

*35th Anniversary of the
Recreation Club of Regional Centre of
Central Marine Fisheries Research Institute,
Mandapam Camp.
1986*

SOUVENIR

Editor

DR. R.S. LAL MOHAN, M.Sc., Ph.D.,

Mandapam And Its Environs

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DR. R.S. LAL MOHAN, M.Sc., Ph.D.,

President

Recreation Club of Regional Centre of
CMFRI, Mandapam Camp.

Published On the Occasion of
35th Anniversary
of this Recreation Club of CMFRI
Mandapam Camp
Tamilnadu
1986

CONTENTS

1. Ramanathapuram – A Historical Review – R. Kuppuswamy, B. Com.,
2. History of Remeswaram Temple – M. Sivadas, M. Sc.,
3. Historical Notes on Seenappa Dharga – M. Najmuddin, M. Sc.,
4. Martyr of Vedalai – Edwin Joseph, M.A., B. Lib. Sci.,
5. Research Institutes around Mandapam - V. S. Rengaswamy, M. Sc.,
6. Islands around Mandapam – J. X. Rodrigo, M.Sc.,
7. The Krusadai Island – Dr. R.S. Lal Mohan, M. Sc., Ph. D.,
8. Pamban Bridge – S. Krishnapillai, M. Sc.,
9. Shrimp Industry in and around Mandapam – P.E. Sampson Manickam, M. Sc.,
10. Fish and Fisheries of Mandapam – Dr. R. S Lal Mohan, M. Sc., Ph. D.,
11. Tropical cyclones – Dr. N. Kaliaperumal, M. Sc. Ph. D., and S. Kalimuthu, M. Sc.,
12. Vegetation in Mandapam Region – A note on Economic its Importance – T. R. Udhaya Shankar, M.Sc.,
13. Birds and Bird Catchers of Ramanathapuram Coast - Dr. R. S. Lal Mohan M. Sc., Ph. D.
14. மண்டபத்தைச் சூழ்ந்துள்ள கோயில்கள் – V. Gandhi M. Sc.,
15. இராமேஸ்வரம் – P. Natarajan M. Sc.,
16. சீரமிகு சிறு தொழில்கள் – G.K. Rajan

Annexure

I. Rail timings from Mandapam

II. Guide to the places of tourist and biological Importance

Figure

I. Area map.

PREFACE

Recreation is one of the means for improving efficiency of an individual. The club adds to the efficiency by bringing the quality of clubability thereby improving one's character to adjust himself/herself with the fellow-members.

I am happy to put it on record that the Recreation Club of the Regional Centre of CMFRI., Mandapam Camp has gone ahead of other clubs of other establishments of this Institute in bringing out this Souvenir. This Souvenir contains 16 articles including 3 in Tamil of general interest for the people of the region. It also presents mythological/ historical / picture behind this region connected with Rames - waram temple.

This recreation club provided avenues for the personality development of the members especially of their young children by way of participating in the cultural programmes of the Club. I wish progressive success to the Recreation club of the Regional centre of this Institute.

I appreciate the efforts and initiative taken by the Office Bearers of the club for bringing out the Souvenir.

Cochin
15.8.1985

(Signed)
A.V S. Murty
Director
C.M.F.RI.



DR. P.S.B.R. JAMES
DIRECTOR

CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
I.C.A.R.

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MESSAGE

I am happy to learn that the Recreation Club of the Regional Centre of Central Marine Fisheries Research Institute is celebrating the 35th anniversary of the Club and releasing a Souvenir on the occasion.

In an area like Mandapam, it is appropriate that recreational facilities should be provided to the employees and their family members. In this regard, the Club has been doing excellently well in the past several years by providing recreational facilities and entertainment. The Club has also grown in stature and maintained its standards through the years.

I find that the articles incorporated in the Souvenir are very interesting and informative and befitting the place and its environs. The historical and scientific importance of the place is aptly highlighted in the articles and I am sure this Souvenir places on record the glorious past of this part of the country.

The CMFRI Regional Centre as well as members of the Recreation Club have been playing a vital role in providing necessary facilities to the visiting public, students and scientific pursuit. It remains to be said that Mandapam is perhaps one of the most important areas for marine biological and fisheries research offering immense potentialities for further development.

I am sure the Recreation Club of the Regional Centre of CMFRI will continue to play a very important role in furthering the recreational activities in the region.

I wish the members of the Club and the organisers of the function all the best.

Cochin
Date : 16 - 1 - 1986

Signed
(Dr P. S. B. R. James)

INTRODUCTION

The recreation Club of the Regional Centre of CMFRI was established in 1950 and was serving the members by offering recreational avenues like sports, tournaments and various cultural programmes during national days and festivals.

Usually the Club days are celebrated with cultural programmes like drama, musical programmes and variety entertainments. The members and their families were given opportunities to exhibit their talents and develop their dormant faculties. Children were encouraged to take active part in sports and other indoor competitions like drawing, painting and essay writing.

The Club day of 1985 may be considered as unique as we could publish a souvenir featuring many interesting articles fulfilling the long cherished aspiration and need. The help rendered by my colleagues was immense. It is a shining example that however small may be the community, however remote is the place, the important factor is the will of the people and their motivation. These two guiding forces have forged us ahead to serve the club and I am thankful to the Office bearers of the Club and the authors of the articles for their help and cooperation for bringing out the Souvenir and installing a television in the Club.

The Souvenir has 16 articles both in English and Tamil. The articles are of local importance highlighting the History, Religion and Natural History of Remeswaram and adjacent areas. This will be of immense help to the tourist who visit the area in large numbers. The articles bring forth the heritage of the place shedding light into the facts which are buried deep in the sand of time.

We are thankful to Dr. A.V.S. Murty, Director, Central Marine Fisheries Research Institute, Cochin for approving the manuscript and encouraging to publish it. Our thanks are also due to Dr. E.G. Silas, former Director of the Institute for suggesting to publish the Souvenir and to Mr. S. Mahadevan, Officer in charge, Regional Centre of CMFRI, Mandapam Camp for going through the Manuscript of the Souvenir and offering his suggestions.

Mandapam Camp
18.8.1985

(Dr. R.S. Lal Mohan)
President

Office Bearers of the Club (1984-85)

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Shri. R. Thiagarajan	:	do

Historical Review of Ramanathapuram

R. Kuppuswami, B.Com,

It is the opinion of geographers that Sri Lanka and India were of the one land mass and the Island of Sri Lanka got separated from mainland of India by geodesic activity. The formation of the islands, the sea erosion at Dhanushkodi and Pamban channel are some of the visible proofs of the action of the tides and waves. The destructive cyclone and the tidal wave which erased from the face of the earth, the busy Dhanushkodi port in 1964 is fresh in the memory of the people. Mandapam peninsula which is separated from the Rameswaram island by the Pamban Pass is flanked by the Palk Bay in the north and Gulf of Mannar in the south. In the Gulf of Mannar, there is a chain of islands extending from off Mandapam to Tuticorin. The land is almost semi-arid supporting only acacias, palmyra and coconut groves. Fishing and fish curing have been the local industry for several decades.

History of this area is traceable to the Ramayana period. According to legends, the ruler of Ramanathapuram was the designated king by Sri Rama himself and was called Sethupathi, meaning the lord of the bridge or pass. Therefore the stone reputed to be the one on which the jungle chieftain Guha was crowned by Sri Rama is placed in the Ramanathapuram Palace and it is being used as a coronation platform by the kings of Ramanathapuram. This being the legend, historians are certain that the Ramanathapuram kingdom was in existence atleast 1000 years before the advent of the reign of Nayaks in Madurai (14th Century AD). It is also pointed out that the Ramanathapuram kingdom is one of the two oldest in India ruled by a single line of rulers for the longest period until independence.

An unkind environment forced the people of this land to strive against the elements of nature for their very existence. So, tilling a soil with little irrigation or seafaring, i. e. braving the elements, naturally made people hardy. This struggle to eke out a living and the intermittent political disturbances have steeled their will; they became great warriors. They were deployed in many battles in southern India rarely as mercenaries but mainly to save the honour of friendly kingdoms threatened by some aliens. There were innumerable small forts all through the present Madurai, Ramanathapuram, Tirunelveli, Pudukottai, Pudukottai, Pasumpon Muthuramalingam and Thanjavur districts where the people of Ramanathapuram lived and protected local people. In fact, the name Ramanathapuram had come to denote a cantonment. The capital and main fort of Ramanathapuram kingdom was itself at Bogalur (Sattirakkudi) which was later deserted and destroyed.

The Ramanathapuram coast has been the centre of great maritime activity. It has been the gateway for trade with Sri Lanka, Malaysia, Burma and China. As there was only one channel near the Adam's Bridge between India and Sri Lanka (the Pamban channel and the islands north of Sri Lanka having been formed gradually, by the action of the sea), the Ramanathapuram coast had attained strategic importance in those days and has been the scene of several battles and political manouvres.

The more ancient and greater Pandian kingdom, of which Ramanathapuram was part and parcel intermittently, has been historically famous for its pearls. The pearls of the Gulf of Mannar have been proverbial for their size and quality. The fishing for pearls has been conducted in the sea off Vedalai upto the year 1927. (Tuticorin has gradually gained prominence as a fishing ground for pearl oysters). The pearl fishing at Vedalai has been described by the great traveller, Marco Polo. Vedalai and Peri-

apattinam have been the two centres where the pearl fishermen gathered their catches and stored them in depots for future sale and export. There is a place called Muthupettai near Periapattinam, which must have been the market for pearls in the olden days.

The Ramanathapuram area has been included in the dominions of the Pallava kingdom of yore. During the period of the Cholas too, this country was part of the Chola dominion for a long period. In 1170 a Sri Lankan army invaded the Ramanathapuram country on a dispute over the Pandian throne between Paragrama Pandian and Kulasekara Pandian. Paragrama Bahu, a general of Sri Lanka, invaded Ramanathapuram and adjacent areas in support of Paragrama Pandian. Though Paragrama Pandian was captured and killed, the commander of the Sri Lankan army, led the army to India and landed at Rameswaram. The footprints at Gandhamadhana Parvatha at Rameswaram, considered to be the footprints of Sri Rama and also as a Sakthi Peetam by devotees, might have been the footprints for establishing a Buddhist shrine. Then the Sri Lankan army took Vedalai, marched to Siruvayal and Devakottai and all the areas en route were taken by them; the whole area was ruled by them for 7 years, but finally ceded to the Chola kings. One beneficial aspect of this rule was the construction of the Rameswaram temple in the name of the ruler of Sri Lanka.

After this period, Malik Kafur, a general of Allauddin Khilji came to the south upto Rameswaram. It is a fact that, after two decades of his raids in the south, there came to be a Muslim kingdom in the Tamil country at Madurai, which lasted for about half a century. Ibn Bhatuta recorded some of the cruelties perpetrated on the local people by the sultanate at Madurai of which the Ramanathapuram country was also part. The sultanate was destroyed by Kampana. However, the Ramanathapuram coast had gained the export trade with the Arabian countries and the influx of Arabian horses and artisans began.

In the year 1604 AD, a Sethupathi ruler was formally installed in Ramanathapuram as a subordinate of the Nayakkar empire with liability to protect the route to Rameswaram temple, a pilgrimage centre of all - India repute.

The disputes over the succession to the Ramanathapuram throne led to a war at Pamban between the Nayak rulers and the Sethupathi, where the Sethupathi took the help of the Portuguese who had come from Ceylon and Cochin. The war and regicide resulted in the division of the Ramanathapuram kingdom. The kingdom was united again when the rulers of the divided portions died.

When the Mysore army invaded Madurai, the ruler of Ramanathapuram went for the help of the Nayakkar ruler, Thirumalai Nayakkar with 25,000 soldiers and saved the Nayakkar ruler. As a reward, the raja of Ramanathapuram was granted suzerainty over the Ramanathapuram area. The Navarathri festival was introduced in the Ramanathapuram kingdom and is celebrated with great enthusiasm even now in Ramanathapuram (in October) every year. The family deity of the raja of Ramanathapuram has been Durga. The Nayakkar ruler presented the raja of Ramanathapuram with an idol of Durga made of gold which is kept in the Ramanathapuram Palace even now and worshipped. During this period, as a measure of co-operation with the Nayakkars, Telugu was made the alternate official language of the Ramanathapuram kingdom. Worship of Durga gained more encouragement and the temples of Raja Mariamman and Vana Sankari-amman were constructed in Ramanathapuram.

The most valiant of the rulers of Ramanathapuram was Kilavan Sethupathi (1674-1710). His growing power and influence in this part of the country even gave room for the Nayakkar ruler of that time, Rani Mangammal, under whom the raja of Ramanathapuram was a vassal, to become jealous culminating in a war. But Kilavan Sethupathi won the war. Later, he had to face a war with

the Maratta King of Thanjavur in which the ruler of Madurai also joined the Marattas. Kilavan won again and declared the independence of the Ramanathapuram kingdom after several centuries of subjugation. He shifted his capital from Bogalur to Ramanathapuram. He constructed a palace in 100 acres of land with walls 27 feet high and a moat. This palace remains intact even to-day and a part of the palace, known as Ramalinga Vilasam, is the place of the historical meeting between the Collector Jackson of the British East India Company and Veerapandia Kattabommu Nayakkar later. There is also a place in Ramanathapuram where the 47 wives of Kilavan Sethupathi performed 'Sati' on his death. It was during the reign of Kilavan Sethupathi that Pudukottai became an independent kingdom from Ramanathapuram and remained so until the year 1947.

Kilavan Sethupathi was succeeded by Thiru Udaya Devar who was an able administrator. He was very pious too. He constructed several irrigation tanks for the development of agriculture and roads and choultries for the development of agriculture and road choultries for the convenience of the pilgrims to Rameswaram. He appointed his son-in-law as the Officer-in-charge of pilgrim welfare. The son-in-law levied an unauthorised tax on the pilgrims and constructed the road between Rameswaram and Pamban with the money. On knowing about this, the king ordered to execute his son-in-law. His two daughters who pleaded for their husband's life but failed, performed 'Sati' on his death. Later, two choultries were constructed over their ashes; these choultries stand to-day as 'Akka Madam' and 'Thangachi Madam', near Rameswaram.

One of the successors of Kilavan Sethupathi had to fight with the British colonial forces over the throne of Madurai and defeated them in the 19th century. However the Madurai kingdom was overrun by Muslims. The raja of Ramanathapuram subdued them and made them vassals of Ramanathapuram. The raja of Ramanathapuram again intervened in the dispute of the Carnatic Nawab and came into contact with British East India Company and the Dutch merchants.

The Carnatic Nawab, who became ruler of Madurai also, wanted to assert his power over Ramanathapuram and urged the British to attack Ramanathapuram and Sivaganga kingdoms. The raja of Ramanathapuram was defeated in this war and became a tributary of the Nawab first, and later of the English. Col. Martinz of the British army became the resident representative at Ramanathapuram. The building in which he stayed is now called Sankara Vilas but the street on which the building stands is still known as Colonel Bungalow Road.

The eighteenth century witnessed the decline of the native rulers in India; there were no strong kingdoms like the Cholas and Pandias in the Tamil country. Apart from the Nayakkars and Maratta Kingdoms, the Ramanathapuram kingdom was politically important and powerful in south India. The English did not like the independent spirit of the Tamil rulers and Palayakkarars in Tamil Nadu. They intervened in the disputes amongst them and tried to demonstrate their might and overlordship. The year 1798 saw the rise of Veera Pandia Kattabommu Nayakkar who was against the British army in 1799. In the year 1801, the Marudu brothers and Ommaldurai were captured and executed with the help of some other native kingdoms. Gradually, the Ramanathapuram kingdom was also taken over. Mandapam and Pamban, being the gateway to Sri Lanka, came under the English rule. The people of the area lost all their political power and glory but not their valour, cultural heritage and literary eminence.

The period of rule of Raja Bhaskara Sethupathi (1889-1903) witnessed the return of Ramanathapuram and Rameswaram to the limelight in the history of our nation. The Raja himself was a Tamil scholar and was well read in English too. Great artists, musicians and poets of those days adorned the darbar, especially during the annual Navarathri festival in October, which is continued to be celebrated to the present day. The Raja of Ramanathapuram, Bhaskara Sethupathi, was the inspir-

ation behind and instrumental to the visit of Swami Vivekananda to Chicago, U.S.A to attend the World Congress of Religions. The Swami was given a royal welcome by the Raja at Pamban on his return from Chicago. There are monuments in Ramanathapuram commemorating the visit of the Swamiji.

The rule of the English did not help much the economic uplift of the people of this area; but it helped the development of English education, transport and communication. Ramanathapuram was made a separate district in 1910 and the British collectors administered the district from Madurai. Some hospitals and educational institutions were established in the district; the Schwartz High School in Ramanathapuram was established in the year 1785 and continues to be a good educational institution. Some of the British administrators took keen interest in surveying the lands and exploring the natural resources. The Madurai Mandapam railway was formed in 1901 followed by Pamban - Rameswaram railway in 1906. The stone bridge over the Pamban channel constructed in the 15th century became inoperative by erosion. Therefore, construction of a railway bridge across the channel (length 2km) was begun in 1914, and a railway line from Pamban to Dhanushkodi was formed. As Sri Lanka was also under the rule of the British, a ferry service from Dhanushkodi in India to Talaimannar in Sri Lanka was started in the year 1916. The emigration of Tamil labourers to the plantations in Sri Lanka commenced on a very large scale. A centre for conducting marine biological research was established in Krusadai Island near Mandapam in the year 1927. From the year 1932 till the independence of the country in the 1947, the administration of the district was completely taken over and run directly by the British Government. A marine workshop was started in Mandapam for maintaining the ferry plying between India and Sri Lanka; the workshop was leased to a private company later. During the time of the second world war, a vast building complex was constructed for housing a naval hospital and for the garrison on the Palk Bay side near Mandapam Camp. The garrison and shooting ranges have been abandoned but the naval hospital building was handed over to the Government of India in 1949. The Central Marine Fisheries Research institute is functioning now at the buildings constructed for the naval hospital. The other connected buildings, abandoned since the war, could be scene; a visit to the abandoned naval workshop near Kundugal Point near Pamban or to the other buildings would create mixed feelings in the minds of the veterans of the war. This place was the scene of the fleeing of the Tamil from Sri Lanka after the ethnic disturbances in that country.

Looking back, one would see that this part of the coastal region of Tamilnadu has been famous for its fishery and trade in pearls. The flag of the Pandian king itself had fish on it. Poets have sung in praise of the lustre of the pearls of the Pandian kingdom. The Rameswaram temple, which is one of the oldest in the country, was built with the stones brought from Trincomlee (1710 pillars) on the orders of the Sinhalese noble Paragrama Bahu. It draws pilgrims from all over the country and also from other eastern countries. There is also a tomb in Rameswaram which is stated to be that of Abil-Kabi (Abel and Cain?) sons of Adam, the first man. Pamban was the pathway for entry to the southern part of India. The district has been an example of religious harmony. The coast of the district had been a rich pearl fishing ground and the Dutch and Portuguese have vied with each other for the pearl fishing rights here. The kings of Ramanathapuram have encouraged the influx of tourists and pilgrims from everywhere and have donated villages and royalties for dargahs and churches in the district apart from Hindu temples. Some religious relics of the Roman Catholic church have been found near Thonithurai, which are being studied by scholars. The missionary John De Britto (1647-1693) lived in this region and constructed several churches; he died perhaps due to political intrigues and not because of religious intolerance. The Hindu saint Thayumanavar (1706-1742) came to Ramanathapuram from Tiruchirapalli and died here. His Samadhi is in a place called Lakshmipuram near Ramanathapuram. The ascetic Pamban Swamikal belongs to Pamban. He has sung thousands of verses in praise of God Murugan. The swami has thousands of followers in Tamilnadu.

Recently the Tamilnadu Government has trifurcated the district and established the Headquarters of the Ramanathapuram District at Ramanathapuram itself. It is hoped that this will accelerate the development of the area. The development of the industries based on the mineral wealth, the development of the fishing and pearl culturing industries in this area, the establishment of a National Marine Park and tourist centres are some bright proposals for the immediate future. The execution of the legendary Sethusamudram Project of creating a shipping channel via the Rameswaram Island will go a long way in the improvement of the economic condition of the people here.

(References; Ramanathapuram District - by Somale; Sethupathis of Ramnad - by S. Tiruvengkatachari; Administrative Reports of the Department of Fisheries, Govt. of Madras; Ramanathapuram Mavattam; Varalathu Kurippugal - by S. M. Kamal and N. M. Sherif; Om Sakshi (Monthly), Vol. 1 (12), Jan. 1984).

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History Of Rameswaram Temple

M. Sivadas, M.Sc.,

INTRODUCTION

Rameswaram temple is situated on Rameswaram island. It lies on the south east corner of India with an area of 13224 acres. This is connected with the mainland by a railway bridge, the Pamban bridge of length 2.3 km. This is the only connection at present. Now one high level road bridge for vehicles is under construction.

Rameswaram temple is the most important place among the various ancient, sacred and historically important places in Tamilnadu as well as in India. It is more popular as a pilgrimage centre. This can be understood by the belief that pilgrimage to Kasi will be complete only after worship at Rameswaram besides a bath in Dhanushkodi.

HISTORY OF THE TEMPLE

Rameswaram is as old as "Ramayana". Even though there are records for the construction of the various parts of the temple, no record is available in respect of the installation of the idol. Regarding this only the puranic version is available. According to purana, Sri Rama had to kill Ravana to free Sree Sitadevi, who was abducted by the latter. As Ravana was a brahmin, Rama wanted to expiate the sin of "Brahmahatya" through the installation and worship of Sivalinga. For this he had fixed an auspicious time and sent Hanuman to Mount Kailas to bring the lingam. Since he did not come in time, Sita herself made a lingam of sand given to her by Rama worshipped. As the sand used for making the lingam was from this place so the same of this island is deemed to be sacred. Hence ploughing is not done here. Moreover, since the shape of the Lingam is in the form of an oil press, oil pressing is also not performed here.

But when Hanuman brought the lingam, he insisted on replacing the lingam installed by Sita with his. As that was found impossible, to pacify him, Rama had installed it by the side of Sivalinga and ordered that all pujas should first be performed on it. This lingam is known as Viswalinga.

Regarding the history, the temple was originally a thatched shed in charge of a hermit. The present structure of the temple is the result of the work of a number of persons who lived in different periods. The existing records including Sri Lanka's stone inscriptions shows that Paragrama Bahu, King of Ceylon constructed sanctum - sanctorium around the moolalinga and ambal shrine as a symbol of his victory over the Pandyan Kingdom in the year 1173 AD. The stones for this were said to have been brought from Trincomalee of Sri Lanka. Till recently, the remains of these stones were found near the Gandamadana Parvatham, a place about a mile and a half of Rameswaram temple.

But the credit and pride of the place goes to the kings of Ramanathapuram who are popularly known as Sethupathis since they were responsible for constructing the major part of the temple. In the fifteenth century, Udayan Setupati of Ramanathapuram and a Vaisya of Nagoor near Nagapattinam built the western tower and the compound wall. In the sixteenth century, Tirumalai Sethupati built a portion of the southern second corridor. Later in the same century, Chinna Udayan Katta Thevar who was a feudatory under the Viswanatha Nayakkar of Madurai made some additions including the Nandimandapam

in front of the *sanctum sanctorum*. In the seventeenth century Dalavai Setupati built a portion of the main eastern gopuram. Early in the next century, Ravivijaya Raghunatha Sethupati built a Sayanigriha (bed room) and the mandapam in front of the Ambal shrine. Later in the century, Muthuramalingam Sethupathi completed the outer corridor.

Between 1897 and 1904, the 'Alar' family of Devakottai completed the eastern tower of nine towers from Tiruppani funds. Then between 1907 and 1925, they renovated the *sanctum sanctorium* and the inner corridor by replacing the limestone with granite with adequate provision for ventilation and also arranged for the Ashtabandhana Kumbabhishekam on 1925 and then in 1947. Third Maha Kumbabhishekam was performed in 1975. In this also, a lot of renovation works were carried out including the work on the second corridor but is not yet completed. Besides the completion of second corridor, there remains, a lot to be renovated. Among these, the important ones are tiling of the complete third corridor to arrest any leakage, completion of the incomplete gopuram's in the north and south sides etc.

CONNECTION WITH OTHER STATES

(a) RAMESWARAM AND MAHARASHTRA

The pujas and abhishekams in the Rameswaram temple are performed according to Vedic norms. There is a history behind it. It is said that during the period of Chokkappa Nayakkar of Madurai, a king from Maharashtra came to worship here. He found that the priests performing pujas were not properly trained and were not doing it according to the norms. Therefore with the consent of the Sethupathi, the king of Ramanathapuram, he sent 512 families of well trained priests from Maharashtra. So from that time onwards, these priests are performing the pujas. Now only 70 families are here. The priests are known as Aryabhattachas.

(b) RAMESWARAM AND NEPAL

Nepal is the only independent country in the world which is ruled by a Hindu king. These kings use to come and worship at Rameswaram from time immemorial. They have the right to do abhisheka by themselves in the main temple, which is a rare thing because besides them, only the main pujaris are entitled to do abhishekam.

In this connection it is proper to remember that the Nepal king donated Rs. 71,800/- towards the Mahakumbabhishekam conducted in 1975.

(c) RAMESWAARM AND MYSORE

In Rameswaram temple besides the main pujaris and the King of Nepal, one more person can do pujas personally to the deity. He is the Sankaracharya of Sringeri. The Sankaracharyas are considered as the gurus by the kings of Mysore. So they used to come to the temple for centuries.

In those days the sethupatis of Ramanathapuram used to send the Maravar soldiers to Mysore whenever they were in need of them. There is a place called Ramanathapuram in between Mysore and Mercara where these soldiers were said to have camped during those periods. This shows the good relations that existed between the Mysore and Ramanathapuram kings.

(d) RAMESWARAM AND SRI LANKA

Both puranic versions and historic evidences are already available to show the connections between Rameswaram and Sri Lanka. As the very story of the installation of Sivalinga stems from the killing of Ravana, the king of Sri Lanka.

(e) RAMESWARAM AND THAILAND

During the coronation ceremony of Thailand Kings, there is a practice of performing aphishaka with Ganges water. The Hindu priests also participate in it. It is said that their fore fathers belonged to Rameswaram.

(f) RAMESWARAM AND THE SIKHS

In fifteenth century, during his tour of South India, Gurunanak Dev had stayed at Rameswaram before proceeding to Sri Lanka. Sikhs want to perpetuate the memory of his visit at Rameswaram. Now there is a Gurudwara, which is situated at ward No.10, in the west street.

DESCRIPTION OF THE TEMPLE

Rameswaram as its very name implies is the Iswara installed by Rama. The deity is variously known as Rameswaran, Ramalinga or Ramanatha.

Like all other ancient Hindu temples, the temple has a high compound wall measuring about 865 ft. in length and 657 ft. in breadth with huge towers on the east and west. The height of the eastern tower is 126' and that of the western tower is 78'. Inside there are long corridors running between huge columnades on platform about 5' high. The corridors are an outer one, an inner one and a separate one around the sanctum-sanctorium. The outer one is considered to be the longest one in the world being 400' each in east and west and 640' each in north and south and the inner one measures 224' each in east and west and 352' in the north south with the width varying from 15' to 117'. The separate corridor around the sanctum-sanctorium measures 17' each in east and west and 172' each in north and south with the width varying from 14.5 to 17'. Besides these, there are about 1200 pillars in the outer corridor whose height is 30' from the floor to roof. These corridors stand as a land mark in the history of Tamilian Architectural endeavour and is considered to be the most beautiful and exciting one among the architectural structures found on the temple. Moreover, the fact that these works on such huge stones were done at a time when no modern facilities were available strikes us with wonder.

As already mentioned, the main shrine is the Sivalingam prepared by Sita and worshipped by Rama. Besides the Main shrine, there are various sub-shrines also. In front of the sanctum-sanctorium, there is a big Nandi, made of lime and mortar. It has a length of 22' breadth 12' and height 17'. This Nandi is really worth seeing. During the latest renovation, it was repainted with panchavarna colours.

THEERTHAMS

The theerthams here are very famous. It is believed that a bath in these theerthams will help one to get rid of his sins and attain a happy life. There are nearly 22 theerthams (mostly wells) in different parts of the temple.

WORSHIP

The temple is open from 5 A.M to 10 P.M and there are regular pujas six times a day. They are

5 A.M	Thiruvananthal Puja
7 A.M	Udayakala Puja
9 A.M	Kolasanthi Puja
12 Noon	Uchikala Puja
6 P.M	Sayaraksha Puja
9 P.M	Ardhajama Puja

As already mentioned, here the main pujaris are of Maharashtrian origin. Besides these pujaries, two more persons can perform puja personally. They are the king of Nepal and the Sankaracharya of Sringeri. However, Sankaracharya can not do abhishekam. Since according to the Saiva convention, the sanyasis do not have the right to perform abhishekam.

FESTIVALS

The major festivals at the Rameswaram temple are Mahasivarathri (Feb-Mar), Aniramalingam Prathishta (Jun-Jul), Adi Thirukalyanam (Jul-Aug) and floating festival on Thaipoosam night (Jan-Feb).

IMPORTANT PLACES BESIDES RAMESWARAM TEMPLE AT RAMESWARAM

a) NATARAJAPURAM

It is three kilometers away from Rameswaram temple on the way to Dhanushkodi. The Goddess at this temple is known as 'Nambunayaki Amman' who is regarded as the 'guardian angel' of the southern side of the island.

It is believed that most of the chronic diseases will be cured if we worship here. There is a theertham called 'Sarva roga nivaranam' (remedy for all diseases) behind the temple. Similarly, childless couple may be blessed with a child by worshipping here.

One historical event is associated with this. During 12th century, Paragrama Bahu, king of Ceylon was suffering from severe diabetes. As no medicine could cure it, he at last came and worshipped here. Thus he recovered from the illness.

b) SRI KOTHANDA RAMAR SWAMI TEMPLE

It is about five miles away from the temple on the way to Dhanushkodi. This place is considered important since Vibhishena, brother of Ravana surrendered to Rama here.

c) DHANUSHKODI

It is about eleven miles south east of the temple. The confluence of two oceans, Indian Ocean and Bay of Bengal is a distinctive feature of the place.

The word Dhanushkodi connotes the pointed portion of a bow. It is said that Vibhishina, the brother of Ravana requested Rama to break the bridge connecting Rameswaram and Sri Lanka so as to prevent army invasion by the latter. So Rama broke it with the pointed portion of his bow. Hence the name.

The Theertham here is called as 'Sethu theertham'. It is believed that a bath in this theertham will wash away one's sin.

c) KANDAMADANA PARVATHAM

It is a storeyed Mandapam situated about 3km in the north west of the temple. It is situated on a sandy elevation and there is a stair case leading to it. Rama's foot mark is seen here. Moreover, it is said that Shri. Anjaneya devotee of Rama reached Lanka by jumping over the sea from here.

It is the highest place in the Island and almost all parts of the sea can be clearly viewed from its peak.

CONCLUSION

The association of Rameswaram and Dhanushkodi with the epic story of Ramayana and the importance of theertham here make the temple an important pilgrimage centre. Moreover, the connection between Rameswaram and Kasi makes it imperative for the people from south to go to north and vice versa. So we can very well say that it is a connecting link between south and north.

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Historical Notes On Seeniappa Dharga

M. Najmuddin, M.Sc.,

The term 'Dharga' is of Urdu origin which means the tomb of holyman who devoted or sacrificed his life for the welfare of his fellowmen. It is a custom among Muslims to visit Dhargast often in near or distant places and pay homage. There are innumerable Dhargas scattered all over India. Of them, the Dharga of Khwaja Molnudeen at Ajmer in Rajasthan, Hajrat Nizamuddin in Delhi and Dharga of Pandithar Shahul Hameed Wali at Nagoor in Tamil Nadu are noteworthy.

Ramanathapuram District, despite its apparent barrenness is rich in historical sites. The existence of such historically important Dhargas have also added colour to Ramanathapuram. The important Dhargas are Rameswaram Abel Kabil Dharga, Ervadi Sultan Ibrahim Wali Dharga, Kilakarai Vallal Seethakkathi Dharga and Seeniappa Dharga. Of them, the Seeniappa Dharga commands respect despite several natural calamities. The history of Seeniappa Dharga which has remained under the dust or antiquity, is interesting to learn.

The name 'Seeniappa' seems to have been coined because of an incident narrated in a folklore connected with this Dharga. About six hundred years ago, a fakir was standing on the seashore at this place when some merchants were trekking that way driving a number of donkeys laden with bags of sugar. When the fakir earnestly enquired from them what the animals carried, the light-hearted merchants lied that it was salt. After trotting off some distance they opened one of the bags and found to their dismay that the bags were full of salt. In their frenzy they opened all the bags and found them all containing only salt. They were astonished and realised that it was due to the miracle performed by the fakir as a measure of punishment to them since they lied to him. As they became penitent, they rushed back to him and sought for the forgiveness of the fakir. Then, they publicised this matter to the nearby villagers. From that day onwards the fakir became famous and the people started to revere him as a holyman. Calling him 'Seeniappa' (Seeni-Sugar; Appa-elderly man) they expressed their love and reverence. The folklore provides just a possible reason for the so-called name.

Notwithstanding the folklore, some historical records speak at least of the Dharga. From the records of a Muhammadan historian, 'Wassaf' by name, it is understood that sometime about AD 1297 a Muhammadan ambassador, 'Fakru d-din bin Ibrahim-ut-Thaibi' by name, went to china as an emissary from the Court of Maravarman Kulaeskara Pandian I. (AD 1268-1311)*. During his return from China after a stay of four years, he died on board at a distance of two days sailing from Malabar (Coramandal coast) in about AD 1305 and was buried in the place near Fattan (Maraikayar pattanam). It is relevant to mention here that the Ambassador was the son of an Arab chieftain, 'Maliku-l-Islam Jamalud-din' by name, who was the ruler of 'Kis' (an island in Persian Gulf). The Arab chieftain had a good horse trade both in volume and value with Maravarman Kulasekara Pandian and he established his head-quarters at Kayal Port (Kayalpattanam) with the help of the Pandya king for his vast trade agency under his brother, 'Takiu-d-din Abdur-Rahman' by name. In those days Kayal was flourishing as a prominent port situated along the Malabar where the Arab chieftain imported as may as 10,000 horses for the Pandya king, and his agency enjoyed the special protection of the ruler and all facilities at Kayal port. At that time, the Muhammadan customs officers were in high favour with the Pandya Monarch too. Among them were Takiu-d-din the most respected persons in the Pandian Court,

and the former was respected as 'Wazir' (chief minister) and the later was predominantly selected as an Ambassador to go to China on an embassy from the Court of the Pandian. He died on board and buried near Fattan as mentioned earlier.

According to the Prof. Krishnaswamy Aiyangar,* the prominent Indian historian, the grave in his Dharga would have been the grave of this Ambassador since he was locally called 'Seeniappa'.

In view of the above historical evidence, we can arrive at a possible conclusion about the name 'Seeniappa'. The Ambassador who was buried here would have been called as 'Seena Appa' or 'Seeni Appa' since he was an Ambassador to China.* It is noteworthy here that China has been called as 'Seenam' in Tamil since long. Sometimes, it is denoted by an adjective 'Seena' or 'Seeni'. It is also interesting to note a number of Tamil words are associated with Chinese. They are, for example, 'Seena-pattu' (silk), 'Seena-kalkandu' (core sugar), 'Seenikaram' (Potassium Alum sulphate), 'Seeni-kan-nadi' (telescope), 'Seenivedi' (China crackers), 'Seeni-sakkarai' (Sugar) since China was so famous in those days for its commodities which were entirely new to India. The Tamil word 'Appa' or 'Appu' is a common word in Ramanathapuram District and used for addressing elders as well as holymen. The two words 'Seena' and 'Appa', therefore, would have been coined together by the local people to address the holyman as 'Seena-appa' which might have become to be pronounced as 'Seeni-appa'.

The Seeniappa Dharga is located east of Ramanathapuram at a distance of 30 km on the rocky shore of Gulf of Mannar on the way to Mandapam, between Vedai and Pudumadam villages. The Dharga is connected to Madurai-Mandapam national highway by an approach road from Sundaramudaiyan village.

The tomb is a very simple one without any decoration which is contrary to the Muslim custom of adorning a Dharga. The grave of the holyman is inside a small room. A small assembly hall with tiled roof is in front of the tomb where the pilgrims can assemble. Around these buildings there is a compound wall of 250 ft length. In the south-west corner of the compound, a small mosque is situated.

Being one of the ancient places of pilgrimage, this Dharga is famous among the Tamil Muslims including those settled in Malaysia and Singapore. The devotees from these countries often send offerings to this Dharga as a token of their 'Nazzar' (respect) to the holyman. It is also noteworthy that not only Muslims but also Hindus visit this Dharga for making their votive offerings and for cure from evil spirits. Because of the sanctity attached to this Dharga there is a steady flow of devotees to pay their homage to holyman on the eve of Sundays and Thursdays. They throng this place to get spiritual solace, cure from illness and also from afflictions by evil spirits.

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Martyr Of Vedalai

Edwin Joseph, M.A., B.Lib. Sc.,

As the saffron light of the evening sun bathed the fan fringed leaves of the surrounding palmyra groves of Vedalai, a gleaming new and beautiful Church in memory of Fr. Antony Criminai was blessed on April 29, 1984 by the Arch Bishop of Madurai, witnessed by more than a thousand devotees. The new Church has replaced the ruined chapel built in 1895 by Darrietutort in honour of St. Vincent on the very spot where stood the Church used by Criminai in the year of his martyrdom.

True, down the centuries Vedalai was famed for the glorious martyr, Antonio Criminai. It was yet more famous for the naval battle in 1536 between the Portuguese and the Moors whose naval supremacy in the Indian Ocean was shattered once for all resulting in the liberation of 20,000 Paravas whose ancient right of pearl fishing has been snatched from them by the Moors and in their embracing Christianity in 1537. The village of Vedalai lies some three miles West of the Pamban canal on the narrow tongue of land that separates the isle of Rameswaram from the Indian mainland. It is here the road from Ramnad to Rameswaram passed West-East.

After the battle of Vedalai, the Portuguese built a mud walled fortress surrounded by a palisaded redoubt on the north flank of the road. The ancient settlement of the Karaiya Christians with Criminai's Church lay on the Southern side of the road. The fortress thus commanded tightly the pilgrim way to Rameswaram. In 1547, Captain John Correa with his forty soldiers started to levy a pilgrim tax on all the road users and allowed them only during the day. So deprived of large income for their temple, Brahmins petitioned to Vital Raja of Vijayanagar who was then in Madurai with his great army. Moreover, the Captain destroyed the Wooden bridge which connects Rameswaram and Mandapam. Hence, the Raja of Vijayanagar sent a huge contingent of 8000 jawans to drive out the intruders. It is a known story how unable to oppose them the Portuguese along with the Christian community took boats to an anchored ship, refusing to take the women and children telling Fr. Antonio Criminai to escape with them, if he liked. But Criminai preferred to stay with his spiritual children and face the martyr's death.

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Research Institutes Around Mandapam

V. S. Rengaswamy, M.Sc.,

INTRODUCTION

The area around Mandapam is very rich in marine resources like fishes, prawns, seaweeds, corals etc. Hence it is quite logical to situate research institutes to investigate the exploitation of these resources for the benefit of our national progress. The important research institutes located here are the Regional Centre of Central Marine Fisheries Research Institute, Marine Algae Research Institute of (CSMCRI), the Anti-corrosion testing laboratory of (CECRI) and Marine Archeological station under the Tamil University, Thanjavur.

MANDAPAM REGIONAL CENTRE OF CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

The Mandapam Regional Centre of CMFRI as it is known to-day, served as the headquarters of the Institute from 1949, for over a period of two decades. It is situated on an elevated sand dune with Palk Bay in the north and the Gulf of Mannar in the South. In the year 1970, the Headquarters was shifted to Cochin and the establishment at Mandapam was renamed as Mandapam Regional Centre of CMFRI, which is the only regional Centre of the Institute.

The Regional Centre's infrastructural facilities include the laboratories, library, museum, workshop, boats, fish farm and fish pen culture at Pillaimadam lagoon. It also has a very good residential complex for the staff members of the Regional Centre. It has a well furnished guest house to accommodate Scientists from India and abroad.

The Library of the Institute has a vast collection of books, monographs, periodicals, reports etc. dealing with fish, fisheries, and aquatic sciences which are made use of not only by the staff of the Institute, but also by Scientists and scholars from other research institutions, Universities and Colleges.

The Regional Centre houses a museum, with a vast collection of fishes, other marine animals and plants from the seas around India, including the Lakshadweep as well as Andaman-Nicobar Islands. These collections serve as reference material for Scientists and Scholars of the Institute. The Museum attracts tourists and student parties from Schools, Colleges and Universities from all over the Country throughout the year.

The Centre has a marine fish farm of about 3 hectares, adjoining Palk Bay, with 13 culture ponds of varying sizes supplied with sea water either through a channel or by a pumping system. The ponds are mainly used for experimental culture of marine fishes. Another 350 hectares of the lagoon on the western side of the farm was acquired and suitable portions in the lagoon are enclosed with net for fin fish culture experiments in the natural condition.

The Regional Centre has two research vessels, Cadalmin - II (13.2 m) and 'Sagitta' for the investigations carried out by the Scientists of the Institute.

The important research and developmental activities of the Centre are as follows :- a) Marine Resources Assessment, b) Fishery Biology, c) Molluscan fisheries, d) Fisheries environment and Management e) Mariculture, f) Transfer of technology to the industry.

Catch statistics of fish landings along the south-east coast of India around Mandapam, both by indigenous fishing units as well as by mechanised vessels are gathered. The qualitative as well as the quantitative variations in magnitude of yields of various fisheries are assessed. The data gathered on fishing effort and changes in catch-per unit of effort have rendered interpretation of the probable causes for fluctuations in annual yields of commercially important fishes and prawns.

Surveys have been conducted area-wise and season-wise of abundance of demersal fishery resources with the aid of the research vessel Cadamin-II. As a result of these surveys, rich fishing grounds in the vicinity of Mandapam have come to light. Natural seaweed resources in this region have been surveyed and their exploitation is being monitored, with a view to conserve the resources.

Investigations on biological characteristics of commercially important marine fishes in the area for assessing the causes underlying the fluctuations in their annual production have been one of the major activities of the Regional Centre. Such studies have been carried out on sardines (*Sardinella*), mackerel (*Rastrelliger*), silver-bellies (*Leiognathus*), anchovies (*Stolephorus*), perches and prawns.

Molluscan fisheries of Mandapam area have been surveyed and studied for a long time. Investigations carried out so far on the fishery and biology of Squids and cuttlefishes have shown that fishing intensity for these could be increased much more than at present. This is significant because of high export value for these resources. Besides, rich beds of clams, *Donax* and *Meretrix* and edible oyster (*Crossostrea*) have been located in and around Mandapam, affording good scope for their exploitation and culture. Studies have also shown that there are vast resources of subfossil deposits, mainly of the shells of *Meretrix* in the nearby estuary of River Vaigai, at Athankarai. Those deposits are exploited periodically for utilization in lime, cement and Calcium Carbide industry.

Since an adequate knowledge of the physio-chemical and bio-ecological parameters of water masses which influence the availability, abundance, knowledge of the physio-chemical and bio-ecological parameters of water masses which influence the availability, abundance, survival, growth and production of various resources is an essential prerequisite for implementing efficient management and conservation measures, regular monitoring of water temperature, salinity, dissolved oxygen, nutrients etc. of the sea around Mandapam is another important area of work at the Regional Centre. Studies on primary productivity, plankton biomass, fish eggs and larvae, coral reef, current pattern, benthic ecology, etc are also being studied in detail.

Among several possibilities for increasing, the world supply of protein, the development and expansion of aquaculture is one. It embraces a wide range of activities in large bodies of water to culture marine organism. At the Regional Centre, several programmes of Coastal aquaculture have been initiated. A large-scale programme of fin-fish culture in net enclosures, cages in coastal waters and in shore ponds have been started. In addition to utilising natural seed resources of commercially important fishes, attempts are being made to produce seeds of some of these fishes.

A simple, inexpensive culture technology was developed and perfected for the agar-yielding seaweed *Gracilaria edulis* in coastal waters of Gulf of Mannar. Also, another agarophyte, *Gelidium acerosa* has been cultivated successfully.

Since seeds of commercially important species of fishes, prawns and molluscs occur in the area, a detailed study of the seed resources of culturable species in and around Mandapam has been made, with a view to utilise them for fish culture in coastal farms. Also attempts are made for development of low cost technology for construction of coastal ponds as well as for pumping sea water into ponds using wind mill pumps.

The Regional Centre has developed a programme to transfer the technology perfected by the Institute for culturing seaweeds (*Gracilaria edulis*) in coastal areas. In this scheme, fishermen from neighbouring villages were selected, trained in various aspects of culture and processing. Briefly the method involves selection of material from nature, insertion of the same into twists of pre-fabricated coil rope frames and erection of frames in coastal waters supported by vertically planted poles.

Apart from the scientific activities, the Regional Centre has the Staff Recreation Clubs for the benefit of all the staff members. The senior recreation has its own badminton, volley ball and tennis courts in addition the indoor games such as table tennis, carroms etc. A television is a new addition to the recreational facilities.

MARINE ALGAL RESEARCH STATION OF CENTRAL SALT AND MARINE CHEMICAL RESEARCH INSTITUTE

The Marine Algal Research Station was established with a view to 1) Assess the marine algal resources of Southern Coast and 2) to augment the seaweed resources by artificial cultivation. The research Station is located near the Mandapam Railway Station at a distance of 2 km west.

A collaborative research project to assess the quantitative availability of economic important seaweeds from Tuticorin to Kanyakumari has been planned under the collaboration of the Tamil Nadu State Fisheries Department, CMFRI and the Marine Algal Research Station of CSMCRI. Such a collaborative project would yield the necessary information on the availability of seaweeds in different coastal localities, and hydrological data on such localities.

3) Other research problems viz. Ecology, culture and cultivation and propagation of economic important marine algae have also been undertaken.

A project on the artificial cultivation of *Gracilaria edulis*, a raw material for the agar industry, was completed.

THE CORROSION TESTING LABORATORY OF THE CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE

It is located about 1 km from the Mandapam Camp Railway Station on the Ramand - Mandapam National highway.

As the peninsular portion of the land is projecting into the sea, it is one of the most corrosion prone areas of the world. The corrosion rate is more here with the humid weather during the summer months. Hence, it is one of the best areas to study marine corrosion.

The prime objective of the Research laboratory is to study the rate of corrosion in different environments and in different metals. The suitability of various methods like painting, electrical manipulation for the prevention of corrosion are tried here.

MARINE ARCHEOLOGICAL RESEARCH CENTRE - TAMIL UNIVERSITY, THANJAVUR

It is situated in Mandapam Camp campus, about 2 km South of the Railway Station in a 10 acre area facing the Gulf of Mannar with the back drop of the islands.

The objective of the Centre is to study the cities invaded by the sea along the coast. It is believed that the islands and the mainland of Mandapam were one land mass during the middle ages and due to a tidal wave and cyclone the land was broken up into islands separating the mainland and Rama-

swaram. The immediate work of the Centre is to investigate the Port of Thonithurai which was a flourishing port in the middle ages. Divers and Marine Archeological experts will carry out the investigation.

Man's thirst for knowledge is ever lasting, It is his dynamic nature which has made the world a better place to live. Mandapam with its serene environment and calm atmosphere is the best place for Scientists and Scholars to spend their time usefully though for the pleasure seekers it may be a barren lifeless desert devoid of fun.

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Islands Around Mandapam

J. Rodrigo, M.Sc.,

Islands generally attract the attention of people with different interests. The islands around Mandapam offer the biologists a rich treasure of biological specimen. They also offer various areas of study for biologists, geologist and oceanographers. For common public they can be converted into attractive tourist spot where they can spend their time forgetting their worries in their routine life.

The islands around Mandapam are located as a part of the discontinuous barrier reef, the Mannar barrier reef. There are about fourteen islands around Mandapam with variety of flora and fauna in and around. They are: Shingle Island, Krusadai Island, Pallivasal, Poomarichan Tivu, Manoli, Manoli putty, Hare Island, Mulli Tivu, Vallai Tivu, Thalayar Tivu, Appa Tivu, Vallaiyamuni Tivu, Anaipar Tivu and Nallathanni Tivu.

SHINGLE ISLAND

Shingle Island has an area of 13 hectares. North west shore is sandy and slopes rapidly down into moderately deep waters. It has higher steeping beaches or than other islands. According to Gravely et al., it consisted of two separate islands in 1878 and then formed the present Shingle Island between 1920-27. North eastern shores of this island is also sandy. Here we can find a large variety of living corals of beautiful shape and colour in abundance. South western shore is full of dead corals offering shelter for a rich variety of interesting fauna. In the past Singalese fishermen used to land here and stayed during their fishing operations. So it was called "Singala thivu", which was later called as 'Shingle tivu'. This island is fully covered with bushes and trees. Sometime back coral removal for commercial purposes was carried out from this island. No fishing activities were found in this island now. This island is 8 km away from Pamban.

KRUSADAI ISLAND

This is generally called as the biologists paradise, because of the richness of the variety of fauna and flora. Large number of students and zoologists visit this island. Seaward beach ridges have a diverse vegetation of grasses and sedges. Mangrove woodland is extensive on north coast. Many ornamental species of plants were introduced in this island. The area of this island is about 66 hectares. Generally no fishing activity is found in this island. Fieldrats, birds, moths, beetles and garden lizards are the main inhabitants of this island. The Marine Biological Station which is at present functioning at Mandapam was established in this island and was carrying out valuable service to the cause of fisheries research in this area. Hydrobiology of the islands were regularly studied and recorded. Experiments on chanos culture, Oyster culture and seaweed culture were also attempted. At present pearl oyster culture is again tried with a view of commercialising the culture. The western end of the island is full with mangrove trees and other vegetations. The coral beds of these islands are well suited for biological habits and habitats. Several groups of animals find their shelter in this ecological niche. West of this coral bed, growth of sponges is found. The rare hemichordate the *Balanoglossus* thrives well in this island area. Coconut trees were introduced in this island. This island is 4 km away from Pamban.

PALLIVASAL

This island is the continuation of Krusadai island, cut off by a shallow stretch of water. Northern part is muddy and marshy. Eastern and Southern shores are sandy. A continuous coral reef is projected into the sea from the southern shore. This forms an ideal shelter for an array of animal life, making this island an area of biological interest. The name of the island is derived from the word "Pallivasal" which means mosque. This has an area about thirty hectares. Thickly wooded jungle adds an attraction to this island. Occasionally fishing is carried out from this island. Here we can get somewhat potable water. This island is at a distance of about 7 kilometers from Mandapam.

POOMARICHAN TINU

This island covers an area of about 18 hectares. The soil of this island is marsh. Thickly wooded jungle is spread over the island. The water area encloses a continuous reef. This island is also about 4 kilometers away from Mandapam.

MANOLI ISLAND

Manoli island is about 2 kilometer long and 350 meters wide covering an area of 24 hectares, having a complex topography. The northern and southern beach ridges are separated by an area of *Thespesia* woodland. Pools and open mud flats are found. Trees (*Cordia subcordata*) and shrubs are found in large numbers in this island. Extensive coral reefs are present. Fishery, especially the "Kalankatt" fishery is regular during some seasons. The net will be spread during low tide; the fishes enter the enclosed area during high tide and trapped during the next low tide. Seaweeds are collected from this island area. This island is 6 km from Mandapam. The creeks and pools of this island are rich in mullet and chanos seeds. Large number of sea birds visit this island during March to September.

MANOLI PUTTY

It is a very small island with an area of about 3 hectares. Extensive mud flats with a vast population of bushes are present. Patchy corals can be found around this island. From this island also fishing is carried out particular seasons. This island is 8 kilometers away from Mandapam.

HARE ISLAND

This is the largest of the island in the fringing reef. It is 4 kilometers long with a width from 250 to 1800 metres. Total area is about 160 hectares. Human interference has made the vegetation and animal population different from that of other islands. Cattle, goats and monkeys are present in addition to the animal population of the islands of this area. Dense coconut gardens are found. Shore is sandy.

OTHER ISLANDS

Mulli thivu is about 2000 metres in circumference. It is about 10 kilometres away from Mandapam Camp. Bushes are found throughout the island. Seaweed are collected from this island. *Vallai thivu* is also in the same area. It is 15 kilometres from Kilakarai. *Thallaiyari thivu* is about half the area of the above mentioned islands and is 15 kilometres from Kilakarai. *Appa thivu* is about 5000 metres in circumference. Seaweed collection is carried out regularly. *Vallaiyamuni* is 1500 metres in circumference and here also seaweed collection is carried out. *Anaipar thivu* is 15 kilometres from Kilakarai and is about 1500 metres in circumference. *Nallathanni thivu* is 5 kilometres from Mundel and has a circumference of about 5000 metres.

In most of these islands shore seines are operated and they support a good fishery. Live and dead corals are found. Many species of sea birds visit these islands.

GENERAL FEATURES

Environment

The environment of Mannar fringing reef is dominated by the seasonal monsoon wind. Wind shows annual variation from the north and North east from November to February and from south west in May to October. A maximum range of tidal amplitude at spring 0.81 m and at neap of 0.2 m is predicated. However during cyclone conditions covered by depression tidal waves as high as 5 meters are experienced.

VEGETATION

Marine grass meadows are extensive on the reef flats. Mangrove vegetation is less extensive. Mud flat areas enclosed by sand spits are covered with meadows of *Arthrocnemum* and *Salicornia*. Interior woodland has *Thespesia populnea*, *Premna*, *Salladora*, *Calotropis*, *Accacia*, Palmyra and coconut.

GEOMORPHOLOGY

Most of these islands are mostly alluvial, non-rocky and calcareous in soil condition. The islands are low and few meters above sea. The activities of corals or oyster and any mud depositional agencies are likely to flourish in these relatively calm seas.

IMPORTANCE

There are plans to develop some of these islands into National Marine Park and make them an attractive tourist spots. In that case this area will assume much importance as the marine life in this area will be protected. Some of these islands are rich in fish seeds needed for fish culture which is gaining importance. Good fishery is also supported by some of these islands. There are immense possibilities to develop these islands into one of the most interesting tourist spots in India attracting large number of visitors along with specialists in different branches of science.



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The Krusadai Island

Dr. R. S. Lal Mohan, M.Sc., Ph. D.

INTRODUCTION

The Krusadai island is located about 6 km from Mandapam in the Gulf of Mannar. It is one of the best known islands as it is rich in a variety of fauna.

The total area of the islands is 67 ha. located between 9° 14' N and 79° 13' E. The island is 2050 metres long and 700 metres wide. The South East part of the island is sandy while the northern part is muddy with marshy vegetations. The western part of the island is covered with mangroves. Extensive coral reefs extends to south eastern part of the island. The galaxy reef found on the southern side of the island is a very good area for collection and observation. The sponge bay is on the west of Galaxy reef. The Balanoglossus are found in the shallow areas west of sponge Bay.

Mr. James Hornell, the then Director of Fisheries and Sir Frederick Nicholson suggested the establishment of a Marine Biological Station at the Krusadai island in 1916. The station was established in 1922, with pearl oyster farm. Later a fish farm was also added.

PROCEDURE TO VISIT THE ISLAND

Though the number of college parties visiting the island has dwindled in recent years partly due to the change in the study curriculam and partly due to the depletion of the fauna of the island, the island offers ample scope for field collection experience to the students and to observe the animal life in their natural habitat.

The island had a Marine Biological Station housing a museum and a laboratory. The museum has a good collection of Marine animals from the island. Fisheries department staff give guidance to the student parties. Now the administrative office of the Research assistant, who controls the visit of the college parties to the island arranges the boat and supervise the field work of the student parties. is situated at Mandapam near the Mandapam Railway station. The visiting parties should write to the Assistant Director of Fisheries, (Marine Biology) Department of Fisheries, Fisheries aquarium, Marina, Madras - 600 005 atleast before a fortnight sending a copy of the letter directly to the Research Assistant, Krusadai Marine Biological Station, Mandapam- 623 520 Ramnad District., Tamilnadu for permission to visit the island. They should indicate in their letter date of their arrival at Mandapam, number of students and staff and the duration of their stay in the island. The Department of Fisheries, Tamil Nadu provides a 32 foot mechanised boat for the transport of the parties to the island at the cost of Rs. 160/- for the first four hours and Rs. 41/- for the subsequent hours. It can take about 30 persons at a time. The trip will take about 40 minutes to reach the island from Mandapam boat building yard. So if a party leaves Mandapam at 6 A.M. it can return by 2 P.M. It is better to return before 2 P.M. as the sea becomes rough in the evening. As no boarding facility is available at the island, it is better to carry food from the mainland.

WHEN TO VISIT THE ISLAND

The best time to visit the island is from January to April and September to October. Sea will be rough due to the South west wind during the months of May to August. It is better to

avoid the months of November and December due to cyclones and heavy rains experienced in these areas during this period.

A fair knowledge of tide is essential before organising the collection tours. The low tide period is good for observing the animals in their natural habitat. If the visit is arranged in the morning low tide period, the animals can be seen clearly. The tide table should be consulted to find suitable low tide period before fixing the programme.

COLLECTION OF ANIMALS

Many college parties visit the Island every year, some equipped with hammers, iron bars and other accessories. They can cause irreparable damage to the animal life. One of the main reasons for the depletion of animal life in the island is the 'collection' spree of the visiting college parties. In youthful enthusiasm the students collect specimens and discard them after the tour. The collected specimens will neither be intact nor properly preserved so as to be useful for study. It is mainly due to the faulty collection technique and the mode of preservation. For example if a beautiful Eunice or a flat worm is taken with forceps, it will break into pieces or if it is preserved directly in formalin or spirit it will disintegrate into bits. Most of the marine biological specimens require special techniques, for collection and preservation.

The teachers should spend time with the students in observing the animals in their natural habitat and request the students to study the behaviour of the animals and understand the beauty and sophistication attained by them in their own ways. Notes should be taken observing them rather than collecting the animals and depleting the stock. If we had taken care some of the rare specimens which were common in the island would not have got depleted. Now due to the depletion of animals collection of specimens by the college parties is banned.

Authentic publications are available on the fauna and flora of the island. Some of the important works are :

- GRAVELY, F. H. 1927. The littoral fauna of Krusadai Island in Gulf of Mannar. Decapoda and stomatopoda. *Bull. Madras. Govt. Museum (N. S.). N. H. section* Vol. No. 1
- THURSTON, E. 1887. A Preliminary report on the marine fauna of Rameswaram and neighbouring island. Govt. Central *Mus. Madras Sci. Ser.* No. 141 pp.

Pamban Bridge

S. Krishna Pillai, M.Sc.,

It is believed that upto the first quarter of 15th century Mandapam and Pamban were connected by a strip of land. A cyclone in 15th century resulted in the submergence of that connecting strip of land between Mandapam and Pamban. After that boat service was the only mode of transport between Mandapam and Pamban.

Pamban bridge is the only connecting link between the mainland and the island of Rameswaram. The Pamban railway bridge (Bridge No. 345) popularly known as "Pamban viaduct" was constructed between August 1911 and December 1913 and it is a single line metre gauge. It was opened for traffic in February 1914 by the South Indian Railway. Prior to the construction of this viaduct, traffic between India and Sri Lanka was conducted through Tuticorin. With the completion of this bridge, a ferry service was started between Dhanushkodi and Thalaimannar in Sri Lanka.

The construction of the Pamban bridge was carried out under the direction of Mr. J.J. Lewis, an Englishman who was the Chief Engineer of Southern Railway. The bridge is 2.25 km long with 145 spans of 12.2 m girders and a two leaved, rolling lift bridge which is of 60.9 m in length. It was called as Scherzer rolling lift bridge named after the German Engineer by name Scherzer who designed it. The depth below the bridge is 12' and the navigation channel is known as the Pamban Pass.

The devastating cyclone of 22nd December 1964 washed away the bridge. Because of the importance of the bridge it was repaired within two months. The railway line to Dhanushkodi was also damaged during the cyclone.

Prior to the 1964 cyclone, an anemometer was permanently installed at about the middle of the bridge. Whenever the wind velocity exceeded 64 km it signaled danger. That too was washed away by the tidal waves and it was later replaced with a new one in 1965 which flashed danger signals when the wind velocity was 48 km and later this limit was enhanced to 58 kmph. Owing to this scheduled crossing of the trains may be affected, resulting in the cancellation of some of the train services.

The Scherzer roll and lift span are activated by using the principle of spurs and gears to gain a large amount of mechanical advantage. It is operated manually.

For the passage of the vessels the bridge is lifted. The Port-Officer informs the bridge operator the date and time of crossing of the steamer. The bridge operator informs the Station Master and the Controller before he lifts the bridge. The entire operation takes nearly 40 to 50 minutes.

The bridge is subject to South-West and North-East monsoons. The former prevails from middle of May to end of August and later from October to January.

PAMBAN ROAD BRIDGE

After the cyclone of 1964, a road bridge parallel to Railway bridge was proposed in 1965 but the proposal was dropped. In the later half of 1969 Tamil Nadu Government again brought the proposal for the separate road bridge and it was cleared by the Railway Ministry.

The Pamban road bridge connects Mandapam and Pamban (and the National High way No. 49). The road bridge across the Pamban strait is the first one across the sea in India.

The work on road bridge was commenced by the Highways Department on 17.11.74. The total length of bridge would be 2345 M. The approximate estimated cost was 537.57 lakh.

The work was entrusted to M/s. Neelakantan Brothers Engs., Contractor, Madras. After the 1978 cyclone, the work was carried out slowly by the Highways Department upto the middle of 1984. Now a sum of Rs. 16.8514 crore was sanctioned by the Central Government and the contract was given to New Gammon India Ltd. Bombay. It proposes to complete the work by 1987.

IMPORTANT FEATURES OF THE ROAD BRIDGE

The total length of the road bridge is 2345 M approximately 1.5 miles, parallel to the railway bridge. The total number of piers is 79, of which 47 are completed, the width of the bridge is 7.5 m, with a pavements of of 1.5 M on either side. The maximum height of the bridge from the sea level is 17.68 M,

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Shrimp Industry In And Around Mandapam

P. E. Sampson Manickam, M. Sc.,

Mandapam is an important place in view of living marine resources, particularly the shrimp. The term 'Shrimp' includes prawns and lobsters. Shrimp industry has its full complement of infrastructure facilities from building trawlers to processing at Mandapam.

95% of the shrimp resources at Mandapam comprises of penaeid prawns. *Penaeus semisulcatus* is the main stay in the catches and forms 65% of the prawn catches.

Apart from Mandapam which accounts for 450 mechanised trawlers, nearby Pamban and Rameswaram are also equally important landing Centres. Pamban and Rameswaram have about 60 and 600 mechanised trawlers respectively. Normally only 60% of the boats go for fishing; others being beached for repairs or for periodic servicing.

Pamban and Mandapam based trawlers fish both in Palk Bay and in the Gulf of Mannar. Trawlers have limited approach to the Gulf of Mannar stock as the fishing grounds are deep. But along the southern flank, trawling is done both by mechanised vessels and by non mechanised vessels. The area between the chain of Islets and mainland is trawled by non-mechanised boats taking advantage of the wind force and direction particularly during North East monsoon. But good catches are obtained from the open sea beyond the islands.

The shrimp grounds of Palk Bay are uniformly shallow and quite extensive. Prawn fishing is carried out during night and the returns are quite good.

During the seasons, when the shrimp catches are not remunerative, trawlers from the above three centres migrate to other places. Likewise trawlers from other areas come to Mandapam during the peak prawn season particularly during the months of June-July.

Trawlers carry ice boxes to preserve their shrimp catches. Prawns are de-headed on-board itself and preserved in ice.

Boat beaching facilities are available at Mandapam, Pamban and Rameswaram. Boats can be repaired at the dry docks available here.

A decade ago prawn fishing was quite different from what is to-day. Gill netting for prawns is almost absent now. The Government gives loans and incentives to fishermen to own their boats. Due to the high cost of diesel and spare parts for the trawlers, the trawling is profitable only if the prawns are fished, as one kilogram of prawn cost Rs. 60-100. About 1800 metric tons of prawns are annually caught in these three Centres.

Prawns are readily purchased by the agents of the processing companies right on the beach and taken to the factories in insulated vans. To a large extent the prawns get fair prices. But some agents pay advance to boat owners and get their products at prefixed price.

PROCESSING

There are four well equipped processing and freezing plants in Mandapam area. They are Baby Marine, Private Ltd. George Marjo Pottanada Fisheries and East Bay Fisheries. They collect prawns from various places and process them here.

Normally the frozen products are exported directly. Shipping is done either at Madras or Cochin. As the importing countries insist for non-contaminated products, cleanliness of high standards are prescribed in the processing plants. The workers must have uniform and head gear.

Prawns, thus frozen are inspected by Export Inspection Agencies for any bacterial contamination and then exported. They are frozen to -40°C. Bacterial analysis are made to find out if the harmful bacteria like *E. coli*, *Staphylococci*, *Salmonella*, *Vibrio cholerae* are present.

A minimum size of 90-110 counts (headless) are also accepted for export. All the above four freezing factories have around 15 ton freezing capacity each. As these companies are highly modernised with laboratory facilities, the Government has allowed pre-export self examination licence so that the companies can export without interference of Government agencies.

EXPORT

Mandapam area thus plays no mean role in the export market for prawns. India's Marine products export earnings have reached about 400 crore a year. 90% of the exported marine products is shrimp. Marine Products Export Development Authority, Ministry of Commerce, Government of India finds new overseas markets, by conducting exhibitions and giving incentives. Exporters keep close liaison with this authority for guidance.

Indian shrimps are exported to many countries including U. S. A., Japan, European countries, and Gulf countries. These countries conduct their own inspection and then only accept the consignment. This is a great risk exporters encounter. If the harmful bacteria are found, the consignment will be rejected causing financial loss to the exporting companies.

Fish And Fisheries Of Mandapam

R. S. Lal Mohan, M. Sc. Ph.D.

Mandapam is one of the important Fish Landing Centres of Tamil Nadu with about 300 mechanised trawlers and a variety of other indigenous fishing gears like hooks and lines, gillnet, shore-seine, olavalai etc.

One of the advantage of the place is its fishing season, extending throughout the year. When Gulf of Mannar covering its southern portion becomes rough during June to September the fishing is carried out in the Palk Bay. When the Palk Bay becomes rough, from October to February fishing activities shift to Gulf of Mannar.

FACILITIES

Fisheries infrastructural facilities of Mandapam include Boat Building Yard, Fishery Jetty, Ice Plants, Fish Meal Plant, Processing Plants, Dry Dock and Good roads. The Boat Building Yard owned by the State Government caters to the need of Government agencies and private boat owners. The Yards owned by the Private Companies take care of the needs of the private boat owners. Marakkayar Boat Building Yard is a well established Dry Dock with repairing facilities. For larger vessels, dry docking and repairing facilities are available at the Great Sea Trawlers Private Limited. In addition, there are many Workshops and lathes owned by private individuals. The Mandapam Jetty is a well developed all weather, Jetty with a break - water and is located on the Gulf of Mannar side adjacent to the Government Boat Building Yard. The jetty can accommodate larger vessels and provide shelter for smaller trawlers during the heavy winds. About 50 numbers of 32' boats can berthed at a time.

There are many ice plants with the production varying from 5 ton to 50 ton. The ice plants provide the ice required for fishermen for the preservation of prawns, fishes and cuttle fishes. Some of the important ice plants are owned by Baby Marine Private Ltd., George Maijo pvt. Ltd., Marakayar Ice Plant, East Bay Fisheries etc. In addition to it, cold storage and freezing plants are also available with the above Companies.

The Fish Meal Plant owned by the Tamil Nadu Fisheries Development Corporation (Government of Tamil Nadu) is located on the Palk Bay side near the Railway Station. It depends for its raw material on the silver bellies landed here. The Fish Meal is used as poultry feed. It cost about Rs. 3/- per kg.

Fish curing (drying) using the abundant Solar energy available is another important fish based industry employing mainly the women. The dried fish commonly known as 'Mullan' is sent to Kerala during June to September when fishing is poor along the South - west coast during monsoon.

Prawn processing forms one of the major Sea based industries here. The Important prawn processing plants are Baby Marine Private Ltd and George Maijo Pvt Ltd. The mobile refrigerated vans bring prawn from distant places like Erwadi, Tondi and other prawn landing centres. The prawns are peeled, degutted, deep freezed and exported. *Penaeus indicus*, *Penaeus semisulcatus*, *P. monodon* are some of the common prawns available. The quality of the prawns available here are considered to be high due its size, taste and texture. The large sized prawns costs about Rs. 100 to 120 per kg.

Cuttle fishes like *Sepia tuethis*, *Loligo* sp are another export commodities. East Bay Fisheries Pvt. Ltd. is mainly specialising in this business. The cuttle fishes are cleaned and its viscera, cuttle bones and tentacles etc are removed. The white fleshy portion of the body wall (Mantle) is deep freezeed and exported. Japan is the main importer of the cuttle fish.

The Beach-de-mar prepared from the holothuria or Sea-cucumber is another product of importance. The holothurians commonly known as 'Atta' are boiled and sun dried. The intertidal areas of the nearby Islands are rich in holothurian. The product is exported mainly to Indonesia and Singapore.

Another important development in the establishment of a pearl culture Centre by Southern Petro Chemical Industries, Tuticorin. The Company named as Tamil Nadu Pearls' works in collaboration with the Tamil Nadu Fisheries Department. The nucleus are introduced in the oysters at Mandapam laboratory and the pearl oysters, *Pinctada fucata* are cultured near Krusadai Island after implantation of the 'Nucleus'.

Seaweed Industry also employs a few hundred men and women. The seaweeds like *Gracillaria* and *Gelidium* are collected from the shore adjacent to nearby islands, sun dried and sent to the plants for the production of agar-agar, alginic acid, sodium alginate and other pharmaceutical products.

In addition the fresh fish trade also offers employment. Fishes like *Cybbium* spp, *Lethrinus* spp, Pomfrets, *Caranx* spp and Mulletts are sent to places like Madurai, Coimbatore and Madras by train in icebaskets.

One of the unique features of this place is the availability of the seeds (fry and fingerling) of cultivable species like *Chanos*, mugil, siganus, (oramin) and prawn. Though this aspect (fish fry trade) is not developed, there is vast potentials for the culture of *Chanos* (milk fish) based on the fish fry available here during the months of March to July. Pillaimadam lagoon, Manoli Island and Chinnapalam creek in Pamban are some of the areas where the *Chanos* and mullet seeds are available in plenty during the season. The availability of matured prawn of the species *Penaeus semisulcatus* is another advantage for developing a hatchery here.

Ramanathapuram coast is famous for chanks. (*Xancus pyrum*). Though major portion of it is sent to other parts of the country for the manufacture of various items, a few factories in Keelakeral and Rameswaram utilise it for making ornaments and fancy articles. 'Valampuri' chank is often taken from the coast.

Apart from the fishery importance, the coastal area of Mandapam is a grazing ground for the sea-cow (*Dugong dugong*) which is being hunted indiscriminately for its flesh. The cymodocea beds (sea grass) offer a good grazing grounds for the dugongs. Though it is a protected animal under the Indian Wild Life Act 1972, fishermen kill them for food. Along with the marine fishes, coastal birds (Terns and sand ploughers) are also caught in large numbers by the 'Narikuravan' with the specially designed nets along the coast and mud flats. These birds which are commonly known as 'ullan' are a local delicacy.

Due to the rich marine fauna and flora available, the coastal area of Mandapam and the adjacent islands are being declared as a part of the 'Marine Park'.

Thus, Mandapam occupies not only an important place in the fishery map of India, but also it attracts, scientists, students and pilgrims from far and near either for academic research, spiritual solitude or for bread.

Tropical Cyclones

(Dr. N. Kaliaperumal, M.Sc. Ph.D., and Mr.S. Kalimuthu, M.Sc.,)

INTRODUCTION

The term 'Cyclone' derived from a Greek word meaning the coil of a snake, is used for tropical revolving storms occurring in the Bay of Bengal and the Arabian Sea. These storms are confined to definite regions of the earth and occur, for the most part, in the tropical portions of the western sides of the great oceans. The term cyclone is applied to all tropical storms although they are known as 'hurricanes' in the Atlantic and Eastern Pacific, as 'typhoons' in the Western Pacific, as 'willy willias' in the Australian Seas and as 'Baguios' in the Philippines.

MAIN FEATURES OF CYCLONE

A tropical cyclone, is a vast violent whirl 150 to 800 km across, 6 to 10 km high, spiralling around a Centre and progressing along the surface of the sea at a rate of 300 to 500 km a day. The speed of a storm can be occasionally 160 km an hour or even more, although in the storms of the Indian seas the winds are generally less. Heavy rainfall, very heavy sea and swell are experienced, in association with storms.

The average life span of tropical cyclones in the Indian sea is about 6 days, from the time they form until they dissipate. Some storms last only a few hours, while others may last as long as two weeks. The evolution of the cyclone can be broadly divided into four phases, the formative phase, the developing phase, the mature phase and the dissipating phase.

In the formative phase, the atmospheric pressure falls gradually, the wind freshens and eventually takes on a cyclonic circulation. In the developing phase the pressure fall continues, the wind speed increases, taking up a definite anti-clockwise direction of motion around a central region, the squalls increase, skies over extensive areas become heavily overcast and rainfall becomes heavier. In the mature phase a tropical cyclone is said to be 'severe' with a calm central area of 10-30 km in diameter, an inner ring of hurricane winds (90 km per hour or more) 50 to 150 km in width, an outer storm area and the outermost area of weak cyclonic circulation. Soon after the ring of hurricane winds enters a land area, the dissipating phase sets in. The increased frictional effects of the land and the lack of moisture supply from a warm oceanic surface rapidly decrease the energy supply, the winds weaken and the atmospheric pressure at the centre registers a rapid rise, although the rainfall continues to be heavy for another day or two.

AREAS OF FORMATION

Tropical cyclones originate over comparatively warm oceanic surface as feeble anti-clockwise circulations fairly close to the doldrums. In the tropics the prevailing winds to the north of the equator blow from the north-east, to the south of the equator they blow from the southeast. Between these two lies the belt of calm, so-called 'doldrums'. This belt of calm swings northward and southward with the advance and retreat of the northern summer and is more or less located over the thermal equator, the area of maximum sea surface temperatures. This thermal equator lies well in the northern hemisphere during the northern summer.

DYNAMICS OF A CYCLONE

According to the current concepts, a large mass of warm moist stagnant air becomes yet warmer and more moist and begins to rise. This rising air is replaced by air flowing in from all sides out because of the rotation of the earth, the inflowing air is deflected, and a whirling system, in which the air ascends spirally, is formed. The earth's rotation and the centrifugal force developed by the air motion along a curved path augment the process until a vigorous wind system is developed.

ENERGY SOURCE

To maintain a cyclonic circulation for a substantially long time the emerging Cyclone should be supplied with energy. The cyclone picks up this energy from the oceanic surface. The energy is released when water vapour picked up from the warm oceanic surface is condensed into rain in the storm. The heat released warms the air around it, the warmed air rises and winds rush in from all sides towards the centre.

CYCLONES IN THE INDIAN SEAS

Over Bay of Bengal and Arabian sea only 2 or 3 cyclones a year are observed. The seasonal frequency curve shows two maxima, one in May and the second in November. The cyclonic storms which form during the premonsoon and post-monsoon months, April-May and October- November are generally of great intensity and usually accompanied by very dangerous and rapid shifts of winds, torrential rains and terrific squalls. One of the destructive features of the storms in Bay of Bengal is the "storm tide" which occurs when they strike the coast. The cyclonic disturbances during the monsoon period, June to September, are usually of small intensity. The damage that these cause is mainly due to heavy rain, rather than to strong winds.

CYCLONES OF MANDAPAM AREA

Mandapam area is very often affected by storms. In the recent past, the havoc caused by the cyclones of 1964 and 1978, was very severe. During 1964 cyclone, the Pamban bridge was damaged and rail traffic to Rameswaram Island was discontinued for 64 days. One train along with passengers was washed off near Dhanushkodi. Rail traffic between Pamban and Dhanushkodi was cut off after this cyclone. The loss of property was enormous due to these two cyclones.

WARNING TO THE PUBLIC

Occurrence of cyclones cannot be prevented but precautionary measures taken in time can eliminate practically all loss of life and significantly reduce damage to property. With the growth of meteorology, the process of detection of cyclones and forecasting their intensity and movement has steadily developed on scientific lines. Ports, Railways, Posts, Telecommunication, Irrigation, Public Works Departments are warned by high priority telegrams. Ships at sea are informed by broadcasts from coastal radio stations. The public in general are warned through All India Radio, Doordharshan and newspapers. These messages are disseminated through police wireless network also. When the storm strikes the coast, the coastal districts feel the full fury of the associated gales and heavy rain and unless proper precautions are taken in time, heavy loss of life and property is unavoidable.

ROLES OF PORTS AND METEOROLOGICAL OBSERVATORY

Port Office and Meteorological observatory are situated at Pamban. On receipt of information about cyclone, the port office hoist appropriate visual signals prominently, both by day and night. Mariners and fishermen are generally aware of the meaning of these signals. Signals I to IV are for

Cautionary warning, Signals V to VII are for indicating awaiting danger by cyclone, Signals VIII TO X indicate great danger to that port area by cyclone and signal XI indicates that the communication with the meteorological centre has broken down and the local officer considers that there is danger of bad weather. The meteorological observatory collects information every 3 hours regarding wind velocity, wind direction, atmospheric pressure, maximum and minimum temperature rainfall, humidity and type of clouds. These data are sent to the Regional Director, Regional Meteorological Centre, Nungambakkam, Madras-6.

PRECAUTIONARY MEASURES

Some of the important precautions that can be observed by individuals as soon as official information regarding impending cyclones are given below.

1. Evacuate people, cattle and other live stock from low-lying areas.
2. Tie up boats and other crafts safely in sheltered places.
3. If the house is not safe against high winds and is situated in lowlying area, it is better to move to a safer area.
4. Protect doors, windows and fastening them securely.
5. Objects lying in the open and loose objects on the roof are dangerous missiles in a high wind. Take them inside the house and fasten them well to strong supports.
6. Store drinking water and food which requires little preparation or cooking and which can be preserved.
7. Do not go out in the storm. When the lull occurs and in case of emergency to go out, stay near shelter; the wind may begin again from the opposite direction all of a sudden.
8. Heed official warnings and do not believe rumours.

RELIEF MEASURES

The Government of Tamilnadu has built cyclone shelters along the coastline for providing shelter to the fishermen during cyclones. After the cyclones, Government makes all arrangements to feed the stranded people until they are resettled. The roads, power supply lines, telegraphic lines and railway lines are repaired immediately on war footing to bring the life to normal. Grants and loans are provided to those who have lost the house and other properties. Fishermen are supplied with free fishing equipments and nets. The Government employees serving in the affected area are granted interest free advance amount as a relief measure. In spite of the Governments efforts in taking precautions and remedies, the public have their own responsibilities for taking precautions to safeguard their own properties from destruction.

Vegetation of Mandapam Region : A Note on Economic Importance

(T.R. Udhaya Shankar, M.Sc.,)

The vegetation of Mandapam region mainly comprises of Xerophytes, the plants which are adapted to low water requirements and Mesophytes, the plants of habitats which are neither extremely dry nor very wet, owing to low rainfall mostly limited between September and December during the North east monsoon. Apart from these plant communities, the littoral fringes of the coasts of Gulf of Mannar and Palk Bay support a varied number of halophytes or the plants of saline and marsh habitat. The seas around Mandapam harbour a diversity of marine flora consisting of microalgae, Seaweeds and Seagrasses. A brief account on the Economic and medicinal value of the terrestrial and marine flora existing in Mandapam region is contemplated below.

Terrestrial flora

In view of unfavourable edaphic factors such as sandy soil combined with low rainfall and drought conditions, the substratum does not encourage the growth of plantation crops and hence the dominance of thorny shrubs and salt tolerant plant communities are seen. Cultivation of cereals and pulses is practised in a smaller scale. *Borassus flabellifer*, *Casuarina equisetifolia* and *Acacia planifrons* locally called *panai*, *Savukku* and *Odal marum* respectively are abundant in the wild and casuarina is also cultivated for its wood.

***Borassus flabellifer* :** Tamil - Panai : English - Palmyrah

A wide spread tree with unbranched columnar trunk. The roots of this plant are used in the treatment of leprosy. The flower is good for enlargement of spleen and the fibrous fruit is said to be an aphrodisiac. The fermented juice is also an aphrodisiac and causes 'Kapha' and flatulence (accumulation of gases in bowels). A useful stimulating application called toddy poultice is prepared by adding toddy to rice flour till it has the consistence of soft poultice and this when subjected to gentle fire, fermentation takes place. This is spread on a cloth and applied to ulcerations, carbuncles, red inflammations and indolent ulcers. In addition to its medicinal value the leaves and trunks of this plant are used to make ornaments and timber. The common toddy which is an intoxicant is prepared from the juice collected from the inflorescence of the tree.

***Casuarina equisetifolia* :** Tamil - Savukku ; English - Casuarina, She - oak

A sturdy tree with needle like leaves. The bark is an excellent and often readily available astringent in the treatment of chronic diarrhoea and dysentery.

***Acacia planifrons* :** Tamil - Odaimarum

The thorny trees are plentiful in this area. The leaves are fed to livestock.

***Cassia auriculata* :** Tamil - Avarai ; English - *Tanner's cassia*.

A herb with bright yellow flowers. The root is useful in thirst, urinary discharges, cures tumours and causes flatulence.

The seed is alexipharmic (antidote to poisons) and used in ophthalmia, diabetes and dysentery.

Cassia occidentalis : Tamil - Peyavarai ; English - Fetid cassia, stinking weed.

The root of this herb is useful in the treatment of ringworm, elephantiasis and scorpion sting. The leaves cure asthma, 'Kapha' and 'Vata' and good for sore throat and biliousness (derangement of secretion of biles). The seeds are used for winter cough and cough in animals. The leaves are said to be a reliable remedy for rheumatism. As a cure for guinea worm, the leaves are pounded with salt and onion and applied to the affected parts. *Oxymethyl anthraquinone* has been isolated from the root, leaf and the fruit.

Leucas aspera : Tamil - Thumbai

The leaves are said to be useful in chronic rheumatism. The juice is applied in psoriasis (a type of skin disease with red scales) and other skin eruptions.

Calotropis gigantea : Tamil - Erukku

A bushy shrub with white milky latex. The milk is oleaginous (oily), cures leucoderma, tumours and diseases of abdomen.

The oil in which the leaves have been boiled are applied to paralysed parts. A powder of the dried leaves is dusted upon wounds to destroy excessive granulation and promote healthy action.

Azadirachta indica : Tamil - Veppu ; s h - Margosa or Neem.

An arborescent tree with compound leaves having high medicinal value. The bark is bitter, anthelmintic (expels worms) relieves 'Kapha' and 'pittadosha'. Leaves are insecticidal and are used for the treatment of ophthalmia, biliousness, dermatitis and small pox. The juice of the leaves is useful to cure snake bite. The leaves have antiseptic properties. The seeds are also used for treatment of leprosy. The oil extracted from the seeds contains a characteristic acid called margosic acid which belongs to the inolic acid series. The margosates are antiprotozoal in their action.

Moringa oleifera : Tamil : Murungai ; English - Drumstick tree, Indian Horseradish

The leaves are used for cooking and remove pain. It has de-fattening effect and claims to have aphrodisiac and anthelmintic properties. The fruit cures 'Kapha' biliousness, pain, leucoderma, and tumour. The oil is useful in leprosy ulcers. The gum of the tree, mixed with sesame oil is recommended to be poured in to the ears for the relief of otalgia (ear ache). The flowers are often resorted to as an aphrodisiac by the native medical practitioners in south India. The seeds yield the 'oil of ben' of commerce.

Cissus quadrangularis : Tamil - Pirandai ; English - adamant creeper, Bone setter

A twiner with tendrils and quadrangular stem. The stem is bitter, digestible beneficial in fractures of the bones and in ascites. The juice of the stem is useful in scurvy and irregular menstruation. The stem is used in complaints of back and spine and removes pus. The stem beaten in to paste is given to cure asthma.

Argemone mexicana : Tamil - Bramadandu ; English - Prickly poppy

A prickly herb. The root is an anthelmintic, its juice used as collyrium, cures ophthalmia and opacities of the cornea. The plant is useful in skin diseases and leucoderma. Alkaloids such as berberine and protopine are extracted from it.

Pongamia glabra : Tamil - Ponga; English - Indian Beech.

A well branched tree. The leaves are laxative (loosening the bowels), anthelmintic and cures (Kapha' and 'Vata'), piles, wounds and inflammations. The oil cures eye diseases, pains due to rheumatism, leucoderma, itching and skin diseases. The seed cures lumbago (rheumatic pains in the lower back) and chest complaints, chronic fevers and hydrocele.

The juice of the root is administered internally with equal quantities of coconut milk and lime water every morning for cure of gonorrhoea (inflammation of the genital tract). The oil extracted from the seeds if mixed with equal quantity of lime or lemon juice and shaken well it forms a liniment (thin ointment) which has been used successfully in porrigo capitis (skin disease of the scalp), pityriasis (a skin disease with bran like scales) and psoriasis (a skin disease with red scaly patches).

Phyllanthus niruri : Tamil - Kilanelli

A small herb found growing in all shady places. The fresh root is said to be a potential remedy for jaundice. The fruit is bitter, useful in tubercular ulcers, bruises, scabies & ringworm.

Zizyphus jujuba : Tamil - Illandai; English - Indian cherry

A prickly tree. The dry fruits remove impurities in the blood. The berries are considered to purify the blood and assist in digestion.

Cassia fistula : Tamil - Sarakkondai ; English - Cassia, Indian Laburnum.

A tree with attractive yellow flowers and long cylindrical fruits. The seeds are said to be emetic (causes vomiting). It has been beneficially used in facial paralysis and rheumatism. Oxymethy - anthraquinone is isolated from the fruit and the bark of the twigs.

Opuntia dillenii : Tamil - Nagadali

A succulent and prickly herb. It cures inflammations, ascites (accumulation of watery fluid in the abdomen), tumours and pains. The flowers are known to cure bronchitis and asthma. The juice of the plant cures leucoderma and syphilis (a venereal disease). The mashed up leaves are applied to boils to hasten curing.

Salicornia brachiata : Tamil - Pavalappundu

A succulent herb growing along shores, a typical inhabitant of marshy and saline soil conditions. The ashes are used for mange (scabby) and the itch. They are considered as emmenagogue (restoring menses) and abortive.

Rhizophora mucronata : Tamil - Sorippinnai ; English - Mangle, Mangrove

It is a tree growing in marshy areas and characterised by the presence of pneumatophores (breathing roots) and viviparous germination. The plant has no significant medicinal value.

Avicennia officinalis : Tamil - Vengandal ; English - White Mangrove

It is also a mangrove tree. The roots possess aphrodisiac properties. The unripe seeds are used as poultice (a soft composition applied in clothes on sores) to hasten suppuration of boils.

Ocimum sanctum : Tamil - Thulasi

The leaves are used in bronchitis. Juice of the leaves applied to the skin in ringworm and other cutaneous diseases. The leaves are eaten and said to have alexipharmic properties.

Agave americana : Tamil - Kattukattalai, ; English - American Aloe.

It is a herb with succulent leaf blades. The roots are diuretic and diaphoretic. The expressed juice of the leaves is administered for curing syphilis, and even cancers.

The gum found exuding from the leaves and the lower part of the stem is used as a cure for toothache. The plant is also used as a fish poison in some countries.

Pandanus tectorius : Tamil - Talhai; English - Screw bine

A bushy plant with stilt roots for its support produces fragrant flowers. The leaves are somniferous (inducing sleep) used in strangury (painful discharge of urine) and tumours. The anthers are useful in puritis (itching). The fruit is useful in 'Vata' and 'Kapha' urinary discharges. The oil cools and strengthens the brain.

Dodonaea viscosa - Tamil - Virali

This shrub is found gregariously growing in Krusadai Island. The leaves of this shrub are used in baths and as fomentations (as warm lotions). It is believed that the powdered leaves applied over a wound will heal it without leaving a white scar. The powder is used in burns and scalds. The leaf is said to be useful in rheumatism and to possess febrifugal properties.

Gloriosa superba : Tamil - Kalappaikilangu

It is a shrub with attractive red flowers colonising in the Krusadai Island. The tuber is useful in chronic ulcers, leprosy, inflammations, piles, abdominal pains and itching. It is also used to remove the placenta from the uterus and causes biliousness. The tuber is used in bleeding piles. The tuberous root, powdered and reduced to a paste is applied to the navel and suprapubic region with the object of promoting labor.

The juice of the ground leaves is used to destroy lice in the hair.

Pedaliium murex : Tamil - Anainerunji

It is a succulent herb. When fresh leaves and stems of this herb are briskly agitated in cold water it is speedily converted into a thick mucilage, nearly of the consistency of white of a raw egg. This is inodorous and tasteless. An infusion thus prepared, is a highly prized remedy amongst the people of South India for gonorrhoea and dysuria (pain in passing urine).

Besides the above quoted plant communities, the soil of this area also supports plants like ***Spinifex littoreus*** and other grass varieties which do not have significant medicinal or value, but function as sand binders.

MARINE FLORA

There are about 99 genera with 180 species of marine algae and 6 genera with 9 species of Seagrasses recorded from this maritime zone. The seaweeds occurring in this region are predominantly grouped under Red algae (Rhodophyta) Green algae (Chlorophyta) and Brown algae (Phaeophyta). The red seaweeds such as *Gracilaria edulis*, *G. corticata*, *G. crossa*, *G. folifera* and *Gelidiella acerosa* and the brown algae like *Sargassum wightii*, *S. myriocystum*, *Turbinaria conoides*, *T. decurrens* and *T. ornata*,

are exploited from the wild to extract Agar and Algin from the red and brown algae respectively. Agar and Algin are the polysaccharides having versatile application in pharmaceuticals, food, cosmetic, textile, icecream and liquor industries. Carrageenan is another gel like substance obtained from the red seaweed. *Gigartina acicularis* and finds its use in ulcer therapy.

The edible seaweeds popularly called sea vegetables such as *G. edulis* and species of *Caulerpa*, *Ulva*, *Enteromorpha*, *Hydroclathrus* and *Colpomenia* are good sources of Carbohydrate, protein and important minerals. In addition to this, seaweeds are also used as livestock feed and fertilizers. Recently *Sargassum* has been recommended for utilization as a substrate in Biogas generators.

Medicinal value of SeaWeeds

Seaweeds also serve to cure certain human diseases and disorders. For instance *Hypnea muscliformis* is employed as vermifuge. Carrageenan is used in ulcer therapy. Seaweeds rich in Iodine such *Asparagopsis taxiformis*, *Sarconema* sp. are used in the treatment of goitre, a disorder caused by the enlargement of thyroid gland. Species of *Enteromorpha*, *Chaetomorpha* and *Gracilaria edulis* are also recommended for the treatment of goitre.

Seagrasses are another important group of marine flora found colonising along the coasts of Gulf of Mannar and Palk Bay. About 6 genera and 9 species of Seagrasses were recorded from this area. *Cymodocea serrulata* is more abundant among them. Seagrass meadows as such form an ecosystem which supports a variety of commercially important fishes. In relative terms they are much more productive than the plankton. Their rich organic production enters the food chain and forms food of many fishes. It is noteworthy to mention here that Seagrasses form exclusive diet of dugongs the seacow. Seagrasses are also of economic benefit in helping to control erosion of beaches and shore lines.

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Birds and Bird Catchers Of Ramanathapuram Coast

R S. Lal Mohan, M.Sc., Ph.D.

The Ramanathapuram coast with its long stretch of coast line has many mud flats, lagoons and estuaries. These ecological niches attract a great variety of coastal birds, some of them come from distant places like Siberia and Chinese coast. Recognising no national boundaries these birds visit our coast for food as their place of birth becomes too cold from them live. The common among them are the terns and plovers.*

The primitive man lived on animal flesh. Notwithstanding the civilisation making great strides in the standard of living and the quality of life, some people yet live on the wild animals for their existence. The 'Narikuravas', the bird catchers belong to the nomadic tribe, ill-clad, ill-fed and illiterate. They have no house to live and move from place to place, after following the birds on which they subsist.

The common implement they use are the clap traps, catapult, nooses and the pole nets. The efficiency of their nets have increased with the use of nylon nets. The clap traps can be used for catching about 20 to 40 birds at a time. It is made of nylon net of width about 1 meter supported by bamboo poles of length 1 meter. The total length of the net may be 10 to 15 meters. The foot rope and the head ropes are attached to an iron wire. Coy birds both live and stuffed are kept within the net. The birds are usually blinded by tying their eye lids with the rachis of their feathers and stunning them by delivering a hard blow on the head. The birds thus made inactive stand still attracting the overflying birds. When sufficient number of birds land within the net, it is closed by releasing the wire by the bird-catcher sitting at the far end of the wire. The birds thus trapped are collected in a narrow mouthed basket.

The birds commonly caught are terns and plovers, each weighing about 80-150 g. The birds being a delicacy with the local people, it is sold at a rate of Rs. 3. per pair. The occurrence of the birds is highly seasonal and varies from species to species. However the common terns and plovers occur along the coast during the months of July to September when the low lying areas and the mud flats get exposed. During this time the fishes and other aquatic animals caught in the shallow pools become an easy prey to the birds. Often these birds migrate in large numbers. Most of them come for feeding from their distant homes as the climate in these places become unfavourable for them. Being warm blooded animals they cannot withstand the very cold climate touching below zero degree centigrade in places like Siberia during the winter. Food also become scarce in these places for these birds during these times. Hence, they migrate to the places with warm climate having enough food for them.

It is estimated that as much as 50 species of migratory birds visit Ramanathapuram and Point Calimer from places like Siberia, Caspian Sea, European and Chinese coasts. Migration of these birds are confirmed by the recovery of the tags. These tags are aluminium rings with inscriptions and are attached to the legs of the birds. Recently two such tags were recovered from the sandwich tern

* The list of birds is given by Dr. R. Sugathan, Project Officer Avian Research Project (BNHS) Point Calimer, Tamilnadu.

(*Sterna sandvicensis*) from Dhanushkodi. These terns weighing about 100 g were tagged from Russians coast.

Recognising the damage inflicted on these migrating birds by the bird catchers to whom these birds fall an easy prey, the catching coastal birds is banned by the Govt. of India. But inspite of the ban, the birds are caught as this profession has become a traditional livelihood for the Narikuravas who live far below the poverty line. Unless an alternative avocation is offered to them it will not be possible to save the migratory birds from being caught. It has been estimated that about 30% of the birds only return to their nesting grounds after completing their wintering migration.

It is amazing to note that how these birds migrate to the distant places covering more than 5000 K.M. and return to the same place for nesting. Though the scientists are trying to explain this phenomena, the intercontinental migration of birds is still shrouded with mystery.

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SHORE BIRDS OF RAMANATHAPURAM COAST

Sl No	Common Name / Scientific Name/ Local Name	Size	Field characters	Habitat	Status
1	Little coromorant (<i>Phalacrocorax niger</i>)	51 cm (20")	A black - duck like bird floating or diving. Silvery grey with long stiff tail and slender compressed sharply; hooked bill with white patch on the throat	Both fresh as well as salt water areas, sand banks and rocks etc.	R
2	Grey Heron (<i>Ardea cinerea</i>)	90 cm (36")	A large heron with long bill, neck and legs; Grey above, head and neck white, under parts greyish white	Shallow water both salt and fresh, including shore and marshes, river beds etc.	M/R
3	Pond heron (<i>Ardeola grayii</i>)	46 cm (18")	An egret - like bird which is totally camouflaged - earthy brown when at rest	Seashore, back waters, Paddy fields, swamps and marshes	R
4	Large Egret (<i>Egretta alba</i>)	88 cm (35")	Large white heron with long neck, long black legs, yellow above the "Knee", black bill with yellow base	Shallow lagoons edges of lakes river banks, estuaries, swamp etc.	R/M
5	Small Egret (<i>E. intermedia</i>)	45 cm (26")	Slightly Smaller than large Egret. Bill black yellow at the base. Legs and feet dusty black, greenish on the joints and tibia.	Habitat is same as that of large egret	R/M
6	Little Egret (<i>E. garzetta</i>)	63 cm (25")	Medium-sized slim heron, with thin bill and slender neck. Pure white, with long plumes on head, back, and chest in breeding season. Bill and legs black; feet yellow.	Shallow lakes and pools, banks of slow flowing river, fresh and salt marshes, flooded land, estuaries etc.	R
7	Reef Heron (<i>Egretta gularis</i>)	63 cm (25")	This bird is seen in two colour phases in adult. (1) Pure white (2) slaty grey to slaty blue with a white neck and upper foreneck. White phase indistinguishable from little Egret except by more solitary habit and sea coast habit	Isolated or two's and threes along the shore line, marshes, salt swamps etc.	R/M

8	Painted Stork (<i>Ibis leucocephalus</i>)	93 cm (40")	Long legged heavy bird with a heavy yellow bill slightly down curved at tip with a skinney yellow face. The white coat is barred with metallic green and black above wing and tail black with a rose pink near the tail	Around shallow water near sea shore salt marsh paddy field drying ponds. etc	R
9	Spoon bill (<i>Platalea leucorodia</i>)	60 cm (24")	A pure white bird with long neck legs with a long - flat black and yellow spoon-shaped bill. Cinnamon - yellow patch at the base of fore neck, naked yellow throat.	Rivers, tidal creek, swampss. Marshes etc.	R/M
10	Flamingo (<i>Phoenicopterus roseus</i>)	140 cm (54")	A rosey white bird with long snake, like neck with massive pink sharply down curved bill long legs.	Salt water lake lagoons, salt pans estuaries, tidal mud flats on the sea shore	R/M
11	Pintail (<i>Anas acuta</i>)	65 cm (26") 55 cm* (22)	Slender, long necked clabbling duck. Male has long central tail feathers. Chocolate - brown head, throat, and hind neck. White under parts and stripe inside of the neck during breeding. Female Slim, thin neck, pointed tail, grey bill	Coasts, estuaries salt marshes etc.	M
12	Garganey (<i>Anas querquedula</i>)	38 cm (15")	Smaller slender duck Mottled brown, with streak from eye to nape; greyish sides and white belly contrast with brown breast. Female similar to male but with pale spot at base of bill more pronounced eyebrow, and paler wings in flight.	Vegetated lakes, ponds marshes and swampy wetlands.	M
13	Pariah kite (<i>Milvus migrans</i>)	61 cm (24")	Common dark fulvous - brown hawk with a deeply forked tail, Black bill, yellow cere and gape, lower mandible yellow or greenish yellow legs and feet pale yellow	Neighbour hood of human habitation fishing industry and refuse dumps.	R
14	Brahminy kite (<i>Haliastur indus</i>)	48 cm (19")	Chestnut bird with white head, neck, upper back and breast, Brown abdomen. Wings are with black tips. Horny bluish bill with paler tip. Legs and feet dull yellow. Greyish or greenish yellow.	Seen frequently along sea shore, paddy fields and near habitation.	R

15	White-bellied sea Eagle (<i>Haliaeetus leucogaster</i>)	66-71cm (26"-28")	Large ashy brown eagle with white head, neck and under parts. Female is larger than male. Bill dark leaden, Legs and feet pale yellowish white to greyish with darker claws.	Sea coast, tidal creeks and estuaries,	R
16	Grey Plover (<i>Pluvialis squatarola</i>)	28cm (11")	One of the biggest plovers with Grey-white speckle on mantle and wings. Grey under wing marked at all seasons by black axillaries.	Open shore lines, estuaries, and mud flats. Seldom found on land.	M
17	Golden Plover (<i>Pluvialis dominica</i>)	25 cm (10")	Dark above, speckled with golden-yellow. More black but less white on face and under parts. wing extends well beyond tail at rest. Grey buff under wing and axillaries.	Ploughed fields and mostly drier areas along the coastal belt.	M
18	Little ringed plover (<i>Charadrius dubius</i>)	15 cm (6")	Smaller than Ringed plover with some what similar breast band. In flight lacks white wing bar. Bill dark; legs pale yellow, prominent yellow eye-ring	Marshes, lagoons and coasts.	M
19	Kentish plover (<i>Charadrius alexandrinus</i>)	16 cm (6")	A typical plover; breast band lacking, but has a small black patch at either side of the breast. White wing bar and white outer tail feathers show in flight.	Sandy and muddy shorelines, estuaries, lagoons and saltpans. Normally not far from the sea; breeds on beaches and dried out lagoons.	R
20	Lesser sand Plover (<i>Charadrius mongolus</i>)	19 cm (7")	A greyish brown bird with white face, under parts and wing bar; a dark brown mark on lore, below eye, and on ear coverts. Beak black, legs dark grey or greenish grey.	It frequents, with about equal favour, the seashore, mud-flats salt marshes and open pastures. Flocks number in up to hundreds feed in scattered formation but mass into compact flights when disturbed.	M
21	Whimbrel (<i>Numenius phaeopus</i>)	43 cm	It is smaller than curlew, shorter beak. Distinguished easily from all other shore birds by their long slender, down curved beaks combined with large size.	They are often seen estuaries, lagoons, and salt flats all around the coast, but is not common in the wet zone. It prefers salt or brackish waters to fresh, and does not normally range inland to any distance.	M
22	Curlew (<i>Numenius aratus</i>)	58 cm (23")	One of the largest shore birds. It is distinguished from whimbrel by large size comparatively short bill and a dark crown divided by median broken pale line	It frequents the muddy or stony shores, lagoons, creeks, tidal flats and low pastures etc.	M

23	Blacktailed Godwit (<i>Limosa limosa</i>)		A large wader dark sandish brown above whitish below with a long straight or slightly up curved bill. From the Bartailed Godwit this can be distinguished by, much longer legs, very well - marked white wing bar, single, broad black band across the tip of the white tail.	They are more of fresh water bird than the Bartailed Godwit, seen in inland water, shallow coastal lagoons, mud flats, and estuaries.	M
24	Bartailed Godwit (<i>Limosa lapponica</i>)		Bill pink on the base, shading to black at the tip. legs and feet greenish - grey. Distinctively up curved bill, wing bar absent, particoloured black and white tail. Legs shorter than black tailed godwit.	They are seen in lagoons and mud - flats, tidal waters, shallow creeks etc in solitary or in twos and threes.	M
25	Common snipe (<i>Gallinago gallinago</i>)		A brown obliteratively patterned marsh hunting bird with short slender bill. Difficult to observe when squatting motionless on the ground. Above, dark brown, heavily streaked with black, rufous and buff, below whitish.	Swampy edges harvested paddyfield	M
26	Common Redshank (<i>Tringa totanus</i>)	28 cm (11")	A Greyish - brown wader with bright orange red legs. Bill slightly longer than head, red at base. Upper parts brown in all seasons, under parts white, with breast and flanks boldly striated. In flight; legs extend beyond barred tail. White rump extends up back in bold V. Broad white trailing edge to wing.	Marshes, wet meadows, estuaries, rocky shores, salt pans	M
27	Green Shank (<i>Tringa acicularis</i>)	30 cm (12")	Slim gray wader with long, pale green legs and long bill slightly upturned and atleast twice as long as head. Upper parts grey, flecked with black and white. Breast peckled and streaked, rest of underparts white. Legs extend beyond tail in flight. No wing bar. White rump extends up back in V. Tail slightly barred; looks pale in flight.	Open areas, fresh water margins, estuaries, salt water, marsh etc.	M
28	Common Sandpiper (<i>Tringa hypoleucos</i>)	19 cm (7 3/4")	Slim, medium-sized brown and white wader that typically wags its tail. Patch	Lakeshores, fast streams etc mostly along fresh water margins.	M

			of brown on sides of breast separated from upperparts; by wedge of white, underparts; white Bill, short, yellowish-green legs. Prominent wing bar, dark rump, and white barred outer tail feathers.		
29	Turnstone (<i>Arremonia interpres</i>)	23 cm (9")	Unique wader that finds foods by turning over seaweeds and stones. Short, stout slightly up curved bill, and short, orange legs, summer plumage, bold rustbrown, black and white is highly effective camouflage; in winter, becomes generally duller.	Open dry areas near sea and rocky shores;	M
30	Knot (<i>Calidris canuta</i>)	25 cm (10")	Medium-sized wader, with stocky build and short neck, legs, and bill. In summer, deep chestnut-red below. In winter grey above and whitish below white wing-bar and tail.	Found on estuaries and along open shores	M
31	Eastern knot (<i>Calidris tenuirostris</i>)	29 cm (11 1/2")	Light brownish grey, bird, boldly streaked with black. Lower back, rump and upper tail-coverts dark brown scalloped with white, much broadly on the last. Under parts white, foreneck and upper breast streaked or spotted with dark brown.	Seen along tidal mudflats and creeks on the sea coast. Also in the mud flat along with curlew, sand piper and little stints.	M
32	Sanderling (<i>Calidris alba</i>)	20 cm (8")	A short-billed, active little wader that follows breaking waves in and out. Rusty-brown on back; lacks eye-stripe; under parts white, with dark, rusty streaks on breast almost forming complete pectoral band. In flight, shows very bold white wing bars.	They frequent open sandy or some times rocky shore.	M
33	Little stint (<i>Calidris minuta</i>)	13 cm (5")	A tiny, very active version of Dunlin. Short straight bill and short black legs. During breeding upperparts boldly edged with rufous and buff; rufous streaking on breast and white belly. Underparts white with faint streaking on sides of breast. In flight, shows wing bar and grey outer tail feathers.	Open marsh, small pools, seashore and on coastal marshes etc.	M

34	Dunlin (<i>Calidris alpinus</i>)	18 cm (7")	The standard small wader. Summer upperparts russet-brown; underparts white with streaked breast and prominent patch of black on belly. In winter, grey-brown above, grey white below. Bill rather longer and slightly down curved at tip. In flight, shows faint wing bar, black centred rump and tail with grey sides.	Estuaries, shore line, beaches, pools etc.	M
35	Curlew sandpiper (<i>Calidris testaceus</i>)	19 cm (7½")	Medium-sized wader similar to Dunlin but slightly larger and with prominent white rump. In summer has deep chestnut under parts. Adults are dull grey above. Longer neck, longer legs, more up right posture, longer decurved bill, and more elegant shape than dunlin.	Mudflats, marshes and near shoreline	M
36	Broadbilled Sandpiper (<i>Limicola falcinellus</i>)	16 cm (6½")	Short-legged wader slightly smaller than Dunlin, with striped and bodypattern recalling that of stripe. Dark brown upper parts marked with double creamy white 'V'; head has pale eyebrow that may be divided over eye, and distinct dark stripe through eye. Bill drooped or kinked at tip. Breast streaked, belly white. In greyer winter plumage, head pattern, bill shape and short legs best distinguish it from Dunlin.	Estuaries, marshes, salt pans etc.	M
37	Ruff and Reeve (<i>Philomachus pugnax</i>)		During breeding season sexes can be easily separated. Males (ruff) have wattled face, colourful ear-tufts. In non breeding they look like female (reeve); with a prominent scaley back pattern, due to the pale margins of dark feathers. The bill looks rather short, for a wader, and the legs vary in colour from greenish yellow to red, causing confusion with red shank. The white crescents on each side of the dark tail and a narrow white wing bar show in flight.	They prefer grassy marsh land mud flats and paddy fields.	M

38	Brown headed gull (<i>Larus brunicephalus</i>)		In winter the head is white with a black spot in front of the eye, dark grey spot on the ear coverts, and usually two pale grey bands crossing the crown, one from the hind part of the eye, and the other a little farther back. The outer two primaries each having a big white spot near the tip.	Confined to the seaboard and adjacent lagoons and estuaries.	
39	Blackheaded gull (<i>Larus ridibundus</i>)	35-35cm (14"-15")	The standard hooded, small gull. In summer chocolate hood and red bill and legs combination of white forewing and dark underside of primaries is diagnostic. First year birds have more extensive black tips to primaries, black tail band, and bold white fore wing; bill flesh coloured, with dark tips.	Coasts, inland waters, rubbish dumps, sewage, reservoirs etc.	M
40	Gull-billed Tern (<i>Gelochelidon nilotica</i>)	38 cm (15")	Large gull like tern with pale grey upper parts and rump, white under parts, and black cap heavy, stubby, black bill distinctive at all seasons, in winter black cap reduced to smudge behind eye. Legs black.	Marsh, lagoons, salt pans, coast	M
41	Caspian Tern (<i>Hydroprogne caspia</i>)	53 cm (21")	Nearly the size of a black headed gull. Gull like flight, but dives in typical tern manner. Under side primaries black. Black cap and huge coral red bill distinctive at all season, though the cap is streaked with white in winter.	Beaches and small islands, sea coast and inland along large rivers.	M
42	Common Tern (<i>Sterna hirundo</i>)	35 cm (14")	A graceful sea tern. Grey above, paler grey below, with white flash below black cap, orange red bill with dark tip, orange red legs. Deeply forked tail does not extend beyond folded wings.		R
43	Little Tern (<i>Sterna albigrons</i>)	24 cm (9 1/2")	Smallest of the terns distinguished by its faster wing beats and frequent hovering like kingfisher. Legs yellow bill yellow tipped with black during breeding forehead white.	All along the shore swamp marsh etc.	M
44	Whiskered tern (<i>Chlidomias hybrida</i>)	23 cm (9 1/2")	In winter wings uniformly light grey above less extensive black on head and slightly longer bill.	Prefers shallow brackish and fresh waters.	M

45	Large crested tern (<i>Sterna bergii</i>)		In winter the front part of the crown is white, spotted with black. Beak pale greenish-yellow; irides nearby black, legs black with a variable amount of yellow on the soles and hock-joint. The size, beak-colour and darker, more smoky-grey back and wings, distinguish this from the smaller crested tern with which it often associates.	Seatern frequents coastal lagoons and estuaries etc.	M
46	Lesser crested Tern (<i>Sterna bengalense</i>)	43 cm (16½")	Very similar to large crested tern, except in size and the crest. Smaller the crown and the nuchal crest wholly black down to the eye.	Offshore and coast.	R/M
47	Sandwich tern (<i>Sterna sandvicensis</i>)		Larger than Gull billed tern. Black, long and slender bill tipped with yellow. A more pronounced nuchal tuft than in Gull billed Tern.	Offshore and coast	M
48	Indian river tern (<i>Sterna aurantia</i>)		A slender graceful fluviatile bird, pale grey above, white below, with long narrow pointed wings deeply forked swallow tail, very short red legs, and pointed deep yellow bill.	Stretches of rivers large tanks estuaries	R

M = Migratory; R = Resident

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மண்டபத்தை சூழ்ந்துள்ள கோவில்கள்

V. GANDHI, M.Sc.

வெற்றிலை மண்டபம் என்று அழைக்கப்பட்டு தற்போது மண்டபம் என்று விளங்கிவரும் ஓர் அழகிய சிற்றூர், வடக்கே வங்காள விரிகுடாவையும், தெற்கே மன்னார் வளைகுடாவையும் எல்லையாகக் கொண்ட இவ்வூர், மீன் வளத்துக்கும், நறுமணம் கமழும் மல்லிகைத் தோட்டங்களுக்கும் பெயர் பெற்றது.

இவ்வெழில் ஊருக்கு அருகாமையில், கோடிக்கணக்கான பக்தர்களைக்கவரும், பல கலைக்கோயில்கள் கண்கொள்ளாக் காட்சி அளிக்கின்றன. அவைகளைப் பற்றிய சில விவரங்களை இங்கு காண்போமாக.

இராமநாதர் கோயில் - இராமேசுவரம் :

இராமாயணம் எவ்வளவு பழமையானதோ அவ்வளவு பழமையானது இராமேசுவரம். இது காசிக்கு நிகரான யாத் திரைத் தலமாக முக்கியத்துவம் பெற்றது. இராமேசுவரம் என்பது இராமனால் பிரதிஷ்டை செய்யப் பெற்ற ஈசுவரம் எழுந் தருளியுள்ள புனிதத்தலம் என்பதைக் குறிக்கிறது. இராமேசுவரம் மண்டபத்திலிருந்து 19 கி.மீ. தொலைவில் உள்ளது.

இராவணனைக் கொன்ற பிரமஹத்தி நீங்குவதற்காக முனிவர்களின் கருத்துக்கிசைந்து இராமன் சீதை, இலக்கு மணனுடன் சிவலிங்கத்தைப் பிரதிஷ்டை செய்து வழிபட்டான் என்று புராணங்கள் கூறுகின்றன. மூலஸ்தான மூர்த்தியை இராமேசுவரர், இராமலிங்கர் இராமநாதர் என்று பலவாறாக அழைப்பர்.

இங்குள்ள லிங்கம் சீதையால் ஆக்கப் பெற்று, இராமபிரானால் புனிதமாக்கப் பெற்றது. முன்மண்டபத்திலுள்ள கேடகம் ஒன்றில் இராமன், சீதை, அனுமன், சக்கிரீவன் இவர்களுடைய விக்கிரகங்களைக் காணலாம்.

காலை 5 மணி முதல் இரவு 10 மணி வரை (பகல் 12 க்கு மேல் மாலை 4 மணிக்கும் தவிர) கோவில் திறந்திருக்கும் நாள்தோறும் ஆறுகால பூசைகள் நிகழ்கின்றன.

இங்குள்ள தீர்த்தங்களில் நீராடுதலையும், இன்றைய வழிபடுதலையும் ஒவ்வொரு பக்தகோடியும் தம் வாழ்நாளில் செய்ய வேண்டிய கடமையாகக் கருதுகின்றனர். தீர்த்தத்தில் குளிப்பதால் உடலும், உள்ளமும் தூய்மை அடைகின்றன. தீர்த்தங்களில் மருந்துச் சத்துப் பொருள்களுடன் புனிதத் தன்மையும் கலந்திருப்பதாகக் கருதப்படுகிறது. கோயிலுக்குள்ளே 22 தீர்த்தங்களும், வெளியே 21 தீர்த்தங்களும் உள்ளன.

இங்கு பல திருவிழாக்கள் கொண்டாடப்படுகிறது. மாசி மாதத்தில் (பிப்ரவரி - மார்ச்சு) மகாசிவராத்திரி, ஆனியில் (ஜூன் - ஜூலை) இராமலிங்கப் பிரதிஷ்டை. ஆடியில் (ஜூலை - ஆகஸ்ட்) திருக்கல்யாணம், தைப் பூசத்தில் (ஜனவரி - பிப்ரவரி) கோயிலுக்கு மேற்கேயுள்ள இலட்சுமண தீர்த்தமான திருக்குளத்தில் இரவு தெப்பம்.

அருள்மிகு கோதாண்டராமர் கோவில் :

இராமர் எழுந்தருளியுள்ள இந்த அழகிய திருக்கோயில், எத்திசையும் மணம் பரப்பும் தாழை மரச் சோலை புகை சூழ இராமேசுவரத்திலிருந்து 8 கி. மீ. தூரத்தில் அமைக்கப்பட்டுள்ளது.

இலங்கை வேந்தன் இராவணனின் இளவல் விபீஷணன் இராமனிடம் சரணாகதி அடைந்த காலத்து, அவனுக்கு அடைக்கலம் கொடுத்து, தன் தம்பி இலக்குவனை நோக்கி "சமுத்திர ஜலத்தைக் கொண்டு, தர்மாத்மா விபீஷணருக்கு பட்டா பிஷேகம் செய்" என்ற இராமபிரான் ஆணையின்படி இலக்குவன் விபீஷணருக்கு இலங்கையின் அரசனாக அபிஷேகம் செய்து வைத்தது இந்த இடத்தேதான் என்பர்.

இவ்வாலயத்தின் மூலஸ்தானத்தில் எழுந்தருளியுள்ள இராமபிரான், சீதாப்பிராட்டி, இலக்குவன், விபீஷணன் முதலி யோரின் அருங்காட்சி காண ஆயிரம் கண்கள் போதாது.

இராமேசுவரத்தில் இராமலிங்கப் பிரதிஷ்டை விழா (ஜூன் - ஜூலை) நடைபெறும்போது, இராமேசுவரத்திலுள்ள இராமர் உற்சவமூர்த்தி ஒரு தங்கக் கோலத்தில் விஷணன் பட்டாபிஷேகத்திற்காக இங்கு எழுந்தருள் செய்யப்பெறுகிறார்.

இக்கோயிலுக்கு யாத்திரிகர்கள் வண்டிகளிலும், பேருந்துகளிலும் செல்ல பாலத்தோடு கூடிய அழகிய சாலை ஒன்று இராமேசுவரத்திலிருந்து அமைக்கப்பட்டுள்ளது.

அருண்மிகு ஜெகன்நாதர் ஆலயம் - திருப்புல்லாணி :

இராமேசுவர வழிபாட்டிற்குப் பின் யாத்திரிகர்கள் திருப்புல்லாணி அல்லது தங்கச்சுளத்துக்குப் (ஆதிசேது) போக வேண்டும். இது இராமநாதபுரத்துக்கு தெற்கே கீழ்க்கரை என்னும் ஊருக்குச் செல்லும் வழியில் ஏழு கல் தொலைவிலுள்ள ஒரு சிறிய ஊர். 'புல்லாணி' என்ற பெயர் 'புல்லணி' என மருவீற்று.

சீதாப்பிராட்டியைக் கவர்ந்து சென்ற இராவணனைக் கொல்லுதற் பொருட்டு இராமபிரான் வானரப்படைபட்டன் தெற்குக் கடற்கரையை அடைந்தான். வீடணன் யோசனைப்படி வருணனை வேண்டினால், அவன் கடல் கடக்க வழி அமைத்துத் தருவான் எனக் கருதி அவனை வழிபட முனைந்தான். அதற்காகத் தருப்பையை சயனமாக்கி அதில் அமர்ந்த வண்ணம் ஏழுநாளாவும் தவக் கோலத்திலிருந்தான். இராமபிரான் தருப்பையில் கிடந்த தலமாதலால் இது வடமொழியில் 'தருப்பமசயனம்' என வழங்கலாயிற்று. 'புல்லாணி' என்பது அதற்கு ஏற்ற தமிழ்ப் பெயர்.

இந்த தீவ்விய தேசத்தில் இலங்கைக்குச் செல்ல சேதுகட்டத் தீர்மானம் ஆனதால் இத்தலம் 'ஆதிசேது' என்றும் வழங்கப்பெறுகின்றது. இன்றும் இத் தீர்த்தத்துறை மூழ்குவோர் "நேது மூலே புல்வாரண்ய கேஷத்மர" என்று சங்கடம் செய்து கொள்ளும். வழக்கு உண்மையாலும் இஃது உறுதிப்படுகின்றது.

இத்தலத்தில் ஹேமதீர்த்தம், சக்கரதீர்த்தம் புகழ்பெற்றவை; எல்லாப் பாவங்களையும், போக்க வல்லவை. அகலத்த விருட்சம் என்னும் அரசமரமே இத்தல விருட்சமாக வழங்கி வருகின்றது.

இத்திருத்தலத்தில் இரவில் எம்பெருமானுக்குப் படைக்கப்பெறும் திருக்கண்ணமுது, அதாவது பால் பாபாசம் மிக்க சுவையுடையது. பகலில் எம்பெருமானின் சேவிக்க வரும் அடியார்கள் நனைவாக அர்ச்சகரைக் கேட்பால் அவரும் இத்தகையவே எடுத்து வைத்திருக்கும் திருக்கண்ணமுதினைத் தருவார்; கலவத்து மகிழலாம்.

பங்குனி மாதம் 10 நாட்கள் ஆதி ஜெகன் நாதருக்கும், சித்திரை மாதம் 10 நாட்கள் இராமருக்கும் திருவிழாக்கள் கொண்டாடப்படுகின்றன.

இத்திருக்கோயிலின் சந்நதிக்கு இராமநாதபுரத்திலிருந்து அழகிய சாலையும், பேருந்து வசதியும் உண்டு.

ஸ்ரீமயூரப் பெருமான் பாம்பன் சுவாமிகள் திருக்கோயில் - பிரப்பன் வலசை :

பாம்பன் சுவாமிகள் தவபூமி பிரப்பன் வலசை. இப்புண்ணிய பூமியில் பாம்பன் சுவாமிகள், முருகப்பெருமான் இருவரின் திருக்கோயில் 1971-ஆம் ஆண்டு எழுப்பப்பட்டது.

சுதரத்துவித வைதிக சைவ சித்தாந்த ஞானபாஸு பாம்பன் ஸ்ரீமத் குமர குருதாச சுவாமிகள் தமிழ்ச் சங்கம் கண்ட பாண்டிய நாட்டின் திரு இராமேசுவரத்தைச் சார்ந்த பாம்பன் எனும் பதியில் செந்தமிழ் நாடு செய்த தவப்பயனுய் அன்பின் வடிவமாக, அறிவின் சிகரமாக, பணியின் விளைநிலமாக பரஞானம் பூரணமாகக் கைவரப்பெற்ற ஞான அனுபூதிச் செல்வராக 1850-ஆம் ஆண்டு அவதரித்தார்கள்.

ஸ்ரீகுமார பரமேஸ்வரனே "கங்கையைச் சடையிற் பரித்து" என்னும் மங்கல மொழியினை எடுத்துக் கொடுத்து அதி கணையிலேயே ஸ்ரீமத் சுவாமிகளைப் பாடச் செய்து ஆங்கொண்டார். சுவாமிகள் இல்லறத்திருக்கும்போதே, ஸ்ரீமுருகப் பெரு மானையே ஞான குருவாக ஏற்று உபதேசம் பெருவான் வேண்டி, பிரப்பன் வலசை என்னும் தீவ்விய 'சேஷத்திரத்திற் ஒரு காட்டிலே ஆறு அடி சதுரக் குழியமைத்து கடுந்தவம் இயற்றினார். செல்வேட் பரமன் ஸ்ரீமத் அருணகிரி நாதப் பெருந்தகை யும், ஸ்ரீமத் அகத்தியப் பெருமானும் உடன்வர, நமது சுவாமிகள் முன் எழுந்தருளி ஞானோபதேசம் செய்தருளினார். இறைவன் ஆணைப்படி ஸ்ரீமத் சுவாமிகள் 23-3-1894-இல் தவத்தை ஏற்று, 20-4-1894-இல் தவத்தை முடித்துக் கொண்டார்.

சைவ தெறியாம் செந்நெறியினையும், ஒரு தெய்வ வழிபாட்டின் மான்வினையும் அவ்வொரு தெய்வ வழிபாட்டுக்கு அறுமுகப் பரமனே மிக உகந்த மூர்த்தவனென்ற உண்மையினையும், பல்லாற்றாலும் வேதத் தமிழால் சாத்திர ரூபமாக

அங்கையில் நெல்லியங்கனியென ஒருதி, யுத்தி அனுபவ வாயினாக எடுத்து விளக்கிக் காட்டியதில் இவர்களுக்கு அருமனை எவருமில்லர் என்று அறுதியிட்டுக் கூறலாம்.

இத்திருக்கோயிலில் பங்குனி உர்ச்சவம் வெகு விமர்சையாகக் கொண்டாடப்படுகிறது.

இத்தெய்வ திருத்தலம், பிரப்பன் வலசை இரயில் நிலையத்திற்கு வெகு அருகாமையில் அமைந்துள்ளது.

மங்களேசுவர சுவாமி : (உத்தரகோச மங்கை)

கடவுளுக்கு ஊர் எது? என்ற வினாவுக்கு விடையாக, உத்தரகோசமங்கையே என்று மாணிக்க வாசகர் விடை கூறுகிறார். அடியார்களெல்லாம், 'சிவபூசம் தீபாலப் போதும் ஊர்' என்றும் அன் கூறுகிறார். மணிக்கோயிலுக்குப் பெருமானால் புகழ்ப்பெற்ற தலம், திரு உத்தரகோச மங்கை. இச்சிற்றூர் இராமநாதபுரத்துக்குத் தென்மேற்கே 10 மைல் தொலைவில் உள்ளது.

இவ்வழங்கிய சிற்றூரில் உள்ள மங்களேசுவர சுவாமி கோவிலின் பரப்பு 15 ஏக்கர். இக்கோவில் கோபுரத்தின் உயரம் 124 அடி.

மங்கை முந்தியோ மணமுந்தியோ என்ற வசனம் இத்தலத்தைப்பற்றி உண்டு. இறைவனும் இறைவியும் இங்கு தாமே தோன்றிய உருவங்கள். இறைவிமங்களாம் சிவன், நான்கு கரங்களும், பத்மபீடமும் உடையது.

இத்தலத்துக்குரிய சிறப்பு மரம், இலந்தை. இது இராவணன் காஷத்திலேயே இருத்ததாகக் கூறுவர். இக்கோவிலுக்கு இன்னும் பல சிறப்புகள் உள்ளன. சலீசுவரர் மட்டுமே இங்கு உள்ளார். ஐசைய நவக்கிரகங்கள் இங்கே, சகஸ்ரர விங்கத்துக்குத் தனிக்கோவில் இருக்கிறது. சகஸ்ரரவிங்கம் என்பது ஒரே கல்லில் விரிக்கு 20 அமைந்து 1,000 விங்கங்கள் உடையது. இவ்வாறு மாணிக்கவாசகருக்கு இறைவன் காட்சி கொடுத்ததாகக் கூறுவர்.

மரகதத்தில் இரண்டும் ஸ்படிகத்தில் ஒன்றுமே உண்டாகிவிளங்கங்கள் உள்ளன. இவற்றுக்கு மட்டுமே உச்சிக்கால அபிஷேகம் செய்யப்படுகிறது.

இவ்வுள்ள சண்முகருக்கு அருள்கிரிநாதர் திருப்புகழ் உண்டு. நடராசருக்கு இங்கு ஆதி சிதம்பரம் என்ற தனிக் கோவில் இருக்கிறது. மூலவராக நடராசர் கோவில் கொண்டிருப்பது இங்கு மட்டுமே. அறையில் ஆடி, பசஞ்சலி, வீணை, பாத்தர், காரைக்கால் அம்மையார் ஆகியோருக்கு ஆடிக்காட்டி பிறகு அப்புவத்தில் ஆடினர் என்பது.

கூத்தப்பிரானுக்கு இங்கு ஒவ்வொரு மாதத்திலும் ஆருத்திரா தரிசனத்தன்று கலரத மண்டபத்தில் சிறந்த முறையில் அபிஷேக ஆராதனைகளும் மறுநாள் வீதியுனவும் நடைபெறுகிறது. உற்சவருக்கு அருத்ரா தரிசன நாள் தவிர ஏனைய நூற்று நாட்களில் அபிஷேகம் நடைபெறுகிறது. அந்நாட்களாவன :- சித்திரைத் திருவோணம், ஆனி உத்தரம், ஆவணி, புரட்டாசி, மாசி மீனாங்களில் பூர்வ பட்ச சதுர்த்தசி.

நடராசர் கோவிலில் விமான நடராச மாணிக்கவாசகருக்கு உமாமகேசுவரர், காட்சி கொடுத்ததாகவும், அப்போது அவர் நீத்தல் விண்ணப்பம் பாடினதாகவும் கூறும்.

இக்கோவிலின் பெரும் சிறப்பால், 'ஆதி சிதம்பரம்' என்ற பெயர் இத்தலத்துக்கு உண்டு. இங்கு இறைவன் சந்நிதியிலிருந்து சிதம்பரத் தலத்துக்குச் சுரங்கப்பாதை இருந்ததாகவும், இப்போது அடைபட்டிருப்பதாகவும் கூறுவர்.

தமிழ் மக்களின் கலைப்படைப்பில் தலையாயது நடராசர் திருவுருவத்தைச் சமைத்தது. இந்த அழகுத் திருமேனியை மரகதத்திலேயே அமைத்திருக்கிற அருஞ்சிறப்பை உத்தரகோச மங்கையில் காண்கிறோம். சிவகாமி அம்மனும், மரகதத்தில் இருக்கிறது. நடராசர் உருவத்தின் உயரம் ஐந்து அடி. இதன் காலம் 3000 ஆண்டு. இதன் மதிப்பு ஐந்து கோடி ரூபாய். பீடமும் மரகதத்தால் ஆனது. எனவே மருந்து சாத்துவதில்லை உடையது விடாமலிருக்கிறதற்காக இதை எப்போதும் சந்திக்கக் கூடாப்பிட்டு வைத்திருக்கிறார்கள். ஆண்டுக்கு ஒருநாள் ஆருத்ரா தரிசனத்தன்று மட்டும் பழைய மெய்பூச்சைக் காலை 10 மணிக்குத் தொடங்கி பகல் 2 மணி வரை களைவர். பிறகு அபிஷேகம் செய்கிறார்கள். இரவு 8 மணி வரை அடியார்கள், திரு விளக்கை அணிந்து, சகஸ்ரரவிங்கம், இத்தலத்துக்கு மட்டுமே உண்டாகியிருக்கிறதும் அவை புகழ் அளிப்பது.

சந்தனத்தைப் பூசுகின்றனர். இரவு 2 மணி அளவில் சந்தனக்காப்பிட்டு முடிந்ததும் முதலில் பசவுக்கும் பின்னர் கன்னிப் பெண்ணுக்கும் அதன் பிறகு வேத கனபாடிகளுக்கும் சேதுபதி அரசருக்கும் அதற்கப்புறம் ஏனைய அடியார்களுக்கும் மரகத நடராசர் காட்சி கொடுக்கிறார்.

மரகத நடராசர் திருவுருவம் செய்வதற்கு உரிய மரகதம், சேது சமுத்திரத்தில் கிடைத்திருக்கக் கூடும். இக்கடலில் மைனாகபர்வதம், ரத்னாகரம் என்ற பகுதிகள் இருப்பதாயும் ஐதீகம்.

நவபாசானம் : - (தேவிபட்டினம்)

இராமநாதபுரத்துக்கு வடகிழக்கே 15 கி.மீ தொலைவில் தேவிபட்டினம் அமைந்துள்ளது.

நவக்கிரகங்களைக் குறிக்கும் ஒன்பது தூன்கள் இவ்வூரில் கடலுக்குள் உள்ளன. இதனால் இவ்வூருக்கு 'நவபாசானம்' என்ற பெயரும் உண்டு. இராமபிரான் இங்கு வந்து வழிபட்டபோது இத்தூன்களை நிறுத்தியதாகக் கூறுவர். பயபக்தியுள்ள இந்துக்கள் இவ்வூரை, காளியைப் போலவே புனிதமாகக் கருதுகிறார்கள். இதனால் இவ்வூரில் வட இந்தியர்களும், பல மன்னர்களும், பல சமூகத்தினரும் சத்திரங்கள் நிறுவியுள்ளனர்.

கிரகசாந்தி செய்ய விழைவோரும் இராமேசுவரப் பயணிகளும் இங்கு வந்து சக்கரைத் தீர்த்தத்தில் நீராடுகிறார்கள். இந்த தீர்த்தத்தில் நீராடிய பிறகே கடலில் நீராட வேண்டுமென்பது மரபு.

ஊர் ஓரத்தில் உலகம்மன் கோவில் இருக்கிறது. இதில் கோவில் கொண்டுள்ள அம்மன்தானே தோன்றியது என்பர். எனவே இது தேவி பிறந்த ஊர், தேவிபட்டினம் என்பர். இந்த அம்மனுக்கு அபிஷேகம் கிடைப்பது, அபிஷேகத்தைத் தாங்கக் கூடிய பொருள்களால் அது உருவாகாததே காரணம். இந்த அம்மன் மிகப் பழமையானது. தொன்று தொட்டு அந்தணர் உள்பட பல இனத்தார்க்குக் குல தெய்வம். இக்கோவிலில் மாணிக்கவாசகர் திரு உருவம் இருக்கிறது. திலகேசுவரர் கோவிலும் இவ்வூரில் புகழ்பெற்றது.

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இராமேஸ்வரம்

P. Natarajan, M.Sc., B. Ed.

"பார்மேஷம் மாந்தர்கள் செய் பஞ்சமா பாதகமும் சீர்மேஷம்
திருமணையைத் தெரிசிக்கத் தீரும் ..." என்று பகவான்

புரீராமச்சந்திரமூர்த்தி தன் மனைவி சானகியுடன் இராமேஸ்வரம் விட்டுச்சென்றபோது கட்டுரைத்துச் சென்றதாகக் கம்பரா மாயணம் கூறுகின்றது. உலக மக்கள் பாவங்களை எல்லாம் போக்கும் தலம் இராமேஸ்வரம். அங்கு கடலாடி கங்கை கொண்டானைத் தரிசித்தால் இம்மை இன்பமும், மறுமை இன்பமும் கிடைக்கும் என்று கூறுகிறது சேது மகாபுராணம். இவ்வாறு மக்கள் அருள்பாவிக்கும் புனித தலமாகிய இராமேஸ்வரத்தின் வரலாற்றை சிறிது காண்போம்.

சிவ பக்தனை இராவணனைக் கொன்றதால் இராமனுக்கு ஏற்பட்ட பிரமஹத்தி நீங்குவதற்காக முனிவர்கள் கருத்துக் கிசைந்து இராமன், சீதை, இலட்சுமணனுடன் சிவலிங்கப்பிரதிஷ்டை செய்து வழிபட்டார் என்று புராணங்கள் கூறுகின்றது.

பிரதிஷ்டை செய்வதற்கு நல்ல வேளை குறித்து சிவன் உறையும் கைலாயத்தில் இருந்து விங்கம் கொண்டுவரும் படி இராமன் அனுமனை அனுப்பினான். நெடுந்தொலைவில் உள்ள கைலாயத்தில் இருந்து அனுமன் விங்கம் கொண்டுவர கால தாமதம் ஆனதால் சீதை மண்ணால் செய்த விங்கத்தை வைத்து வழிப்பட்டார். விங்கத்துடன் வந்த அனுமன் போபங்கொண்டு மணலால் செய்த விங்கத்தை அகற்ற முயன்றும் முடியவில்லை. அனுமனை ஆறுதல் செய்வதற்காக சீதையின் மண்ணால் செய்த விங்கத்திற்கு பக்கத்தில் அனுமன் கொண்டுவந்த விங்கத்தை வைத்து, அதற்கே பூசை முதலியன முதலில் செய்யவேண்டும், என இராமர் ஆணையிட்டார் என்று கூறப்படுகிறது.

இந்தியாவில் உள்ள பன்னிரெண்டு ஜோதிர் விங்கங்களுல் ஒன்று இந்த இராமலிங்கமாகும். மற்றவை காசி, கேதாரம் சோமநாதம், உஜ்ஜயினி, நாகேசம் திரியம்பகம், ருசமேசம், புரீசைலம் ஆகியவையாகும்.

இராமேஸ்வரம் ஒரு தீவு. குறுகிய கடல் பகுதியால் பெரு நிலப் பகுதியினின்றும் பிரிக்கப்படுகின்றது. மண்டபம் பாம்பன் என்ற இரு இரயில் நிலையங்களையும் இக்கடல் பகுதி மேல் போடப்பட்ட பாலம் இணைக்கின்றது. பாம்பனில் இருந்து வடகிழக்கில் இராமேஸ்வரமும் தென்கிழக்கில் தனுஷ்கோடியும் உள்ளன. பாம்பனில் இருந்து தனிஷ்கோடி இரயில் பாதை அண்மையில் வீசிய கடும்புயலால் அழிக்கப்பட்டது. முன்பு இராமேஸ்வரத்தில் இருந்து தனுஷ்கோடிக்கு இரயில் பாதை போடப்பட்டிருந்தும் ஆறு, மண்மேடுகளால் மூடப்பட்டதால் அந்த இரும்புப் பாதை கைவிடப்பட்டது. இப்போது இராமேஸ்வரத்தில் இருந்து தனுஷ்கோடிக்கு நடந்தும், படகுகள் மூலமும் கடற்கரையோரமாகச் செல்லலாம். இராமேஸ்வர தீவு இராமனின் கையில் உள்ள சங்கு போன்ற உருவத்தில் அமைந்திருக்கிறது.

இராமநாதர் கோயில் :

இத்தீவில் மிகவும் முக்கியமானது இராமநாதசுவாமி கோயில் ஆகும். தென்னிந்தியாவில் உள்ள எல்லா பழைய கோவில்களைப் போலவே இக்கோயிலிலும் உயர்ந்த மதிற்சுவர்கள் உள்ளன. மதிலின் நீளம் கிழக்கு மேற்கில் 865 அடியும் அகலம் தெற்கு வடக்கில் 657 அடியும் உள்ளன. கிழக்கிலும் மேற்கிலும் பெரிய கோபுரங்களும் வடக்கிலும் தெற்கிலும் முற்றுப்பெறாத கோபுர வாயில்களும் உள்ளன. இக்கோயிலின் மிகச் சிறந்த பகுதி இதன் நீண்ட பிரகாரம். உலகத்திலேயே மிக நீண்டது என்ற பெருமை பெற்றது. தெற்கு வடக்கு பிரகாரங்கள் ஒவ்வொன்றும் 640 அடியும் கிழக்கு மேற்குப் பிரகாரங்கள் ஒவ்வொன்றும் 400 அடி நீளமும் உடையன. தெற்கு வடக்கு உட்பிரகாரங்கள் ஒவ்வொன்றும் 352 அடி நீளமும் கிழக்கு மேற்கு உட்பிரகாரங்கள் ஒவ்வொன்றும் 244 அடி நீளமும் உள்ளன. இதைத் தவிர முக்கிய சந்நிதியைச் சுற்றிலும் தனிப் பிரகாரங்கள் இருக்கின்றன. இக்கோயிலிலுள்ள மொத்த பிரகாரங்களின் நீளம் 3850 அடி ஆகும். வெளிப்பிரகாரத்தில் 1200 தூண்கள் உள்ளன. அவற்றின் உயரம் தரையில் இருந்து 30 அடியாகும். இவையே இக்கோயிலின் மிக அழகிய சிற்பச் சிறப்புடையவை. யிருதுவான கல்லால் கட்டப்பெற்றிருக்கின்றது. திராவிட சிற்பக்கலை கலையழகும் ஒருங்கே இணைந்து இக்கோயில் கண்டார் மனதை சிறை செய்யும் என்பதில் ஐயம் இல்லை.

வழிபாடு :

காலை 5 மணி முதல் இரவு 10 மணி வரை (பகல் 12க்கு மேல் மாலை 4 மணிவரைத் தவிர) திருக்கோயில் திறந்திருக்கும் நாள்தோறும் ஆறுகால பூசைகள் நிகழ்கின்றன.

காலை	5 மணி	திருவனந்தல் (அபிஷேகத்துடன்)
காலை	7 மணி	உதயகாலம்
காலை	9 மணி	காலசந்தி
பகல்	12 மணி	உச்சிகாலம்
மாலை	6 மணி	சாயரட்சை
இரவு	9 மணி	அர்த்த ஜாமம்.

இவ்வாறு பூசைகள் நடைபெறும். பள்ளியறைக்கு சுவாமியை எழுந்தருளப்பண்ணுவதும் அம்பாள் கோவிலிள்ள பள்ளியறையில் சுவாமிக்கும் அம்பாளுக்கும் பூசையும் இரவு 9.30 மணிக்கு மேல் 10.00 மணிக்குள் நடைபெறும். இதைத் தவிர யாத்திரிகள் திருக்கோயில் அலுவலகத்தில் பெற்ற சீட்டுக்காக தனி வழிபாடுகளும் நடைபெறும்.

அபிஷேகங்கள் :

கலசாபிஷேகம், உப்யாபிஷேகம், பஞ்சாமிர்த அபிஷேகம் உருத்திராபிஷேகம், கங்காபிஷேகம், முதலிய அபிஷேகங்களும் நடைபெறும். அஷ்டோத்தரம் (108) திரிசதை (308) ககரஸ்ரநாமம் (1008) என்ற மூன்று வகை அர்ச்சனைகளும் நடைபெறும்.

தீர்த்தங்கள் :

கோயிலுக்குள் பல இடங்களில் 22 தீர்த்தங்கள் இருக்கின்றன. அவற்றில் குளிப்பதால் உடலும் உள்ளமும் தூய்மை அடையும். தீர்த்தங்களில் மருந்து சத்துப் பொருள்களுடன் புனிதத்தன்மையும் கலந்திருக்கின்றது.

கோயிலுக்கு உள்ளேயுள்ள தீர்த்தங்கள் :

1. மகாலட்சுமி தீர்த்தம், 2. சாவித்திரி தீர்த்தம், 3. சரஸ்வதி தீர்த்தம், 4. காயத்திரி தீர்த்தம், 5. மாதவ தீர்த்தம், 6. கந்தமாதன தீர்த்தம், 7. கவரட்ச தீர்த்தம், 8. கவப தீர்த்தம், 9. நளதீர்த்தம், 10. நீலதீர்த்தம், 11. சங்கு தீர்த்தம், 12. சக்கர தீர்த்தம், 13. பிரமஹத்தி விமோதனதீர்த்தம், 14. சூரிய தீர்த்தம், 15. சந்திர தீர்த்தம், 16. கங்காதீர்த்தம், 17. யமுன தீர்த்தம், 18. கயாதீர்த்தம், 19. சிவதீர்த்தம், 20. சத்தியாமிர்த தீர்த்தம், 21. சர்வதீர்த்தம், 22. கோடி தீர்த்தம் என்பனவாகும். இவைகளையன்றி கோயிலுக்கு வெளியேயும் 21 தீர்த்தங்கள் உள்ளன. அவைகள் வருமாறு 1. சக்கரதீர்த்தம், 2. பாபவிநாசதீர்த்தம், 3. கபிதீர்த்தம், 4. மங்கலதீர்த்தம், 5. இரணவிமோசன தீர்த்தம், 6. அமிர்தவாவிதீர்த்தம், 7. சுக்கிரீவ தீர்த்தம், 8. ஜாம்பவ தீர்த்தம், 9. அங்கத தீர்த்தம், 10. தர்மதீர்த்தம், 11. பீமதீர்த்தம், 12. அர்ச்சுன தீர்த்தம், 13. நகுலதீர்த்தம், 14. சகாதேவதீர்த்தம், 15. பரசுராம தீர்த்தம், 16. அனுமகுண்ட தீர்த்தம், 17. அகஸ்திய தீர்த்தம், 18. நாகதீர்த்தம், 19. ஜடத் தீர்த்தம் முதலியனவாகும்.

சேது :

சேது தீர்த்தத்தில் நீராடுதலையும் இராமேஸ்வரம் கோயிலை வழிபடுதலையும் ஒவ்வொரு இன்தும் தம் வாழ்நாளில் செய்ய வேண்டிய கடமையாகக் கருதுகின்றனர். சேது தீர்த்தத்தில் நீராடுதல் மிகப் புனிதமானதாக கருதப்படுகின்றது. இந்தியாவில் மிகவும் தெய்வீகத் தன்மையுடையதாக கருதப்படும் கோயில்களில் ஒன்று இராமேஸ்வரமாகும்.

சந்நிதிகள் :

இராமேஸ்வரம் கோயில்களில் பல சந்நிதிகள் உள்ளன. அவைகளில் முக்கியமானது இராமநாதசுவாமி சந்நிதி, விசுவ நாதர் சந்நிதி, விசாலாட்சியம்பிகை சந்நிதி, உற்சவமூர்த்திகள், பர்வதனர்த்தினி சந்நிதி, பள்ளிகொண்ட பெருமாள் சந்நிதி, சந்தான கணபதி சந்நிதி, மகா கணபதி சந்நிதி, சுப்பிரமணியர் சந்நிதி, சேது மாதவர் சந்நிதி, இராமலிங்கபிரதிஷ்டை நடராசர் சந்நிதி, ஆஞ்சநேயர் சந்நிதி, மகாலட்சுமி சந்நிதி, முதலிய சந்நிதிகள் முக்கிய சந்நிதிகளாகும்.

உற்சவங்கள் :

அருள்மிகு இராமநாத சுவாமிகோயிலில் நடைபெறும் உற்சவங்களாவன வசந்தோற்சவம், இது வைகாசிமாதம் வளர்பிறையில் பெளர்ணமிக்குமுன் 10 நாட்கள் நடைபெறும், 2. பிரதிஷ்டாங்க உற்சவம் ஆனி மாதம் வளர்பிறையில் பெளர்ணமிக்கு முன் 10 நாட்கள் நடைபெறும், 3. திருக்கல்யாண உற்சவம் ஆடி மாதம் 17 நாட்கள் நடைபெறும், 4. நவராத்திரி உற்சவம் புரட்டாசி மாதம் வளர்பிறையில் தசமி முடிய 10 நாட்கள் நடைபெறும், 5. ஸ்கந்த சஷ்டி உற்சவம் ஜப்பசி மாதம் வளர்பிறையில் 6 நாட்கள் நடைபெறும், 6. ஆகுந்தாதரிசனம் உற்சவம் மார்கழி மாதம் வளர்பிறையில் பெளர்ணமி முடிய 10 நாட்கள் நடைபெறும், 7. மஹா சிவராத்திரி உற்சவம் மாசி மாதம் இது தேப்பிறையில் அமாவாசை முடிய 10 நாட்கள் நடைபெறும். இவை தவிர மாதந்தோறும் கிருத்திகை தினங்களிலும் பிரதிவாரம் வெள்ளிக் கிழமைகளிலும், சங்கராந்தி சித்திர வருடப்பிறப்பு திருக்கார்த்திகை தினங்களில் பஞ்சமூர்த்தி உற்சவங்களும், தைப்பூசத்தின் போது தெப்போஸவமும், ஆடி அமாவாசை, தை அமாவாசை உற்சவமும் நடைபெறும்.

ஆரோக்கிய நிலையம் :

இராமேஸ்வரம் பற்றி கூறும்போது அந்த அற்புத இயற்கை ஆரோக்கிய நிலையம் பற்றியும் கூற வேண்டும். இராமேஸ்வர நகரில் இருந்து தென்மேற்கு திசையில் அமைந்துள்ள நெஞ்சை அள்ளும் இயற்கைக் காட்சிகளினுடே சற்றேறக் குறைய 1½ மைல் தூரம் நேர்மானல் ஜடாயுதீர்த்தத்தையும் நம்புநாயகியம்மன் கோயிலையும் அடைவோம். இவற்றினருகாமையில் சுமார் 50 ஏக்கர் நிலப்பரப்பில் தண்ணீர்நூற்றுக்கள் பல குடிகள் உள்ளன. இங்கு வந்து தங்கும் பல தீராப் பிணியாளர்களில் நோய் தீர்ந்து இன்முகத்துடன் வெளியேறிச் செல்வதைப் பார்க்கலாம். இப்படி நோய் தீர்க்கும் வரப்பிரசாதம் அகில கண்டங்களையும் காக்கும் அன்னை தேவியின் திருவருளாலேயே அமைகின்றது. இவ்வாறு அண்டமெல்லாம் காத்து அருள் விக்கும் பிறவா யாத்கைப் பெரியரோனாகிய இராமநாத சுவாமியின் அருளை நாமும் பெற்று பொன்னும் பொருளும் போகமும் நீக்கி.

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சீர்மிகு சிறு தொழில்கள்

C.K. Rajan

“செய்யும் தொழிலே தெய்வம்” என்று அன்று உதிர்த்த வாய்மொழிக்கேற்ப, இன்றும் உழைப்பவரின் தினத்தோள் நிகருமில்லை. “பொன்னுன பொழுதை வீண் பொழுதாய் ஆக்காமல்”, கைத்தொழில் ஒன்றைக் கற்றுக்கொள் கவலையிலே ஒத்துக்கொள்” என்ற பேருண்மைக்கு தலைவணங்கி உழைப்பவர் அளிதான் நாடெங்கும் அதிகம். இதில் சற்றும் தளராதவர்கள் மண்டபம் மாநகர் மற்றும் அதன் சுற்றுப் புறத்து கிராமத்து மக்கள்.

மண்டபத்தில் பல தொழில்கள் இருந்தாலும் “மீன்பிடித் தொழிலே” இங்கு முதன்மையான முக்கியமான தொழில். எங்கு நோக்கினாலும் விசைப்படகுகளும், நாட்டுப் படகுகளும், படகுகளின் பழுதகற்றும் நிலையங்களும், இரால் மீன் பதனீடு நிலையங்களும் காட்சியளித்தாலும் இதனுடே மற்ற தொழில்களும் சிறு தொழில்களாய் வளர்ந்து கொண்டு தான் இருக்கின்றன.

இந்தப் பகுதியில் சுமார் 25% சதத்திற்கும் மேற்பட்ட மக்கள் சிறு தொழில்களில் ஈடுபட்டுள்ளனர். இதில் பெண்கள் தான் பெரும்பாலும் ஈடுபடுகின்றனர். மண்டபம் பகுதியில் சிறு தொழில்கள் “குடும்பத் தொழிலாகவே” மாறிவிட்டது. இந்த தொழில்களுக்கு அரசாங்கம் வங்கிகளின் மூலம் இரண்டாயிரம் ரூபாய் வரை தவணைக் கடனாக வழங்கி இதில் மூன்றில் ஒரு பங்கை மான்யமாக அளிக்கிறது.

வங்கிக் கடன் மூலம் தொழில் செய்வோர் உற்பத்தி செய்யும் பொருட்களை கூட்டுறவு சங்கங்கள் மூலம் வாங்கி அரசு பொது மக்களுக்கு விற்பனை செய்கிறது. மேலும் உற்பத்தியாளர்களும் நேரடியாக விற்பனை செய்கின்றனர். இந்த வியாபாரிகளும், தொழில் புரிவோருக்கு சிறுதொகையை முன் பணமாகவோ, அல்லது கடனாகவோ கொடுத்து உதவுகிறார்கள். இவர்கள் வீட்டில் நடக்கும் முக்கிய நிகழ்ச்சிகளுக்கும், அவசரப் பணக் தேவைக்கும், இந்த வியாபாரிகள் தாங்களே வங்கியாக செயல்படுகிறார்கள். சிறுதொழில் புரிவோர், இந்த வியாபாரிகளைத் தவிர மற்றவர்களிடம் தாங்கள் உற்பத்தி செய்யும் பொருட்களை விற்பனை செய்யக் கூடாது. இந்த வியாபாரிகள் தங்கள் கடனுக்காக ஒரு தொகையை பிடித்தம் செய்துகொண்டு மீதியை அன்றாடச் செலவுக்காக கொடுக்கின்றனர். இப்பொழுது உற்பத்தியாளர்களிடையே சங்கங்கள் ஏற்பட்டு அவைகள் இந்த வியாபாரிகளிடமிருந்து அவர்களை மீட்டு இவைகளும் நியாயமான விலையில் கொள்முதல் செய்கின்றன.

மண்டபத்திலும் இதைச் சுற்றியும் அமைந்துள்ள கிராமங்களிலும் பல வகையான சிறு தொழில்கள் நடைபெறுகின்றன. அவைகள் முறையே:-

1. பனை பொருட்கள் உற்பத்தி :

இந்த பகுதிக்கு இயற்கை அள்ளித் தந்த செல்வங்கள் பனையும், உடை மரமும் தான். எங்கு நோக்கினாலும் இவைகள் தான் காட்சியளிக்கின்றன. இங்கு நடக்கும் பலவகைத் தொழில்களில் முதலிடம் வகிப்பது “பனை பொருட்கள் உற்பத்தியே”. இது மண்டபம், காந்தி நகர், வலையர்வாடி, வேதானை, இடையர் வலசை, சஞ்சார் வலசை, முதலிய ஊர்களில் தான் அதிகமாக நடைபெறுகின்றது. சிலருக்கு இதுவே நிரந்தரத் தொழிலாகவும் உள்ளது.

மண்டபத்தில் பிடிக்கப்படும் மீன்கள், உலர்த்தப்பட்ட மீன்கள் ஆகியவை வெளியூர்களுக்கு அனுப்பப்படுகின்றது. அதற்கு பனை ஓலையில் தயாரிக்கப்படும் “ஓலைப்பாய்” தான் மிகவும் பயன்படுகிறது. இது தவிர இவை ஆலயங்களிலும் திருமணம் போன்ற வைபவங்களிலும் விரிப்புகளாகப் பயன்படுகின்றன. மேலும் இந்த பாய்கள், விருதுநகர், மதுரை, சென்னை, முதலிய இடங்களுக்கு அனுப்பப்படுகிறது.

பனை மரத்திலிருந்து “இளம் ஓலையை” (குறுத்து ஓலை) எடுத்து வந்து இந்த பொருட்களை உற்பத்தி செய்கின்றனர். இந்த ஓலைகளுக்கு பல வர்ணங்கள் பூசி. வர்ணப் பாய்கள், சாப்பாட்டுத் தடுக்குகள், வண்ணக் கூடைகள், சின்னப்பெட்டிகள் (இதற்கு கொட்டான்கள் என்று இங்கு வழக்கு) பெரிய பெட்டிகள், (இதற்கு கடகம் என்று பெயர்) விசிறிகள் குழந்தைகளின் விளையாட்டுப் பொருட்கள் முதலியன இங்கு வரும் சுற்றுலாப் பயணிகளை மிகவும் கவர்ந்திழுக்கின்றன. மேலும் இவை கூட்டுறவு சங்கங்கள் மூலம் கொள்முதல் செய்யப்பட்டு இவை தமிழகத்தின் மற்ற பகுதிகளுக்கும், வெளி மாநிலங்களுக்கும் அனுப்பப்படுகின்றன. இவை மண்டபம், காந்தி நகர் வட்டாரங்களில் அதிகமாக தயாரிக்கப்படுகின்றன.

மேலும் பனை மட்டையிலிருந்து நார் உரித்து பெரிய, பெரிய நார் கூடைகளும், நாரால் பின்னப்பட்ட கயிறுகளும் (இதற்கு வடம் என்று பெயர்) தயாரிக்கப்படுகின்றன, இந்தத் தொழில் செய்வோர்க்கு கூட்டுறவு சங்கங்களும், வங்கிகளும், கடன் கொடுத்து உதவுகிறது. இவர்களுக்காக தமிழ்நாடு பனைபொருள் உற்பத்தி மையமும், பனை பொருள் உற்பத்தியாளர் சங்கமும் செயல்படுகின்றன. இவை பயிற்சி வகுப்புகளும் நடத்துகின்றன. இத் தொழில் புரிவோருக்கு ரூபாய் ஆறு முதல் ரூபாய் பத்து வரை வருமானம் கிடைக்கிறது. பனையிலிருந்து பதநீர் தயாரிக்கிறார்கள். பனை மரத்திலுள்ள பாளைகளை சீவி, அதில் சுண்ணாம்பு தடவி சிறிய பாளையைக்கட்டி பாளையிலிருந்து வடியும் ஒருவகை திரவத்தை சேகரிக்கிறார்கள். இது மனித ஆரோக்கியத்திற்கு மிகவும் பயன்படுகிறது. இந்தப் பதநீரை புளிக்க வைத்தும், பாளையிலேயே சுண்ணாம்பு தடவாமல் நேரடியாக பாளையிலிருந்தே ஒரு வகை போதையூட்டக் கூடிய திரவத்தை தயாரிக்கிறார்கள். இதை பலர் விரும்பி அருந்துகிறார்கள். பதநீரை காய்ச்சி ஒரு வகை இனிப்பைத் தயாரிக்கிறார்கள். கருப்பட்டி என்று இதற்கு பெயர். இது இந்த பகுதியில் அதிகமாக இல்லாவிட்டாலும் ஒரு சிலர் தயாரிக்கிறார்கள். இந்தக் கருப்பட்டி, தேநீர், மற்றும் பதார்த்தங்கள் தயாரிக்கப் பயன்படுகிறது.

பனையில் கிடைக்கும் பனம் பழத்தின் கொட்டைகளை மண்ணில் புதைத்து சில நாள் கழித்து அவைகளிலிருந்து பனங் கிழங்கை பெறுகிறார்கள். இதை மக்கள் விரும்பி உண்பதுடன், இந்த கிழங்கு ஒரு வகை மாவு தயாரிக்க வெளியூர்களுக்கு அனுப்பப்படுகிறது.

பனை மரத்தை வெட்டி அவைகளை சட்டமாக நறுக்கி வீடு கட்டுவதற்கும், குடிசை போடுவதற்கும் அனுப்பப்படுகிறது.

2. தென்னை பொருட்கள் உற்பத்தி :

பனை பொருட்கள் உற்பத்தி செய்பவர்களும் இதில் ஈடுபட்டுள்ளனர். இத் தொழில் பரவலாக நடந்தாலும் இன்னும் அதிகமாக வளரவில்லை. இதில் "தென்னங்கிடுகு" தான் அதிகமாக உற்பத்தி செய்யப்படுகிறது. இது இங்கிருந்து தமிழகத்தின் பல பாகங்களுக்கும் அனுப்பப்படுகிறது. இவை குடிசை போடவும் வேலிகள் கட்டவும் பயன்படுகிறது. இந்த கிடுகுக்கு நல்ல விலை கிடைப்பதால் இதைத்தான் உற்பத்தி செய்கின்றனர்.

மேலும் தேங்காயிலிருந்து உரித்த தேங்காய் மட்டையிலிருந்து கயிறு (தென்னந் தும்பு என்று பெயர்) தயாரிக்கின்றனர் இந்த கயிறு பல வேலைகளுக்குப் பயன்படுகின்றன. கட்டில்கள் தயாரிக்கப் பயன்படுகின்றது. இந்த தேங்காய் மட்டைகளை நன்றாக நீரில் ஊர வைத்து இரண்டு, மூன்று நாட்கள் கழித்து, அவைகளை எடுத்து நன்றாக அடித்து நைக்கின்றனர். மட்டையிலுள்ள துகள்கள் உதிர்த்தும், சிறு, சிறு நூல் போன்ற தும்புகள் கிடைக்கின்றன. இவைகள் உதிரியாகக் காணப்படும். இவற்றைச் சேர்த்து மிக பெரிய கயிறாக பின்னுகிறார்கள். இந்த உதிர்த்த தும்புகள் நகரங்களுக்கு அனுப்பப் பட்டு, இவை ரப்பர் இல்லா குடைகள், மெத்தைகள், இருக்கைகள், முதலியவை தயாரிக்கப் பயன்படுகின்றன. தென்னை ஒலையிலுள்ள ஈக்கியிலிருந்து விட்டிற்கு வேண்டிய துடைப்பங்கள், தென்னையில் கிடைக்கும் ஒரு வகை மட்டையில் சுவர்களுக்கு வெள்ளையடிப்பதற்கு வேண்டிய பிரஷ் போன்ற மட்டையும் தயாரிக்கின்றனர்.

3. உடை மரம் :

இயற்கை இந்த பூமிக்கு தந்த செல்வங்களில் இதுவும் ஒன்று. இந்த உடை மரங்கள் விறகுக்கு வெட்டப்பட்டு வெளியூர்களுக்கு அனுப்பப்படுகிறது. உள்ளூரிலும் இவை நல்ல விலைக்கு விற்கப்படுகிறது. இதில் உள்ள, இலைகள், பூக்கள், காய்கள், முதலியன கால் நடைகளுக்கு நல்ல தீவனங்களாய் பயன்படுகிறது. இவை இந்தப் பகுதியில் அடர்ந்த பெரிய காடுகள் போல் காட்சி அளிக்கின்றன.

மேலும் இந்த உடை மரங்கள் வெட்டப்பட்டு பேப்பர் மில்களுக்கு அனுப்பப்படுகிறது. அதனால் இந்த மரங்களுக்கு நல்ல கிராக்கி இருந்து வருகிறது. இவை அழிந்துகொண்டு இருந்தாலும் இயற்கையாக உற்பத்தியாகிக் கொண்டிருக்கின்றன. சிலர் தங்களுடைய தோட்டங்களில் பெரிய மரங்களாக வளர்க்கின்றனர்.

4. நித்தியக் கல்யாணிச் செடி

இதற்கு காட்டரலி என்று நாட்டு வழக்கில் பெயர் வழங்குகிறது. இந்தச் செடி விஷத் தன்மையுடையது. ஆனால் இவைகளை வேருடன் பிடுங்கி இலைகளை அகற்றி விட்டு நன்றாக காய வைத்துப் பதப்படுத்தி ஜெர்மன் போன்ற மேலை நாடுகளுக்கு ஏற்றுமதி செய்யப்படுகிறது. அங்கு இந்தச் செடியின் வேரிலிருந்து ஒருவகை மருந்து தயாரிக்கப்படுகிறது.

மல்லிகைப் பூ

இங்குள்ள இன்னுமொரு உற்பத்தி மல்லிகைப் பூவாகும். இங்கு இது அதிகமான அளவு விளைவிக்கப்படுகிறது. மல்லிகைப்பூ இங்கிருந்து மதுரைக்கு அனுப்பப்பட்டு, அது அங்கிருந்து விமானம் மூலம், சிங்கப்பூர், மலேசியா, போன்ற மேலை நாடுகளுக்கு அனுப்பப்படுகிறது. மல்லிகை வாசனை பொருட்கள் தயாரிக்கவும் இது பயன்படுகிறது. மல்லிகைக்கு பெயர் பெற்ற இடம் மண்டபம். மண்டபம் மல்லிகை என்றால் பெண்கள் தங்கள் மனதை அதன்பால் பறிகொடுத்து விடுவார்கள். மல்லிகைச் செடியிலிருந்து கன்றுகளை பதியம் போட்டு வெளியூர்களுக்கு மல்லிகை பதியம் என்ற பெயரில் அனுப்புகின்றனர். இவை அங்கு சென்று வளர்ந்து பூத்து மலர்ந்து மணம் வீசுகிறது. மண்டபத்து மல்லிகை அழகும், மணமும் தனித் தன்மை பெற்றது.

6. சங்கு குளித்தலும் சுத்தம் செய்தலும்

இத் தொழிலை பகுதி நேரத் தொழிலாக குறிப்பிட்ட சிலரே செய்கின்றனர். சிலர் தங்கள் வீலையில் சிக்கும் சங்குகளையும், சிலர் கடலில் மூழ்கி எடுத்து வரும் சங்குகளையும் வியாபாரிகள் மூலம் சுத்தம் செய்யும் இடத்திற்கு அனுப்புகின்றனர். அங்கு அவை தரம் பிரிக்கப்பட்டு அறுபது பைசா முதல் மூன்று ரூபாய் வரை விலை போகின்றன. பின்பு இவை சுத்தம் செய்யப் பட்டு பல வண்ணங்கள் பூசி அற்புத ஒளியங்கள் வரைந்து விற்பனைக்கு வருகின்றன. பலரின் விருப்பத்தின் பேரில் பெயர், விளாசும் முதலியவை பொறித்தும் தருகின்றனர். இந்த சங்குகள், மேஜையிலும், சுவர்களிலும் அலங்காரப் பொருட்களாய் வைக்கப்படுகின்றன. அன்புச் சின்னங்களாய் பரிசளிக்கப்படுகின்றன. இவை பம்பாய் முதலிய இடங்களுக்கு அனுப்பப்படுகின்றன. இத் தொழில் செய்ய "அரசு அங்கீகாரம்" பெற்றிருக்க வேண்டும். தமிழ்நாடு மீன்துறை தங்களுடைய நேரடிப் பார்வையில் கண்காணிப்பதுடன், சங்குகளை கொள்முதல் செய்கின்றது. சங்கு குழித்தல், மண்டபம், வேதானை தோனித் துறை முதலிய இடங்களில் நடந்தாலும், மண்டபத்தில்தான் சுத்தம் செய்யப்படுகின்றன. இந்தச் சங்குகளை அந்த அந்த பகுதியிலே சுத்தம் செய்து அதில் உருவாக்கும் தொழில் நடப்பங்களை இந்த பகுதி மக்களுக்கு கற்றுத் தந்து அரசே தொழில் நிலையங்களை ஆரம்பித்தால் எண்ணற்றவர்கள் வேலை வாய்ப்பு பெறுவார்கள். வெளி மாநிலங்களுக்கு இப்போது சங்குகள் செல்வதால் ஏற்படும் வருமான இழப்பும், வேலைவாய்ப்பின்மையும் குறையும்.

7. சிப்பி, சிறிய சங்குகள், சோவிகள் :

அலைகளில் வந்து ஒதுங்கும் சிப்பிகளும் பொடிச்சங்குகள் (ஊரி என்று பெயர்) பல வகையான சிறிய சங்குகளும், சேகரிக்கப் பட்டு படிக்கணக்கில் வியாபாரிகளிடம் விற்கப்படுகின்றன. இவைகள் சுத்தம் செய்யப்பட்டு பல வண்ணங்கள் பூசி, கண்ணைக் கவரும் தெய்வ உருவங்களும், அழகான பறவைகளும் மிருகங்களும் செய்கின்றனர். வீட்டிற்கு அழகு பொருட்களாகவும் விற்பனை செய்கின்றனர். வீட்டிலே கொண்டாடப்படும் "கொலு" என்ற வைபவத்திற்குத் தேவையான பொம்மைகளும் தயாரிக்கின்றனர்.

மேலும் பெண்களும், குழந்தைகளும், விரும்பி அணியக் கூடிய, மாலைகள் கையில் அணியக் கூடிய வளையங்களாகவும், தயாரிக்கின்றனர். இந்த வளையங்கள் பொடிச் சோவிகளில் தயாரிக்கின்றனர். பெண்களால் விரும்பி விளையாடப்படும் தாயம் என்ற விளையாட்டிற்கு பயன்படும் சோவியும் கிடைக்கின்றன.

இவைகள் அழகாக இருப்பதுடன் விலை மலிவாகவும் கிடைப்பதால் உல்லாசப் பயணிகளையும் யாத்திரிகர்களையும் கவர்கின்றன.

8. கண்ணாடி தயாரித்தல்

இதில் ஒரு சிலரே ஈடுபட்டுள்ளனர். நாட்டுப் படகுகளில் சென்று கடலின் அடி மட்டத்தில் உள்ள சிப்பிகளை சேகரித்து வந்து அவைகளை கண்ணாடி கால்வாய்களில் கொட்டி, அந்த கால்வாயின் அடியில் தீயிட்டு அவைகள் தீர்ந்து போன பின் நெருப்பை அணைத்து இந்த சிப்பிகளை காற்றில் குளிரச் செய்து, பல இடங்களுக்கும் அனுப்புகின்றனர். இவை கள்தான் சுவர்களுக்கு வெள்ளையடிப்பதற்கு, வைபங்களுக்கும், வெற்றிலை உபயோகிப்பவருக்கும் வெண்மை மற்றும் வண்ண கண்ணாடிக் பயன்படுகிறது. இது வேதானை, மண்டபம், முதலிய இடங்களில் நடைபெறுகிறது. மண்டபம் ஊராட்சி ஒன்றியத்தில் ஊச்சியுள்ள அருகில் உள்ள ஆற்றங்கரை அருகில் வைகை நதி கடலோடு கலக்குமிடத்தில் கண்ணாடிக்கு வேண்டிய சிற்பிகளை மழை காலங்கள் அல்லாத காலங்களில் சேகரிக்கப்பட்டு வரத்திற்கு ஏற்குறைய 100 டன் இங்கிருந்து வெளி இடங்களுக்கு ஏற்றுமதி செய்யப்படுகின்றன. இதனால் பக்கத்தில் உள்ள பல கிராமத்து மக்கள் பயனடை

கிரர்கள். இந்தச் சிப்பியிலிருந்து தயாரிக்கும் பொருட்களை, இந்தப் பகுதியிலே தொழிலாளர்கள் ஏற்படுத்தி உற்பத்தி செய்வதால், இன்னும் பல மக்கள் நிரந்தர வாழ்வு பெறுவார்கள்.

9. போட் சாமான்கள்

இங்கு படகுகள் அதிகமாக உள்ளதால் அதற்கு உதறிப்பாகங்கள் அதிக அளவில் தேவைப்படுகிறது. ஆகவே மத்தால் ஆன பாகங்கள் இங்கு சக்கான், போட் பலகை, மற்றும் மர ஆப்புகள் (மர ஆணி) படகு செய்வதற்கு வேண்டிய பெரிய பலகைகள் முதலியவை இங்கு திறமையான தொழிலாளர்களை வைத்து தயாரிக்கப்படுகின்றன. இங்கு சிறியது முதல் பெரிய நாட்டுப் படகுகள் வரை தயாரிக்கப்படுகின்றன.

10. உலர்த்திய மீன்

(கருவாடு) இங்கு கடற்கரையில் கண்கொள்ளாக் காட்சியாக காணப்படும் காட்சிகளில் இதுவும் ஒன்று. பிடிக்கப்படும் மீன்களில் விற்பனைக்குப் போக மற்றவற்றை தரம் வாரியாக பிரித்து பெரிய மீன்களின் வயிற்றுப் பகுதியை கீரி, உப்பு வைத்து, குழிகளில் புதைத்து, இரண்டு மூன்று நாட்கள் கழித்து, எடுத்து வெயிலில் உலர்த்தி, புதப்படுத்துகின்றனர். சிறு மீன்களை தொட்டிகளில் உப்புடன் கலந்து ஓரிரு நாட்கள் ஊற வைத்து பின் வெயிலில் உலர்த்திப் பதப்படுத்துகின்றனர்.

இந்த கருவாடுகள் வெளியூரில் நடக்கும் வரட்ச் சந்தைக்கு மற்றும் பெரிய நகரங்களுக்கும் அனுப்பப்படுகின்றன. வெளியூர் வியாபாரிகள் இங்கு வந்து மொத்தமாக வாங்குமார்க்கு வண்டிகளில் ஏற்றிச் செல்கின்றனர். சில்லரை வியாபாரிகள் ஸ்கக்கிள்களிலும் பேருந்துகளிலும், தலைச் சுமையாகவும் எடுத்துச் சென்று கிராமங்கள், சிறு பட்டினங்கள் முதலிய இடங்களில் விலையாக்குகின்றனர். இந்தப் பகுதியில் புதை வண்டியில் பயணிகளை விட மீனும், கருவாடும் தான் அதிகமாக பயணம் செய்கின்றன.

இந்த மண்ணில் இயற்கை அன்னையின் கரங்களில் இருந்து சிந்தியவை ஏராளம், ஏராளம், இவைகளை இங்கு வாழும் மக்கள் என்றுமே வீணடித்தது இல்லை. இங்கு உள்ள ஒவ்வொரு பொருளும் மனிதர்களை வாழ வைக்கும் ஜீவ நாடியாக விளங்குகின்றன. இங்கு உள்ள மணல் கூட விலை போகத்தான் செய்கிறது. இன்னும் பல தொழில்களைக் காண, உண்டாக்க இந்த பூமி தயாராகக் கொண்டுதான் இருக்கிறாள். இங்குவாழும் வயிழில்லை என்ற சொல்லுக்கே இடமில்லை. இயற்கை யன்னையின் அணைப்பில் இறுமாந்து நிற்கும் மண்டபத்தின் பெருமைகள்தான் இவைகள் அனைத்தும்.

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ANNEXURE I

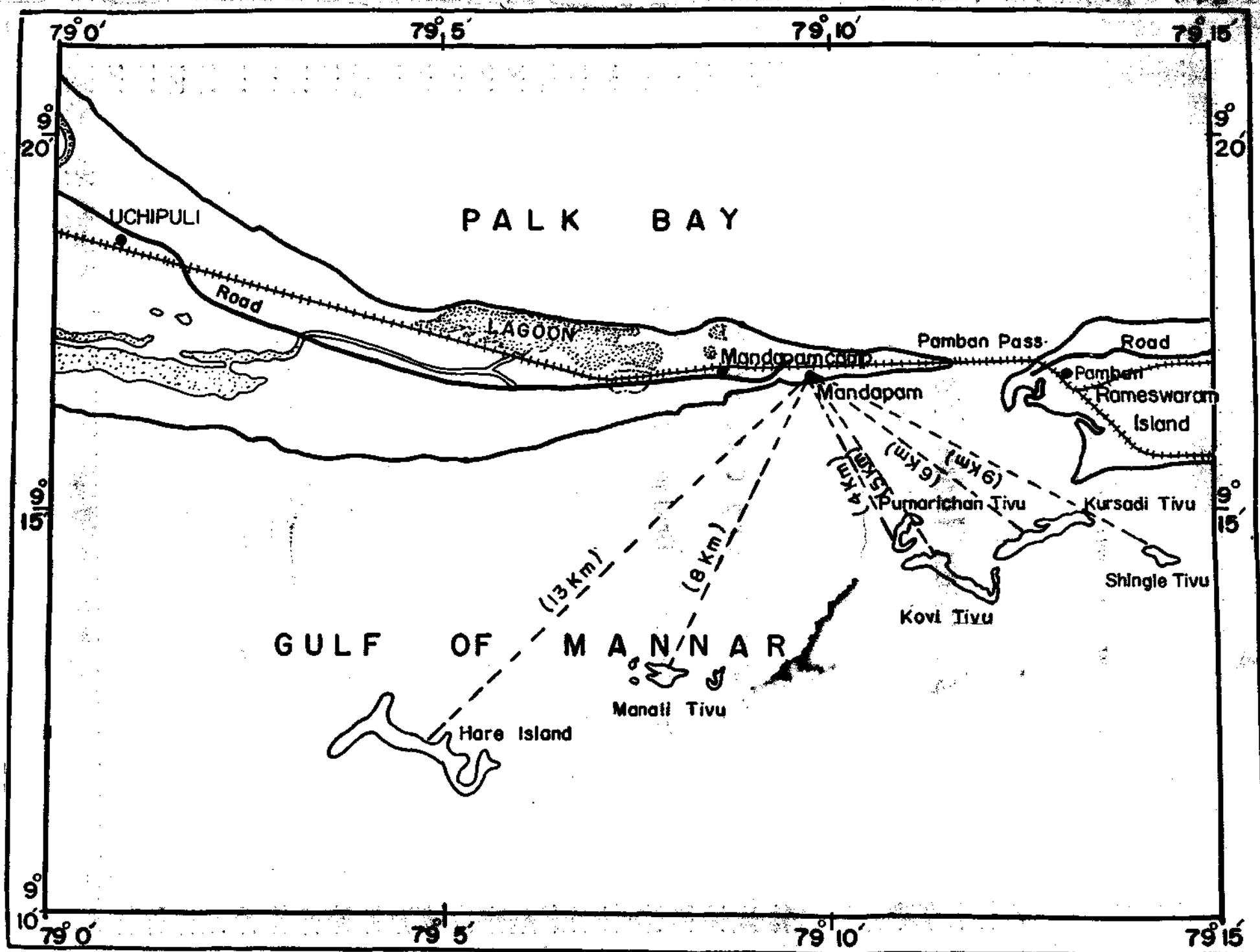
Details of Train Timings at Mandapam Railway Station
(as on 1.1.86)

Train No.	Name of the Train	From	To	Time	Train No.	Name of the Train	From	To	Time
101	Madras Mail	Madras	Rameswaram	12.30 P.M	102	Madras Mail	Rameswaram	Madras	2.30 P.M
114	Sethu Express	do	do	6.02 A.M	113	Sethu Express	do	do	4.30 P.M
108	Madras Passenger	do	do	8.15 A.M	107	Madras Passenger	do	do	6.30 P.M
		Madurai	Rameswaram				Rameswaram	Madurai	
769	Madurai - Passenger	do	do	3.30 A.M	786	Rameswaram - Passenger	do	do	3.35 A.M
783	do	do	do	6.50 P.M	784	do	do	do	6.30 A.M
785	do	do	do	10.55 P.M	770	do	do	do	11.10 P.M
		Coimbatore	Rameswaram				Rameswaram	Coimbatore	
715	Coimbatore - Rameswaram - Pass.	do	do	10.20 A.M	716	Coimbatore - Rameswaram Pass.	do	do	3.25 P.M
		Mandapam	Rameswaram				Rameswaram	Mandapam	
781	Mandapam- Rameswaram - Pass.	do	do	7.30 A.M	782	Rameswaram - Mandapam Pass.	do	do	12.55 P.M
791	do	do	do	2.45 P.M	792	do	do	do	9.50 P.M
		Ramnad	Rameswaram				Rameswaram	Ramnad	
789	Ramnad- Rameswaram Pass.	do	do	11.49 P.M	790	Rameswaram - Ramnad Pass.	do	do	8.22 A.M

ANNEXURE II

Guide to the Places of Marine Biological and tourist importance from Mandapam Camp Station

<i>Place</i>	<i>Distance</i> (KM)	<i>Approach</i>	<i>Importance</i>
1. Regional Centre of CMFRI	3	Road	Fisheries Museum Guest House
2. Fish Farm of CMFRI	3	Road	Fish Farm
3. Mandapam	4	Road / rail	Railway Station Bus terminals Fish landing Centre Ice plants, processing Unit, Fish Meal plant, Boat Jetty, Algal Research Station (CSMCRI)
4. Pillaimadam lagoon	5	Road	Fish Pens (Culture of fishes)
5. Corrosion Testing Research Lab., of Central Electro - Chemical Research Institute	2	Road	Corrosion Research Laboratory
6. Krusadai Island	6	Boat	Marine Biological collection Centre
7. Shingle Island	9	Boat	do
8. Manoli island	8	Boat	Fish Seed collection Centre
9. Thonithurai	10	Road	Fish Seed collection, Marine Biological Specimens
10. Rameswaram	18	Road & Rail	Temple, fish landing Centre
11. Dhanushkodi	22	Road & Rail	Temple and fish landing Centre.



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