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RESEARCH ARTICLE

TRADITIONAL HISTORY OF PALM TREE AND PALM MANUSCRIPTS

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Abstract

Palms are one of the best known and most widely planted tree families. They have held an important role for humans throughout much of history. Many common products and foods come from palms. The palm branch was a symbol of triumph and victory in Roman times. The Romans rewarded champions of the games and celebrated success in war with palm branches. The palm has many meanings in both ancient and modern eastern religion.

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Introduction:-

Palm trees live unusually live long. It takes about five years for a palm tree to grow a trunk. Palm trees have ancient symbolical value. Palm trees are two types. There are palmate and pinnate. In the palmate varieties, the leaves grow at the end of the stem in a bunch, resembling a hand. Palm trees or Palmyra are one of the oldest and naturally occurring vegetation's of TamiNadu. It can withstand drought and grow strong.¹

History of Palmyra tree

Palmyra trees are native to Asia and tropics and had a greater presence in the submerged Tamil lands of yore. The submerged Tamil lands were identified seven in number, each having seven habitats within themselves. It is also known by the name Palmyra. This group having seven habitats was known as "KurumPanai Nadu", meaning the land of a palm variety known as "KurumPanai". The palm tree before it reaches the flowering stage is known as Kurumpanai. The name Kuram was perhaps drawn from the word "Kurutthu" meaning tender or young. In a surprising correlation, there is a place called "Kurumpani" near Clochel on the west coast of Kanyakumari District.²

The same name appearing in sunken lands shows that this place could have been one of the seven habitats of Kurampanai Nadu. The following picture shows the sunken regions in the extended shoreline throughout the west coast. The outer edge of the previously available landed area is marked with stars in yellow.³

The presence of this name, kurumpani of early sangam age in a location close to the submerged coast reiterates that Sangam age habitats were not myth but real. This region were under Cherandominatron for a long time. Quite a few places in southern most part of Kanyakumari have names with Panai. It means Palmyra. Such as Panaivilai, i.e. vilai means grow over all meaning is where Palmyras grow.⁴

The place Vadalivilai, meaning Kurumpanai, is found near the famous place Kottar. A place called "Kottaru finds mention very often in Pandikovai. Pandyan King KonNedumaran defeated the Cheran king in kottaru was one among the seven places of the Cheran king that were won by KonNedumaran in different battles. The other six places were Sevr, Kadayal, Poolanthai, Naraiyaru, Vizhinjam and Arrukkudi.⁵

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The names of Palmyra appearing in the location Vadalivilai close to Kottar makes us think that the Cherans, associated with Palmyra have held control over these regions. There is a hitch in accepting Kottar as Kottaru of Pandikovai as there exists a verse in Pandikovai that says that KonNadumaran destroyed the naval forces of the Cheran king at Kottaru. The verse says “Cheralarthamkomankadalpadaikottaarru azhiya”.⁶

This implies that Kottaru was a coastal town and not an inland. Kottar that we see in the above picture does not fit with the description of Pandikkovai. By its name Kottaru, a river is indicated and it is probable that Kottaru was established in an estuary of a river by that name. Kottaru must have existed in one of the Kurumpanai Nadu. When all of them were lost to the seas, the survivors must have established places with same names in the new locations.⁷

The association of cherans with Kottaru once again reiterates his connections with Palmyra lands in the past. It is possible to assume that the importance attached to Palmyra was celestial tree lent the name Vanavan to the Cherans in those days.⁸ If the outer portion is hard, then take it as grass, if the inner core is hard, then it must be a tree. This is a translation of a couple of lines from the ancient poetic Tamil work “Tholkappiam written and passed on in palm leaves. The lines of Tholkappiam is to remind ourselves that our Tamil race which boasts of a 2500 year history of research and knowledge is today living a life of negligence and indifference towards nature. The Tamils had in the past distinguished themselves with their ability to categorize different varieties of plants, and passed on this recorded knowledge written on the leaves of Palmyra.⁹

The Cheras ruled over parts of modern Kerala. Their capital was Vanji and their important seaports were Tondi and Musiri. They had the Palmyra flowers as their garland. Cheras official flower was Bondai-the flower of the Palmyra tree, known in Tamil as Panaimaram. This tree is regarded as “Karpaga-th-tharu” the celestial tree as every part of it is very useful. It is the official tree of TamilNadu.¹⁰

Date Palms in History

Human use of Palms is as old as, or even older than, civilization itself, starting with the growing of date Palms by Mesopotamians and other Middle Eastern peoples 5000 years or more ago. The date Palm had a great effect on the history of the middle east.

Christianity

Early Christians used the Palm branch to symbolize the victory of the faithful over enemies of the soul, as in the Palm Sunday festival celebrating the triumphal entry of Jesus into Jerusalem. In Christian art, martyrs were usually shown holding Palms representing the victory of spirit over flesh, and it was widely believed that a picture of a Palm on a tomb meant that a martyr was buried there.¹¹

Other faiths

In Judaism, the Palm represents peace and plenty. The Palm may also symbolize the tree of life in Kabbalah. The prophet Muhammad is said to have built his home out of palm, and the palm represents rest and hospitality in many cultures of the middle east. Palm stems represented long life to the Ancient Egyptians, and the god Huh was often shown holding a Palm stem in one or both hands. The Sacred tree of Assyrians was a palm that represents the god Ishtar connecting heaven, the crown of the tree, the earth, the base of the trunk. The Palm tree was a sacred sign of Apollo in ancient Greece because he had been born under one.¹²

Value of Palmyra Tree

Palm trees or Palmyra are one of the oldest and naturally occurring vegetation of TamilNadu. It can withstand drought and grow strong. The people adored this tree and called it “Karpakatharu”. (a wise tree) This is an imaginary tree which is mentioned in Hindu mythology. In the present times with drastic changes in climate, and many parts of TamilNadu facing drought like situations, it may not be an overstatement to label the Palmyra tree a wish tree.¹³

Though it is called the Palmyra tree, it is actually a grass belongs to the family of the Borassus Flabellifera. India has the highest number of Palmyra (85.9million) in the world and out of this 60% are in TamilNadu. In 1978, the Palmyra was honoured as the geographical representation of the state of TamilNadu. Palmyra trees are being destroyed like never before. When fertile agricultural lands or sand dunes are being traded by land sharks and real estate brokers, the majestically standing Palmyra trees in these parcels of lands are also sacrificed. We are witnessing the tragedy of the Palmyra trees being cut to be used as fuel for brick kilns. When we are facing heating

of the earth and depletion of ground water resources, we must pay attention to one of our hopes, bestowed by nature¹⁴

When we compare the palmyra with other trees grown in Tamilnadu we will realize that there is no investment needed for its growth, for irrigation, maintenance or for inputs like fertilisers and pesticides. However, the benefits we derive from them are not less in any way to what we get from other trees. In addition, Palmyra trees are unique in providing us with food and nonfood products, suitable for the typical climate prevalent in TamilNadu.¹⁵

Functional aspects of Palmyra

The Palmyra offers its produce to the people throughout the year. There is Neera the sweet juice of its fruit. Toddy obtained by fermenting the sugary sap of the shoots. Nungu a fruit with a soft inner kernel holding sweet water which has cooling properties. Pannangaai, Palm fruit, Palmyra root, thavun, jaggery all of which have healthy nutrients in them. The leaves husks, fibre, Karukku, beam and Pannadi can be used to make boxes, baskets, mats, brooms, ropes, fans, winnows, and twenty other items which can be used by rural people for their daily chores. A large variety of handicrafts can also be made not only for personal use but also for the market. The Palmyra can also be used for fencing, making thatched dwelling, roofs for houses and providing beams.¹⁶

Palmyra trees are beneficial not only to human beings but also to other living beings. Palmyra can be called the best friends of eagles, Vultures, Parrots, Peacocks, northern sparrow, bats and the bay weaver birds. The peacocks sleep on the Palmyra in the nights and the parrots and the northanga sparrows lay and hatch their eggs on these trees. Some of the nocturnal birds can be seen resting on the Palmyra in between their hunting trips. The beauty of the delicately braided nests erected by the Baya weavers hanging like festoons from the Palmyra is simply beyond description. When the Palmyra trees bear fruit squirrels can be seen on them in large numbers. They feast on these fruits. Apart from affecting the lives of these creatures, the uprooting of Palmyra can lead to birds and other creatures being deprived of their domain of existence.¹⁷

Palmyra Tree and rain water harvesting

Most trees spread their roots horizontally. But the roots of Palmyra shoot straight downward vertically. Further, their tubular roots store water. This is one of the reasons why our forefathers, who were good at water management, made it a point to plant and nurture a lot of Palmyra around water bodies like rivers, tanks and wells. Planting these trees help harvest and preserve rain water free of cost. Thus the Palmyra can be described as a slightly long magic wand which in course of time converts an arid place into a water rich land. The beneficial characteristic of Palmyra needs to be understood in the context of extreme droughts and erratic rainfall and immediate measures should be taken to its revival.¹⁸

Palm Tree and Nadar community

The business community of Nadars who live in the southern hinterlands of TamilNadu. There are an ethnic group who depend on the Palmyra trees for their livelihood. There are engaged in climbing the Palmyra trees, extracting the Padanneer boiling the juice for Karupatti and selling of the Palmyra products. They depend on these activities for a living. If the palms are destroyed, the first to be affected will be this community. They do not know any other trade and are now living in a state of poverty.¹⁹

Karuppatti

Karuppatti is the most important product we get from the Palm tree. The reason for the importance given to Palm Gur is, it is proved that the cane sugar that we use in our daily food, in drinks or in sweets is fraught with many harmful side effects both by its nature and in the process of its production from cane juice. Sugar cane is a water intensive crop. Besides, the production of white sugar requires large quantity of sugarcane and exorbitant amount of money. The processing of sugarcane is energy intensive and requires massive plants, not to mention the resultant greenhouse gas emissions. The healthy alternate sweetener which can be obtained without harming the environment and without spending. So much energy is the karuppatti which can be used as an alternate to cane sugar.²⁰

Uses of Palm tree

Apart from the well-known coconut and date, there are other kinds of food from palms. Palm oil, Sago heart of palm and palm wine are all eaten or drunk in different parts of the world. Palm oil is used in everything, from cosmetics to food ingredients. Coir is a coarse, water-resistant fiber from the outer shell of coconuts. It is used in doormats, brushes, mattresses and ropes. Dragon's blood is a resin used in dyes, varnishes and incense can come

from the fruit of the rattan. The Palm branch was a symbol of triumph and victory in Roman times. The Romans rewarded champions of the games and celebrated success in war with Palm branches.²¹

Palmyra and Green Green Economy

If the consume Palm Gur or Katupatti in place of cane sugar, we will end up not only restricting the pollution of water, land and the atmosphere but also save on the consumption of water. For instance chemical fertilisers and pesticides are used in the cultivation of sugarcane. These lead to degradation of the fertile land and pollution of water. Vehicles are used to cart the sugarcane from the fields till the sugar factories. Transportation is a major source of green house gas emissions. After the cane reaches the sugar factory, it under goes a lot of processing with a help of machinery and chemicals and takes the shape of the sugar that we consume. Moreover, a lot of wastes and effluents and discharged from the sugar factories.²²

The contribution of Palmyra and related livelihood is immense in mitigating the impacts of climate change. However, certain measures are to be implemented in order to protect this industry. Awareness on the nutritional, economic and environmental benefits of Palmyra needs to be created from the school level. Policies had to be made to encourage people to plant more Palmyra trees. An increased awareness among the public will definitely provide market for its produce. Financial support for initiating small scale industries for value additions will improve the local economy.²³

The Palmyra trees, a mean to protect water resources, a friend who helps the birds and animals a plant that can bear a severe drought and one of the pillars and village economy, can surely be dependable in the face of climate change and the problems posed by it.²⁴

Palm leaf Manuscript

Palm leaf manuscripts made out of dried Palm leaves. Palm leaves were used as writing materials in the Indian subcontinent and in south east Asia dating back to the 5th century BCE and possibility much earlier. Their use began in South Asia and spread elsewhere, as texts on dried and smoke treated Palm leaves of Borassus species or the Ola leaf. One of the oldest surviving Palm leaf manuscripts of a complete treatise as a Sanskrit Shaivism text from the 9th century, discovered in Nepal, now preserved at the Cambridge University Library. The spritzer manuscript is a collection of Palm leaf fragments found in Kizil caves, China. They are dated to about the 2nd century CE and are the oldest known philosophical manuscript in Sanskrit. Rabindranath Tagore has written a long famous poem about a special genus of Palm tree.²⁵

History of Palm leaf Manuscripts

The text in Palm leaf manuscripts was inscribed with a knife pen on rectangular cut and cured Palm leaf sheets, colourings were then applied to the surface and wiped off, leaving the ink in the incised grooves. Each sheet typically had a hole through which a string could pass, and with these the sheets were tied together with string to bind like a book. A Palm leaf text thus created would typically last between a few decades and about 600 years before it decayed due to dampness, insect activity, mold and fragility. Thus the document had to be copied into new sets of dried Palm leaves. The oldest surviving Palm leaf Indian manuscripts have been found in colder, drier climates such as in parts of Nepal, Tibet and Central Asia, the source of 1st Millennium CE manuscripts.²⁶

The individual sheets of Palm leaves were called Patra or Parna in Sanskrit and the medium when ready to write was called Tada –Patra. The famous 5th century CE Indian manuscript called the Bower Manuscript discovered in Chinese Turkestan was written on birth bark sheets shaped in the form of treated Palm leaves. Hindu Temples often served as centers where ancient Manuscripts were routinely used for learning and where the texts were copied when they wore out. In South India temples and associated mutts served custodial functions, and a large number of Manuscripts of Hindu philosophy, poetry, grammar and other subjects were written, multiplied and preserved inside the temples. Archaeological and epigraphical evidence indicates existence of libraries called Sarasvathi-bhandara, dated possibly to early 12th century and employing librarians, attached to Hindu temples. Palm leaf manuscripts were also preserved inside Jain temples and in Buddhist monasteries.²⁷

One of the oldest surviving Sanskrit manuscripts on Palm leaves is of the Parameshvaratantra a Shiva Siddhanta text of Hinduism. The discovered Palm –leaf collection also include a few parts of another text, the Jnanarnavamahatantra and currently held by the university of Cambridge. With the introduction of printing presses

in the early 19th century, the cycle of copying from Palm leaves mostly came to an end. Many Governments are making efforts to preserve what it left their Palm leaf documents.²⁸

Talisman and Taletree

The English word Talisman and Tamil word Tale came from the Sanskrit word Tala for Palmyra leaf. In the ancient India, Hindus wore ornaments made up of Palmyra leaf which they wrote mantras. Adishankara and his followers installed Thandanga in Kanchi Kamakshi Temple and Trichy Akilandeswari Temple. But that is worn on the ear as ear studs. During lunar and Solar eclipse times the Brahmin priests visited houses and asked us to wear the Palmyra leaf with written mantra on our fore heads. This is toward off the evil effects of the planets, if the eclipse occurred on the day of your birth star etc. This custom shows that wearing the Palm leaf with written mantra has been there for ages.²⁹

Palmyra tree and Miracle

When the famous Savite saint Sambandar visited Tiruvothur he saw a devotee crying. The devotee raised some Palmyra trees so that he can use the income for his community service in the Shiva temple. By rare coincidence all the trees were male trees and did not yield fruits. Atheists were mocking at him and teased him asking when his god would yield him fruits. When Sambandar asked him the reason for his sad face, he told him about the male only Palmyra trees. Later Sambandar visited the Shiva temple and looked at the Palmyra trees and he sang ten verses in praise of the lord and said the male trees will yield.³⁰

Palm Manuscripts

Palm-leaf manuscripts are manuscripts made out of dried palm leaves. Palm leaves were used as writing materials in Indian subcontinent. In South east Asia people used Palm leaves in the 5th century BCE. Their use began in South Asia and spread to other regions, as texts on dried and smoke-treated palm leaves of Palmyra palm or the talipot palm. Their use continued till the 19th century, when printing presses replaced hand-written manuscripts. One of the oldest surviving palm leaf manuscripts of a complete treatise is a Sanskrit Shaivism text from the 9th-century, discovered in Nepal, now preserved at the Cambridge University Library. The Spitzer Manuscript is a collection of palm leaf fragments found in Kizil Caves, China. They are dated to about the 2nd-century CE and are the oldest known philosophical manuscript in Sanskrit.³¹

History of Palm Manuscripts

The individual sheets of palm leaves were called Patra or Parna in Sanskrit and the medium when ready to write was called Tada-patra. The famous 5th-century CE Indian manuscript called the Bower Manuscript discovered in Chinese Turkestan, was written on birch-bark sheets shaped in the form of treated palm leaves.³² The text in palm leaf manuscripts was inscribed with a knife pen on rectangular cut and cured palm leaf sheets; colourings were then applied to the surface and wiped off, leaving the ink in the incised grooves. Each sheet typically had a hole through which a string could pass, and with these the sheets were tied together with a string to bind like a book. A palm leaf text thus created would typically last between a few decades and about 600 years before it decayed due to dampness, insect activity, mold and fragility. Thus the document had to be copied onto new sets of dried palm leaves. The oldest surviving palm leaf Indian manuscripts have been found in colder, drier climates such as in parts of Nepal, Tibet and Central Asia, the source of 1st-millennium CE manuscripts.³³

Palm Manuscript and Tamil Heritage

In 1997 The United Nations Educational Scientific and Cultural Organisation (UNESCO) recognised the Tamil Medical Manuscript Collection as part of the Memory of the World Register. A very good example of usage of palm leaf manuscripts to store the history is a Tamil grammar book named Tolkāppiyam which was written around 3rd century BCE. A global digitalization project led by the Tamil Heritage Foundation collects, preserves, digitizes and makes ancient palm-leaf manuscript documents available to users via the internet. In Indonesia the palm-leaf manuscript is called lontar. The Indonesian word is the modern form of Old Javanese rontal. It is composed of two Old Javanese words, namely ron "leaf" and tal "Borassus flabellifer, palmyra palm". Due to the shape of the palmyra palm's leaves, which are spread like a fan, these trees are also known as "fan trees". The leaves of the rontal tree have always been used for many purposes, such as for the making of plaited mats, palm sugar wrappers, water scoops, ornaments, ritual tools, and writing material. Today, the art of writing in rontal still survives in Bali, performed by Balinese Brahmin as a sacred duty to rewrite Hindu texts. Many old manuscripts dated from ancient Java, Indonesia, were written on rontal palm-leaf manuscripts. Manuscripts dated from the 14th to 15th century during the Majapahit period. Some were found even earlier, like the Arjunawihaha, the Smaradhana,

the Nagarakretagama and the KakawinSutasoma, which were discovered on the neighboring islands of Bali and Lombok. This suggested that the tradition of preserving, copying and rewriting palm-leaf manuscripts continued for centuries. Other palm-leaf manuscripts include Sundanese language works: the CaritaParahyangan, the SanghyangSiksakandangKaresian and the BujanggaManik. The palm leaves are first cooked and dried. The writer then uses a stylus to inscribe letters. Natural colourings are applied to the surface so the ink will stick in the grooves. This process is similar to intaglio printing. Afterwards, a clean cloth is used to wipe out the excess ink and the leaf manuscript is done.³⁴

Hindu temples often served as centers where ancient manuscripts were routinely used for learning and where the texts were copied when they wore out. In South India, temples and associated mutts served custodial functions, and a large number of manuscripts on Hindu philosophy, poetry, grammar and other subjects were written, multiplied and preserved inside the temples. Archaeological and epigraphical evidence indicates existence of libraries called Sarasvati-bhandara, dated possibly to early 12th-century and employing librarians, attached to Hindu temples. Palm leaf manuscripts were also preserved inside Jain temples and in Buddhist monasteries. With the spread of Indian culture to Southeast Asian countries like as Indonesia, Cambodia, Thailand, and the Philippines, these nations also became home to large collections. Palm-leaf manuscripts called Lontar in dedicated stone libraries have been discovered by archaeologists at Hindu temples in Bali Indonesia and in 10th century Cambodian temples such as Angkor Wat and BanteaySrei. One of the oldest surviving Sanskrit manuscripts on palm leaves is of the Parameshvaratantra, a ShaivaSiddhanta text of Hinduism. It is from the 9th-century, and dated to about 828 CE. The discovered palm-leaf collection also includes a few parts of another text, the Jñānārṇavamahātantra and currently held by the University of Cambridge. With the introduction of printing presses in the early 19th century, the cycle of copying from palm leaves mostly came to an end. Many governments are making efforts to preserve what is left of their palm leaf documents.³⁵

Palm Leaf Manuscripts

Palm leaf manuscripts are produced from two main types of palms, palmyra and talipot. The palmyra leaf is rather thick and inflexible and tends to get brittle over time. The talipot is thinner and more flexible and has excellent durability, reportedly lasting as long as 600 years. Palm leaf manuscripts include many unique sources on Indian, Nepalese, and Southeast Asian culture and religion. Incised writing is made visible by applying a mixture of lampblack, bean plant or berry juice, and aromatic oil. The oils used have included camphor, citronella, castor, lemongrass, cedarwood, mustard, neem, eucalyptus, clove, and sesame. They are chosen for their insect repellent qualities. Although palm leaf manuscripts often vary in size among different regions of the world, they seem to average 48 centimeters in length and 4 centimeters in width. There is a considerable range of "book" thickness, with some single works more than 40 centimeters thick. Each "book," or bundle of leaves, is usually fastened together with braided **CORDS** threaded through two holes pierced through the entire manuscript about 4 centimeters from each end or by the insertion of bamboo splints. The resultant "binding" is finished by the addition of heavy wooden covers at the front and back, also tied by the braided cords or wrapped with webbing or a textile cloth. Two techniques are generally used for writing on palm leaf manuscripts: incising with a pointed metal stylus and writing directly with a pen or brush. Most palm leaf manuscripts are incised, with occasional additions or emendations written with pen on the surface.³⁶

Identification

Most palm leaf has a decided curve across its width, with some rigidity along its length. Although a variety of sizes have been used, the actual structure of the plant can be clearly seen, especially with the aid of a magnifying glass. The method of writing can also be determined through magnified examination, helped considerably by raking light. In recent years a method of printing palm leaf has been developed for facsimile and ceremonial purposes, but this can usually be easily detected because of the uniformity of the characters, the glossy appearance of the printing ink, and the absence of incision.³⁷

Palm Leaf Manuscript writing

Writing with a pen or brush as done on paper normally seen in North India. Writing by incision with a pointed metal stylus. This method is predominant in South India. Tamil palm leaf manuscripts are normally written using this method. The current research is based on this type of Tamil manuscripts. Illuminated palm leaf manuscript of 18th century from Eastern India. The text is written using brush and ink. Tamil palm leaf manuscript written using incision with pointed metal stylus. On the right is a cross section of the written palm leaf showing incision and deposition of black powder. In the method of writing with ink, a brush or a reed pen was used. The writing was done

in the usual manner as with pen on paper. Since palm leaf is less absorbent than paper, the ink remains on the surface. This method was mostly prevalent in North India. In south India, incision with metal stylus was the most common method of writing. Even within the incision method there are two ways of scribing. In one method, the stylus is held in the right hand, at a fixed place on the leaf. The leaf is held in the left hand and is moved backwards and forward to make the incision. In this method, both hands are actively involved in the writing process and their coordination is important to scribe letters. In right hand, the stylus is held upright between the ring finger and last finger. The left hand, apart from holding the leaves, also controls and directs the stylus using the thumb nail. Scribes who write on palm leaf usually grow their left thumb nail through which a hole is bored to hold the stylus. Alternately, some people make a groove in the nail to hold the stylus. To write, the stylus is placed over the groove of left thumb nail and incisions are made letter by letter. As the writing progresses the leaf is moved leftwards using the left hand. At times, the holes made on either side to bind the leaves get bigger with frequent use. Therefore, a sufficiently large margin had to be provided around the holes. Various types of metal stylus were used for writing on palm leaf manuscripts. Right side image shows the groove made in the left thumb nail to control the stylus while writing. Holes punched for binding the leaves are the only elements which breaks the text flow. A sufficient margin is given around it as they expand due to usage. During the process, the left thumb plays a crucial role in supporting and directing the stylus. It controls the stylus to properly align and position the start of next letter. Perhaps, this determines the letter spacing and some cases even line spacing.³⁸

Preservation Method of Manuscript

In order to prepare the leaf for the writing process, the leaves were first dried in a controlled manner. Later, they were put into boiling water and burnished well with spices like turmeric. Through this process, the surface of the palm-leaf became smooth and ready to use. These leaves were then trimmed into required sizes, and were used as a bundle of loose leaves. This bundle was subsequently covered with thick wooden planks, which were usually decorated with colourful illustrations. Thousands of covered palm-leaf manuscripts are found throughout Gujarat and Rajasthan. They are mostly found in the temple repositories and museums. For over two thousand years, scribes have recorded much of India's literary and scientific heritage on the readily available medium of dried, smoothed and smoke-treated leaves of talipot (olai in Tamil) palm trees. Carefully etching letters into the dried leaf with a stylus in a manner that avoids splitting the leaf and later applying lampblack or turmeric to enhance contrast and legibility, uncounted generations of scribes preserved much of India's vast intellectual legacy. When left undisturbed in the tropical climate, these palm-leaf manuscripts could last three or four centuries, after which a new patron would commission scribes to copy the precious manuscripts onto freshly treated palm-leaves. According to a recent survey, there are more than a hundred thousand unpublished palm-leaf manuscripts on various aspects of traditional Indian knowledge in Tamil, one of India's two classical languages (the other being Sanskrit). This corpus represents a significant portion of the distilled experience of Tamil-speaking civilization transmitted from generation to generation over two millennia preserved either through oral tradition or in written form as palm-leaf manuscripts. These palm-leaves number in the many tens of thousands in Tamil Nadu alone and may be found in repositories as far north as Jammu and Kashmir.³⁹

Conclusion:-

Palm trees are regularly used as constructive building material for house walls, rafters and roofing. The fibrous wood is pulled apart and woven together to produce thatch for roof coverings, and logs for bridges. The open flowers of palms provide food for pollinators like honey bees. The terminal bud or heart of most palms is edible, although removing it will cause the tree to die. Roots of coconut palms are medicinal and can be used to treat dysentery. Eco-friendly hand fans are made from natural palm leaves which are collected directly from palm tree cultivating farms. These large-sized leaves are then carved with the help of sharp blades to a peculiar circular shape. The palm leaf was an excellent surface for writing with a brass stylus, making possible the delicate lettering used in many of the scripts of southern Asia. Palm-leaf manuscripts are manuscripts made out of dried palm leaves. Palm leaves were used as writing materials in Indian subcontinent and in Southeast Asia dating back to the 5th century BCE and possibly much earlier.

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