Chapter 3

SOME FEATURES OF MUKKUVA COSMOLOGY

3.1 INTRODUCTION

Every human community has developed its own particular way of looking at the world in which it exists. The specific way of viewing is central to the mode of self understanding and actualization of a community; it also helps to explain the realm of the sacred cosmos and of religious phenomena. History of religion makes it clear that every religious tradition presupposes a particular view of the phenomenal world that permeates every aspect of belief and practice of that tradition. For a people like the Mukkuvar who live in a deep symbiotic relationship with the ocean and related phenomena, the angle in which they see and interpret the world around them becomes central to any study of their religion.

The term Cosmology,¹ as used here, refers to "the specific view or collection of images concerning the universe held in a religious or cultural tradition".² It should be made clear in the outset that a systemic conception of cosmology (as a system of logical and inter-related notions

¹ The terms cosmology and worldview are at times used interchangeably. Some do distinguish both. Worldview (Weltanschauung) was introduced by Immanuel Kant as a synonym for cosmology. But today the term worldview is being used more vaguely to refer to the sum of ideas concerning life and world commonly accepted by a group of people. Cosmology is used to denote more consciously systematized images, doctrines and scientific views concerning the universe. However, in the present study both terms are used interchangeably. See International Encyclopedia of the Social Sciences, Vol.16, s.v. "Worldview" by E.M. Mendelson; The Encyclopedia of Religion, 1987 ed. s.v. "Cosmology: an Overview" by K.W. Bolle; Thomas Luckmann, The Invisible Religion, London: The Macmillan Co., 1967, ch. 4.

² Encyclopedia of Religion, s.v. "Cosmology".
and ideas) will not be present in the Mukkuva context. A tradition of speculative articulation and documentation has not been part of their heritage. Even if one struggles to evolve a system, it is likely to be a futile exercise. What is possible is a portrayal of some fragments of Mukkuva images concerning the world; cumulatively they may provide a window into how they see the world around them and deal with it.

3.1.1 Geography of Neithal Culture

As fishermen sit on the shore watching the moods and motions of the vast ocean all through the day, with their back facing the land, it is but natural that the sea, more than the land, colours their life and attitude. The unique geographical location places them on the borderline between the land mass and the deep sea; this geographical marginality orient their whole life to a water-world.

The sea is unpredictable, and may change its colour and rhythm any time depending on various geo-physical factors like tidal phenomenon, wind-speed and its direction, etc. The rough monsoon season means risk to the craft and gear, as well as to the very life of fishermen. Certain fishing operations like shark fishing using long lines going into the deep seas involve great danger.\(^3\) Besides, the unpredictability of a catch, either because of rough weather or a dry sea, always hangs over their head. Moreover, the fact that fish is a highly perishable commodity prevents the 'harvest' from being stored up for the lean season. Thus, unpredictability and risk seem to characterize the neithal culture.\(^4\)

\(^3\) The threat from sharks in the sea has been brought out dramatically by Ernest Hemingway in his novel *The Old Man and the Sea* (Penguin books, 1952).

\(^4\) For a detailed discussion of neithal culture, see chapter 2, under 2.2.
The neithal man is basically a *hunter-gatherer* and a *nomad*. The nomadic features express themselves powerfully in the migratory character of the Mukkuvar, which leads to their seasonal migration to places that offer them better fish harvest. Mukkuvar of Kanyakumari area, for example, move along the East coast up to Orissa, and along the West coast up to Gujarat. These expeditions usually take weeks or months together. There is also a reverse process of *inward migration* taking place at Vizhinjam; during rough season `safe' landing places like Vizhinjam attract fishermen from neighbouring districts who come with their *kattumarams/vallams* on lorries and stay on for months. This has serious sociological implications too; the absence of active men for a long period every year tends to leave the community leadership and control in the hands of a few rich merchants and middlemen. Women naturally assume the key role in domestic management. Features of a matrilocal tradition are still evident among the Mukkuvar.

The hunting instinct is intrinsic to the occupation of marine fishing, and stands in clear contrast to an agrarian culture. The impact of both these cultures on the psyche of respective peoples is beyond doubt, although not studied seriously. The rough manners and the aggressive dealings of a fisherman will not be easily understood by an agrarian man. The patient waiting of the farmer nursing the seedling and caring for its growth through regular watering, manuring and weeding, looking for the yield in ripe season, is totally alien to the life-rhythm of marine fishermen.\(^5\)

The cosmological conceptions of the Mukkuvar have to be understood against the above characteristics of a neithal culture.

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\(^5\) Raymond Firth, in his study of Malay fishermen, discusses the contrast between an agricultural economy and the economy of a fishing community; see his *Malay Fishermen and their Peasant Economy*, London: R.K.P., 1971, pp.2-5.
3.1.2 *Kenkādeviamma* : Mukkuva Conception of the Sea

The normal term Mukkuvar use at Vizhinjam to refer to the sea is *kadal*. It can mean either the sea in general, or the breakers especially in the rough season. In the monsoon months of Āni-Ādi (June-July-August) the sea becomes very rough, and they call it *valiyakadal* (big sea) or *kōḷūru*. During Ēpam time also the sea becomes quite rough, and it is called *špakkadal*. To the old generation of Mukkuvar at Vizhinjam the sea is *Kenkādeviamma* (a corrupt form of *Gangādeviamma*). She is affectionately called *Kadalamma* (mother ocean). It is their mother, the eternal provider. They have unfailing faith in the goodness and bounty of the ocean. "She will provide for tomorrow also" is the refrain often heard in a Mukkuva village. Why should then one save for tomorrow, and for generations to come? While pushing the boat over the waterline every Mukkuvan is seen bending reverentially to touch the sea water with his fingers and then making a sign of the cross on his forehead. The feeding mother needs to be revered.

There is an element of incongruity too in their attitude to the sea. Though bounteous, the sea is at the same time full of danger too. Every fishing expedition is a risky adventure. "*Jivane paṇayam vachullā jōli*" (a job at which one's very life is at risk), "fighting with the sea", etc., are phrases they use to refer to their work. "Never go fishing with the assurance that you will reach back safe", elders say. To be lost in the mid-sea for days, with no sun or stars in a cloudy sky, is the ultimate experience of human helplessness. They know there is very little they can do in the sea in such situations. "Simply drop your anchor and stay calm for the storm to subside; never try to rush ashore, that will only lead to greater trouble", they advise the young. Instead, they place all trust on those on the shore - the prayers and supplications by the dear ones to the protector saints. Probably this is what makes the Mukkuvar a deeply religious people. "The safety
of the fisherman out in the sea is in the hands of the woman on shore", is the age-old maritime wisdom.  

3.1.3 Primacy of the Sea in Mukkuva Worldview

The primacy of the sea in relation to land is a central feature of the Mukkuva understanding of the world. They say, "Arara thankam kadalum arara thankam karayum", (six and a half parts the ocean, and half a part the land), signifying the relative importance given to the sea in relation to land. Scientists confirm that only 29% of the earth's surface is land; 71% of it is water. Panidasan sounds mystical when he explains it; "It is the sea that is all around us, and it is water that supports the weight of the land. Water is power. The sea existed before the land came to be. In the beginning, that is, before God created the world, there existed only God the Father and the waters!". In his conception land refers not to the landmass of planet earth, but to the immediate, familiar land, that is, the land of his village, his thur. The sky is experienced as a roof over the sea, without the support of any pillar. While in the sea the horizon is experienced as moving in either direction - towards the deep sea or towards the mountains on the land. Kararékha (the shore-line) is the boundary of ocean on one side acting as a landmark, while the horizon over the waters helps him to predict rain or storm by reading changes in its glow.

The land and the sea are two inseparable realities for a Mukkuvan. However, he spends a major part of his life over the sea - that being the sole ground of occupation - where he does his 'sowing' and 'harvesting' and 'storing'. This distinguishes him from most non-fishing people for

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6 This is clearly depicted in the Malayalam novel, Chemmeen. See, Thakazhi Sivasankara Pillai, Chemmeen, Kottayam: D.C.Books, 1995.

7 Personal interview with informant.
whom the land is the sole basis for sustenance. A Mukkuvan can hardly survive away from the ocean. In this sense the ocean becomes a primary reality for a Mukkuvan.

The experience of James, a young fisherman, on his first venture out to the deep seas is illustrative.

It is an experience I can never forget. Far out into the sea there was no trace of land. It was only water on all four sides. I felt I was sitting in a huge basket of water, surrounded on four sides by a huge wall of blue sky, covering even the top like a canopy.... It was a fantastic experience to be there. But it was also an experience of utter helplessness. 

_To be in_ for a Mukkuvan is _to be in the sea_. The sea is his world. The shore, not the land, is his point of reference, his _axis mundi_. The land is of little significance; it is only a casual landing centre for a recess from his work place, the ocean. It is significant that he calls the deep sea _ulkadal_ (the interior sea), and the interior land mass _karapuram_ (the outer land), and the seashore _kadalpuram_ (the outskirts of the sea). His two reference points - _ullu_ and _kara_ - stand in contrast to the common conception in the Kerala society where _ullu_ is used to designate _ullnadu_ (the interior of the land), and _puram_ refers to _puramkuladu_ (the outer sea). This apparent reversal of directionality in the mukkuva thinking is no linguistic slip but is intrinsic to its worldview.

The Mukkuva rhythm of life is attuned more to the ever-changing features of the ocean, and to the steady waxing and waning of the moon. Therefore it is natural that an average Mukkuvan feels an alien on land. "After we return from fishing we do not know what to do on land; time doesn't seem to pass, and it is real boredom.... We never feel that boredom while in the sea; we have something or other to do always. Even the variations in the sea itself is worth watching.

Personal interview with informant.
Every fishing trip is a new experience." These words of Thadeus, a young fisherman, reflects the general thinking.9

Since land is less important, so too is a dwelling place. A casual observer will notice that many a house is used more as a store-house of fishing gear and accessories than as a residence. Since he has to stand the sun and the rain and the storm in the open sea, whether day or night, a stable shelter on land does not become a priority. The menfolk prefer to sleep at night on the sandy beach, partly for the convenience of launching for work at odd hours. Women and children too frequently sleep outdoors - in the bylanes in between clustered houses which have no frontyard. Ownership or boundary, privacy or property, thus become inconsequential. Most of the settlement areas along the beach, except the new colonies, are still the property of the Church; the coconuts in these plots are auctioned by the Church.... Only a tribal configuration will help us understand these features in perspective. Today these too are undergoing fast changes. Ownership titles and boundary demarcations have become necessary, and the settlements are expanding to the more spacious northern slopes, with compound walls and terraced buildings. However, old tribal patterns and life-rhythm still persist.

3.1.4 The Phenomenon of the Ocean

Two phenomena in the sea are of much importance to the Mukkuvar: kavaru (glow in the water) and kara (colouration). The sea-water displays a glowing effect if the night is without moonlight. The same glow is visible on the wet sand in the dark when the surf recedes. Mukkuvar do not know how it happens, but know for sure that kavaru ensures good catch. "Kavarondu, meen pāyun" (there is kavaru, so there will be fish), they say. Kavaru makes fish glow in water, or

9 Personal interview with informant.
rather, the movement of the water caused by the movement of the fish effects the *kavaru* making the fish itself visible. When there is bright moonlight *kavaru* is absent, and fish too go down. Usually they distinguish between two types of *kavaru*: *kavaruveli* and *adakkamkavaru*. The former glow is as bright as a tube light, they say, and so fishing is impossible in it. *Adakkamkavaru* is softer, and would vanish if the water is stirred; this *kavaru* is what is conducive for fishing.

*Kαρα* or *kαρανιρα* is the phenomenon of colouration on the water surface. According to elders there are seven types of *kαρα* - red, blue, black, white, etc. *Pινκαρα* makes the surface of the sea like a red carpet from a distance, but from nearby it looks green. Its special odour can cause a vomiting sensation. If there is *pινκαρα*, then *kavaru* will be visible even in moonlight. They give different explanations for this phenomenon; it is the muck from the bottom of the sea welling up, some say. It is the sperm ejected by male fish, according to some others.

Scientists say sea-water is colourless; it appears coloured depending on various factors like depth, presence of plankton and other micro-organisms, as well as the presence of various solvents in the water. The climate also can effect a change in colour. For example, the sea appears green at shallow waters; blue, ash or deep green in deep waters. Usually plankton is the reason for the sea appearing red or green; in certain seasons some types of plankton suddenly multiply through rapid reproduction, and the sea water then takes on their colour. Shrimps, crabs etc also have a plankton stage in their life-cycle.10

In short it can be said that the ocean, for the Mukkuvar, is a complex world composed of fish and water, light and darkness, movement and stillness, colour and glow. Its essence - and beauty - is in its ever-changing dynamism, as an interplay of all these factors. As the fish in the sea adjusts to the endless change and makes it their home, so too, a Mukkuvan finds the same sea 'his world'. Its *axis mundi* is not on the land but in the sea.

### 3.1.5 "There is nothing unholy in the sea"

There is nothing unholy in the sea is a general belief among fishermen. "*Kanniil chavaṇundenkil kadaliil chavaṇundu*" (there is dirt in the sea if there is dirt in one's eye), elders say. The sea is the symbol of purity, and no external dirt can pollute it. Hindu fishermen usually use sea-water in their purificatory rites both at home and in the temple, and it is holier than the cow-dung milk, they believe. The sea is a symbol of purity and sacredness.

The 'sense of the holy' with which the Mukkuvar approach the sea extends to the whole marine life-world. This is reflected in their relationship to the fish even in a fishing operation. They know the character and psychology of each category of fish, and how each one responds to changes in the environment; they know which one to catch and which one to revere or to avoid. The relationship is as ambiguous as with the sea, and is guided by certain moral codes.

The whale varieties are usually avoided by the Mukkuvar - not only due to its huge size and potential danger, but also due to the sacred myths woven around them. Its real name, for the Mukkuvar, is *Kadalāna* (sea elephant); but the moral code in the sea prohibits them from calling this name. Giving it due respect they are expected to use honorific titles like *vālīyameen* (big fish) or *chellapillai* (dear little one), lest it would harm them, they believe. In some places the
real name of any fish should not be uttered before it is caught into the valljam; otherwise it would slip away, fishermen believe.\textsuperscript{11} If you give it due respect and draw a cross on its forehead, it would leave you in peace. A prayer to St. Antony would keep it away, some say. The worst thing to do is to tease it in the sea; it may chase you till the end. They narrate numerous stories of such encounters. In some places they believe it to be satyamulla meen (the truthful fish). Mukkuvar at Vizhinjam believe that this fish, in clusters, come close to the shore and jump up in the water on the first day of the parish feast, especially at the flag hoisting.\textsuperscript{12}

_Kadalpanni_ (dolphin) is considered a friendly fish. "Panni virattadikunnu" (panni is chasing), they say, since these are known to be chasing shoals of smaller fish into the net. _Palmemeen_ (queen fish) is considered the most intelligent fish; if someone hurts one of them it would call all its companions together and move away to safety. Cuttlefish used to be called _peiy-künthal_; eating it would make one mad because of the _peiy_ (devil), people thought in the past.

There are many stories and legends around the crab. One type of crab is known to have a cross on its forehead, so is called _kuriśunjandu_ (cross-crab). In earlier days Mukkuvar used to avoid catching it, venerating the cross on it. The story behind it is still told by elders:

During his mission journeys one day Francis Xavier called a meeting of the people of the village; but nobody turned up for the meeting. In anger he turned to the fish of the sea and invited them to the meeting. The first one to arrive was the crab, known other wise for its slow movement. Pleased with it Xavier drew a cross on its body. The last ones to arrive were the ribbon fish and the catfish; so Xavier cursed them. So to this day they carry a ‘stone’ on their back.\textsuperscript{13}

\textsuperscript{11} See A. Andrews, _Kadal Muthu_ (Mal.), Mavelikara: M.I.M. Centre (N.D.), p. 29.

\textsuperscript{12} The same belief is also present at other coastal parishes like Arthunkal in Alapuzha.

\textsuperscript{13} Personal interview with Markos, an informant.
"Fishes have their own language, only we do not understand it", affirms Markos. One who has researched into the psychology and language of fish, is Panidasan. He is familiar with the timetable of each fish variety, which he considers the secret of his getting plenty of fish every day.

The main meals-time of fish is between 3.30 p.m. and 6.30 p.m. It is then they feel hungry, and so swallow the bait readily. Around 5.00 p.m. is the peak time of eating. After 6.30 fish normally does not eat anything.\textsuperscript{14}

Based on such knowledge Panidasan had been `cultivating' pāru (reef under the sea that serves as breeding ground/shelter for fish) by carrying a couple of boulders in his boat while going fishing and depositing the same at the same spot every day. The same spot also became for him a rich fishing ground in course of time, without the knowledge of others. Today the scientific community has acknowledged the ecological importance of cultivating pāru on the sea bed.

3.2 THE ASTRONOMICAL WISDOM OF KAPIYAM

Kapiyam nokkal is the Mukkuva term for the skill of calculating a particular place or time in the sea in connection with their work. It relies mainly on the system of convergence of different objects like mountains, towers, or planetary bodies, in locating a point in the ocean. The sense of direction, the wind and the currents, as well as the movement and time schedule of the heavenly bodies, all have a role in kapiyam nokkal. Kapiyam, in short, is the traditional Mukkuva science of computing the space-time configuration in a fishing context. Unfortunately much of this astronomical wisdom still remains undocumented.

Often one may hear a Mukkuvan saying, theku pōnu (literally, going south), meaning he is going to the sea-shore. This is common usage not only at Vizhinjam but also in other fishing

\textsuperscript{14} Personal interview with informant.
villages south of Vizhinjam. If one is accustomed to the text-book description of Kerala as having the Arabian sea (or Lakshadweep kadal) on the western side as its boundary, this usage is bound to confuse. Is the sea on the south or on the west? Closer scrutiny using a compass, however, shows that the Mukkuva wisdom is closer to the truth. This is partly because of the geographical position of Vizhinjam where the sea takes a sudden turn to the east. Mukkuvar have learned about directions not from text books, but from their observation of the movement of the heavenly bodies. The linkage between the movement of the sun or the moon or the stars with the shoreline mainly determines the Mukkuva sense of direction.

Accordingly

South : the sea, the world of fish
North : the land beyond, the countryside
East : the coastline towards Kanyakumari and beyond
West : the coastline towards Kollam and beyond

The terms they use to refer to the directions are

\[ u\text{lle} \] = south
\[ k\text{are} \] = north
\[ k\text{i\text{\textbar}a} \] = east
\[ m\text{\textbar{e}}\text{la} \] = west

Language experts say that words referring to directions come into use based on sunrise and sunset, the former referring to the east and the latter to the west. In Tamil and Malayalam
FIG 3: THE DIRECTIONS

Coastline Towards Kanyakumari

EAST

KEELA

Ulle

Sea Shore

KARE

MELA

NORTH

LAND

Coastline Towards Kollam
kizhakku (from kizhu = below) is used to refer to the east; mēlku (from mēlu = above) refers to the west. These usages are still seen in old land documents.\textsuperscript{15}

This conception of the directions can diagrammatically be shown as follows: [see figure - 3]

This peculiar sense of direction has much bearing on the occupational world as well as the ritual life of the Mukkuvar. Traditional wisdom indicates that the extension of bodies in space is in three directions - length, breadth, depth or height. The lines representing these directions point to the four cardinal directions at the horizontal plane, besides the two vertical directions. The four cardinal directions, the four secondary directions that lie between the cardinal directions, and the two vertical directions together constitute ten directions in all.

3.2.1 At the Mercy of Winds and Currents

Floating on the waters in the open sea fishermen are very much at the mercy of the wind and the current, which vary significantly according to times and seasons. Their pattern determines the behaviour of fish, and hence the fishing operation itself, and consequently the very life of the Mukkuvar.

At Vizhinjam they speak of nine types of wind that are vital to their life and work. The diagram below presents them in a nutshell: [see figure - 4]

\textsuperscript{15} K.M.George, in \textit{Kerala Charitram} (Mal), vol.2, Ernakulam: Kerala History Association, 1974, pp.599 ff.
FIG 4: THE DIRECTIONS OF WINDS

SEA

SOUTH

VADAKONDAL
KONDAL KATTU
KACHAN KONDAL

VADA KATTU
KACHAN KATTU
CHUZHI KATTU

VADA KODA
KODA KATTU
KACHAN KODA

EAST

NORTH

LAND

WEST

TAMIL NADU COAST

KERALA COAST
Depending on the wind speed they call them either male or female. Kachān and Kōda are said to be female (since these sustain them like a mother, they say); vāda and kondal are male, and these being very strong, fishing operation becomes difficult, especially in vāda. Extremely powerful kondal is called mariakondal. Kachān is the most favourable one for fishing.

The currents also behave very similar to the winds. Fishermen say it is the currents that bring in or carry away the fish. For, experience shows that fish always moves opposite to currents, and this knowledge facilitates fishing operation. "Fish would cry when the sea gets rough; then we cast our nets. If the water is too calm fish would remain quiet at the bottom", this wisdom of Carlos, a 70 year old fisherman, is gained from experience.

Scientists say currents in the ocean are caused by a number of factors like wind direction and its speed, variation in temperature and the resulting change in density, as well as the salt-content of the sea water. The water in the Arabian sea is said to be more salty than that in the Bay of Bengal. Similar to the wind types, they name nine main categories of currents as given in the diagram below. [see figure - 5]

Of all these, kīṭṭuvalivu is considered the most favourable one for fishing. The strongest current is called ānthpperuvelḷam valivu, which violently stirs up the seabed. It begins in the month of chittirai and lasts till the month of vaikāsi, and is said to bring shrimps since it breaks up their habitat in the seabed.

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16 Balakrishnan Nair, Kadai Oru Adhūdam, p.22.
FIG 5: THE CURRENTS AND THEIR DIRECTIONS
3.2.2 "We rely on the Stars"

The celestial phenomenon is the trustworthy companion of a fisherman out in the deep seas. Beyond about 45 fathoms the shoreline vanishes from sight, and there are no other landmarks like roads or buildings or trees. Instruments like compass are still not in common use. As a result the Mukkuvar have developed a supreme sense of direction and a folk science of maritime astronomy, as contained in the concept of kapiyam.

During the day the movement of the sun is the sure indicator of direction. But cloudy days and the rough season makes reliance on the sun alone dangerous. For fishing at night the position and movement of the stars and the moon play a key role. When the signals from the light house also vanish from sight, they keep track of certain stars or planets or constellations, which they call velli (silver) or meen (literally it means fish).

The frequently referred vejris are:

kappalavelli

It is a cluster of eight stars in the shape of a ship with anchor. Since this constellation does not change its formation all through the year, it is specially valued by the fishermen.

chottuvelli

This is a single star that rises in the evening, around the time for night meals. Hence it gets the name chottu (night meal).

malaimeen

This also is a single star that rises at midnight from the shoreline and sets in the sea. It is visible around Christmas time, and so is called yesunakshtram (Jesus star). The star
is usually visible from 10th of the month Thanu (Mārkazhi in Tamil), which usually falls on Christmas day. Some also say this was the star that led the three kings to Bethlehem. It is when the malai-meen appears that big varieties of fish living in the pāru in the deep comes out for its prey/bait.

**vidiveṭṭi**

This single star rises early morning, and so is called *vidiveṭṭi* (morning star). It is also called *Kappanveṭṭi*.

**muzhakkā meen**

A cluster of three stars more or less in a straight line appearing like a measuring rod is the *muzhakkā meen*. It is visible till Chittira 10.

**āṭam meen (ātuveṭṭi)**

This is a group of six stars in a cluster; it is visible till tenth of vaikāśi.

**kurisuveṭṭi**

This constellation shows four stars arranged roughly in the shape of a cross; traditionally astronomers call it the ‘southern cross’. The lower star that forms the stem of the cross is the brightest and points the south pole of the sky.

**āma veṭṭi**

This group of stars appears in the shape of an āma (tortoise), and rises and sets in the sea itself close to the southern horizon. It appears in the month of Āni.
This appears a week after the appearance of āmavellī. This too rises and sets in the southern horizon in the sea. Fishermen foretell rough weather once āmavellī and kadaluvelli disappear.

A sample of Mukkuva astronomy can be seen in the following:

If you follow kurišuvelli you can reach chandāla keṭṭu (name of a ridge underwater); if you follow muļakkāmeen you will reach chendraḍāchān keṭṭu; if you want to go to the deep sea after night fall, follow chōttuvelli; to reach the shore safe at night, follow kappalāvelli; to reach ashore early morning, follow vidivellī.\(^{17}\)

For ages humans have used stars and planets to guide them across the desert or over the sea. The meticulous movements of the heavenly bodies helped them in measuring time or charting directions. Agricultural people studied the seasons to know when to plant or to harvest. Similarly fishermen used their knowledge of the celestial bodies to determine the proper time for fishing and to keep track of directions in the sea. The very occupation out in the open sea necessitates Mukkuvar to become good marine astronomers.

Astronomy shows that there are over eighty known constellations. The names of these are always culture-bound based on resemblance to an animal or an object familiar to that culture. It is natural that the Mukkuvar see a ship or a turtle or a cross in the constellations that guide them.

3.2.3 Power of Lunar Influence

The Moon and the lunar phenomena have a still greater influence in the life-rhythm of fishermen. The day of the Mukkuvar, in fact, is not confined to exact 24 hours; nor is the distinction

\(^{17}\) Personal interview with informant.
between day and night very marked. The time for launching boat is determined primarily by the rising and setting of the moon; factors like nilavu (moonlight), kavaru (glow), and the tidal phenomenon are central to this understanding.

The tidal phenomenon daily influences the behaviour of the sea, especially the coastal waters, thus determining the timing for launching the boat. In turn the tides are determined by the lunar attraction. There occurs everyday two flows (upward tide) and two ebbs (downward tide). Thus there is a tide every half day. In scientific terms the interval between one flow and the next flow at a particular place is 12 hours and 25 minutes. Every day the flow occurs about one hour later than the previous day, 50 minutes, to be exact.

It was Sir Isaac Newton who first explained the tidal phenomenon scientifically in the 17th century.18 Moon’s influence on the sea is not uniform always. Two factors affect the change: the waxing and the waning of the moon, and the changing distance from the earth to the moon due to the helical orbit of the moon. Thus there is a double change daily occurring in the sea - according to the tidal movement and the brightness of the moon. Relatively the sun exerts only little influence over the sea; the lunar tidal force is 2.2 times stronger than the solar tidal force.

Whether it is full moon or new moon is of vital importance. "Innu nilāvada, meen pāyāthu" (it is moonlight today, there won’t be fish), they can be heard saying. Full moon may bring joy to

18 Sir Isaac Newton (1642-1727) was an English physical scientist and mathematician. By his work on gravitation and planetary motions he could explain how one and the same force of universal gravitation causes planets to revolve about the sun in elliptical paths, and acts between any planet and its satellites; this same force acted also between the oceans and sun and moon, so as to produce the tides. He also computed the relationship between the distance and the mass of the body. These were published in his Mathematical Principles of Natural Philosophy in 1687. See Encyclopedia Britannica, 15th ed., s.v. "Sir Isaac Newton".
poets and artists, but not to a Mukkuvan to whom it is a day without work. If the moon is bright, the net or the line becomes visible to fish who would keep away by instinct. Therefore the Mukkuvar adjust their work-time so that the actual fishing takes place in the dark - either before the moon rises or after it sets. The launching time shifts gradually everyday, either forward or backward according to the rising of the moon, reaching the peak of intense work around the new moon. "What is crucial is the launching time, never the returning time", fishermen would say.

3.3 MUKKUVA CONSCIOUSNESS OF TIME

Astronomers discuss different systems of measuring time, viz. the solar measure, the lunar measure, the stellar measure, the civil measure, etc. Significant for us here are the solar and the lunar systems of measurement.

The interval between two passages of the sun across the meridian is a solar day. The mean solar day has 24 hours 3 minutes and 56.55 seconds. As against this a lunar day is 50 minutes longer than a solar day. The solar year has 365 days 5 hours 48 minutes and 46 seconds, while a lunar year is 11 days shorter than the solar year. The moon takes 29 days 12 hours 44 minutes and 2.8 seconds to complete one revolution around the earth; this is called a 'synodic month'. This lunar month is shorter than the solar month of 30 days, the latter being an arbitrary division of the solar year into 12 parts.¹⁹

¹⁹ The discrepancy between the lunar and the solar calendars ever remained a challenge before astronomers. A lunar calendar is believed to have been in existence in most ancient cultures including the Indus Valley civilization. Agrarian cultures generally relied on a solar calendar due to the importance of seasons for their occupations. However, many peoples adopted a 'luni-solar' calendar in which months are lunar, while days and years are solar (E.g. the calendar of the Greeks, the Vedic calendar of the Hindus, etc.). The Julian calendar, introduced in Rome in B.C. 46, was strictly a solar calendar. This was corrected in 1582, under Pope Gregory, as the Gregorian calendar, which in course of time came to be accepted universally as the system of measuring time. Some ancient peoples like Jews, Muslims, Hindus, etc., still make use of the lunar calendar but as restricted to the realm of religion and rituals. For details
3.3.1 "Our day is longer"

Against this background of a universal calendar that is basically solar, the Mukkuvar find themselves at variance. That their daily rhythm of life is centred around the tidal and the lunar phenomenon has been discussed earlier. Their occupational life and cultural life are scheduled after the Tamil era or the Malayalam era, both being basically lunar. The lunar calendar, in the case of the Mukkuvar, cannot be confined to the realm of religion and liturgy, but permeates all aspects of life and work.

This means that a day for a Mukkuvan is longer than a civil day by about 50 minutes. This means that he has 11 days less in a year. Besides being longer, his calendar is characterized by daily fluctuation, as against the relative ‘stability’ of the solar calendar. His ‘regularity’ appears as ‘irregularity’ in a society governed by a different scale of measurement. The regular fluctuation in his work-day consequently affects the rhythm of the whole family - time of work and sleep, of meals and play.

Mukkuva women, though not actual fishers, cannot stay insulated from this reality of daily fluctuation. It is obvious in the case of those who depend on fish vending, since they have to be on shore whenever the vallams land. When the landing of fish is poor, these women have to be on the beach late in the evening to avoid the high price of fish in the morning, and to do the icing and packing for the next day's trip. The irregular absence of both men and women from the family can have adverse impact on family life, care of children and their study, spiritual

see Encyclopedia Britannica. s.v. "Calendar". See also Edward S. Sachau, ed., Alberuni's India, Delhi: S. Chand and Co., 1964, ch.36.
practices, etc. In many families no breakfast is prepared if the men are out for work, women and children managing with the left-over or forgoing a breakfast altogether.

In short, a day in the life of a Mukkuvan is at variance with a day of the Kerala society at large. Not only that he has no 365 full days, but also the meaning and structure of a day changes for him. Fluctuation and change become its hallmark.

3.3.2 Eternal Change - the Characteristic of the Ocean

The sea is never static, both scientists and fishermen agree. Factors like waves and currents, the tidal phenomenon, rotation of the earth as well as the density of the sea-water contribute to this ever-changing character of the sea. The ever-rolling surf at the breaker-line is only the tip of this iceberg.

To be a Mukkuvan is to be attuned to this rhythm of the ocean that is ever in turmoil. To live, for him, is to live amidst change every moment. The wind and the waves, the moon and the tides, the fish and the stars... all bring to him every moment the reality of change and of movement. His today is quite unlike his yesterday, and he also knows from experience, that tomorrow will again be different. It is this eternal newness that seems to make every day fascinating, and makes life challenging and dynamic. Yet there is a pattern in this change, he knows; he knows when the next tide would occur, and when the moonlight will vanish.... But unfortunately his regularity is understood as mere irregularity by the mainstream culture that is so mechanically dependent on the regularized solar calendar and time. And there is no existing calendar that makes real sense to the rhythm of the ocean - and to that of the Mukkuvar.
This ‘abnormal’ time-consciousness and the feature of eternal change have far-reaching consequences for the very survival of the community. Irregularity of children at school often leading to a high rate of drop-outs, problems with timely repayment of loans from banks and other financial institutions, and the difficulty of young job-seekers to a regulated work schedule or life-style are but some examples.

3.3.3 Conflict of Worldviews?

Can it be that the Mukkuvar are feeling a conflict of being pulled from two opposite directions - that of the moon and the sun? Are they amidst a conflict between two systems of time consciousness - solar and lunar - and hence of two opposing worldviews? .... This inquiry indicates the incongruence of contrary worldviews amidst which the Mukkuvar find themselves.

Fishing and associated activities of the Mukkuvar are determined mostly by the lunar calendar, as already seen. The sun has only a minimal role. On the other hand, most of the on-shore activities are controlled by a solar calendar, whether in the market and the office, or in the school and the church. It is natural that a fisherman fails to turn up exactly at 10.30 at the school if the Headmaster calls for him.... Illustrations are in plenty. The dominant culture and its time-consciousness are heavily weighed against the Mukkuvar. Here comes the importance of grasping the elements of his own worldview vis-a-vis that which is placed over against him in the complex world of today.

Oriental people in general have been followers of a lunar rhythm of life. Under the strong impact of westernization many of these societies seem to have adapted to the dominant solar rhythm without fully abandoning the lunar. The Julian calendar and the Kollam era are still being
followed parallely by most communities - Hindu or non Hindu - in Kerala, without a serious conflict. But this has not happened in the case of the Mukkuvar; in spite of an early contact with Western powers and a Western form of Christianity, there exists an incongruity between the solar and the lunar in the Mukkuva mind.

3.3.4 Cosmology and Mukkuva Women

One question needs to be answered before this chapter is concluded. Is not the cosmology discussed here basically a cosmology of Mukkuva men? How does it apply to the womenfolk?

Of the different activities connected with fishing, the work of fishing proper is exclusively the arena of men. Women are engaged in fish vending and other ancillary tasks such as salting and drying fish. This clear-cut gender division of labour is likely to have its impact on cosmology and worldview. True, most of the themes discussed in this chapter reveal a masculine bias. The feminine occupations as well as other domestic tasks place women more in touch with the 'land' than the 'sea'; as a result their experience of the 'world' may not be identical with that of their male counterparts.

Some researchers have tried to discover the specifically feminine in the Mukkuva community from various angles.20 The gender difference regarding Mukkuva cosmology is a subject yet to be studied seriously, and the scope of the present inquiry does not permit that. The assumption here has been that the cosmological paradigms discussed in this chapter have been shared, though at varying degrees, by the community as a whole - both the male and the female.

3.4 CONCLUSION

Luckmann defines the worldview as a social form of religion that is elementary and non-specific. It is only within the specific worldview that the sacred universe of a people becomes intelligible. The religious representations that embody the sacred universe provide sense and meaning to isolated events and objects in the world of everyday life. They lose their significance if taken in isolation, and cumulatively they provide interpretative schemes and recipes for the conduct of individuals and collectivities. This explains why consideration of worldview or cosmology becomes necessary for a study of religious phenomena.

The context of the Mukkuva community, it was made clear in the beginning, does not present a cosmology understood as a system. At the same time the chapter has highlighted fragments of a cosmology that guides their life in everyday conduct and behaviour. The seashore becomes the axis mundi; the sea and the land, the wind and the waves, and the configuration of heavenly bodies, become meaningful around this pivot. The prominence given to a sense of direction is significant not only to the fishing operation, but also to the religious conduct. What characterizes their experience of Kadalamma, the mother ocean, is her inherent ambivalence: she appears a nurturing mother and protector, on the one hand, while revealing her fury and wrath, on the other. This ambivalence is a recurring theme in the religious cosmos of the Mukkuvar, as will be seen later.

Kapiyam, the astronomical wisdom of the community, highlights two features central to their worldview. First, the state of flux that characterizes not only the phenomenon of the ocean but also their very life. The daily variation in the life-rhythm resulting from kavaru and kara, or