirai' in many other contexts of the Tamil classics means a kind of fish of great delicacy.

3. Srinivasan, K.R. 'Ayirattali', *Studies in Indian Place Names*, Vol. I, Place Names Society of India, Mysore.
4. Learnt from a wedding invitation given by a postal mail-van driver of the Postal Department belonging to that sect.
5. Apte's Sanskrit Dictionary.
6. Nagasamy, R. *South Indian Studies*, Madras, 1978, pp. 134-148.
7. This posture of sitting is one adopted by the mother in labor, so as to afford a free passage for the 'Presentation' of the baby (foetus) as a result of the exertions of labour. She is held in that posture by two assistants. A miniature relief from an *adhishṭāna* frieze from the Kurnool district depicts the entire scene. This has now been replaced by more sophisticated method of encouchment in our lying-in hospitals.
8. Nagasamy, R., *op. cit.*
9. Devangana Desai, *The Erotic Sculpture in India*, Ref.
10. *Nagarjunakonda Inscriptions*, Ref.
11. Devangana Desai, *ibid.*
12. The author of this article has in his younger days heard of devotees performing puja to a totally naked girl, during Navarātri days specially appropriate to Devi and Śrīchakra worship.
13. From the brief commentary in Tamil on the text of Śrī Lalithā Sahasranāma Stōtra - by Anna, Sri Ramakrishnamath.
14. *Maṇimēkalai*, ch. VI. - *Chakravāḷa-k-kōṭṭam uraitta Kāḍai*, ll. 50-54.
15. Srinivasan, K.R., *Cave-Temples of the Pallavas*, New Delhi, 1964, p. 115.
16. Interestingly enough, with reference to the derivation of the English word Naked, the *Oxford English Dictionary* notes:- Old English *Nacod*, Old High German *Nacot*,

- Old Nordic *Nokkvithr*, Germanic *Nag*. Cognate word, Latin *Nudus*. Thus Nakkan could safely be taken as having the sense of nudity or nakedness. Apte's Sanskrit-English Dictionary has:- *Nagna*, naked, nude. A girl before (first) menstruation (puberty) or less than 12 or 10 (and therefore can go about naked). The Tamil Dictionary has for 'Nakkan' - *Nirvāṇi* (naked). It may be noted that the young girl goes about with a metal fig leaf (*arasilai*) hanging in front of the part to be concealed, dangling from a waist string (*araiṇāṇ*) This can be seen in the villages even today, and even sophisticated urban girls were found wearing it till recent times.
17. Srinivasan, K.R., "Some Aspects of Religion as Revealed by Early Monuments and Literature of the South" - (Sankara-Parvati Endowment lectures - Madras University, 1959-60), *Journal of the Madras University*, Vol. XXXII, No. 1, pp. 131-198 & Plates.
 18. Shah, U.P. Article published in *Archaeology and History - Essays in Memory of Sh. A. Ghosh* (ed. Pande, B.M., and Chattopadhyaya, B.D.), Vol. II, Agam Kala Prakashan, New Delhi, 1987, pp. 484-494.
 19. *Bhairava-Padmāvatī-Kalpa*, Appendix 19, p. 42.
 20. *Sukla Yajurvediya - Vajasaneyi Samhita*.
 21. Gopinatha Rao, T.A. *Elements of Hindu Iconography*, I, Part 2, p. 358.
 22. Incidentally this would indicate that the original Jaina goddess that occupied the sanctum of the Kāmākshi temple in Kanchipuram was obviously Ambikā - the Goddess with the Mango, for *Kāma* means Mango. Further the *Kshētra* of Kanchi is called *Ekāmra Kshētra*. The *Mānasthamba* (pillar) with the Brahma Sāsta figure on its abacus (*phalaka* of its capital) confirms the identification and the fact that the sanctum of the original Jaina dedication was converted into a shrine of Hindu Ambikā with the local name Kāmākshi. Other examples of a Yakshi-like form associated with the

mango fruit bunch (*Amra-lumbi*) standing below a mango tree in fruit (*dohada*) are well known.

23. At this point Prof. Shah adds: "Śvetāmbara Jaina legends acknowledge Koḍinara in Saurashtra as the place of origin of Ambikā and also associate Mt. Raivataka (Girnar) with Ambikā Devi. Ambikā as Kuṭṭanapara, worshipped in the place, might have led to the place name Kuṭṭani-nagara = Kōtini-nagara = Kōḍinagara = Kōḍināra. Kōḍināra perhaps obtained its name from the ancient goddess Kōṭṭakiriya-Kōṭṭavya-Kuṭṭanapara (Kuṭṭani) of the Jaina reference cited above. Girnar is well known as an ancient *Tīrtha* of Ambikā, worshipped by both the Jains as well as the Hindus".

OCCURRENCE OF THE *PULLI* IN THE TAMIL-BRAHMI SCRIPT

Iravatham Mahadevan

Gift Siromoney was the Socrates of Tamil-Brahmi studies. He took nothing for granted, held no authority in reverence and went on relentlessly asking searching questions which in my view have shed more light than the *ex-cathedra* pronouncements by eminent professional epigraphists. I have been greatly influenced by the questions raised by him on the origin of the Brahmi script (1977), the origin of the Tamil script (1982) and the orthographical evolution and chronological classification of the Tamil-Brahmi script (1983). I have already attempted to answer some of his questions in my recent papers (1985, 1990) and, in the course of doing so, modified some of my earlier suggestions. In the present paper which I affectionately dedicate to his memory, I propose to deal with the occurrence of the *Pulli* in the Tamil-Brahmi script in response to his questions on this problem (1978 a, b).

The *pulli* (literally, a 'dot' or 'point') is a diacritical mark placed over the consonant characters in the Tamil script to indicate that the consonants are 'basic' and do not include the so-called 'inherent' medial vowel *-a*. The *pulli* was also used to distinguish the short *e* and *o* from the respective long vowels both in initial and medial positions. The earliest description of the functions of the *pulli* is found in the *Tolkāppiyam* (*Eluttu*., 15, 16). The earliest datable inscription employing the *pulli* is the Tamil-Brahmi coin-legend occurring on the reverse of the bi-lingual silver portrait coins of Vasishthiputra Sri Satakarni (c. 160 A.D.). The *pulli* also occurs in the Tamil-Brahmi inscriptions engraved in the natural caverns in Tamilnadu. Numerous examples of the occurrence of the *pulli* in Tamil and Vatteluttu inscriptions of the early medieval period (7-9 cent. A.D.) are known. However the *pulli* fell into disuse

thereafter as it is seldom found in the inscriptions from the 10th century A.D. or in the extant palm-leaf manuscripts. The systematic use of the *puḷḷi* as a consonant-marker has been revived in the modern Tamil script only after the advent of printing. However the use of the *puḷḷi* to mark the short *e* and *o* vowels has been given up after the adoption of separate characters and medial signs for the long *ē* and *ō* vowels in the 18th century A.D.

The *puḷḷi* is such a familiar and indeed indispensable feature of the Tamil script that its unusual function as a 'minus marker' is seldom recognized. Unlike all other medial signs of the Tamil script, which serve to add a medial vowel to a consonant to produce a consonant-vowel (*uyir-mey*), the *puḷḷi* subtracts the inherent *-a* medial vowel from the unmarked consonant characters. What were the circumstances which gave rise to such an unusual device? This question has not been adequately addressed by Tamil scholars and epigraphists. In this brief preliminary survey I shall attempt to compare the earliest inscriptional evidence from the Tamil-Brahmi script with the earliest literary evidence of the *Tolkāppiyam* on the occurrence of the *puḷḷi* and draw some provisional conclusions to serve as the basis for further research.

The earliest known script employed for writing in Tamil is the Tamil-Brahmi, a regional and linguistic variant of the Brahmi script adapted to suit the needs of the Tamil phonetic system. All but four characters of the Tamil-Brahmi script are virtually identical in shape with those of the Mauryan Brahmi script. The cave inscriptions in Tamilnadu are associated with the Jaina monks and lay devotees. According to traditional accounts, Jainism and Buddhism spread to South India during the reigns of Chandragupta (324-300 B.C.) and Asoka (272-232 B.C.) respectively. The evidence is suggestive that the Mauryan Brahmi script became known in the Tamil country sometime during the 3rd century B.C. and was thereafter adapted to conform to the Tamil phonetic system. This dating receives

strong confirmation from the excavations of numerous archaeological sites in Tamilnadu, which have yielded Tamil-Brahmi graffiti on pottery in increasing numbers, but none datable to a period earlier than about the 2nd century B.C.

While there are differences of opinion among experts on the dating of individual inscriptions, it does seem possible to arrange the Tamil-Brahmi inscriptions in three broad chronological phases on the basis of their palaeographic evolution:

Early Tamil-Brahmi	:	c. 2-1 cent. B.C.
Middle Tamil-Brahmi	:	c. 1-2 cent. A.D.
Late Tamil-Brahmi	:	c. 3-4 cent. A.D.

The Tamil-Brahmi script evolved gradually into Vatteluttu, the characters becoming more and more rounded. In the northern territory ruled by the Early Pallavas of Kanchi, the script was influenced by the palaeographic developments in the Andhra and Karnataka regions resulting in the evolution of the Tamil script. The transition from the Late Tamil-Brahmi script into the Early Vatteluttu and Tamil scripts may be said to have been completed during 5-6 cent. A.D.

A careful study of the Tamil-Brahmi inscriptions reveals the existence of three orthographic systems (labelled TB-I to III for convenience), each providing for a distinct mode of depiction of the basic consonant. The following are the essential features of the systems having a bearing on the question of the *puḷḷi* :

- TB-I: The consonant character is always basic. The medial vowels *-a* and *-ā* are indicated by the same sign and can be distinguished only from the context. In this system the concept of a consonant-marker like the *puḷḷi* has no place.
- TB-II: The consonant character is read either as basic or with the inherent *-a* depending on the context. The dual value of the consonant character renders a

consonant-marker like the *puḷḷi* unnecessary in this system.

TB-III: The basic consonant is marked by the *puḷḷi*. Unmarked consonant characters are read with the inherent *-a*. The *puḷḷi* is also employed to distinguish the short *e* and *o* from the long *ē* and *ō* vowels in initial and medial positions.

In my earlier studies of the Tamil-Brahmi script (1968, 1970) I had suggested that the TB-I and TB-II systems were successive stages. But evidence has accumulated to indicate that this is not the case. Some of the Tamil-Brahmi inscriptions like the ones at Alagarmalai are found written in both styles, sometimes within the same inscription. Tamil-Brahmi graffiti on pottery from Uraiyur are found in either style even when they are from the same period as indicated by stratigraphic evidence (K.V. Raman 1988). Gift Siromoney (1982) has pointed out that the TB-II system using the unmarked consonant with the inherent *-a* seems closer to the Mauryan Brahmi than to the TB-I system. On the basis of the evidence presently available we have to conclude that TB-I and TB-II systems are parallel, and more or less contemporary orthographic styles, and each developed independently from the Mauryan Brahmi script and later evolved along characteristically different lines. The revised model of orthographic evolution of the Tamil-Brahmi script is summarised in the following Table I and also illustrated in the accompanying schematic Chart. See the Appendix for a List of Tamil-Brahmi Inscriptions with chronological and orthographic classifications (still provisional) suggested on the basis of the present survey.

It is quite interesting to compare the orthographic evolution of TB-I and TB-II systems as they provide us with a glimpse into the pre-history of the *puḷḷi*. In the Mauryan Brahmi script basic consonants do not occur in word-final positions and are indicated in the medial positions by conjunct-consonants. Both TB-I and TB-II systems devised methods to depict the basic consonants and, in the process,

also got rid of the cumbersome conjunct-consonants of the Brahmi script.

Table I : Orthographic Evolution of the Tamil-Brahmi Script (Revised Model)

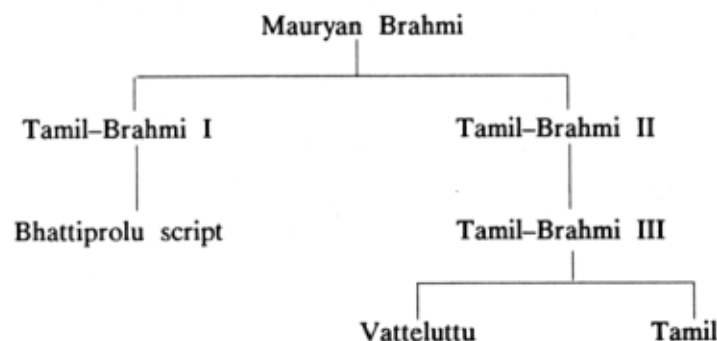
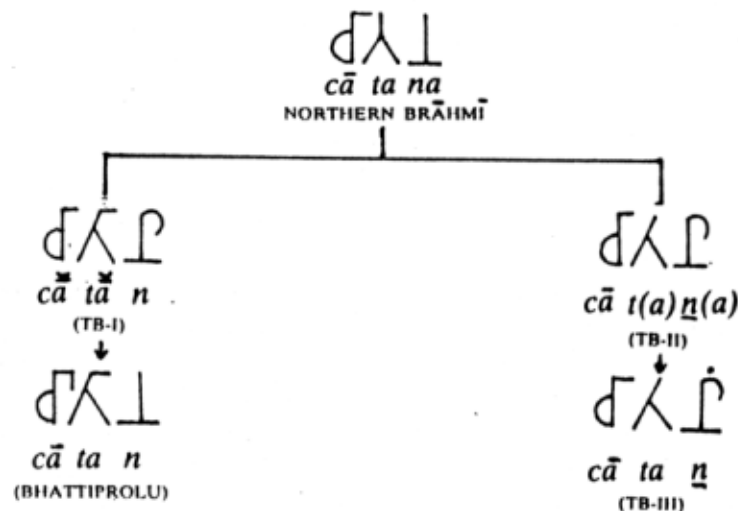


Chart
Evolution of Orthographic Systems in
the Tamil-Brahmi Script

(*cātan* : a pers. name used as illustration)



In spite of these advantages, both TB-I and TB-II systems suffered from serious disabilities. The use of the same medial sign to indicate both *-a* and *-ā* medial vowels in the TB-I system, and the employment of the same character to be read either as a basic consonant or with the inherent *-a* in the TB-II system must have caused considerable confusion. Both the systems were thus unstable and proved to be no more than transitional and short-lived orthographic experimentations. The TB-I system evolved into the Bhattiprolu script with the invention of a separate sign for the medial *-ā* vowel. TB-II gave way to the TB-III system with the invention of the *pulli*.

Since the use of the *pulli* in the TB-III system was optional in practice, the question arises whether there is any real difference between the TB-II and TB-III systems. Can we not explain the absence of the *pulli* in the TB-II system by assuming it was 'implicit' as in medieval writing? It seems, however, necessary on theoretical considerations to postulate two stages, as the *pulli* is clearly a response to a felt need to obviate the confusion in having to read the unmarked consonant character either as basic or with the inherent *-a*. This situation could have arisen only when Tamil came to be written in the Brahmi script and the unmarked consonant character was used at first with dual value. The doctrine of necessity being the mother of invention clearly applies to this case.

Another interesting question is why the TB-III system has survived, but not the Bhattiprolu system with an equally unambiguous, though different, orthographic convention. No inscription in the Bhattiprolu script (with separate markers for the medial vowels *-a* and *-ā*) is known from the Tamil country. The answer to this question is to be sought in the phonological structure of the Tamil language. In Tamil, syllables ending in *-a* outnumber others. It is thus more economical to use the plain (unmarked) consonant character with the inherent *-a*, rather than employ a medial sign for the *-a*. Thus the *pulli* system suits the genius of the Tamil language better and has survived to the present day.

The occurrence of the *pulli* in the Tamil-Brahmi inscriptions was not suspected for a long time. Venkayya (1907, 1908) assumed that as the inscriptions were in Brahmi, the language must be Pali. Krishna Sastri (1919) recognised the presence of a few 'apparently Tamil' words in the inscriptions. But his approach was conditioned by the tacit assumption that even if the language was partly Tamil, the orthographic principles would be the same as for the Northern Brahmi. Thus, even when he recognised that some of the consonant characters in these inscriptions were to be regarded as basic, he chose to read them with the inherent *-a* in his actual readings. He even noticed the 'dots' in the Anaimalai inscription, but considered them to be the *anusvāra* of the Brahmi script. Even K.V. Subrahmanya Ayyar (1924), who was the first scholar to establish that the language of these inscriptions was in fact Tamil, failed to notice the occurrence of the *pulli* in the Anaimalai inscription which he discovered. However he did recognise that the unmarked consonant characters have to be treated as basic when required by the context, and he read them accordingly.

The uneven, rough and badly weathered rock on which the Tamil-Brahmi inscriptions are engraved without any prior dressing of the surface, makes the identification of the tiny *pulli* marks extremely difficult. Inked impressions (estampages), show up the presence of pits, depressions and faults in the rock, creating a babel of background 'noise' which almost drowns the 'information' of the inscriptions. It is even more difficult to recognise the *pulli* from photographs of the impressions, considering the scale of reduction and the quality of reproduction. The only sure way of finding the *pulli* in the rock inscriptions is to go to the caverns and look at the inscriptions from close quarters and learn to distinguish the *pulli* made by the chisel or drill from natural faults in the rock.

The first discovery of a *pulli* in a Tamil-Brahmi inscription was made only around 1961 by Pulavar Raju at Arachalur.

In this inscription, dated in c. 3-4 cent. A.D. on palaeographic evidence, the character *e* has a clear *pulli* placed inside the letter indicating that the vowel is short.

The next find of a *pulli* came from a wholly unexpected source, the bi-lingual silver portrait coins of the Andhra king Vasishthiputra Sri Satakarni. R. Nagaswamy (1966) published a revised reading of the Tamil-Brahmi coin-legend occurring on the reverse of this coin. The reading was further improved upon by R. Panneerselvam (1969). In this inscription the basic consonant *ṭ* in the word *Vācitti* is clearly marked by a *pulli*. This discovery is particularly important as it provides a firm dating for the occurrence of the *pulli* in the middle of the 2nd cent. A.D.

This was soon followed by the discovery of the *pulli* in the coin-legend of the Andipatti hoard of lead coins published by P.N. Mohandas (1968). The inscription has been edited by K.G. Krishnan (1974). The character *e* in the word *etirāṇ* is clearly marked by a *pulli* to indicate that the vowel is short. These coins may be dated in c. 3-4 cent. A.D. on palaeographic grounds.

The next advance came when Gift Siromoney and E. Jebarajan (1978a) published enlarged photographs of the impression from two selected passages of the Tamil-Brahmi inscription at Anaimalai showing two *pulli*-like dots. They identified one of them as a *pulli* (occurring with *ṭ* in the word *araṭṭa*), but considered that the other dot (occurring with *t* in the word *attuvāyi*) was not a *pulli*. (Fig. 1). Neither is, in any case, the *anusvāra* as earlier presumed by H. Krishna Sastri (1919). The importance of this finding is that it pushes back the date of occurrence of the *pulli* in Tamil-Brahmi cavern inscriptions to c. 1-2 cent. A.D., about the same period as that of the coin of Satakarni. The finding also demonstrates the practical problem in identifying the 'white spots' in the inked impressions with the *pulli*. It is only on the basis of physical

verification *in situ* that they could decide that one was a *pulli* and the other was not.

I consider the work of Siromoney and Jebarajan significant for another reason. Their discovery of the *pulli* was not accidental, but is the result of a deliberate problem-oriented search. The problem is best stated in their own words :

In Mahadevan's scheme of three systems of Tamil-Brahmi (TB-I), Brahmi (TB-II), and the Tamil *pulli* system (TB-III), the *pulli* does not occur in the first two systems. By careful study we have shown the occurrence of the *pulli* in one inscription that was classified as belonging to the second system. Are there any more inscriptions — such as Alagarmalai inscriptions — of the second system which also have the *pulli*? Does the *pulli* also occur in any of the inscriptions which have been classified as belonging to the first system? These questions show a great need for further study in this area. (Words within brackets mine. —I.M.)

Since TB-I, II and III are orthographic styles which are, by definition, *non-pulli*, *no-pulli* and *pulli* systems respectively, therefore, in the light of the revised model of orthographic and chronological evolution proposed by me subsequently, I would re-phrase the question somewhat differently before proceeding to answer it. Now that the *pulli* is known to occur from at least the Middle Period (c. 1-2 cent. A.D.), does it also occur in any of the Tamil-Brahmi inscriptions belonging to the Early Period (c. 2-1 cent. B.C.) ?

This is a question of fact. I felt, therefore, that the only adequate response to the question would be to go back to the sites, re-examine all the inscriptions carefully *in situ* and report the results faithfully. This field work has, for the most part, been completed in the winter season 1991-92. A revised and enlarged edition of my earlier *Corpus of the Tamil-Brahmi Inscriptions* (1966) incorporating the corrections and additions

as a result of the present survey will be published in due course. The results of the survey, in so far as they relate to the occurrence of the *pulli*, are briefly summarised in this paper. Some of the *pulli* occurrences reported here have been newly discovered in the present survey. Other known occurrences have been confirmed. A few of the earlier reports of occurrences of the *pulli* have turned out to be illusory.

A. Early Period (c. 2-1 cent. B.C.)

Fifty-five early inscriptions were re-copied from 15 sites. None of these inscriptions is found with a *pulli*. However, two previous reports of the occurrences of the *pulli* in early inscriptions need some discussion.

(1) *Vikkiramangalam* (ARE 621/1926)

Gift Siromoney and E. Jebarajan (1978 b) reported noticing 'a vertical stroke at the top right-hand side' of the letter *y* in the word *antaiy*, which they regarded as a *pulli* attached to the consonant. The inscription was carefully re-examined by the group of TNSA archaeologists and by myself during the present survey. Our finding is that the feature reported by Siromoney and Jebarajan is not part of the inscription and cannot be regarded as a *pulli*.

(2) *Aivarmalai* (ARE B. 231/1973-74)

The published impression (ARIE 1973-74, pl. III) shows a clear white spot next to the consonant letter *ṭ* in the word *ataṭ-anām* (*atiṭṭāṇam*). This was exciting because if the presence of the *pulli* could be confirmed, it would make this a unique inscription exhibiting the characteristics of all the three orthographic styles (TB-I, II & III). I had earlier accepted the evidence of the published impression and referred to it in two previous papers (1985, 1990). The inscription was carefully checked *in situ* during the present survey by M.D. Sampath (ASI), N. Srinivasan (TNSA) and myself. We found that the white spot in the inked impression corresponds to a shallow natural depression in the rock without any evidence of a chisel mark. Our finding is that this is not a *pulli*.

B. Middle Period (c. 1-2 cent. A.D.)

Five sites were surveyed and 12 inscriptions re-copied. Among them the *pulli* was found in only one inscription at Anaimalai, confirming the earlier finding of Siromoney and Jebarajan (1978 a). Their finding that another spot appearing in the inked impression of this inscription is not a *pulli* has also been confirmed by physical verification.

C. Late Period (c. 3-4 cent. A.D.)

Eight sites were surveyed and 16 inscriptions re-copied. Among them the *pulli* was found in 4 inscriptions from the 4 sites mentioned below.

(1) *Arachchalur* (ARE B. 280/1961-62) (Fig. 2)

During my earlier visit to the site in 1963, I had copied the inscription along with the *pulli* occurring inside the vowel *e* (*Corpus*, No. 71). But I failed to realise its significance on account of my incorrect reading of the text. R. Nagaswamy (1972) and K.G. Krishnan (1973) have published improved readings and interpretations of the text. Their work has confirmed the existence of the *pulli* in this inscription, which has again been physically verified during the present survey.

(2) *Kunnakkudi* (ARE 44/1909) (Fig. 3)

This inscription is noteworthy on account of its peculiar manner of engraving: upside down and as in a mirror-reflection. The left end of the inscription lay buried under a layer of plaster. The TNSA archaeologists who accompanied me to the site scraped off the plaster and cleaned up the rock surface. To our delight we found not only the missing first letter, but also two clear *pulli* marks, the existence of which was hitherto unsuspected. One *pulli* occurs with *r* in the word *Kāpi-ūr* and the other with *t* in the word *Cāttāṇ*. It is remarkable that both *pulli* marks are placed in the middle of the line.

(3) *Pugalur-B* (ARE 343/1927-28) (Fig. 4)

The present survey has revealed the existence of two successive chronological phases at this important site. The two

famous Irumporai inscriptions are among the earlier ones included in Pugalur-A and assigned to the Middle Period (c. 1-2 cent. A.D.). No occurrence of the *pulli* is found in this period. Some of the bed inscriptions (in the South-west and North caverns) are palaeographically so advanced that they have to be assigned to the Late Period (c. 3-4 cent. A.D.) designated here as Pugalur-B. In one of these inscriptions, two *pulli* marks were newly discovered in the present survey. One *pulli* occurs with *t* in *Natti* and the other with *ṭ* in *atittānam*. The occurrence of the *pulli* in this inscription was checked *in situ* by M.D. Sampath, the group of TNSA archaeologists and by me.

There are two earlier reports on the occurrence of the *pulli* in the Pugalur inscriptions. T.V. Mahalingam (1967) mentions the presence of one *pulli* each with the letter *ṇ* occurring twice in the first line of this very inscription. R. Nagaswamy (1972) refers to the *pulli* in the word *munru* (as read by him) in another inscription (ARE 344/1927-28). During the present survey we have not been able to locate these *pulli* marks.

(4) *Naganurpatti*

News of this most recent discovery of a Tamil-Brahmi inscription by S. Rajavelu (1992) came after the completion of our field work. He has reported the occurrence of the *pulli* with some of the consonants in this inscription. The impression shows characters of the Late Period.

Two other inscriptions of this period deserve mention here although the *pulli* does not occur in them.

(1) *Ammankoyilpatti*

This inscription was discovered by P.B. Venkataraman (1979). I published a brief preliminary note (1981) on the inscription on the basis of a photograph. A dot seen within the letter *m* was interpreted by me as probably a case of *utperum pulli* (*pulli* placed inside the letter *m*) mentioned in

the *Tolkāppiyam* (*Eluttu*., 13-14). This speculation has turned out to be premature. When the inscription was checked *in situ* during the present survey by Natana Kasinathan, P.B. Venkataraman and myself, we found that the dot in the photograph corresponds to a natural depression in the rock, too deep and too large in relation to the size of the letter to be regarded as a *pulli*.

(2) *Tiruchirapalli-A* (ARE 139/1937-38)

The Tamil-Brahmi inscription copied by the ASI over half a century ago from the Fort Rock, here, could not be located during the present survey in spite of two days of intensive search by a team of archaeologists from the ASI and TNSA. The inscription seems to be lost. However judging from the earlier inked impression, the inscription appears to belong to the Late Period and has apparently no *pulli* in it.

D. Transitional Period (c. 5-6 cent. A.D.)

During this period the characters undergo marked palaeographic development and get transformed into Early Vatteluttu and Tamil. 5 sites of this period were surveyed and 7 inscriptions re-copied. For the sake of completeness, I am also including here brief notices on the important Pulankurichchi inscription and three early hero-stones though they were not included in the present survey. The *pulli* occurs in all the inscriptions noticed below.

(1) *Arasalapuram* (Chenji Tk., South Arcot Dt.)

A rectangular stone slab with the figure of a cock in bas-relief and a short inscription in three lines was found in this village in 1991. The stone has been removed for safe custody to the PWD office at Villupuram through the efforts of Mr. Kodumudi Shanmugham. There is a *pulli* in this inscription with the letter *ṛ* in the first line.

(2) *Tiruchirapalli-B* (Figs. 5 & 6)

During our infructuous search for the missing Tamil-Brahmi inscription at this site, three other inscriptions of

the Transitional Period were newly discovered by the team comprising Dr. M.D. Sampath (ASI), Mr. N. Srinivasan (TNSA), Ms. Nalini (Dr. M. Rajamanickanar Historical Research Institute, Tiruchirappalli) and myself. The *pulli* occurs in all the three inscriptions. One of them has a *pulli* over the letter *ce* indicating that the medial vowel *e* is short. In another, giving the name *akaram kuckalan*, two *pulli* marks are placed at the top left preceding the respective basic consonants.

(3) *Tirunatharkunram* (ARE 239/1904)

This famous Jaina epigraph near Chenji has been known for a long time. But the existence of a *pulli* (with the letter *ḥ* in *noḥḥa*) was noticed only during the present survey.

(4) *Paraiyampattu* (Chenji Tk., South Arcot Dt.)

This is also a Jaina epigraph similar in contents to the one in Tirunatharkunram in the same Taluk. This was discovered by P. Venkatesan (1984). The inscription is noteworthy for its exceptionally large letters and very deep engraving, though it is in a poor state of preservation, as it is located on the summit of a bare rock exposed to the vagaries of the weather. Two *pulli* marks are extant in the phrase *noḥḥa muḥḥita*.

(5) *Pillaiyarpatti* (ARE 156/1935-36) (Fig. 7)

This inscription, the only one in the present collection to occur in a rock-cut cave temple, can be said to mark the end of the era of the transitional script. The inscription is engraved neatly in two lines on a pilaster. I visited the cave during the present survey mainly to revise my earlier incorrect copying (*Corpus*, No. 75) due to poor visibility. But a real surprise awaited me and the accompanying team of TNSA archaeologists. After a good deal of persuasion the temple authorities permitted us to scrape and wash the pilaster to remove the thick layer of sandal paste covering the inscription and to use a flashlight to study and copy the text. To our delight we discovered no less than seven neatly engraved *pulli* marks in this short

inscription, all of them hitherto unknown as they were lying buried under layers of sandal paste. Even as we left thanking Lord Ganesa for this unexpected gift, one of the wits in our team renamed the site as *Pulliyārpatti* ('Abode of the Lord of the *pulli*)!

The following inscriptions of the Transitional Period, though not covered in our present field survey, have also yielded evidence for the *pulli*.

(1) *Pulankurichchi*

The two long rock inscriptions discovered at this site by D. Tulasiraman in 1979 have become famous as representing a turning point in Tamil Epigraphy. They are not only much longer than any of the earlier inscriptions, but are also qualitatively different and belong more to the genre of the longer temple inscriptions of the succeeding period. The *Pulankurichchi* inscriptions are assigned to the middle of the 5th cent. A.D. on palaeographic grounds. The characters are clearly in a state of transition from Late Tamil-Brahmi to Early Vatteluttu. Though preliminary reports have been published by R. Nagaswamy (1981) and Natana Kasinathan (1983), the inscriptions have yet to be properly edited. V. Vedachalam (1986) who has made a special study of the palaeography of these inscriptions has reported that almost all the basic consonants (except *ḥ*) occur with the *pulli*. The consonant-vowels *ko* and *to* are also marked by the *pulli* to indicate the short medial vowels.

(2) *Hero-Stone Inscriptions*

Two hero-stones from Irulapatti (K.G. Krishnan 1973) and one each from Kottaiyur and Chinnankuppam (P. Venkatesan 1984) are among the earliest discovered so far in Tamilnadu. The inscriptions may be assigned to c. 5-6 cent. A.D. on palaeographic evidence. All the four inscriptions have the *pulli* marked over many of the basic consonants. The occurrence of the *pulli* over *ko* in one of the Irulappatti hero-stones is

noteworthy. Many hero-stones are still unpublished and the evidence presented here may be incomplete.

To summarise, the distribution of the *pulli* in the Tamil-Brahmi inscriptions (including those of the Transitional Period) are shown in the accompanying Table II. Even granting a measure of uncertainty in chronology and in identifying the *pulli* in individual inscriptions, the general trend is quite unmistakable. There is no evidence for the occurrence of the *pulli* in the Early Period, that is, prior to the Christian Era. The use of the *pulli* seems to begin in the Middle Period, more precisely in the 2nd cent. A.D., as indicated by the Satakarni coin and the Anaimalai inscription. Occurrences of the *pulli* steadily increase with time during the Late (3-4 cent. A.D.) and Transitional (5-6 cent. A.D.) Periods.

It is, of course, not unlikely that earlier occurrences of the *pulli* will be discovered in the future. However, they are unlikely to occur in the inscriptions of the TB-I system which excludes the concept of a consonant-marker.

It is interesting to make a comparative study of the orthographical rules prescribed in the *Tolkāppiyam*, the earliest extant grammar in Tamil, and the orthographical systems actually found in Tamil-Brahmi, the earliest known Tamil script. The *Tolkāppiyam* enunciates the principle of the inherent *-a* and describes the two-fold functions of the *pulli* in four terse sutras (*Eḷuttu.*, 15-17 & 46). The following translation is adapted from Kamil Zvelebil (1972) with a few changes.

15. The nature of the consonant is to be provided with a dot.
16. *e* and *o* are also of the same nature.
17. All consonants without dots retain their own forms when animated with the sound *-a*, and change their forms when combining with other vowels.
46. The movement of a consonant is when it is combined with the sound *-a*.

Table II : DISTRIBUTION OF THE *PULLI* IN TAMIL-BRAHMI INSCRIPTIONS

Period	Approx. Dating	Without <i>pulli</i>		With <i>pulli</i>		Total		% of inscr. with <i>pulli</i>
		Sites	Inscr.	Sites	Inscr.	Sites	Inscr.	
Early	2-1 cent. B.C.	15	55	0	0	15	55	0
Middle	1-2 cent. A.D.	4	11	1	1	5	12	8.33
Late	3-4 cent. A.D.	4	12	4	4	8	16	25
Transitional	5-6 cent. A.D.	0	0	9	13	9	13	100
	Total	23	78	14	18	37*	96	

*Note : The actual number of sites is 34. Tiruchirappalli, Tirupparankunram and Pugalur are each included in two successive periods A and B.

We can see at once that this is precisely the orthographical system followed in TB-III. It is also clear that the orthographical system in TB-I, with its denial of the inherent *-a*, its treatment of the unmarked consonant as basic and its providing a marker for the medial vowel *-a*, is unknown to the *Tolkāppiyam* and is in fact contrary to the orthographical principles enunciated therein. Thus TB-I is a non-Tolkappiyan system not known so far from any other source. The use of the *puḷḷi* as a 'shortener' of the long *ē* and *ō* vowels clearly indicates that the characters were taken over from the Brahmi script (in which there are no short *e* and *o* vowels) and adapted to the Tamil phonetic system by the addition of the *puḷḷi* as a diacritical mark. The *Tolkāppiyam* which states that the occurrence of the *puḷḷi* with the basic consonant and with the short *e* and *o* vowels is 'of the nature' (*iyarkai*) of the letters in question, must have been composed when the *puḷḷi* system had become quite established and familiar in the Tamil script. On the basis of the present evidence the *Tolkāppiyam* seems to be not earlier than the early centuries of the Christian Era.

Acknowledgements

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அ த் து வா யி அ
A T TU VĀ YI A



ர ட் ட கா யி ப ன்
RA Ṭ ṬA KĀ YI PA N

Fig. 1. The occurrence of the pulḻi in Anaimalai Inscription Middle Period (c. 1-2 cent. A.D.)

Fig. 2. Arachehalur.

Fig. 3. Kunnakkudi.

Fig. 4. Pugalur - B.

Tamil-Brahmi inscriptions with pulli. Late Period (c. 3-4 cent A.D.)

Figs. 5 & 6. Tiruchirapalli-B.

Fig. 7. Pillaiyarpatti

Tamil-Brahmi inscriptions with pulli. Transitional Period. (c. 5-6 cent A.D.)

APPENDIX

List of Tamil-Brahmi Inscriptions*

No.	Site	District	No. of Inscr.	Per- iod	TB. Ortho. Systems ⁺
1.	Ammankoyilpatti	Salem	1	L	II
2.	Arachchalur	Periyar	3	L	II-III
3.	Arittapatti	Madurai	1	E	I
4.	Alagarmalai	Madurai	13	E	I-II
5.	Anaimalai	Madurai	1	M	III
6.	Aivarmalai	Tiruchirapalli	1	E	I-II
7.	Karungalakkudi	Madurai	1	E	II
8.	Kilavalavu	Madurai	1	E	I
9.	Kunnakudi	Ramanathapuram	2	L	II-III
10.	Kongarpuliyankulam	Madurai	3	E	I
11.	Sittannavasal	Tiruchirapalli	1	E	I
12.	Tiruchirapalli—A	Tiruchirapalli	1	L	II
13.	Tirupparankunram—A	Madurai	3	E	I-II
	—B		1	M	II
14.	Tirumalai	Pasumpon	2	E	I-II
15.	Tiruvadavur	Madurai	2	E	I

Abbr. : E : Early (2-1 cent. B.C.)
M : Middle (1-2 cent. A.D.)
L : Late (3-4 cent. A.D.)

* Excluding Transitional Period (5-6 Cent. A.D.).

+ For details of TB-I to III, see paper.

16.	Tondur	S. Arcot	1	L	II
17.	Naganurpatti [@]	S. Arcot	1	L	III
18.	Pugalur—A	Tiruchirapalli	6	M	II
	—B		6	L	II-III
19.	Marukaltalai	Nellai	1	E	I
20.	Mangulam	Madurai	6	E	I
21.	Mamandur	N. Arcot	1	L	II
22.	Muttupatti	Madurai	3	M	II
23.	Mettupatti	Madurai	10	E	I
24.	Varichchiyur	Madurai	3	E	I
25.	Vikkiramangalam	Madurai	7	E	I-II
26.	Jambai	S. Arcot	1	M	II
	Total		83		

@ Not covered in the present survey. Provisionally included on the basis of inked impression.

**SELECT PAPERS
OF
GIFT SIROMONEY**

I

TAMBARAM FLORA AND EARLY TAMIL LITERATURE*

Gift Siromoney

We are fortunate to live on a campus with hundreds of avenue trees planted and cared for during the last forty-five years. Most of the ornamental flowering trees that flourish here are not indigenous. The Gold Mohur tree (*Delonix regia*) found inside Hall quadrangles and in front of the College Main buildings, with brilliant masses of scarlet flowers, is indigenous to Madagascar. The Tulip tree (*Spathodea campanulata*) with large cup-shaped crimson flowers found just behind the Miller library is an East African tree. The Mauve Tabebuia (*Tabebuia rosea*) planted along the roadside from the Cafeteria to the Principal's house, is a native of Mexico. The Rusty Shieldbearer (*Peltophorum inerme*), which produces a profusion of bright golden yellow flowers that carpet the ground, is a native of Sri Lanka.¹

We have also other trees that have grown naturally in the jungle, and some local varieties have been planted on the roadside as avenue trees. When the College grounds were fenced in 1930 a few scattered palmyras were the only trees to be found in the whole area.² Once the scrub jungle area was protected from cutters of firewood and cattle, the trees began to grow and the scrub put forth luxuriant growth in many places.

To those who are interested in Tamil literature, the scrub jungle represents a land sung by poets of the Sangam age. Recent studies have placed the Sangam period at 200 B.C. to 300 A.D.³ The Tamil Brahmi inscriptions, deciphered during the recent past, have established the contemporaneity of the

* Published in the *Madras Christian College Magazine*, Vol. 45 (1976), pp. 21-26.

inscriptions with the Sangam period. During that period the poets were closely associated with nature and described in their poems what they had actually observed. This practice later gave way to poetic fancy and exaggerated description of natural phenomena.

Names of trees and herbs have changed during the last two thousand years but it is possible to identify many of the plants if one makes a determined effort. There are many instances where the current Tamil names of plants are the same as the Sangam names. During the last twenty-five years, many studies have come out which help in the identification of plants mentioned in Sangam literature. For example, all the ninety-nine plants referred to in *Kurinjippaattu* have been identified⁴ and many of those plants are found in our campus. Description of a plant and its current Tamil and Malayalam names are found useful in its identification. To find the exact references of specific plants in Sangam literature, one can make use of the *Pre-Pallavan Tamil Index*. Even though one may not be absolutely sure of the identification up to the species level, in most cases one can be reasonably certain of the identification up to the genus level.

Major D. Giles Lal and Mr. C. Livingstone of our Botany department have noted in our campus about a hundred and twenty different kinds of trees. Including these trees, there are about six hundred different kinds of plants in the campus. Many of the plants and trees of the Tambaram area can be easily recognized and enjoyed by the layman, and we shall mention a few of the interesting trees and plants of our area which were also noticed by ancient poets of South India. Two thousand years ago, Tamil was spoken not only in the region called Tamil Nadu but also in Kerala and parts of Mysore and Andhra Pradesh—the region south of the Venkatam hills.

During the Sangam period, land was divided into five kinds of regions: the hills (*kurinji*), the forest (*mullai*), the agricultural lands (*marutham*), the seashore (*neythal*) and the

desert (*paalai*). Each region was named after a flower characteristic of that region. A forest area, when it degenerated into arid land, was called *mullai thirinda paalai*. *Mullai* is identified as the jungle jasmine (*Jasminum auriculatum*) found on our campus.⁵ *Paalai* is identified as a small tree called *Wrightia tinctoria*. We had once, near the main gate, a *Paalai* tree with white flowers and tong-like fruits. This tree is found on the main road near St. Thomas Mount and also near the railway line between the Guindy and Saidapet railway stations.

The three main kingdoms of the Sangam period were the Cheras, the Cholas, and the Pandyas, and each had a flower as an emblem. The Chola emblem was *aatthi* or *aar* identified as *Bauhinia racemosa* a small tree found in the jungle. Near the Bell Tower there is a specimen with rough bark and pale yellow flowers. The Pallavas had as their emblem the *thondai* flower. *Thondai* or *aathondai* is a large thorny climber found near the N.C.C. parade grounds and other parts of the campus. It has white filamentous flowers which turn pinkish brown. Neither *aatthi* of the Cholas or *aathondai* of the Pallavas is mentioned in Sangam literature. The Chola emblem is referred to as *aar* in the early period and not as *aatthi*. The *Nandi Kalambakam*, a post-Sangam work of the ninth century, not only mentions the garland of the Pallava king made of the *thondai* flowers but also compares the reddish colour of the *thondai* fruit to lips of beautiful women.⁶ During the later period, the *thondai* fruit was used in the same way as the more common *kōvai* fruit (*Coccinia indica*) also found on campus. During the time of the *Silapathikaaram*, a pre-Pallava work, *kōvai* was used to describe the lips, and *kumizhi*, the nose of pretty women.⁷ *Kumizhi* (*Gmelina asiatica*) is a common shrub in the jungle with yellow flowers and small globular fruits. The flower was often compared to a pretty nose, and a nose was considered pretty, up to the Pallava period, if it was broad. During the later period a sharp nose was considered pretty, and the Vijayanagar sculptors turned out bronzes with sharp noses, and the poets used the simile of *ellu poo* (Sesame flower) instead

of *kumizhi*. There is another kind of *kumizhi* called *Gmelina arborea*, a large tree, a specimen of which is found near the Guest House. *Kumizhi* was used to make musical instruments⁸ such as the *yaazh* during the early period. The yellow globular fruits were compared to gold coins.⁹ The word that is used here to denote a coin is *kaasu*. The poet describes the falling off of coins from a young woman who had worn a string of gold coins. It is well established that during the Sangam period, they had square coins, circular punch marked coins, and circular Roman coins, and the coins referred to here are circular in shape, and worn by young women as ornaments.

The Indian Laburnum (*Cassia fistula*) is the *konrai* of the Sangam period. We have a fine specimen near the Co-operative Store. It bursts into clusters of yellow flowers during the hot weather and it has long dark cylindrical pods. Both the golden colour of the flowers and the long seed pods are referred to in Sangam literature. The globular flowers are compared to a *kinkini*, an anklet of globular bells. At Mahabalipuram we see the *kinkini* depicted on Pallava sculpture.

In addition to *kumizhi* and *konrai* which bear yellow flowers we also have the *vengai* (*Pterocarpus marsupium*), a tree with bright yellow flowers. There is one specimen near the Guest House, and there are more in the Vandalur hills. The pun on the word *vēngai* which also means a tiger, is made use of in Sangam literature where an elephant is described as charging towards a *vēngai* tree which also appears like a tiger because of its yellow flowers against a dark background. There are numerous references to the *vēngai* tree and a few to the animal (*vēngai*). The word *pulī* also stood for panther and not always for the tiger, which is hardly ever found today in the forests of Tamilnadu.

The flowers of *vaahai* are not bright yellow like the flowers described so far but white which turns to cream yellow. It is the emblem of victorious armies and winners of debates. The flower is compared to the plummy crest of a peacock. It is now called *kaattu vaahai* (*Albizzia lebbeck*), the most common

tree in our jungle. It grows into a large tree, and flowers twice a year. The Magpie Robin, a black and white bird, often chooses this tree on which to pour out its melodies. The Coppersmith digs out holes in its dead branches and builds its nest there. The migratory Brown Flycatcher on its way to Sri Lanka chooses the tree when it is in bloom in September, and again in March, when the bird returns and finds the tree in full bloom once again.

We have saplings of Alexandrian Laurel in front of the library. It is called *punnai* (*Calophyllum inophyllum*). It has shiny, dark green leaves and sweet scented, pure white flowers with yellow anthers. It is referred to a number of times in Sangam literature as a tree found on the coastal region.

One of our spectacular jungle flowers is the *kaayaa* (*Memecylon edule*) referred to in Sangam literature. It is a large shrub with clusters of deep blue flowers arranged like a powder-puff, and red berries. During the first term one cannot fail to notice it on the jungle patch between the Arts Block and the main entrance. During the rainy season the red Velvet Mite (*pattu poochi* or *moothaai* in Tamil) is also common on our grounds. A Sangam poet compared the red Velvet Mite among the dark blue *kaayaa* flowers strewn on the ground as the coral among the sapphire or *manimidai pavalam*.¹⁰ The blue flowers are compared to the neck of a peacock. In the *Silapathikaaram* the colour of the flower is compared to the complexion of Durga. A dark complexion was considered beautiful in Tamilnadu till the advent of the Portuguese. Marco Polo, the Italian traveller, who visited South India during the thirteenth century, has recorded that people tried to make their children acquire a dark complexion by anointing them with oil and exposing them to the sun. White was considered an inauspicious colour and was associated with ashes of the cremation ground.

The flowers of the *nocchi* shrub (*Vitex negundo*) are bluish purple in colour. Its leaves are compared to the feet of a

peacock. The developing East Tambaram area was once called *Nocchi taangal* or the tank of the *nocchi* plant.

The *murukku* tree is identified with the true Flame of the Forest (*Butea frondosa*) found in the Vandalur hills. It is not the common Drumstick tree nor the ornamental Gul Mohur tree planted in our College. The more common *kalyaana murungai* tree is identified with the *kavir* of Sangam literature.

The Scarlet Ixora (*Ixora coccinea*), a common garden plant called *idli poo* in Tamil, was known as *vetchi*¹¹ during the Sangam period. The Ixora buds were compared to the back spur of the fighting game partridge.

The spectacular *ilavu* (*Bombax malabaricum*) or the Red Silk Cotton tree is not found on campus but can be seen near the Adayar river by the railway line. During the hot weather the whole tree is full of large, red flowers but without any leaves. It attracts many birds including the Rose-ringed Parakeet, often referred to as the parrot in Tamil Nadu. The common White Cotton tree is not indigenous to Tamil Nadu and was not sung about by the Sangam Poets.

A beautiful twiner, with deep orange flowers, is the Climbing Glory Lily or *kaanthai* (*Gloriosa superba*). The flower has six narrow petals with frilled margins and a changing colour. When its buds first open they are pale yellow in colour and the tips develop deep orange colour which spreads along the entire length of the petals. The flowers have a peculiar luminous appearance. The Sangam poets compared the petals to lanterns, broken bangles, women's fingers and the hooded cobra.¹³ People used to plant it along fences. The flower was quite popular with young people in love, who used to exchange flowers and bouquets. The plants in the campus are often parasitised by the caterpillars of a small moth called *Polytela gloriosae*, and these dark caterpillars eat up the growing tip of the plant.

We also have on the campus *Barringtonia acutangula*, a medium sized tree with pretty pink flowers. It is found in the

Vedanthaangal bird sanctuary where it gets partially submerged in water. It is called *kadambu*, whose flowers are associated with Muruga worship. There is a specimen near the Guest House. The area near West Tambaram is called *Kadaperi* or the 'tank of the *kadambu* tree'.

Apart from spectacular flowering trees, we also find in our grounds the inconspicuous Sandalwood (*santhanam*), *maral* (*Sansevieria roxburghiana*) which is similar to the Snake plant, and *kunri* (*Abrus precatorius*). The fibre of *maral* was used as strings in musical instruments. This plant is found on the western side of the tennis courts. *Kunri* is now called *sinna kundumani* in Tamil. The plant is a climber with pink flowers and scarlet seeds with a black end. Tiruvalluvar compared it to the outward good nature of some people who harbour evil thoughts. The word *semmai* in Tamil refers to both the red colour as well as flawless nature.

We quote from Pope's translation of the *Kural* (277th verse):

Outward, they shine as 'kunri' berry's scarlet bright;

Inward, like tip of 'kunri' bead, is black as night.

Poets of the Sangam period also made references to birds and animals of South India. At that time the flight of migratory geese (*annam* in Tamil) was quite common. We can still observe the flight of migratory ducks over the campus, but the Barheaded Goose, which was once common, is now rarely seen in Tamilnadu. Our campus provides opportunities for many of us to observe trees, plants, migratory birds and butterflies, and wild animals. Every one must strive to keep it free from encroachment and continue to maintain it as a bird and animal sanctuary.

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II

TAMILNADU: DEITIES AND DEVOTEES A STATISTICAL STUDY*

Gift Siromoney and K.R. Rajagopalan

PREFACE

This study consists of two parts. The first part, entitled "South Indian deities and their relative following in Tamil Nadu",** is written by Dr. Gift Siromoney. The second part, entitled "Social reformist movement and worship of deities",*** is written by Professor K.R. Rajagopalan.

This study is based on state-wide surveys conducted in 1972 and in 1976 by the department of statistics. The surveys were part of public opinion polls. In both the surveys, we had included questions on the religious affiliation of the respondents. An analysis of answers to these questions are presented here.

The main results of the public opinion survey conducted in January 1976 have been presented in a report (STAT-24/76) entitled "Tamil Nadu: Political leaders and party following". Another report (STAT-23/76) entitled "Preventable blindness among children of Tamil Nadu" deals with the results on children's vision, which also formed part of the survey.

We wish to thank Mr. S. Mukundan, an undergraduate student of our department for preparing the stencils.

* M.C.C. Dept. of Statistics *Scientific Report*, No. 25, August, 1976.

** To appear in *Aaraaichi*, September 1976.

*** Appeared in part in the *Illustrated Weekly of India*, Vol. xcvi, July 25-31, 1976, pp. 14-15 with the title "DK, DMK and God".

PART I

SOUTH INDIAN DEITIES AND THEIR RELATIVE FOLLOWING IN TAMIL NADU

Gift Siromoney

More than fifty percent of the Hindu population of Tamil Nadu worship Muruga daily, but only fifteen percent worship Vinayaka daily. Twenty-five percent of the Hindu population of Thanjavur district worship village gods daily in contrast to the state average of only eight percent. In contrast to the state average of five percent who worship Rama daily, sixteen percent of the Hindu population of Thanjavur district worship Rama daily.

These are some of the findings of a survey conducted by us at the Statistics Department of the Madras Christian College at the end of January 1976. About eighty students took part in the study and visited about four hundred villages and towns spread all over Tamil Nadu. Random sampling methods were used in selecting the villages and the respondents and the data were processed by our students on an IBM 370/155 computer at Madras. The overall percentages for the state are based on a sample of about 1600 Hindus and can be expected to be correct to within one percent. To get more reliable results at the district level larger samples may have to be taken in each district.

Those who are not familiar with scientifically designed sample surveys may find it difficult to believe that by taking a sample of 1500 out of a population of several crores of people, one can arrive at a correct figure. We wish to point out that properly designed sample surveys give quite reliable results. For instance, in December 1972, we conducted a state-wide survey with a sample size of about 1500 respondents. We estimated the proportion of Christians and Muslims in Tamil Nadu to be 5.6% and 4.7% respectively. We note that according to the census conducted in 1971, Christians formed 5.7% and Muslims

5.1% of the population of Tamil Nadu. We see how closely the sample survey figures agree with the actual values found by counting all the people.

An individual respondent may worship more than one deity every day. Each respondent was first asked whether he was a Hindu or not. If he was a Hindu he was presented with a list of about a dozen popular deities and was asked to state whether he worshipped each deity presented, daily or occasionally or not at all. The results are given in Table I.

TABLE I: Results of a Survey Conducted in January 1976
Percentages of Hindus Worshipping Different Deities

Name of Deity	Worshipped daily	Worshipped occasionally
Muruga	51.3	13.2
Perumal	23.3	15.7
Vinayaka	14.9	16.4
Siva	11.8	16.7
Saraswathi	6.6	17.8
Lakshmi	7.2	16.4
Kali, Durga	7.5	17.7
Village gods	8.1	13.6
Village goddesses	7.2	15.4
Rama	4.9	14.1
Krishna	4.8	14.5
Other gods	1.7	2.7

It is not surprising that Muruga is worshipped daily by a large proportion of the people. Except for Muruga and Perumal, the other deities are worshipped more often occasionally than daily. Vinayaka is worshipped daily by only about fifteen percent of the people. If one goes by the number of temples under worship in Tamil Nadu, Siva must be worshipped by a large proportion of the people, but according to our survey he is worshipped daily by only about twelve percent of the Hindu population. The daily worship of village gods and goddesses continues.

Muruga

Muruga was identified with Skanda, the son of Siva and absorbed into Saivism. During the seventh century A.D., the theme of Somaskanda was very popular in Tondaimandalam. In the Somaskanda panel, Siva is seated as a king, Uma as the queen, and Skanda as a child. Brahma and Vishnu are often portrayed standing behind the throne. Later on, there must have come a period of conflict between the different sects and one often finds the Skanda image removed from Somaskanda groups made in bronze.

According to our survey, fifty-one percent of the Hindu population of Tamil Nadu worship Muruga daily and thirteen percent occasionally. However there is a great deal of variation between the different districts of Tamil Nadu. Muruga worship is most widespread in Coimbatore district where about eighty percent of the Hindus worship Muruga daily and about two percent occasionally. The percentage is well above the state average for both Tirunelveli and South Arcot districts. In Tirunelveli district, sixty-three percent worship Muruga daily and eighteen percent occasionally. For South Arcot district, the corresponding percentages are sixty-one and twelve. In contrast to this, in Thanjavur district, Muruga is worshipped daily by only thirty-two percent and occasionally by five percent. In Kanyakumari, Madurai, and Dharmapuri districts only about thirty percent of the Hindu population worship Muruga daily.

The study takes into account only the adult population of Tamil Nadu. We find that the proportion of younger people who worship Muruga daily is distinctly higher than the proportion of older people. We also note that one and the same individual may worship daily more than one deity. For instance, among those who worship Muruga either daily or occasionally, more than forty percent also worship Perumal daily or occasionally. Among those who worship Muruga daily, eighteen percent also worship Perumal daily. In an earlier study of men students, we found that among the worshippers of Muruga, more than thirty-five percent claimed to worship Muruga alone.

Perumal

In Vaishnavism, the concept of *avatar* is a mechanism used to absorb different cults. Krishna and Buddha are treated as *avatars* of Vishnu. To bring the followers of Siva and Vishnu closer together, Mahamalla introduced the theme of Harihara, a form in which one half is Siva and the other half Vishnu. There were other kings who took the side of Saivism and were unsympathetic towards Vaishnavites. For instance, the Pallava king who called himself Atyantakaama, inscribed the words, "Six times cursed be those who do not have Siva in their hearts", on the floor of a Vishnu temple called Adivaraha cave at Mahabalipuram. Today there is less rivalry between the different sects.

Taking Tamil Nadu as a whole, twenty-three percent of the Hindu population worship Perumal daily and sixteen percent occasionally. There is wide variation between the districts with regard to the extent of Perumal worship. We begin with the district where Perumal worship is most prevalent. Forty-two percent of the Hindu population of Dharmapuri district worship Perumal daily and ten percent occasionally. This is followed by Madras city and Chingleput, North Arcot, and Ramnad districts. In Madras city, thirty-seven percent of the Hindu population worship Perumal daily and twenty-five percent occasionally. In

Kanyakumari district the percentage is very low. The proportion is well below the average in the districts of Tanjore, Madurai, and Coimbatore. In Coimbatore district, the centre of Muruga worship, only eleven percent worship Perumal daily and four percent occasionally. Taking Tamil Nadu as a whole, it is interesting to note that among those who worship Perumal daily about forty percent also worship Muruga daily.

Vinayaka

In the rockcut temples of Mahabalipuram, Ganapati is represented only as the chief among the *ganas* and not as a deity. Vinayaka is represented as a minor deity in one of the side shrines of the Kailasanatha Temple, Kanchipuram, built at the beginning of the eighth century A.D. During the ninth century, Vinayaka was found both on the Saivite and the Vaishnavite shrines. Ganapati who was once an independent deity was later absorbed into Saivism as a son of Siva.

According to our survey, Vinayaka is worshipped daily by fifteen percent and occasionally by sixteen percent of the Hindu population of Tamil Nadu. For Madras city, Ramnad, Thanjavur, Chingleput, and Tirunelveli, the percentages are above the average. The values are very low for Dharmapuri, Kanyakumari, Madurai, and Tiruchi. In Salem district, sixteen percent worship Vinayaka daily, and hardly any one, occasionally. In Coimbatore, ten percent worship Vinayaka daily, and only one percent, occasionally.

Siva

During the Pallava and Chola times, a number of huge temples were built for Siva. Those who study devotional literature in Tamil and those who study temple architecture and sculpture will get the impression that a very high proportion of the people of Tamil Nadu must still continue to worship Siva regularly. Any scholar who wishes to study Hinduism spends a lot of his time studying the literature on Siva.

However, according to our survey, Siva is worshipped daily by only twelve percent and occasionally by seventeen percent of the Hindu population of Tamil Nadu. Among the districts, Coimbatore comes first for those who worship Siva daily. Thirty-three percent of the Hindu population of Coimbatore district worship Siva daily and another twenty-two percent, occasionally. In Ramnad district and Madras city the percentage of those who worship Siva daily is above the average. In Thanjavur, seventeen percent worship Siva daily and five percent, occasionally. The values are low for Madurai and Tiruchi. In Tiruchi district, for instance, only six percent worship Siva daily and seven percent, occasionally.

Devi

Lakshmi is represented on sculpture in Mahabalipuram, first, as an independent deity in the form of Gajalakshmi. Later, during Rajasimha's period, she is represented as a consort of Vishnu. The cult of *Korravai* was prevalent in the Tamil country from a very early period. Later Korravai was identified with Durga and sometime with Kali, and absorbed into Vedic Hinduism.

The average State values given by our survey, for the worship of Saraswathi, Lakshmi and Kali (including Durga) are about the same. On the average, seven percent worship Saraswathi daily and eighteen percent occasionally. The daily worship of Saraswathi has the highest percentage of twenty-two percent in Ramanad, followed by twenty percent in Tanjore. The lowest values for daily worship are found in Madurai, South Arcot, Dharmapuri, Coimbatore and Tiruchi.

Rama

In the Pallava sculpture of the seventh century as found in Mahabalipuram, even though Krishna is represented, Rama is not. In the Chola bronzes, from only around the twelfth century, one finds on Rama images the Srivatsava mark, which identifies Rama with Vishnu. Even though the name of Rama

is found in earlier inscriptions as one of the avatars of Vishnu, the deification of Rama becomes complete only around the twelfth century A.D. in Tamil Nadu. During the eighteenth century, Thiagaraja sang numerous songs on Rama, and during the present century, Rama was the favourite deity of Mahatma Gandhi.

According to our survey, Rama is worshipped daily by only five percent and occasionally by fourteen percent of the Hindu population of Tamilnadu. Sixteen percent of the Hindus in Thanjavur district worship Rama daily and another five percent occasionally. In Madras city, twelve percent worship Rama daily and about thirty percent, occasionally. Taking into account both regular and occasional worship, less than five percent of the Hindu population of Tiruchi, Madurai, and Kanyakumari districts worship Rama. In Coimbatore district, three percent worship Rama daily and two percent, occasionally. The percentages for Krishna are very close to those of Rama. Compared to the older generation, a smaller percentage of the younger group worship Rama.

Village Deities

Different village deities are found in the different districts. Sudalai Madan is worshipped in Tirunelveli district. Madurai Veeran is found in Madurai and Tiruchi districts. At Madurai, near Nagamalai, the author has seen a Jain image worshipped as Munisvaran. One hopes that with the advent of electricity, the villagers would overcome their fear of the demons lurking in the dark.

On an average, eight percent of the Hindu population worship village gods daily and fourteen percent occasionally. The percentage for village goddesses is about the same when the whole state is taken into account. Twenty-six percent of the Hindu population of Thanjavur district worship village gods daily, and in Madurai district, about twenty percent. In Chingleput district, very few people worship village deities daily

but a high proportion of thirty-seven percent worship village gods occasionally. An interesting finding is that the worship of village deities is much less among younger folk as compared to older people.

Search for a trend

Is the popularity of the cult of Muruga on the increase? Was Vinayaka worshipped by a larger proportion of people a few years ago? In order to answer these questions we give in Table II the results of a sample survey conducted in December 1972.

Muruga was worshipped then by a record figure of sixty-six percent daily and an additional proportion of twenty-three percent who worshipped him on special occasions and on pilgrimages. We must remember that those were the days when people went to the movies in large numbers to see religious films on Muruga. Vinayaga came next with thirty-eight percent daily worshippers. Siva followed with about one fourth of the Hindu population worshipping him daily and, in addition, about a half worshipping him occasionally.

It is difficult to explain this change that has taken place in Tamil Nadu in such a short period. Has the proportion of those who have no belief in God increased? No, that segment has come down from about five percent in December 1972 to about two percent in January 1976.

We know some of the changes that have taken place in Tamil Nadu. Prohibition was abolished in 1971. The common man in a village who used to spend money on films by taking the entire family to the cinema, now often spends the money on liquor. Prohibition was re-introduced in 1974 but apparently the damage that was done to poor families has left a clear mark. There may be other forces at play and more work has to be done to identify the main forces that have brought about this change.

TABLE II: Results of a Survey Conducted in December 1972
Percentages of Hindus Worshipping Different Deities

Name of deity	Worshipped daily	On special occasions	Only on pilgrimages
Muruga	65.6	19.4	4.1
Vinayaga	38.1	41.4	12.3
Perumal	32.0	33.7	12.2
Siva	25.6	48.2	3.9
Lakshmi	20.5	53.2	1.3
Saraswathi	18.8	55.2	1.7
Parvathi	18.4	46.3	5.3
Rama	15.5	49.4	2.5
Krishna	15.1	50.0	2.1
Village gods	13.9	32.7	3.4
Village goddesses	13.5	32.3	4.5
Others	4.8	8.5	0.8

PART II

SOCIAL REFORMIST MOVEMENT AND WORSHIP OF DEITIES

K.R. Rajagopalan

In a survey of Households in Tamil Nadu conducted in January, 1976, an attempt was made to find which deities were most popular among Hindu worshippers. About 1900 adults (men and women) were randomly selected all over the state and they were interviewed by students of the Statistics department of the Madras Christian College.

It should be mentioned that in Tamil Nadu there has been a persistent movement by E.V. Ramaswamy Naicker (EVR or Periyar as he is often called) to propagate atheism during the last four decades or more. EVR died in 1975 at the ripe old age of ninety-five. His fury was directed only against Hindu Gods and Goddesses, though he emphatically stated "there is no God, none at all." Incidentally, these words have been inscribed on the pedestals of statues of EVR erected at a number of prominent places in various towns and cities by the DMK government after it came to power for a second term in 1971. EVR was the founder of the Dravida Kazhagam which has, as its foreunner, the self respect non-brahmin movement in the twenties of this century. He made his party remain purely as a social-reformist group, and never entered the political arena in the elections. Annadurai, who was the founder of the DMK party, was a close associate of EVR (he was even talked about as his 'successor' till he left the party) and spearheaded the reformist movement. After separation, there was a certain amount of inevitable mudslinging against each other—but the splinter group always owed its allegiance to their leader EVR. Most of the members of the DMK ministry were close associates of EVR, and even now they take pains to mention their reverence for him. The DMK party is out to secure the pride of place for the Tamil language and culture and it fought against the so called Hindi imposition of 1965. But when EVR said

that Tamil was a "barbaric" language, there were few protests by the protagonists in the DMK. Incidentally, the mother tongue of EVR was Kannada. Even though the party is called the *Dravida* Kazhagam, it has little (if any) following in other parts of South India, like Karnataka, Kerala or Andhra which also have Dravidian languages.

EVR lead a number of abortive movements to stop the worship of deities in Tamil Nadu. He broke Vinayaka idols in public places, burnt copies of the *Ramayana* and *Mahabharata*, and lead a long procession carrying placards denigrating Hindu deities and worshippers.

Very little work has been done linking the worship of Gods with political affiliation and political leadership. In Tamil Nadu, because of this movement, the two have got mixed up together. The survey might also throw some light on the effect of the movement of EVR on this aspect of society — though this was not intended by those who organised the survey.

The Survey

More than 85 percent of those interviewed were Hindus (population figure 89 percent). In spite of the propaganda by EVR, it has been found that less than 2 percent have said that they have no belief in "God". In an earlier survey ('72) it had been found that non-believers represented 5 percent of the sample.

The respondents have been asked to specify if they worship the following twelve deities either daily or on special occasions only.

1. Muruga; 2. Vinayaka; 3. Siva; 4. Parvathi (including Kali or Durga); 5. Perumal (Vishnu); 6. Rama; 7. Krishna; 8. Lakshmi; 9. Saraswathi; 10. Village Gods (Karuppannan, etc.); 11. Village Goddesses; 12. Others (specify).

The first four are Saivite deities and the next four are mainly Vaishnavite deities. The last four are common to both

groups, possibly. The Bhakti movement in Tamil Nadu started in the 5th or 6th cent. A.D. and had two distinct streams — one Saivaite and the other Vaishnavite. Followers of Siva called Naiyanmars sang His praises in the Tirumurais (twelve in number) and Alvars, the worshippers of Vishnu, sang about Vishnu and His incarnations in four thousand verses. Thus there, has been, historically, a separate movement for each of these in this state — which situation perhaps does not have a parallel in the other states of India.

Each individual would be worshipping more than one deity—daily or occasionally. In the next paragraphs, an attempt would be made to quantify such worship.

How many Hindus worship each of the deities either occasionally or on special occasions? The following table gives the details.

TABLE - A
WORSHIP OF VARIOUS DEITIES IN 1976 AND IN 1972

Deity	1976		1972	
	Daily	Special Occasions	Daily	Special Occasions
Muruga	51.3	13.2	65.6	19.4
Vinayaka	14.9	16.4	38.1	41.4
Siva	11.8	16.7	25.6	48.2
Parvathi	7.5	17.7	18.4	46.3
Perumal	23.3	15.7	32.0	33.7
Lakshmi	7.2	16.4	20.5	53.2
Rama	4.9	14.1	15.5	49.4
Krishna	4.8	14.5	15.1	50.0
Saraswathi	6.6	17.8	18.8	55.2
Village gods	8.1	13.6	13.9	32.7
Village goddesses	7.2	15.4	13.5	32.3
Other gods	1.7	2.7	4.8	8.5

It is clear that Muruga is the deity that is most commonly worshipped — 65 percent of the people doing so either occasionally or daily. Muruga (Kumara or Kartikeya or Skanda) is the patron saint of the Tamil language and is also identified with that language and "beauty" in general. The other Saivaite deities get much lower percentages. Vinayaka worship does not appear as prevalent as Muruga worship in spite of the fact that practically every Siva shrine must contain a Ganapathi shrine and it is only after offering one's obeisance to Vinayaka that one could go into a Siva shrine.

Among Vaishnavaites, Perumal gets the largest percentage of nearly 40. Any form of Vishnu is referred to as Perumal in Tamil Nadu, be it Narayana, Vishnu, Venkatachalapathi or any other. It is only Perumal and Muruga who are worshipped by a large number of persons daily rather than occasionally. All other deities — Saivaite, Vaishnavaites, or other — are worshipped more on special occasions than in daily worship. The percentages for Rama and Krishna are almost equal — either 'daily' or 'occasionally'. These two incarnations of Vishnu are among the most popular, and perhaps people cannot think of one without the other. The name "Ramakrishna" — linking the two together — is quite a common one among people of Tamil Nadu (and neighbouring parts as well).

In the next table (Table-B [this Table — its information — is incorporated in Appendix A of this study]) we present the actual number of daily worshippers of the various deities, district-wise. The number of persons interviewed in each district is also given. These figures refer to the 1976 survey only.

Muruga worship is largest in Coimbatore, Trichy, Chingleput, South Arcot, and Tirunelveli districts. Perumal worship is found to be more in North Arcot, Ramnad and Chingleput district. Vinayaka too appears with larger numbers in the same three districts. Siva's following is seen to a large extent in Coimbatore district, while village Gods and Goddesses are worshipped largely in Madurai and Tanjavur districts. Rama

and Krishna have sizeable numbers of devotees in Ramnad and Tanjavur — so also, the three Goddesses Lakshmi, Saraswathi and Parvathi. Incidentally, these three also have similar numbers of worshippers — either daily or on special occasions alone. Even though there is a special temple dedicated to Durga (or Parvathi) on the cape, Kanyakumari district does not have even a single daily worshipper of her in our sample.

If we consider occasional worshippers (Table C [see Appendix A]), Rama and Krishna have large numbers in Chingleput and North Arcot districts (Madurantakam, a town in Chingleput district has a famous shrine of Rama). Saraswathi is also largely propitiated only in these two districts. Generally, for these districts, the number of worshippers of any deity are larger than those for the other districts. Village Goddesses are worshipped occasionally in Coimbatore district.

There does not appear to be much of age or sex difference in worship. Perhaps a survey specially designed for that purpose should be undertaken before one could hazard an opinion on the issue.

Party affiliation

Each individual has been asked as to which political party he strongly supports and the worship of the deities is considered in association with this party. It has already been remarked that non-belief in gods was one of the issues of the DK, and the DMK and ADMK are "inheritors" of that tradition. In Table D, the number of worshippers of the various deities party-wise is given. The four parties considered are: ADMK, Congress, Cong.(O) and DMK, in the alphabetical order.

Taking daily worshippers alone, it is clear that the ADMK and DMK parties do not have significantly lower figures of worshippers than the other two parties — whatever the deity one considers. The Perumal worshippers are more in the Congresses than in the other two parties. The conclusion that the propaganda of EVR has not made much head way in this direction appears evident.

TABLE-D
DAILY AND OCCASIONAL WORSHIPPERS OF THE
DEITIES, PARTY-WISE (ACTUAL NUMBERS)

DAILY

Strong Supporter of	Muruga	Perumal	Vinayaka	Siva	Numbers
ADMK	151	48	32	25	322
CONGRESS	160	91	47	51	414
CONGRESS(O)	184	95	52	48	392
DMK	237	87	67	49	519

OCCASIONALLY

Strong Supporter of	Parvathi	Rama	Krishna	Lakshmi	Saraswathi
ADMK	52	29	31	41	45
CONGRESS	68	63	63	65	71
CONGRESS(O)	64	51	52	57	66
DMK	64	53	54	65	60

OCCASIONALLY

Strong Supporter of	Village Gods	Village Goddesses
ADMK	36	37
CONGRESS	59	58
CONGRESS (O)	52	60
DMK	45	70

Taking occasional worshippers into consideration, the same trend among the political parties that was observed earlier is seen here also. The worshippers of Rama and Krishna appear almost in equal number in every political party. So also, to a lesser extent, are the worshippers of the female deities — Lakshmi, Parvathi and Saraswathi. Village deities too represent the same trend.

Other Deities worshipped

Quite a large number of village deities are worshipped in Tamil Nadu. The next list (Table E) gives the names of these Gods and Goddesses who are worshipped by the villagers in each district. Under each district, the names are given in alphabetical order.

TABLE-E

LIST OF VILLAGE GODS AND GODDESSES WORSHIPPED IN TAMIL NADU

I. CHINGLEPUT

1. Kaateri, 2. Kanniamma, 3. Maariammal,
4. Muneeswaran, 5. Periappaalayathammal.

II. NORTH ARCOT

1. Amma, 2. Ayyappan, 3. Chandraswamy, 4. Desamaari,
5. Theepaanjasami, 6. Ellamma, 7. Gengaiamma, 8. Kaalimuthu,
9. Maariamma, 10. Muneeswaran, 11. Muththaalamma,
12. Naachiamman, 13. Periannan, 14. Peria Aandavar,
15. Padavettamman, 16. Poongavanaththaal, 17. Pacchaiammal,
18. Panjaaththall, 19. Rajarajeswari, 20. Saamundi, 21. Siriannan,
22. Vasanthammaal, 23. Veera Raghava Perumal,
24. Veerabaththiran.

III. SALEM

1. Annamalaiyaar, 2. Ayyannarappan, 3. Angaayi,
4. Bommakka, 5. Chellaandiamman, 6. Ilaya Perumal,
7. Kaaththaiyi Amma, 8. Kariya Perumal, 9. Karuppanan,

10. Maariamman, 11. Munibhagawaan, 12. Peria Aandavar,
13. Periyaayi, 14. Pachai amman, 15. Vaideeswaran.

IV. DHARMAPURI

1. Chinnayya, 2. Kanapalliswamy, 3. Narasimhamoorthy,
4. Venkataramana.

V. TIRUCHI

1. Alagar, 2. Malai Ammal, 3. Madurai Veeran,
4. Palayammaal, 5. Padavarai Ammal, 6. Periasaami,
7. Periakandi Amman, 8. Ranganaathan, 9. Sankaranaayaki
- Ammaal, 10. Veerappan.

VI. COIMBATORE

1. Chinnannan Periannan, 2. Chinnamalai Aandavar,
3. Dharmaraajan, 4. Gengai Amman, 5. Kanniaaththa,
6. Karuppuraayan, 7. Kavudichi Aaththa, 8. Kuppannan,
9. Maariamman, 10. Maayavaththamman, 11. Madurai Veeran,
12. Muthukumaraswamy, 13. Naaraanammaal, 14. Pattaththarasi,
15. Raavaleswaran, 16. Rathina Moorthy, 17. Raaghavendra
- Swaamy, 18. Saamundeswari, 19. Sathiamman,
20. Seethaandiamman, 21. Savadamma, 22. Savadaaththaa,
23. Sellamman, 24. Thillaapuri Amman, 25. Valuppooramman.

VII. MADURAI

1. Aadimoorthy, 2. Ayyannar, 3. Bhaageerathy,
4. Chellaandiamman, 5. Maamundi Swamy, 6. Malaiswamy,
7. Madurai veeran, 8. Naagamalai Swamy, 9. Pappathi Ammaal,
10. Sangili Aandi, 11. Selvakumaara Swamy.

VIII. RAMNAD

1. Adikesava Perumal, 2. Alagar, 3. Alagaamaheswari,
4. Akkiappan, 5. Alagirisamy, 6. Agni Veerapatni, 7. Bhairavar,
8. Devar, 9. Erauma, 10. Ellappaswamy, 11. Govindan,
12. Iyanaar, 13. Jakkamma, 14. Karuppaiya, 15. Mandramoorthy,
16. Muneeswaran, 17. Maadaswamy, 18. Nalla Karuppan,
19. Narayanaswamy, 20. Periaswamy, 21. Rangammaal,

22. Solaiswamy, 23. Sona Karuppanaswamy, 24. Sowdiammal, 25. Vaitheeswaran, 26. Veeran, 27. Vengallamman, 28. Veeramal, 29. Veerabhadraswamy, 30. Voorkaavalar.

IX. TIRUNELVELI

1. Aathiswamy, 2. Azhagu Nachiappan, 3. Badrakaali, 4. Gomathi Ammal, 5. Karumangalam Venkatachalapathy, 6. Gandhari, 7. Maadavevan, 8. Nangaieramman, 9. Sadai Udaiyar, 10. Pechiamman, 11. Senthathi Iyanaar, 12. Sudalai, 13. Sudalai Maadan, 14. Vadakkathiamman, 15. Ulagamman.

X. KANYAKUMARI

1. Iyappan, 2. Mangammai, 3. Suseendran.

Non-believers

There have been 34 persons who have said that they are Hindus but have stated that they do not have belief in any God. What are the characteristics of these persons with regard to age, sex, party affiliation, etc.? There are eleven each in the age group 21-30 and 31-40 and the rest have ages above 40. Thus, age does not appear to be a significant factor. Except one woman, all the rest are men, and so sex does appear to be a factor. It has been remarked by many learned persons (both Indian and foreign) that the true repositories of Hindu culture are the women of India.

These non-believers are also to be found in all educational levels — right from illiterates to a B.Sc., B.T., and a law graduate. Sixteen of them are farmers, two each are teachers and weavers, one is a post-master and there are a few petty traders and a student also. Thus occupation does not appear as a criterion either.

Except one who speaks Malayalam at home, the rest are all Tamilians. Most of them go to the cinema and listen to the radio.

What leaders do these persons support? The answers are perhaps significant. One supports Sivaji Ganesan, eight support Indira Gandhi, eleven support Karunanidhi and seven are MGR - supporters. Eight have no leaders who are worthy of their support and P. Ramachandran has only three. Thus non-believers appear to be in all the camps!

But what about the political parties to which they belong? Twelve are for the DMK and seven for the ADMK, five are Communists, one from CONG(O) and three support CONGRESS. There is one each for the Dravida Kazhagam, TMK (Tazhtappattor Munnetra Kazhagam). It is another splinter group from the DMK started by the Harijan leader Mrs. Sathiaivanimuthu on the specific issue that the DMK was not looking after the Harijans properly. The name of the party means "party for the advancement of the depressed". There are 56 persons in the sample of 1800 who support the Communist parties, out of which only 5 (9 percent) are non-believers. This is no doubt high compared to the general average of 2 percent non-believers. DMK supporters are 519 and the ADMK's number, 322. The percentage for these two parties is also around two and so it is clear that non-believers are to be found more in the Communist parties than in the other four.

The opinion on merger of the political parties of these non-believers has also been analysed. Sixteen persons are definite that the two congresses should come together — either as an alliance or by merging. Four persons (out of whom three are Communists) want the two Communist parties to merge. There are 12 supporters for the CONG(O)-DMK merger, seven for a DMK-ADMK merger, and eight for a CONGRESS-ADMK merger. There are a few who would want the CONG(O) and ADMK also to merge.

In conclusion, it might be stated that EVR's campaign notwithstanding, the worship of deities goes on among persons professing allegiance to all the political parties. Only communists appear to have fewer believers. With regard to differences in worship among various classes of persons for the various deities, a more detailed, in-depth survey is necessary before any worthwhile conclusions can be drawn.

APPENDIX A

PERCENTAGES OF DAILY (D) AND OCCASIONAL (O) WORSHIPPERS OF VARIOUS DEITIES GIVEN ON A DISTRICT-WISE BASIS (1976)

[Tables B and C were unaccountably omitted in the originally published Report. We therefore give in this Appendix the district-wise percentages below, taken from the computer printout. Please note that these percentages are calculated with reference to the total population sample, whereas the district-wise percentages given in the text have been calculated with reference to the district-wise "Hindu population only", and Non-worshippers have not been included. Thus, the district-wise percentages below, taken from the computer printout, are generally lower than the corresponding percentages given in the text. -- Editor]

	Muruga		Vinayaka		Siva		Kali/Durga	
	D	O	D	O	D	O	D	O
Madras	35.3	13.7	17.6	19.6	10.8	19.6	05.9	21.6
Chingleput	56.9	18.8	20.8	46.5	10.4	35.4	05.6	47.9
N. Arcot	38.3	25.1	16.6	30.3	04.6	34.9	06.9	30.3
S. Arcot	53.7	11.0	10.4	17.7	06.7	15.9	03.7	10.4
Dharmapuri	27.3	09.1	01.3	02.6	05.2	14.3	01.3	07.8
Madurai	24.3	14.8	02.6	08.5	04.8	08.5	05.3	05.3
Salem	46.1	02.8	14.9	00.7	12.1	03.5	05.0	17.0
Trichy	49.2	06.5	06.0	08.0	05.5	06.5	02.0	05.5
Tanjore	26.1	03.6	18.8	03.6	13.8	04.3	20.3	04.3
Nilgiris	24.0	00.0	00.0	00.0	28.0	00.0	00.0	00.0
Kanyakumari	23.6	10.9	03.6	05.5	12.7	05.5	00.0	01.8
Coimbatore	68.9	01.4	09.1	01.0	14.4	02.9	03.8	05.7
Ramnad	44.5	20.2	30.3	21.0	21.0	21.0	11.8	21.8
Tirunelveli	50.0	13.9	17.4	17.4	11.8	18.8	11.1	19.4

	Perumal		Lakshmi		Rama		Krishna	
	D	O	D	O	D	O	D	O
Madras	24.5	16.7	11.3	20.6	07.8	20.6	07.8	22.5
Chingleput	32.6	34.0	06.9	34.7	02.1	41.0	04.2	40.3
N. Arcot	32.6	29.7	02.5	37.7	02.9	34.3	02.9	33.7
S. Arcot	20.1	11.0	01.8	15.2	02.4	08.5	03.0	07.3
Dharmapuri	36.4	09.1	02.6	14.3	00.0	16.9	01.3	19.5
Madurai	09.5	12.2	01.6	07.9	01.6	02.1	01.1	04.8
Salem	26.2	03.5	05.0	02.1	06.4	03.5	02.1	01.4
Trichy	19.6	08.0	03.0	03.0	01.0	02.0	00.5	02.5
Tanjore	11.6	08.0	15.9	05.1	13.0	04.3	12.3	04.3
Nilgiris	00.0	00.0	00.0	00.0	00.0	04.0	04.0	00.0
Kanyakumari	05.5	01.8	01.8	00.0	00.0	00.0	05.5	00.0
Coimbatore	09.6	03.3	05.3	01.9	02.9	01.9	01.0	02.9
Ramnad	28.6	21.8	21.0	22.7	12.6	16.0	12.6	16.8
Tirunelveli	13.9	14.6	06.3	20.1	04.9	12.5	05.6	13.2

III

STUDIES ON MAHABALIPURAM MONUMENTS

— A REVIEW*

Gift Siromoney and M. Lockwood

The main questions that are raised in Mahabalipuram studies are, "Who built the monuments and when?" and "What do the monuments and sculptures represent?" Mahabalipuram has more than 14 cave-temples, 9 monolithic shrines called *rathas* and 4 relief sculptured rock panels.¹ The chief tools used in Mahabalipuram studies are those of art history. Monuments have been studied from the point of architecture, sculpture and epigraphy. The Sthalasayana Perumā temple, the main temple under worship, is usually left out of the purview of Mahabalipuram studies since the structure belongs to the post-Rājasimha period. The main monuments of Mahabalipuram and Sāluvānkuppam belong to the Rājasimha or the pre-Rājasimha period of the seventh and the eighth centuries A.D.

The main source material for the study is the collection of monuments at Mahabalipuram. Scholars have tried to relate their knowledge of other monuments far away from Mahabalipuram to the Pallava monuments of Mahabalipuram. Some European sailors and travellers of the 16th, 17th, and 18th centuries noted certain broad similarities between monuments of Egypt, Siam, Italy and Greek on the one hand and the monuments of Mahabalipuram on the other² and postulated theories that attributed foreign influences on the authors of Mahabalipuram monuments. Some others noted the broad similarities between Mahabalipuram monuments and other Indian monuments at Ellōrā and Amarāvati. Such comparisons made by the early visitors to Mahabalipuram are interesting.

* A Paper read on September 3, 1975, at a meeting of the Historical Society, Madras.

	Saraswathi		V. Gods		V.Goddesses		Other Gods	
	D	O	D	O	D	O	D	O
Madras	09.8	21.6	00.0	00.0	01.0	01.0	03.9	05.9
Chingleput	05.6	47.2	01.4	33.3	02.1	36.1	00.0	10.4
N. Arcot	00.6	41.1	05.1	23.4	05.7	29.1	02.3	01.1
S. Arcot	02.4	15.2	00.0	03.7	01.8	10.4	00.0	00.6
Dharmapuri	01.3	15.6	03.9	00.0	02.6	00.0	00.0	01.3
Madurai	00.5	09.5	16.9	03.2	19.0	03.2	00.5	01.1
Salem	07.8	01.4	06.4	08.5	10.6	09.9	01.4	00.0
Trichy	03.0	04.0	04.5	16.1	00.5	09.5	00.5	01.5
Tanjore	15.9	04.3	21.0	11.6	11.6	06.5	04.3	00.0
Nilgiris	00.0	00.0	00.0	00.0	00.0	00.0	04.0	00.0
Kanyakumari	05.5	01.8	00.0	05.5	00.0	03.6	00.0	07.3
Coimbatore	01.9	01.0	06.2	04.8	05.3	17.7	00.5	01.0
Ramnad	21.0	21.8	13.4	26.9	10.1	20.2	04.2	07.6
Tirunelveli	07.6	17.4	05.6	09.0	04.2	11.8	02.1	00.7

One must remember that when such comparisons were made there were no photographs of the monuments.

The rough pyramidal outline of the Shore Temple reminded the travellers of the Egyptian pyramids. Those who had seen the temples of Siam could see the similarity between the sculptures of Siam and South India but did not realise that the Siamese monuments were directly influenced by the South Indian ones and not the other way around. Amarāvati sculptures had traces of the Gandhara art which represented Indian figures in European attire. Certain similarities between the art of Amarāvati and that of Mahabalipuram were noticed and thus Mahabalipuram art was linked up with Greek and Roman art. Roman influence on Mahabalipuram art was postulated even as late as the beginning of this century.

Once Indian scholars entered the field they brought to bear upon Mahabalipuram studies their knowledge of the Purāṇas, the Āgamas and Sanskrit and Tamil literature. Accounts of Arjuna in *Kiratārjunīya* and *Mahābhārata* were used to identify the figures in the main Penance Panel. In addition to tradition, Sanskrit texts on iconography were used to identify the divine figures represented in Mahabalipuram sculptures. Now, Tamil translations of many Sanskrit texts are available. Descriptions of *Koṭṭavai* in the *Silappatikāram* were compared with the depiction of Durgā at Mahabalipuram. Using Tamil literary sources it was established that Mahabalipuram was the well known port called Mallai or Kadalmallai. Sanskrit sources such the *Avantisundarikāthā* made reference to Mahāmallapura. Mahabalipuram is referred to as Kaḍalmallai in the inscription of Rājaraṇa found in the Shore Temple.

Inscriptions found on Pallava monuments outside Mahabalipuram have also been used to settle questions on Mahabalipuram. For instance, the Vāyalūr inscriptions of Rājasimha gives a chronology of Pallava kings. The copper-plate inscriptions of Pallava monarchs record the achievements of these kings. The discovery of hero-stones with inscriptions in

the regnal years of Mahendra and Simhavishnu have led to a rethinking on the years of reign of Pallava kings who immediately preceded Mamalla (to whom a majority of these monuments are attributed).

Local people call the monolithic monuments *rathas* or chariots. Since there are five grouped together, they called them *Pañcha Pāṇḍava rathas*. Since Durgā (also called Draupadī Amman) is depicted on one of the monoliths it is called the *Draupadī Ratha*.

Only about a hundred years ago the monoliths were correctly identified as temple *vimānas* by M.W. Carr (1869). Scholars like Fergusson, in the nineteenth century, claimed that the Dharmarāja *Ratha* was an imitation of a Buddhist *vihāra*. Around 1880, detailed plans of the monuments were prepared with elevations. The Atiranachandesvara temple was cleared of sand more than once to reveal the rock-cut cave. Description of the monuments in terms of architectural features has continued till recent times. At the beginning of this century Dubreuil suggested an evolutionary frame work—a kind of seriation—based mainly on architectural features for all the South Indian monuments;³ and the scheme is still followed today. He showed, for instance, that all the pillars of Mahendra's cave temples had a square base and a plain corbel. During Māmalla's period the pillars became more slender and the sitting lion motif was introduced. The *kuḍu* which started as a simple window in the Pallava period became very elaborate in the Vijayanagar period.

Scholars such as K.R. Srinivasan and K.V. Soundararajan used technical terms used by the *stapatis*, the practising sculptors of Tamil Nadu. They freely used both the Sanskrit and Tamil words to describe Mahabalipuram monuments. K.R. Srinivasan has recently brought out a book dealing with a detailed description of the Dharmarāja *Ratha*,⁴ which succeeds his earlier work⁵ on the cave temples of the Pallavas.

To settle questions concerning the authorship of Mahabalipuram monuments which were created within a short period of less than hundred years, one has to establish the evolutionary changes in architectural features that took place within a hundred years. The main problem is the fact that old features persisted side by side with new ones. There are some features which are treated as new by some scholars but not so by others.

Take for instance the appearance of sculptured stone panels at the back of the sanctum. None of Mahendra's temples has a stone panel at the back even though they probably had a painting or a wooden panel at the back. Shrines such as the Kailāsanātha Temple, Kanchipuram, Panamalai Temple and the Shore Temple which are attributed to King Rājasimha have Sōmāskanda stone panels on the back walls. What happened during the intervening period of about 70 years? The Ganesa *Ratha* and Dharmarāja *Maṇḍapa*, both attributed to Paramesvaravarman, do not have panels at the back. The Arjuna *Ratha*, Sahadeva *Ratha* and the Varāha *Maṇḍapa* do not have any. On the other hand, the Draupadī *Ratha*, Dharmarāja *Ratha* (top floor), Trimūrti cave, Mahishamardini *Maṇḍapa* and Rāmānuja *Maṇḍapa* have stone figures on the back wall. The reclining Vishnu figure, though not a panel, is placed at the sanctum. The temple depicted in bold relief in the Penance Panel has a figure of Vishnu carved at the back. Where do we fit in this feature? The old feature of a wooden panel fixed at the back probably existed, for some time, side by side with the new feature of stone images. To the observer it would not have made any difference since both would have been painted in bright colours.

The process of evolution of architectural features at Mahabalipuram was not acceptable to T.N. Subramanian and R. Nagaswamy and they attributed the monuments to Rājasimha on epigraphical grounds.^{6,7}

Those working on architectural features showed that the earliest forms of the temple *gopura* were to be found at the Shore Temple and at the Kailāsanātha Temple, Kanchipuram.

Those scholars whose main interest was in the field of iconography identified the different figures on the basis of weapons, ornaments, as well as the *mudrās* or gestures. They described the figures in terms of the stance of *bhaṅga*. The Tamil terminology *nēr-nēr-nēr* for *samabhaṅga* has not so far been used to describe figures in the straight posture. In the early period many figures were identified on the basis of tradition. Later, Sanskrit texts and Gopinatha Rao's *Hindu Iconography*, written at the beginning of this century, were made use of. About a hundred years ago, A. Hunter, at a meeting at the Evangelical Hall (part of the old Christian College), showed photographs of Mahabalipuram monuments and interpreted the Sōmāskanda panel as the scene depicting Buddha taking leave of his wife. Today the picture has completely changed and we are no longer in doubt about the identity of most of the deities represented in Mahabalipuram monuments.

Regarding the identification of human figures there is a long history of disputes among scholars. Who do the figures on the Arjuna *Ratha* represent? Who is the ascetic figures in the Penance Panel? Is it King Mahendra I or his grandson who is represented in the Ādivarāha cave? It is not clear whether such disputes can ever be settled with absolute certainty.

We shall first take up the controversy over the Penance Panel. If the central figure doing penance represents Arjuna, then the panel can be interpreted as Arjuna's penance. Hunter identified the panel as depicting a Buddhist scene. More recently, Mayilai K. Venkataswami has interpreted the panel as depicting the Jain legend of Sagara and his sons. In 1914, V. Goloubew put forward the interpretation of the descent of the Ganges. Dubreuil was also of the same view and identified the central figure as Bhagīratha. To support the Arjuna's penance theory, the Mahābhārata and the Kirātārjunīya are brought in as evidence. This puts people like T.N. Ramachandran on Arjuna's side and Nilakanta Sastri on Bhagīratha's. The controversy is likely to go on till some new epigraphical or literary evidence comes to light.

Let us consider the dispute over the identity of the royal figures in the Ādivarāha cave in which label inscriptions were discovered in 1925. Panel I has a royal figure seated on a throne attended by two women. It has the label inscription *Simhavishṇu pōtrādhirājaṇ*. Panel II has the label *Mahēndra pōtrādhirājaṇ* and has a standing figure with two women. The women in the panels are identified as queens. Many scholars have identified the king in Panel I as Simhavishṇu, some as Narasimha, and others as Rājasimha. Panel II has been interpreted as a royal portrait of Mahendra I by some, as Mahendra II by others, and as Mahendra III by some others.

There are nine possible combinations of royal pairs, but some combinations may be ruled out. We present here in Table I the different solutions put forward by scholars:

TABLE I: IDENTIFICATION OF ROYAL FIGURES OF THE ĀDIVARĀHA CAVE BY DIFFERENT SCHOLARS

SEATED FIGURE	STANDING FIGURE	AUTHOR	YEAR
Simha Vishṇu	Mahendra I	Venkoba Rao	1923
		Gopalan	1928
		Aravamuthan	1931
		Heras	1937
		Sivaramamurthy	1952
		Nilakanta Sastry	1961
Narasimha I	Mahendra I	Krishna Sastri	1926
		Longhurst	1929
		K.R. Srinivasan	1958
Narasimha I	Mahendra II	K.R. Srinivasan	1964
Rājasimha	Mahendra III	R. Nagaswamy	1962

We have rejected the possibility of the two panels representing the same king since the labels are different and they are roughly coeval with the panels. The identification, to a large extent, is dependent on the question, "Who built the Ādivarāha cave and when?" For instance, if one believes that the builder was Simha Vishṇu, then the sitting figure cannot represent Narasimha or Rājasimha who came decades later than Simhavishṇu. One of the peculiar arguments used in this controversy is whether a son, even if he were to be the reigning monarch, could be represented in a temple seated on a throne when the father is represented standing in a panel opposite to his son's figure. This is probably the reason why K.R. Srinivasan changes his position between 1958 and 1964, since he feels that the standing Mahendra could be only the son of sitting Narasimha and not his father. No one seems to have raised the question whether Lakshmī could be represented sitting and bathing in the same cave temple where Vishṇu, Śiva and Brahmā are represented standing.

Inscriptions play an important role in Mahabalipuram studies. Goldingham is reported to have taken note of the inscriptions of the Dharmarāja *Ratha* as early as 1798. Babington reported the existence of two Sanskrit inscriptions in the Atiraṇa-Chaṇḍēśwara temple in 1830 in the *Transactions of the Royal Asiatic Society*. These two inscriptions have many verses in common and are written in two different scripts, viz., Nāgarī and Pallava Grantha. Most of the Pallava inscriptions found on Mahabalipuram monuments are in the Pallava Grantha script. Burnell brought out in 1878 his classical work on South Indian scripts, and within a few years the first volume of *South-Indian Inscriptions* was published. During the last two decades the label *Mahāmallaḥ* on the Dharmarāja *Ratha* and the label *Narapatisimha-Pallavēśvara-Gṛham* on the lintel of the Vishnu shrine in the Shore Temple complex were discovered by K.R. Srinivasan. Inscriptions on the Dharmarāja *Ratha* are engraved in a script more archaic than those found in the Gaṇēś *Ratha* and the Dharmarāja *Maṇḍapa*. Identical verses have been found

in the last two monuments and these are attributed to Paramēśvara by many scholars, including K.R. Srinivasan and T.N. Ramachandran.

Nagaswamy and Subramanian, who attributed to Rājasimha the common authorship of many monuments, used a peculiar kind of argument. Many Pallava kings had many *birudas* in common and it is difficult to establish that certain titles were held exclusively by certain kings. Nagaswamy based his theory on the premise that *Atyantakāma* was the exclusive title of Rājasimha. Furthermore, just because a certain title is found on a monument, the monument need not necessarily be attributed to the king with that title. Succeeding kings also engraved their inscriptions on existing temples which they did not build. The difficulties in the methodology are dealt with in a separate chapter in *Mahabalipuram Studies*.

Another peculiar kind of argument was used by reputed scholars like T.N. Ramachandran and Nagaswamy. They would fix the authorship of monuments on the basis of their own interpretation of *birudas*. To Ramachandran, Mahendra I was a *Vichitra-chitta*, a king with a brilliant mind, and many monuments were attributed to Mahendra on that basis. To Nagaswamy, Rājasimha was *Atyantakāma*, which he interpreted to mean a man of endless desires. Monuments were therefore attributed to Rājasimha on the evidence that he was a man of endless desires.

It is an indisputable fact that letters changed in form from century to century and inscriptions can be dated on the basis of paleography. The problem with Mahabalipuram is to work out an indisputable system of seriation for a span of about 125 years. Since it is not possible to work out such a system, disputes cannot be settled solely on the basis of paleography.

A new approach to Mahabalipuram studies was made in the paper on costumes and jewellery published in the *Madras Christian College Magazine* in 1971.⁸ It was found that the dress

and ornaments of the pre-Rājasimha period were distinctly different from those of the Rājasimha period. Lockwood, Siromoney, and Dayanandan developed a method of seriation based on ornaments with which to date the Sōmāskanda motif to pre-Rājasimha or Rājasimha periods. They showed that the horned *dwarapālakas* were *āyudapurushas*. They established the reworking of the Mahishamardini cave from a Vishṇu shrine to a Śiva shrine with a Sōmāskanda at the back wall of the central sanctum. On the basis of the study of ornaments they rejected the theory of Nagaswamy that Rājasimha was the sole author of Mahabalipuram monuments.

During the last 100 years scholars from different disciplines have worked on the Mahabalipuram monuments. One would expect in the future, work based on computer techniques to grow and develop into a field of computer iconometry.

Notes

1. Michael Lockwood, Gift Siromoney and P. Dayanandan, *Mahabalipuram Studies* (Madras: Christian Literature Society, 1974).
2. William Y. Willets, *An Illustrated Annotated Annual Bibliography of Mahabalipuram* (Kuala Lumpur: Department of Indian Studies, University of Malaya, 1966). Many of the references in the paper are based on this bibliography.
3. G. Jouveau-Dubreuil, *Dravidian Architecture* (Madras: 1917).
4. K.R. Srinivasan, *The Dharmaraja Ratha and its Sculptures, Mahabalipuram* (New Delhi: Abinav Publications, 1975).
5. K.R. Srinivasan, *Cave Temples of the Pallavas* (New Delhi, 1964).
6. R. Nagaswamy, "New light on Mamallapuram", *Silver Jubilee Volume of the Archaeological Society of South India*, 1962, pp. 1-50.

7. T.N. Subramanian, *The Pallavas of Kāñchi in South-East Asia* (Madras: Swadesamitran Press, 1967).
8. Gift Siromoney, "Mahabalipuram Costumes and Jewellery", *Madras Christian College Magazine*, XXXIX, 1970, pp. 76-83. The diagrams are reproduced in the revised edition of C. Minakshi's *Administration and Social Life Under the Pallavas* (Madras: University of Madras, 1977).

IV

THE NEOPHRON VULTURES OF THIRUKKALUKUNDRAM*

Gift Siromoney

Professor K.K. Neelakantan in his recent article on the sacred birds of Thirukkalukundram has raised a number of queries and has aroused the interest of the readers. Some of his queries are the following: Was it only for a few days in the third week of November 1976 that the birds kept away from the temple? If not, and the vultures have totally given up the habit, what is the reason for it? Are the birds which had kept up the ritual dead? Would they have died simultaneously? Are there any scavenger vultures surviving in the area?

If the vultures had really stopped coming one might even attribute it to the increased use of pesticides by the local farmers. However I wish to assure the readers that the birds are alive and well and that they are busy bringing up a young one!

I climbed up the Thirukkalukundram hill, which is about 500 feet high, with a camera but without binoculars which had gone for cleaning. There are steps going up to the very top. At the summit there is a seventh century Siva temple with beautiful sculptures in the sanctum. Over this small temple has been built a tower or *vimanam*. The entrance to the temple is reached by flights of steps. At the foot of the steps, on the eastern side, there is an open area with bare rock which is set apart for feeding the birds. About two hundred pilgrims from different parts of the country had gathered to witness the birds. At 1055 hrs. I saw an adult bird taking off from the temple tower. On closer inspection I saw a juvenile bird in a nest

* Published in: *Newsletter for Birdwatchers*, Vol. XVII, No. 6, June 1977, pp. 1-4.

which was visible from the steps leading to the temple entrance. The temple tower remained hidden by trees from the view of the pilgrims gathered at the foot of the steps to witness the birds. The nest was on the northern side towards the western corner. There was enough flat surface on the cornice for the large nest and it was partly sheltered by the spherical *shikara* of the tower.

On an earlier visit I had noticed the Neophron breeding in a nest on the northern side of the same tower. The breeding of the birds on the same hill was reported some time in 1957 in the Sunday edition of the *Madras Mail*.

Let me narrate the incidents that took place on April 27, 1977. 1120 hrs. Two men carrying a large brass vessel with rice pudding arrived. They entered the enclosure meant for feeding the birds. One of them persuaded the spectators not to be in the way of the flight path of the birds and asked them to go to the special enclosure set apart for spectators. One of the men who had come with the food for the birds, sat down facing east, on a wooden plank which was placed on the bare rock. The large vessel, with a spoon, and a smaller vessel were kept in front of him. A circular metal tray and small metal dish were also kept on the rock in front of him. He held an ordinary umbrella over his head for protection against the sun. The man was not the presiding priest as observed by Dr Salim Ali. He was not wearing the sacred thread. He had taken over the feeding from his late uncle who used to do the honours.

1140 hrs. A Neophron vulture made its appearance. There were Pariah Kites also in the air.

1148 hrs. Two vultures could be seen. The umbrella was folded and kept behind. The man tried to attract the attention of the birds by knocking the metal dish on the rock as well as by slightly lifting and letting go the metal tray on the rock. The birds did not alight.

1203 hrs. Two birds were sighted again.

1217 hrs. One bird was sighted.

1220 hrs. One bird was sighted. The birds usually came from the plains from the north eastern side and rose up with the hot air current over the hill.

1231 hrs. One bird came up from the plains carrying what appeared to be offal. The way in which it carried it in its beak gave me the impression that it was carrying the entrails of some animal with a part of an intestine of the length of about fifty centimetres.

1240 hrs. A bird came from the direction of the nest which was not visible from where I was standing.

1258 hrs. Two birds were sighted. Each time a bird was sighted the man tried to draw its attention by making noise with the tray and the dish.

1310 hrs. The pilgrims were getting a little restless and so was the man. He got up and sat down again. Two birds were seen once again. One bird carried something in its beak which looked like offal. The bird disappeared in the direction of the nest.

1315 hrs. A bird flew away from the direction of the nest. The man got up and walked about.

1318 hrs. Two birds were sighted again and the man rushed back to his seat.

1325 hrs. The man got restless. So did the pilgrims. The man got up and sat down after some time.

1354 hrs. Many pilgrims left. The man and his assistant left with the food and the vessels.

During the three hours of waiting I could see Pariah Kites, the Striated Swallow and the House Swift flying close to the man.

The man assured me that the birds would not come again that day. I looked at the notes I had taken and reckoned that the birds took about 50 minutes to reappear. I rushed up the flight of steps and stationed myself at a convenient spot from which to take photographs.

1403 hrs. A bird reached the nest.

1409 hrs. The bird flew away.

1425 hrs. A bird could be seen at a distance.

1432 hrs. A single bird. An aggressive male monkey, one of the many monkeys in the place, tried to attack me!

1458 hrs. A single bird.

1508 hrs. An adult seen in the nest. It must have just alighted.

1515 hrs. The adult still in the nest. Its tail could be seen from outside. Two 'shots' rang out. They were probably from some well being deepened by dynamite charges. The bird was not disturbed.

1521 hrs. The adult bird left the nest.

1526 hrs. The juvenile could be seen clearly. Its beak appeared lighter in colour in contrast to the neck feathers which were blackish. The wings were blackish with a dirty white patch. The chest was blackish. The juvenile spread its wings and flapped them vigorously as though about to take off. It made a harsh call which I noted down as *di kita dim*. The vultures are believed to be always silent. No calls have been reported so far.

1530 hrs. Juvenile still walking about the edge of the nest.

1531 hrs. It shook its head and settled down! After I made some enquiries of the local people and the men connected with the feeding of the birds I found that there was some kind of conspiracy! No local man would admit that the birds were

not that regular. It was not admitted that the birds did not come for four days in a row some time back. Over the period of years I had formed the opinion that the birds do not come regularly at the appointed time of 1130 to 1200 hrs. Before climbing the hill I had made enquiries whether the birds had come early or late the previous day. Some said that it did come for food but was late. Later I found that the birds had not come for food even the previous day, a fact which many were unwilling to admit. The only way of collecting any reliable information is to assign the work to someone who is willing to study the habits of the bird so that he can observe them daily for a year. Collecting information from the local people is not of much value. Even the local people agree that on many occasions only one bird came for the rice pudding and not two. There are photographs showing a man feeding one bird.

The practice of the bird being fed by an attendant must have gone on for a long period but it is difficult to find out for how long. In the Chingleput District Manual written about a hundred years ago there is a reference to this practice.

"Every day two birds of the kite species come to the mountain and are fed by an attendant Brahmin. The same two are believed to have come from Benares to receive this daily dole from time immemorial."

However the inscriptions found on the temples of Thirukkalukundram do not make any reference to this practice. The inscriptions are from the seventh century A.D. to the end of the fifteenth century. In Tamil literature the place is referred to as Kalukkundram, the vulture-hill, from the seventh or eighth centuries A.D. Except for the place name there is no other reference. In the Tiruvilayaadal Puranam of the sixteenth century there is a reference to a place, normally identified as Thirukkalukundram, where two vultures (instead of *kalugu*, the word *gangam* is used to denote the birds) did *tapas* or *penance*. In a hundred pillar mandapa, assignable to c. 1600 A.D., there is a representation of two birds placing a garland on a Siva

linga. That representation found in a local temple does not show the birds being fed.

There are many legends of the Siva being worshipped by various animals and birds. Here it is quite possible that a long time ago a pair of vultures had taken shelter in a seventh century Pallava temple called the *oru kal mandapa* near the top and the legend of the two vultures that worshipped the Siva linga could have grown.

We hope that more work will be done on the Neophron Vultures in the near future.

V

THE INVENTION OF THE BRAHMI SCRIPT*

Gift Siromoney & Michael Lockwood

The antiquity of writing in India stretches back to the Indus valley civilization—a civilization which lasted for almost a thousand years from 2500 to 1600 B.C. Excavations conducted during the last few decades have shown that this civilization was spread over a vast region extending from West Punjab in Pakistan to East Punjab, Rajasthan, Uttar Pradesh, and Saurashtra. The excavations have brought to light a number of seals with a variety of signs. There are signs that resemble the crab, the fish, the arrow, the wheel and other natural and man-made objects. Different international groups from Russia, Finland and India are using computer-assisted methods in attempts to decipher the Indus script. However, no generally acceptable solution has been found so far.

With the disappearance of the Indus civilization around the middle of the second millennium B.C., there is a gap of over a thousand years before we come across inscriptions again. And these inscriptions belong to the reign of the emperor Asoka (in the 3rd century B.C.). Though the majority of Asoka's inscriptions were written in the Prakrit language, there were a few in Greek and in Aramaic, the language used in Palestine. The most common script used in Asokan inscriptions was Brahmi. In addition, the Kharosthi, Greek, and Aramaic alphabets were used. It should be noted that all of these scripts are alphabetic, but that the Indus script is not. A slightly different variety of Brahmi was used in the Madurai region from the 3rd century B.C. to write Tamil inscriptions. In Sri Lanka, Brahmi was also used from the 3rd century B.C. but the language was Prakrit.

* Published in the *SOUVENIR* of the Fourth Annual Congress of the Epigraphical Society of India, 11-13 Jan. 1978, pp. 47-50.

The letters of Brahmi are simple, easy to read and write. The system of medial vowel signs—adding vowel signs to consonants—is easy to follow. It envisages the addition of short vertical or horizontal strokes in well-demarcated areas to represent the *i*, *e*, *u*, and long *a* and *o* sounds. Scholars have traced the development of all the various alphabets in India from the 3rd century B.C. Brahmi in one continuous evolution of multiple forms from the single parent stock.

One of the unanswered questions in Indian epigraphy is how this simple, elegant system of writing came into being. Scholars such as Buhler compared the letters of Brahmi with the letters of the Northern Semitic script in an effort to prove that Brahmi derived from the latter. However, anyone who takes the trouble to look at the Northern Semitic script can see for oneself the lack of evidence for any kind of dependence between these two scripts. If the Brahmi alphabet was not borrowed, some scholars argue, it must be possible to derive it from the signs of the Indus script. But there are serious difficulties in trying to derive the simple and elegant Brahmi script from the variety of signs used in the Indus script.

Here we wish to claim that the Brahmi script was invented at one stroke—possibly by one individual. This means that we reject both the theory that it was evolved from the Indus script and also the theory that it was borrowed and developed from some non-Indian script.

The basis we have for postulating the spontaneous invention of the Brahmi script, as against a continuous evolutionary derivation, is as follows. We can show that there were central, unifying principles from which most of the letters of the Brahmi alphabet can be derived. We claim that there were two basic *geometric* patterns from which the inventor of the Brahmi script derived the letters. These basic patterns were the cross inscribed in a square, and a circle super imposed on a vertical line. We show in the accompanying chart the prototype symbols that can be extracted from these two basic designs,

and the corresponding letters of the Brahmi alphabet. It is remarkable that these two basic patterns are actually found in some of the early Brahmi inscriptions of South India and Sri Lanka. Scholars have heretofore not known what to make of them.

The square, the cross, the circle, and the vertical line are all examples of letters of the Brahmi alphabet extracted from the two basic geometric patterns. Some other letters which may seem anomalous, do have forms found in Sri Lanka which are angular, and these angular forms are close to our model of the cross inscribed in a square. Some letters such as *ca* can be derived either from the square pattern or from the circular pattern. Over a period of time, the angularity of most of the letters has been replaced by circular or cursive forms.

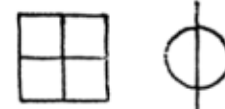
In Asokan Brahmi there are no pure consonants as in English, for example, *k* or *n*, to mention only two. The corresponding letters in Brahmi stand for *ka* and *na*, where the vowel *a* (short) is inherent in the consonant letter. To lengthen the vowel *a* or add the other vowels, separate horizontal and/or vertical strokes are attached to the basic letters. The letters of the Brahmi alphabet have been carefully designed so that they avoid any ambiguity that might arise due to the addition to them of the vowel marks. This well thought out system is another indication that Brahmi was an invention.

There is a symbol for the initial vowel *i* (short or long) which has two forms. One form is made of three dots; and in another from the three dots are represented by three horizontal strokes. It might seem difficult to believe that this symbol of three horizontal strokes has anything in common with the other letters of the Brahmi alphabet. However, we find that it can be directly derived from our basic geometric square pattern. This derivation provides additional support to our claim.

From the square model we derive letters containing line segments that meet at right angles. However, there are a few

letters of the Brahmi alphabet that have line segments that meet at an acute angle of about sixty degrees. There are two ways of accommodating such signs in our system. One way is to postulate a third basic geometric pattern with a triangle attached to a vertical line. Another more consistent way is to look for variants of the letters in which the angle is closer to a right angle. We do find such variants, and perhaps these variants which fit into the square and cross pattern represent the original prototypes.

BASIC GEOMETRIC PATTERNS:



PROTOTYPES	BRAHMI LETTERS	PROTOTYPES	BRAHMI LETTERS
	BA		U
	KA		Ō
	RA		ḌA
	NA		ṆA
	ṇA		PA
	MA		HA
	A		LA
	YA		SA
	ṅA		ṅA
	I		BHA
	JA		JHA
	GHA		CA
	ṭHA		VA
	THA		CHA
	DHA		DA
	ṭA		YA

BRAHMI LETTERS WITH THEIR CORRESPONDING PROTOTYPES EXTRACTED FROM TWO BASIC GEOMETRICAL PATTERNS.

VI

A PALLAVA MUSICAL INSTRUMENT*

Gift Siromoney

Was bowing as a method of musical sound-production known to the Pallavas 1,250 years ago? Is there any sculptural evidence to support the theory that the Pallava musicians used bowed instruments?

There is a representation of a rare musical instrument at Kanchipuram which could be the earliest representation in Tamil Nadu of a bowed instrument.

The Pallava monuments of Mamallapuram and Kanchipuram belong to the seventh and eighth centuries A.D. and the sculptures on these monuments reflect the life of that period. We find in these sculptures representations of various kinds of musical instruments which would have been in actual use during that period.

The most common instrument is a stringed instrument or chordophone which was most probably called the vina in that period. King Rajasimha, the author of the Shore Temple and the Kailasanatha Temple at Kanchi, was called a Narada on the vina or Sri Vinanaradah. This instrument is represented more than thirty times in the Kailasanatha Temple, six times in the Arjuna's Penance panel in Mamallapuram, twice on the Dharmaraja Ratha and once on the weathered panels of the Shore Temple.

It looks quite different from the modern instrument which goes by the name of vina and does not have any fret or tuning peg. It has a long stem with a gourd attached at right angles to it. The gourd appears to be open at the bottom and the

instrument is held across the chest with the gourd pressed against the chest to form a volume of resonating air.

On the Dharmaraja Ratha there is a unique example of an ancient drone instrument also with a gourd resonator, but fitted longitudinally. Another string instrument, with a wooden body resembling a mandolin, is found on the western side of the Kailasanatha Temple outside the enclosure.

Thanks to the Archaeological Survey of India, the exquisite sandstone carvings of the Kailasanatha Temple are being exposed to view after the removal of thick plaster on them. There at the feet of a Harihara figure two dwarfs or ganas are revealed—one with a pair of small cymbals and the other with a most unusual instrument.

In Pallava sculptures, along with every cymbalist, either a flutist or a vina player is also depicted. Here the figure next to the cymbalist is neither a flutist nor a vina player. That figure holds a musical instrument in the form of a short cylindrical rod. It rests vertically on the cupped palm of his left hand with the upper end touching his left shoulder. In his right hand a tiny curved bow is held gently between the fourth and the fifth fingers and drawn softly across the stem. All the fingers of his right hand are kept closed. The curved bow is thinner than his fingers. The stem, itself, could have been a hollow resonator and the instrument would be the fore-runner of the fiddle-like instruments of India.

Some scholars may hold that this is a rasp or scraper which would make an unmusical grating noise or, alternatively, just a pair of sticks struck against each other. Some others may possibly identify it as a bamboo zither struck by a small stick.

A musical instrument resembling this bowed instrument but held a little differently is found at Kazhugumalai in the Pandya country, and some scholars would identify it as a rasp called "Kirikittaka", consisting of a hollow piece of serrated

* Published in the *Sunday Standard*, Madras, 28 Jan. 1979.

bamboo and a small stick. The stick drawn across the bamboo would produce a weird grating noise.

Apart from these four kinds of stringed instruments one can see vertical drums possibly made of burnt clay. Today the Villi tribesmen of Mamallapuram get their drum-shells made by the potters of Punjeri village nearby, and stick the diaphragm to the shell with animal glue. Hour-glass-shaped drums of two kinds and a short horizontal drum are also represented in sculpture.

The flute, the conch shell, and the hand bell are the other kinds of musical instruments depicted in Pallava sculptures. By closely observing the musical instruments in sculptures one can follow the evolution of many instruments of South India over the centuries.



VII

A TAMIL-BRAHMI INSCRIPTION FROM THE MADURAI REGION*

Gift Siromoney and Emmanuel Jebarajan

Summary

In this paper a new label inscription is reported from Muttupatti near Madurai, Tamil Nadu. The inscription is found in a cavern along with some known Tamil-Brahmi inscriptions. The new inscription refers to a man from a village/town called KARUPŪR.

In another inscription in the same cavern, the letter E is inscribed in the form of an equilateral triangle symmetrically placed like a pyramid. The authors consider it to be an early form of the letter.

The paper also discusses some questions on the origin of the Brahmi script.

In the first part of the paper we report a newly found Tamil-Brahmi inscription from the Madurai region and in the second part we put forward a new hypothesis on the development of the Brahmi script.

1. A New Tamil-Brahmi Inscription

Many label inscriptions^{1,2,3} have been noted in natural caverns in the hills near Madurai, which was once the capital city of the Pandya kings. We are concerned here with a natural cavern on a hill which is within the limits of Muttupatti Village which is very close to the campus of Madurai-Kamaraj University. Three Tamil inscriptions in the Tamil-Brahmi script have been noted so far and we report here another inscription from the same site. Adjoining the main cavern there is a small

* M.C.C. Dept. of Statistics, *Scientific Report* No. 44, March, 1980.

cavern with a bed and on the outer side of the stone-bed is found an inscription which reads as:

KA RU P Ū R CĒ Y CI RĪ KA N

(TAMIL: க ரு ப ஊ ர் சே ய் சி ரி க ன்)

It refers to a man from Karuppūr, which means literally black town. The name of this village/town does not occur in the Sangam Tamil literature,⁴ but it occurs in medieval Tamil inscriptions.⁵ CĒY CI RĪKA N is a male personal name. CĒY is an adjectival form meaning red and this root is found in the name for Murugan who is called Cēyōn, the Red One.⁶

Alternative readings are possible. CĒY may be read as CEY. It means either red⁷ or 'do/doing'. The penultimate letter may be read as KĀ instead of KA.

On one of the beds in the main cavern there is a partly damaged inscription which has already been noted.⁸ One of the signs missed by earlier scholars in that inscription is a neat little equilateral triangle placed symmetrically like a pyramid with two angles at the bottom and the third at the top. This is an early form of the letter E and this form⁹ is present in the famous Mahasthan stone-plaque inscription which some scholars assign to pre-Asokan days. This leads us to the question of the relationship between Tamil-Brahmi and Asokan-Brahmi scripts which we shall discuss in the following section.

2. The Origin and Development of The Brahmi Script

We use the word *Brahmi* to include Asokan Brahmi, Tamil Brahmi and the Bhattiprolu scripts. While we have been fascinated by the known Brahmi inscriptions, we have also been able to locate three new Tamil-Brahmi inscriptions^{10,11,12} and

we were able to locate a pulli in one of the early Tamil inscriptions.¹³

In 1977 we¹⁴ put forward the theory that Brahmi was invented and such an idea did not find universal acceptance at that time. However in 1979 a book¹⁵ appeared taking up as its main theme the question of the invention of the Brahmi script as against the theory of evolution. Today many scholars are receptive to the idea that Brahmi is a carefully designed script and that it is not the result of any haphazard evolution over centuries. Very few would hold the view that Brahmi was borrowed from some European or West Asian script. What is interesting is that many scholars of repute hold on to their cherished views and one of them is that Brahmi evolved from the Harappan script. Again some hold the view that the Indus people were Dravidians and others that they were Indo-Aryan. Some kind of evidence which is convincing to one scholar is not so convincing to another scholar but scholars are allowed to stick to their own views.

We had earlier put forth the theory that Brahmi was a carefully designed script and that the symbols were derived from two or three symmetric geometric designs. The first is a design with a cross superimposed on a square and the second is a vertical line superimposed on a circle. Both these symbols are found in the caverns around Madurai along with the Tamil-Brahmi inscriptions.

In this paper we take a fresh look at the Asokan-Brahmi and Tamil-Brahmi inscriptions. We find that there are many symbols in common to both and that there are many symbols which are exclusively in use in one of the two kinds of inscriptions. What is most remarkable is that the signs that are common to both have similar sound values. It therefore follows that either they are indebted to a common parent script or one was developed out of the other. It has been held by many scholars that Tamil-Brahmi was a later development of Asokan-Brahmi.

We wish to examine in this paper an alternative hypothesis that Asokan Brahmi was developed out of the Tamil-Brahmi script. This hypothesis is not startlingly new, and T.N. Subramanian proposed in 1954 that Brahmi was originally meant for a language like Tamil.¹⁶ However we shall not follow the lines of his argument.

We wish to propose the hypothesis that the oldest of the Tamil-Brahmi inscriptions belong to the pre-Asokan period and they influenced the development of the Asokan-Brahmi script, which is a later development.

Is there any evidence to support such a hypothesis? First we note that there are fewer symbols in the Tamil-Brahmi script compared to the Asokan-Brahmi script. Asokan-Brahmi is an elaboration of a smaller set of Tamil-Brahmi symbols. The letter PHA was obviously designed after the letter PA by adding a curl to the sign which is like a mirror image of J (without the top horizontal bar). Other things being equal a more elaborate system is a later development of a less elaborate system.

Iravatham Mahadevan¹⁷ has pointed out that the existence of three orthographic systems of writing followed in the Tamil-Brahmi inscriptions. These systems are different from the Asokan-Brahmi system. There is another system called the Bhattiprolu system which is different from the Asokan-Brahmi and is closer to the Tamil-Brahmi systems. The Asokan Brahmi inscriptions follow a single orthographic system even though the shapes of some of the letters vary from writer to writer. Here we wish to make use of a principle used in the Life Sciences to fix the original home of a plant or an animal spread over a vast area. When the same kind of plant is found all over the world, certain criteria are used to fix the original site from which the plant spread. The first objective criterion is this. If many related species are found in the wild in one region of the world then that region is taken to be the original site of the plant even though it may be found extensively in many parts of the world. If we apply this objective criterion to the area

of ancient scripts, Tamil Nadu should be acknowledged to be the original home of the Brahmi script which later developed into the Asokan Brahmi and Bhattiporulu scripts. One may wonder whether this methodology is applicable to the area of scripts. We can verify it by looking at the Grantha script¹⁸ used in Thailand. The original home of the Grantha script is South India and many varieties of the script are found here. The objective scientific criterion is certainly applicable in this case.

A second objective criterion used in the Life Sciences is to assign an area as the original home of a plant if that area harbours a more primitive, wild variety of the plant. For instance chillies were introduced into India less than 500 years ago. Wild chillies are found in the American continent and South America is found to be original home of the chilli plant. Let us apply this objective principle to the field of epigraphy. It is certainly valid if we again choose the example of the Grantha script from Thailand. The original home of these scripts is Tamil Nadu and Andhra Pradesh where we can find the earlier forms of the script. Let us apply this principle to the study of the Brahmi script. We shall look at the three orthographic systems of writing Brahmi in Tamil Nadu. We shall call these systems, the Tamil-Brahmi system, the Brahmi system and the Tamil Pulli system. In the Tamil-Brahmi system the consonant signs stand for the pure consonants (or the closed forms). A vowel is added to the consonant by either writing a pure vowel next to the consonant or the consonant is modified by a stroke attached to the pure consonant symbol. For instance the cross sign represents K and the cross with a horizontal stroke on the top right hand side denotes KA; a horizontal stroke at the bottom right hand side denote KU, a stroke at the top left side denotes KE and so on. This is a logical system. All the vowels are denoted by the same principle and the vowel A does not get any special treatment. This is a logical system and it is more basic than the Asokan-Brahmi system. In the Asokan-Brahmi system we recall that a cross sign stands for K+A. A vertical stroke on the top right side makes it KI. It is clear that the

Asokan system is not as primitive or logical as the Tamil-Brahmi system. The fact that there exists a system of writing Tamil which is more logical and more basic than the Asokan system supports our hypothesis that Tamil-Brahmi is more ancient than Asokan-Brahmi.

In the second orthographic system found in Tamil Nadu a cross K with a horizontal stroke on the top right hand side is read as KĀ. The cross alone is read as KA as in the Asokan Brahmi system. The cross is also read as K, the pure consonant. In the Asokan-Brahmi if a pure consonant like K were to be followed by a letter like YA, then Y is written below K and a compound letter KYA is formed indicating that the top sign denotes a pure consonant. This system is not followed in any of the orthographic systems of Tamil-Brahmi. In the Asokan-Brahmi system there is no way of denoting unambiguously the occurrence of a pure consonant (except M) at the end of a sentence. The third system of writing Tamil-Brahmi is what we call the Tamil Pulli system and it is mentioned in Tolkappiam, one of the most ancient Tamil works on grammar. In this system every letter is represented in an unambiguous manner. A pure consonant is denoted by a dot or *pulli* which is also used to denote a short E as well as the short O. This simple versatile unambiguous system is superior to the other systems.

On the basis of the occurrence of stylus-like objects in excavations, Soundararajan has proposed¹⁹ that the date of Panini be pushed back to around 1000 B.C. Following this trend we have pushed back the date of early Tamil-Brahmi inscriptions to pre-Asokan days!

When we look at the history of the development of theories on the origin of the Brahmi script, we find an interesting pattern. At first, European and Semitic scripts. Later during this century we have a band of scholars who are quite familiar with the Mauryan civilization and who are familiar with Sanskrit and Prakrit and who have taken it for granted that

the origins of Brahmi have to be found in the Gangetic area. We have merely proposed here another theory which is different from the earlier proposed theories!

Notes

1. Iravatham Mahadevan, "Corpus of the Tamil-Brahmi inscriptions", in (R. Nagaswamy, ed.) *Seminar on Inscriptions*, Madras 1966, pp. 57-73.
2. T.V. Mahalingam, *South Indian Palaeography*, Madras, 1970.
3. R. Nagaswamy et al, *Kalvetiyal* (Tamil), Madras, 1972.
4. N. Subrahmanian, *Pre-Pallavan Tamil Index*, Madras, 1966.
5. N. Karashima et al, *Concordance of Names in the Chola Inscriptions*, Madurai, 1978.
6. *Pre-Pallavan Tamil Index*. The author interprets the word SEYON as the Red One but rejects the alternative meaning Young One.
7. T. Burrow and M.B. Emeneau, *Dravidian Etymological Dictionary*, Oxford, 1961.
8. *Kalvetiyal* records three label inscriptions. We are concerned here with the penultimate letter E of the third inscription.
9. S.P. Gupta and K.S. Ramachandran (eds.), *The Origin of the Brahmi Script*, Delhi, 1979, p. 35.
10. Gift Siromoney and E. Jebarajan, "A new Tamil-Brahmi inscription", *The Sunday Standard*, Madras, August 13, 1978.
11. Gift Siromoney, "Another new Tamil-Brahmi inscription", *The Sunday Standard*, Madras, March 11, 1979.
12. Muthupatti inscription reported in this paper.
13. Emmanuel Jebarajan and Gift Siromoney, "On the occurrence of the Pulli in the Tamil-Brahmi inscription

of Anaimalai", *New Dimensions in the Study of Tamil Culture*, Palayamkottai, 1978.

14. Gift Siromoney and M. Lockwood, "The invention of the Brahmi script", *Madras Christian College Magazine*, XLVI (1977), pp. 31-33; *Souvenir of the Fourth Annual Congress of the Epigraphical Society of India*, Madras 1978, pp. 42-50.
15. *The Origin of the Brahmi Script*.
16. T.N. Subramaniam, *South Indian Temple Inscriptions*, Vol. III, Part II, Madras 1957, p. 1609. He not only says that Brahmi owes its origin to Tamil-Brahmi but also that the Prakrit language also owes its development to Tamil:
The earliest inscriptions found in the Tamil country are in the Brahmi script of circa third century B.C. This Brahmi script should have been designed for a Dravidian language, very likely Tamil which was the oldest and primary language of the group, and later on adopted for Prakrit when it evolved, synthesizing the Dravidian languages, and was made the common language of the whole country.
17. Iravatham Mahadevan, "Tamil-Brahmi inscriptions of the Sangam age", II International Conference, Seminar of Tamil Studies, Madras, 1968 (Plenary Sessions).
18. Neelakanta Sarma, *Textes Sanskrits et Tamouls de Thaïlande*, Pondichery, 1972.
19. See *The Origin of the Brahmi Script*.

VIII

TEMPLE CARVINGS OF SOUTHERN INDIA*

Gift Siromoney, S. Govindaraju, and M. Bagavandas

The Indian subcontinent abounds in exquisite stone carvings and sculptures, some dating from the pre-Christian era. In the southernmost part of India, the earliest of these works were carved during the Pallava dynasty of the seventh and eighth centuries A.D. These sculptures, located near Madras, have no parallel in artistic quality anywhere in India. This article describes our pioneering work in computer-aided analysis of such work.¹

The Pallava kings ruled from the city of Kanchipuram, and their chief port was Mahabalipuram. They built many palaces, and they carved many temples out of solid rock; only the temples have survived. Most of the Pallava temples at Mahabalipuram were carved in hard rock (Figure 1) and those at Kanchipuram in softer sandstone.² The most famous monument at Kanchipuram is the Kailasanatha Temple (Figure 2).

Sanskrit inscriptions on the Kailasanatha Temple attribute it to King Rajasimha, the Lion King, who ruled from about 700 to 720 A.D. Carvings on the temple (see Figure 3) represent human as well as divine figures in different stances. Unlike Greek and Roman sculpture, Indian sculpture does not show musculature. Except for Gandhara art, which was influenced by the Greeks, dress in Indian art is not depicted with heavy folds. Often just a line is shown to indicate the edge of a garment. Weapons and other emblems are shown just above the hands or held gracefully. Natural flexions of the human body are shown, along with different hand poses or gestures. Each gesture has specific meaning.

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Ancient and medieval Sanskrit texts called *śilpa śāstras*, or art manuals, contain information on architecture, temple rituals, iconography, and iconometry.³ They include instructions for painting, sculpting, and creating painted carvings. Their canons prescribe that the length of the face should be 12 *aṅgulas* (an angula is a proportional unit equal to the width of a finger), and they also prescribe the length and breadth of the nose, eyes, and lips. It is generally believed that such texts guided the sculptors who carved the Kailasanatha Temple.

To compare different figures on the temple, we took facial measurements from each carving using calipers and other anthropometric instruments. All measurements were standardized by reckoning the length of the face to be 12 units, corresponding to the 12 angulas of the canons. We compared our measurements mainly with the canonical proportions prescribed in the *Śilparatna* (*śilpa*, sculpture or painting; *ratna*, gem) and the *Kāsyapa Śilpaśāstra* (the Kāsyapa art manual).

Using principal component analysis, a statistical technique for reducing dimensionality in multivariate problems, we represented each sculpture in terms of ten variables denoting different facial proportions (see Table 1). With input consisting of data from about 40 sculptures, we used a computer to standardize the measurements and find average values.⁴ Since the face length was reckoned as 12 units for all the sculptures, the ten original variables were reduced to nine. The calculations involved inverting a 9-by-9 matrix. We wanted to discover whether the nine variables could be replaced by fewer than nine components, each component being a linear combination of variables.

Our computations produced five principal components, but each component could account for only 10 to 27 percent of the variability. If Rajasimha's sculptors had strictly followed any of the common canons based on the angula, one would expect, from a theoretical point of view, that the first principal component would account for most of the variability since the

different facial proportions are all directly proportional to a single unit, the angula. The surprising finding that they had *not* closely followed the canons led us to examine the sculptural proportions in greater detail.

Table 1. Canonical values of facial proportions from the *Silparatna* and average values of measurements made on sculptures of the Pallava period in Southern India. All values are in angulas (see text).

Variables	Silpa-ratna canons	Kailasanatha Temple	Monuments at Mahabalipuram					
			KM	DR	AR	AC	VC	TC
Face length	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Top of nose to chin	8.00	9.00	8.98	8.95	8.74	9.16	8.80	8.77
Nose length	4.00	5.40	4.54	4.78	4.92	4.92	4.76	4.83
Nose to chin	4.00	3.61	4.58	4.19	3.85	4.32	4.02	3.98
Nose breadth	2.00	3.57	3.06	3.21	3.18	3.27	3.12	3.13
Eye length	2.00	3.41	2.45	2.39	2.50	2.56	2.42	2.33
Eye breadth	1.00	0.79	1.15	1.01	1.08	1.05	1.12	0.94
Lip length	2.00	4.30	3.19	3.47	3.46	3.39	3.22	3.39
Lip breadth	1.50	1.75	1.75	1.54	1.51	1.71	1.57	1.44
Face width (less ears)	11.43	11.11	10.36	10.45	10.84	10.63	10.60	10.83
Sample size	—	39	6	52	21	20	17	10

KM—Krishna Mandapa

AR—Arjuna Ratha

VC—Varaha Cave

DR—Dharmaraja Ratha

AC—Adivaraha Cave

TC—Trimurthi Cave

Facial proportions

We found that the facial proportions of the Kailasanatha carvings (Figure 4) are distinctly different from those prescribed

in the canons (see the first two columns in Table 1). They are also different from those of a typical human face. For male figures, the canons prescribe that the length of the forehead, the length of the nose, and the nose-to-chin distance be equal. However, the face on a typical Kailasanatha carving has an extraordinarily long nose and a short nose-to-chin distance, with hardly any space between the nose and the lips, and also long, narrow eyes.

If the artisans of the Kailasanatha Temple did not follow the canons, on what did they base their proportions? They certainly did not base them on a typical human face. Furthermore, artisans of the next generation did not use the same proportions. It is quite possible that the Kailasanatha sculptors were inspired by the face of a particular Pallava queen, but that this ideal went out of fashion after her death. It is also possible that the sculptors who created the temple migrated, afterward, to some other kingdom.

It is known that King Rajasimha built a structural temple at Mahabalipuram, commonly known as the Shore Temple (Figure 5), in which the sculptures have features similar to those on sculptures in the Kailasanatha Temple. However, other sculptures at Mahabalipuram, on rock-cut cave temples (Figure 6), bas-reliefs (Figure 7), and the monoliths shown in Figure 1, have facial proportions that are distinctly different from those of the Rajasimha period. They do not have extraordinarily long noses, and their eyes are less stylized. Some authorities believe that Rajasimha commissioned these other sculptures as well; others believe, on the basis of inscriptional evidence on the sculptures, that they may have been carved as early as 650 A.D.

In an effort to resolve this controversy, we measured the facial proportions of carvings on a number of monuments at Mahabalipuram. Figure 8 shows a portion of one of them, known as the Penance Panel. We found that the measured proportions differ from both the canonical proportions and the

Rajasimha proportions measured at the Kailasanatha Temple (see Table 1). In particular, the noses are longer than the canonical prescription (4 angulas). Moreover, the eyes are not as long and narrow as those in typical Rajasimha carvings. These findings support the theory that most monuments in Mahabalipuram are of the pre-Rajasimha period.

Costumes and jewelry

To support the iconometric evidence that the Mahabalipuram monuments do not belong to the Rajasimha period, we looked for other kinds of evidence. Costumes and jewelry of any period can be used to date sculptures and monuments with reasonable accuracy.⁵ Firmly dated sculptures of the early seventh century have huge ear ornaments, with diameters exceeding 5 angulas, and the ornament on one ear differs in shape from that on the other ear. Crowns are of moderate height, about 15 angulas. During that period, queens and princesses went bare above the waist, their bodies painted yellow with sandalwood paste, and female guards wore ornamental breast bands (see Figure 9).

There were many changes in fashion during the following decades, and by the end of the seventh century a different style had emerged. This new style was in vogue during the reign of Rajasimha. Ear ornaments became smaller and were the same on both ears. Crowns were unusually tall, more than 30 angulas high—two and a half to three times the length of the face. Vertical straps appeared on breast bands. Men started wearing anklets. The undated sculptures of Mahabalipuram, such as the prince and princess in Figure 10, have large ear ornaments and crowns of medium height, and female guards have breast bands without vertical straps. Therefore most of the Mahabalipuram monuments must be of the pre-Rajasimha period.

Canons, carvings, and humans

To establish comparisons, we analyzed nineteen sets of canonical proportions, ten carvings of the god Siva⁶ in a sitting

posture, and facial and anatomical proportions of fifteen men students at Madras Christian College in the same sitting posture. We made four facial measurements and five body measurements for each of the students, who ranged in age from the late teens to the early twenties. Six of the Siva carvings were measured at Mahabalipuram and four at Kanchipuram. We used cluster analysis⁷ to make a computer study of the canons, carvings, and human subjects, representing each object in terms of nine measurements.

In cluster analysis, which is used for discovering related groups or clusters within complex data,^{8,9} calculations involve comparison of objects pair by pair. For a set of, say, 50 carvings, 1225 comparisons are made and the Euclidean distance is found in each case. The Euclidean distance is a mathematical distance between two points in an n -dimensional space. In our problem, each object is represented as a point in the nine-dimensional space formed by the nine variables. The more alike two objects are, the shorter the Euclidean distance between the points representing them. The calculations can be done in seconds with a computer, and the results can be plotted in the form of a dendrogram, a diagram in which points representing similar objects are clustered together.

The dendrogram showing our results is reproduced in Figure 11. Most of the Siva carvings from both Kanchipuram (solid circles) and Mahabalipuram (open circles) are of the Rajasimha period and are clustered near the right end of the x axis in Figure 11, but one from Mahabalipuram of the pre-Rajasimha period stands out clearly at the extreme right. Another Mahabalipuram carving, symbolized at the extreme left, also belongs to the pre-Rajasimha period and is closer to human and canonical proportions (represented by solid and open triangles, respectively). The measured proportions of the students (solid triangles) are more or less similar, forming a cluster near the middle of the x axis. The one exception, near the right end of the x axis, is a student with an unusually small face,

which stands out because the proportions are based on face length.

Three types of canonical proportions emerge from the cluster analysis. Seventeen of the nineteen sets that we analyzed form one cluster in Figure 11, even though the proportions are given different names in different canons. The two remaining types form singleton sets near the right end of the *x* axis and probably represent the works of two sculptors from the southern school. It is surprising that the main cluster contains sets of proportions with different names from different texts. The different names imply that the proportions represent different types, but their clustering shows that they were in fact based on a single type. In the late medieval period, that type must have replaced the different types of proportions prescribed in the early canonical texts.

Chariots in stone

At Mahabalipuram there is a unique group of five monolithic temples which, in popular imagination, are five chariots left behind by the heroes of the Mahabharata, one of the great epics of ancient India. The largest and most magnificent of the monoliths is the Dharmaraja Ratha, the chariot of Dharmaraja¹⁰ (Figure 12), which belongs to the pre-Rajasimha period. We took measurements of more than 50 carvings that adorn this temple.¹¹ The average values found by computer analysis reveal that the facial proportions are distinctly different from those of a typical carving of the Rajasimha period (see Table 1).

We wanted to determine whether all or most of the sculptures were executed by a single artist, or whether perhaps each was executed by a different artist. These questions are important in determining how long it took to carve the monument. If each carving was done by a different sculptor, the work could have been completed within a year or two. On the other hand, if a single artist executed all or even most of

the carvings, the sculptural parts alone would probably have taken about ten years to complete.

The Dharmaraja Ratha has three floors, and there are unfinished sculptures on each floor. For instance, on the top floor, the halo of the sun god Surya is only half finished (see Figure 13). On the ground floor, the feet of a king and the Sanskrit inscription above the sculpture are unfinished (Figure 14). The presence of unfinished sculptures on each floor convinced us that more than one artist had worked on the monument. We then looked for carvings created by the *same* artist. On the eastern wing of the southern face of the middle floor are adjacent representations of Siva with identical faces (Figure 15), indicating that they must have been the work of the same artist. Using a hundredth of an angula as the unit of measurement, we found, again with the aid of computer analysis, that the Euclidean distance between points representing the two faces is only 15 units. We attribute common authorship to any carvings that have such a high degree of similarity. A representation of the god Vishnu on the same floor (Figure 16) is only 10 units, in Euclidean distance, from the Siva sculptures, suggesting that the Vishnu was carved by the same artist as well. On a similar basis, we found 26 figures that were carved by the same artist. These carvings formed a cluster in the computer analysis.

The maximum dissimilarity we found between two figures created by the same artist in the Dharmaraja Ratha is in a beautiful panel of Siva and a devotee on the northern side of the middle floor. Siva's arm is around the shoulder of the devotee. The figures are certainly the work of the same artist, yet the difference in facial proportions, in terms of Euclidean distance, is 50 units.

Summary

We have used computer methods to answer many interesting questions in Indian art history. With reference to the

Pallava monuments of the seventh and eighth centuries, we determined the average facial proportions of sculptures on different monuments, and we found that most of the monuments at Mahabalipuram were executed not by Rajasimha but by earlier rulers. We are working on sculptural material from other parts of India as well. Application of computers remains an exciting field in India, and we are developing new methods to answer old questions.

Acknowledgment

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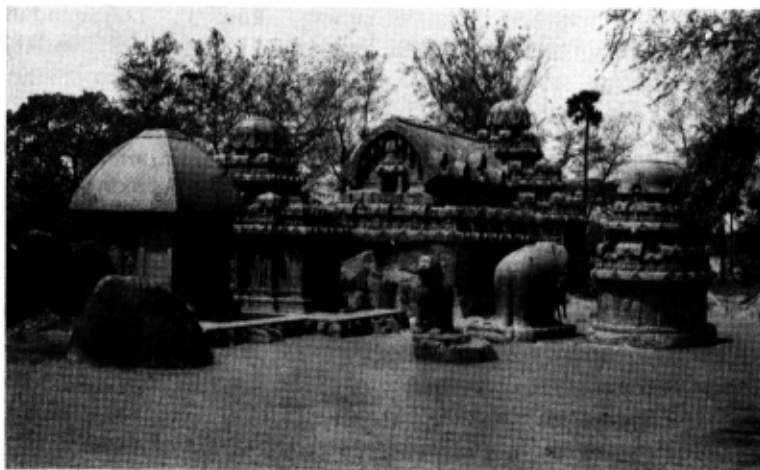


Fig 1. Five rathas, or chariots, carved in hard rock at Mahabalipuram. Each monument is in fact a temple, but according to legend they are chariots of the Mahabharata War, turned into stone.

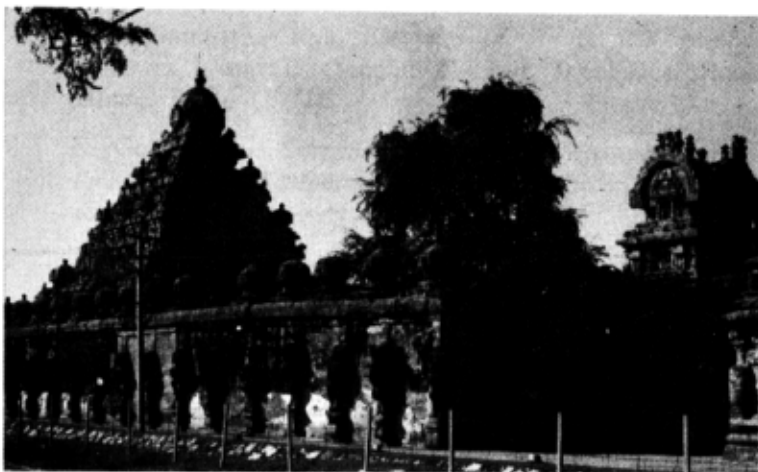


Fig 2. The Kailasanatha Temple, a structural temple built at Kanchipuram by King Rajasimha.



Fig 3. Female figure carved in sandstone of the Kailasanatha Temple.



Fig 4. The face of a maiden with the long nose and long, narrow eyes characteristic of the Rajasimha period.



Fig 5. The Shore Temple, a structural temple built near the sea by King Rajasimha.



Fig 6. A cave temple at Mahabalipuram, carved of solid rock.



Fig 7. Close-up of a carving on the Penance Panel, a magnificent bas-relief at Mahabalipuram.



Fig 10. A prince and princess as depicted on the Arjuna Ratha, near Mahabalipuram. The large ear ornaments and the facial proportions are typical of the pre-Rajasimha period.



Fig 8. A view of the Penance Panel at Mahabalipuram, showing the dress and ornaments of pre-Rajasimha period.



Fig 9. Female warrior of the pre-Rajasimha period in a cave temple at Mahabalipuram. Note the absence of vertical straps on the breast band.

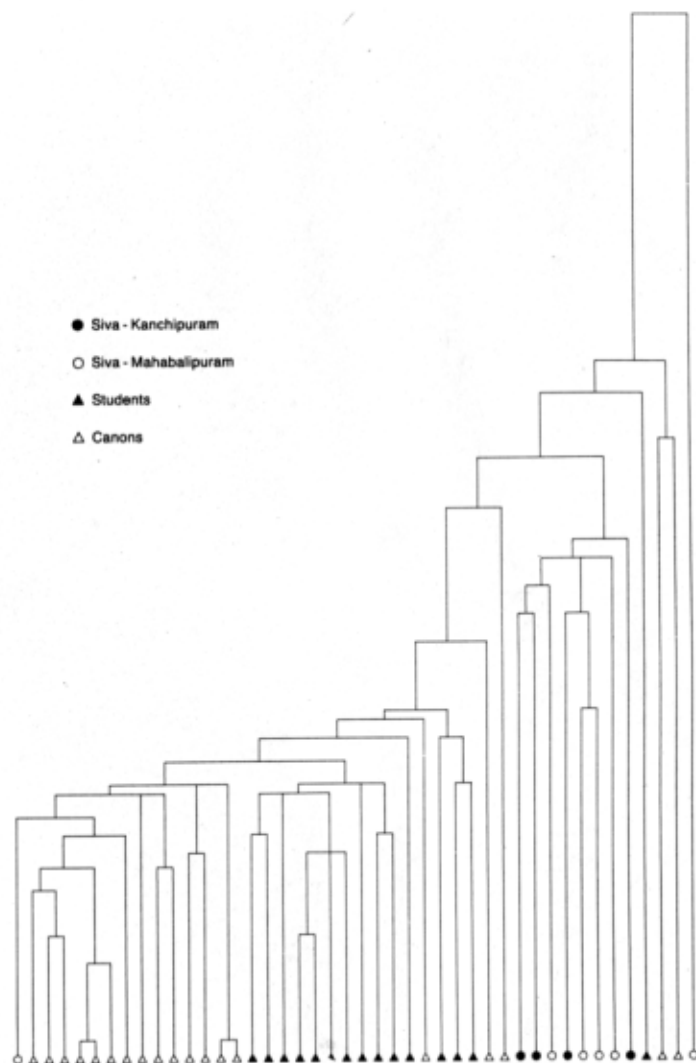


Fig 11. Dendrogram showing result of cluster-analysis studies of canons, carvings, and human subjects. Note clusters of symbols representing canonical proportions and measured proportions of students. The Euclidean distance between points representing a pair of objects is shown by a pair of vertical arms connected by a horizontal line. The longer the arms, the greater the Euclidean distance between the objects represented by the end points.



Fig 12. The Dharmaraja Ratha, tallest of the five monoliths shown in Figure 1. It is covered with more than 50 carvings.



Fig 13. Carving of the sun god Surya in the Dharmaraja Ratha, with the halo only partly finished.



Fig 14. Representation of a king in the Dharmaraja Ratha, with the feet left unfinished. The Sanskrit inscription above the figure is also unfinished.



Fig 16. The god Vishnu as depicted in the Dharmaraja Ratha, probably by the same sculptor represented in Figure 15.

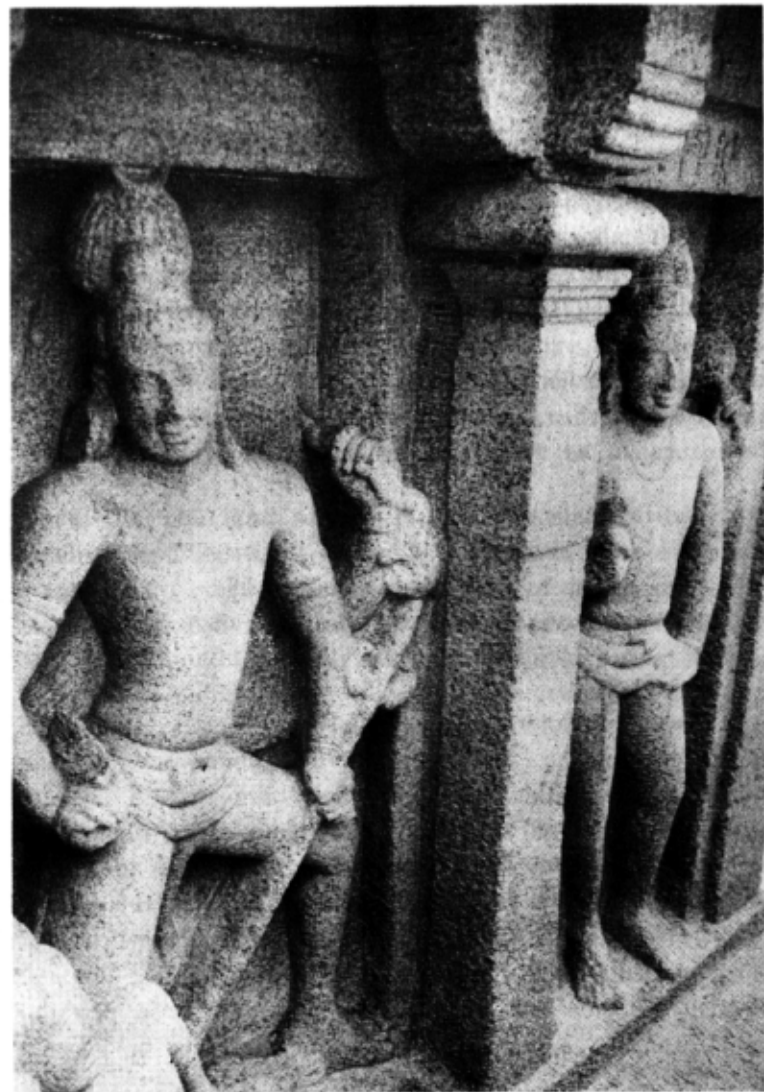


Fig 15. Adjacent carvings of the god Siva in the Dharmaraja Ratha, probably both done by the same artist.

IX

THE MĀMALLA PILLARS OF MANIMANGALAM

Gift Siromoney and M. Lockwood

Manimangalam, today, is a small village about five miles west of Tambaram on the Vandalur-Sriperumbudur Road. However, in the seventh century, A.D., Manimangalam became renowned as the scene of a great battle between the Pallava ruler, Māmalla, and the Chalukyan monarch, Pulikesin II. Pulikesin had earlier defeated emperor Harsha in the north, and Māmalla's father, Mahendra I, in the south—but in Manimangalam he met defeat at the hands of Māmalla.

Did Māmalla, in whose reign a multitude of splendid monuments were created at Mahabalipuram, build any structure at Manimangalam to commemorate this victory? The chances are that the answer is 'Yes', for there are definite traces left today of a structure belonging to his period.

As one follows the road through the little village, one can see lying on the ground near the local library several granite pillars of the Pallava period. They have proved to be a convenient surface on which to dry cow-dung cakes. If the pillars are cleaned, however, one will in fact find Tamil inscriptions which belong to the reign of Rājendra Chola, in the eleventh century. The portion which we have read with the help of our college students is the introductory verse praising king Rājendra. We may conclude that these pillars must have been part of a temple which was intact at least until the time of Rājendra Chola.

Two of these granite pillars, which are distinguished from the others by having their base carved in the form of seated lions, have been salvaged in the recent past and used as facade pillars in a nearby, modern temple. We were told that there are other lion pillars lying buried in the same area.

On the basis of a close study of the characteristics of sculpture of the Pallava period, we would hold that the lion pillars of Manimangalam are of a period prior to the reign of the Pallava king, Rājasimha, who built the Kailāsanātha temple at Kanchipuram around the beginning of the eighth century, A.D. One of the "lions" has horns and, strictly speaking, must be called a *vyāḷa*. In general, we have found that the main characteristics of Māmalla type lions or *vyāḷas* are as follows. First, their 'canine' teeth are only moderately long and curved backward. Secondly, the manes of the lions are depicted with circular curls of hair. Thirdly, the manes of the *vyāḷas* are depicted with mango-shaped tufts of hair. All of these characteristics are found at Manimangalam.

In contrast, lions carved in the Rājasimha period have extremely long sabre-teeth and their manes do not show any pattern of curls, either circular or mango-shaped. Thus, the characteristics found at Manimangalam are like those of Māmalla's time and unlike Rājasimha's. It should be noted that the lions which belong to the period immediately following Rājasimha's continue to have the Rājasimha characteristics, plus some others.

With regard to all of the Manimangalam pillars, that portion called the 'torus' is carved as a separate piece. Many of these pieces can be seen lying scattered around on the ground. They are very similar to the type of torus on the pillars of the Māmalla cave-temples at Mahabalipuram.

The Manimangalam lions have some interesting features of their own. Both animals are provided with head-bands and *śiraśchakras*. The bands go through the *śiraśchakras* at the rear side of the pillars and hang down in tassels on the back of the lion's neck. Further, it should be noted that these lion pillars have circular *padmā pīṭas*.

The remains of structural stone temples of the pre-Rājasimha period are extremely rare—and some scholars

question the very existence of such structures. Heretofore, the only known remains of a pre-Rājasimha date were the four inscribed granite pillars from Kanchipuram and the granite basement of an apsidal temple at Kuram. Thus the discovery of a Māmalla structure at Manimangalam should prove a valuable addition to our knowledge of the development of architecture in the pre-Rājasimha period.

Efforts should be made to uncover the other lion pillars and preserve those lying around on the ground before they are destroyed or thoughtlessly removed. It is possible that a search might turn up the base of the original structure, or some inscription of Māmalla Narasimha Pallava, the greatest warrior king of the Pallavas.

LIST OF AUTHORS

M. Bagavandas, Ph.D.
Professor
Dept. of Statistics
Madras Christian College

S. Theodore Baskaran, M.A.
Postmaster General
Bangalore

P. Dayanandan, Ph.D.
Professor
Dept. of Botany
Madras Christian College

S. Govindaraju, Ph.D.
Professor
Dept. of Statistics
Madras Christian College

Emmanuel Jebarajan, M.Phil.
Professor
Dept. of Mathematics
American College, Madurai

Michael Lockwood, Ph.D.
Professor
Dept. of Philosophy
Madras Christian College

Iravatham Mahadevan,
I.A.S. (Retd.)
Former Editor, *Dinamani*
Madras

A.V. Narasimha Murthy, Ph.D.
Professor & Head
Dept. of Post-Graduate Studies
& Research in Ancient History
& Archaeology
University of Mysore

R. Narasimhan, Ph.D.
Senior Professor (Retd.)
Tata Institute of Fundamental
Research
Bombay

V. Narayanaswamy
Indologist
Madras

K.R. Rajagopalan, B.Sc. (Hons.)
Professor (Retd.)
Dept. of Statistics
Madras Christian College

K.V. Raman, Ph.D.
Professor & Head
Dept. of Ancient History
& Archaeology
University of Madras

I.K. Sarma, Ph.D.
Director, Projects & Museums
Archaeological Survey of India
New Delhi

B. Sasi Sekaran, Ph.D.
Research Fellow
Dept. of Ancient History
& Archaeology
University of Madras

P. Shanmugam, Ph.D.
Reader
Dept. of Ancient History
& Archaeology
University of Madras

K.R. Srinivasan, M.A.
Dy. Director-General (Retd.)
Archaeological Survey of India
New Delhi

This volume of INDOLOGICAL ESSAYS is in honor of the memory of Dr. Gift Siromoney, who, at the time of his death in March, 1988, was Professor and Chairman of the Department of Statistics, Madras Christian College. Included in this volume are contributed papers by eminent scholars who were personal friends of Dr. Siromoney and whose research was often enriched through interaction with him. There is also a section of selected papers by Dr. Siromoney which represent his wide range of interests and originality of thought.