
Understanding Rationality, Culture and Scientific Temperament of Cholanaikkan Tribe of Kerala

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Abstract: We report our encounter with an isolated tribe of Cholanaikkan who are on the verge of extinction with the total population less than 200 persons. In a rare collaborative programme of the government of Kerala, a small subgroup of this tribe visits Kozhikode on 3 March 2016 and included about 50 Cholanaikkars. Among other places, their first stop was at Regional Science Centre and Planetarium (RSC) where they were exposed to a completely different environment. In this paper we report our meeting with them there, where tried to understand their scientific temperament, astronomy culture and survey the literature to form our consolidated opinion.

Keywords: Rationality, Culture, Scientific Temperament, Cholanaikkan Tribe, Kerala, Astronomy, Endangered Tribe

Introduction

Cholanaikkans are a small tribe with a total population of less than 200 persons, a fraction of whom live in caves, the rest in temporary self-built structures [see e.g. en.wikipedia.org/wiki/Cholanaikkan]. Their region of habitation is in the upper Ghat section (*chola*) of the Nilambur Valley, Nilambur thaluk in Malappuram district which is about 90km from the city of Kozhikode (Calicut) in a reserved forest. A detailed description of their life is available at (Seetha 2014; Niju 2013). As per the government arrangements, no one is allowed to go to within 20km of their habitation.

Their forest area is completely protected and outsiders are not even allowed to scavenge for forest produce or contact the tribal communities. The only contact with the people is done through a weekly (every Wednesday) meeting on the banks of a river between the last checkpoint and their residence, about 10km from the last permitted check point. This spot is at the foot of their mountain at a distance of about 8km. The meeting occurs around noon and last for about an hour and a half. There they are fed and given ration of rice etc. that would last them for a week. The above details were gathered during a visit of the second author to the North forest range office.



Figure 1: Photograph of Cholanaikkans with Planetarium staff and volunteers at beach in Kozhikode on 3 March 2016 (Picture Courtesy: RSC Calicut)

Methodology

The present paper is based on a programme arranged by the Regional Science Centre & Planetarium, Kozhikode in association with Kerala Forest Department (Forest Range Office, North, Nilambur) to bring about 50 of them for a city tour to Kozhikode on 3 March 2016. As per forest officials many of these tribe men were venturing out of their house for the first time in their lives.

A team of voluntaries from RSC was assigned the task to observe and try to interact with some of the members of visiting tribe group. All observations were recorded regarding their aspects of behaviours as they moved around the exhibits of science parks, the science exhibits and models in the galleries, namely Human Endurance Gallery, Mirror Magic Gallery, Fun Science Gallery, Astronomy Gallery, Life Science Gallery and under the canopy of virtual stars inside the planetarium. Further, observations were recorded when they were taken to Kozhikode beach (Figure 1).

It was found out that the present chief of these tribe men, who was also one of the visitors, knew to speak in Malayalam. So, the fourth author of this paper interacted in details with the present chief gathered information.

In this paper, we describe various aspects like their features, worship, and marriage customs of this tribe and specially concentrate regarding preliminary understanding of their mental scientific temperament, their rationality and curiosity towards new environment, their view of the celestial objects, majorly sun, moon, stars, and shooting stars. These aspects were not studied in details before.

Location Details of Cholanaikkans

Cholanaikkans live deep inside the Karulai and Chungathara forest ranges in Nilambur in Malappuram district of Kerala (Figures: 2-6). The nearest government contact points are North Forest Range office and Paukka Forest Station. The above maps displays details of their locations.



Figure 2: Map of Kerala Showing the Location of Cholanaikkan (Picture Courtesy: Seetha 2001: 45)

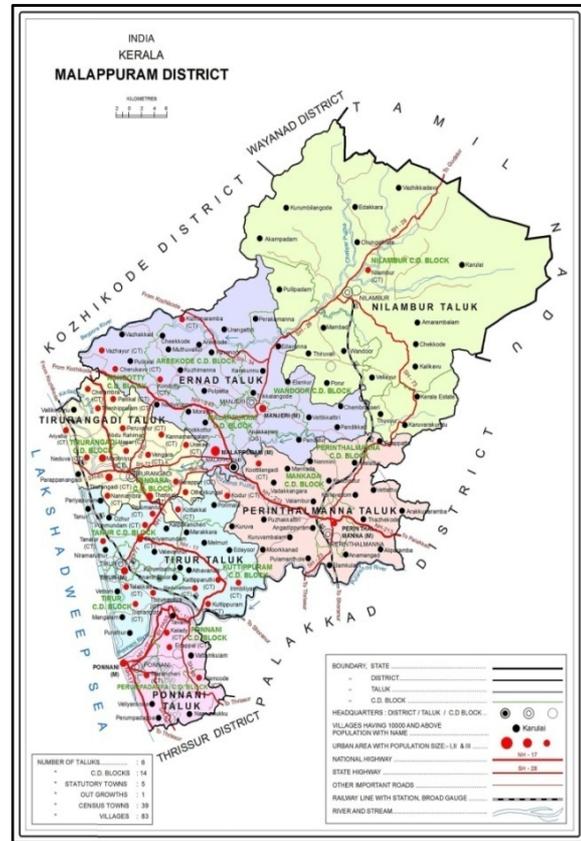


Figure 3: Map of Malappuram Showing the Location of Karulai (Courtesy: District census handbook, Malappuram, 2011)

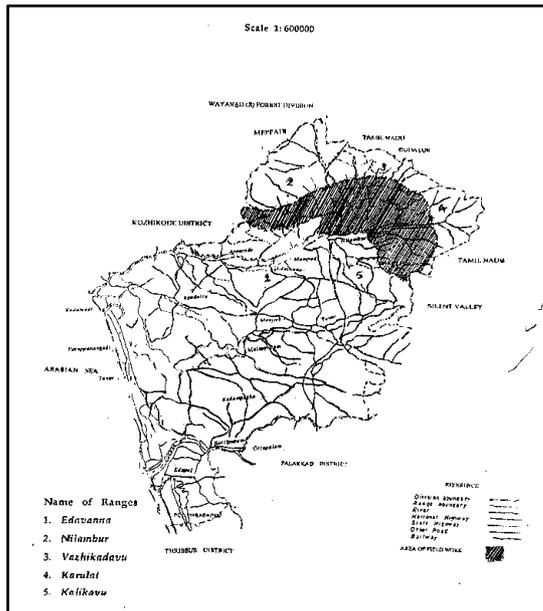


Figure 4: Map of Malappuram showing the region of activity of Cholanaikkans (Courtesy: Seetha 2001: 46)

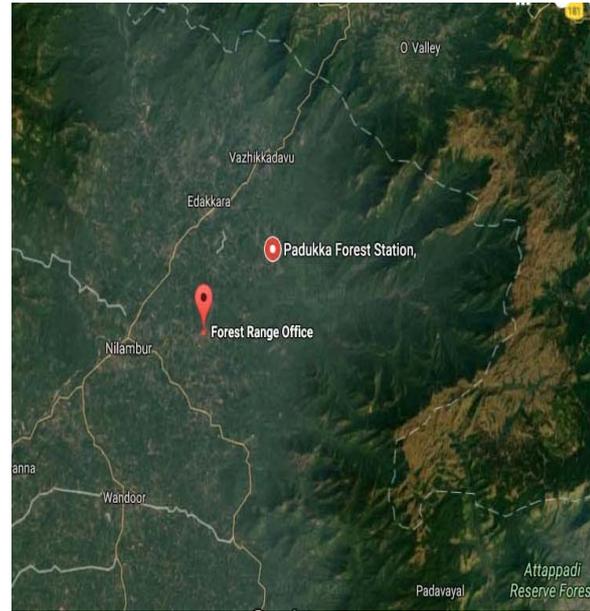


Figure 5: Satellite picture of Karulai forest range office, Nilambur, Kerala (Picture Courtesy: Google Maps)

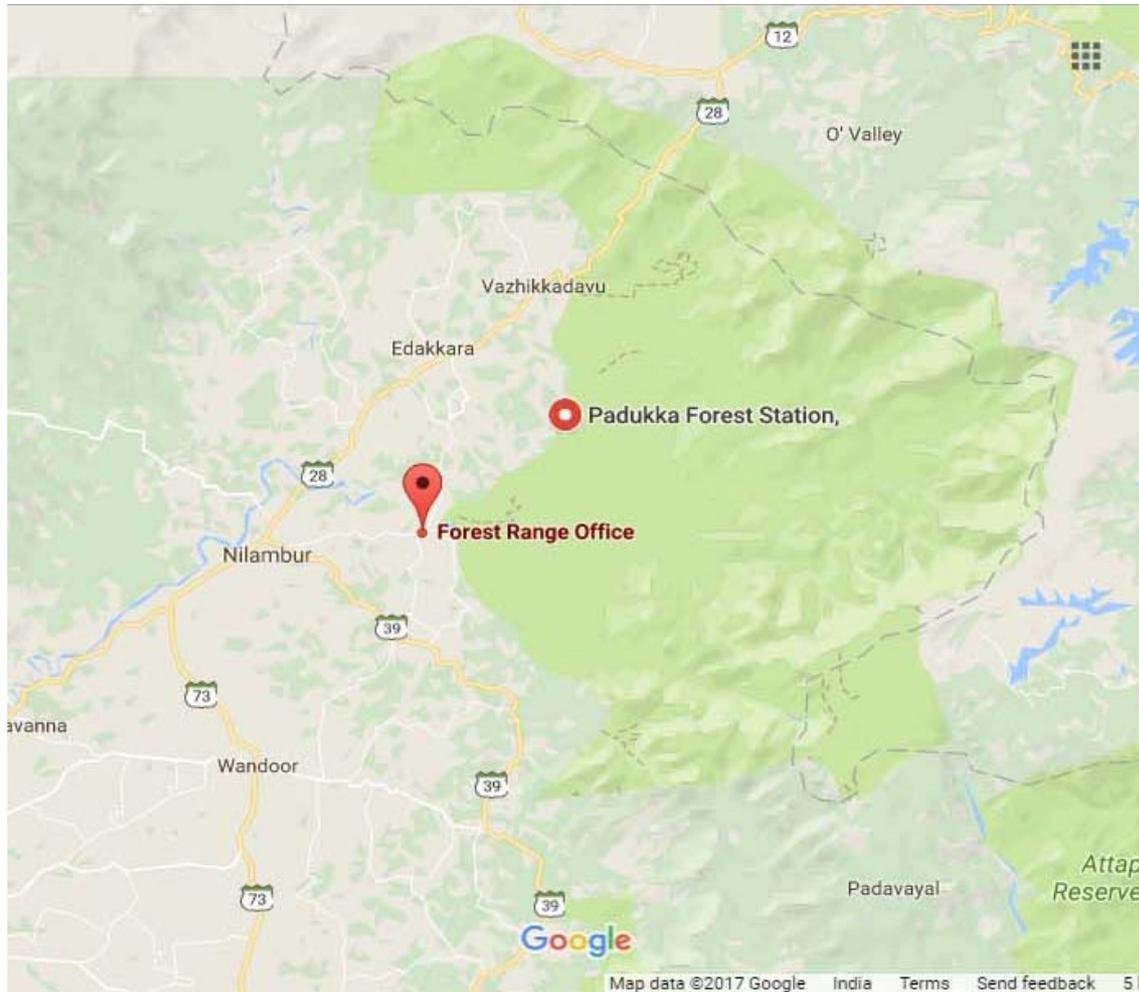


Figure 6: Map of Karulai Forest Range Office, Nilambur (Courtesy: Google Maps)

Some Background on Cholanaikkans

“The *Cholanaikkans* (*coolanaaykkan*) are called the Cavemen of Kerala. This primitive hill tribe inhabits the forests in the Nilambur Valley of Malappuram district of Kerala. The *Cholanaikkan* habitations are on the banks of the rivers in this valley. They still live in the rock shelters called *aale*. The people call themselves as *Colekkaru* (*coolekkaarū*) while others refer to them as *coolanaykkan*. The caves or rock shelters of these people have names. They distinguish between two persons having the same name, by adding their caves name before their proper name. They affix *-nu* to their names. The total population of this community is one hundred and seventy six. As per certain studies, it is said that Cholanaikkars and another tribe called Pathinaicken are sub category of Kattunayakan tribe (Nair 2013).

Separate census report of Cholanaikkan upto 1991 were not available, since they had been included under Kattunayakan. “They have been included in the Scheduled Tribes list of Kerala very recently” (Seetha 2005). Since, those who live in forest environment subsist on food gathering and n.w.f.p collection, same applies for Cholanaikkars also. “The Cholanaikkan are distributed in various regions of the forest in territorial

groupings, consisting of two to seven nuclear families. Territory is called *chemmam* and the each *chemmam* has a headman called *Chemmakkaran*." (Seetha 2005) Cholanaikkan are contemporary gatherer-hunters and generally said to have no knowledge of agriculture (Bhanu 2014). "Among the Cholanaikkan, naadu are territorial divisions, which are also clearly demarcated by rocks, trees, streams and hills" (Bhanu 2014).

Social Structure of Cholanaikkan Tribe

An individual is known after the territory, since the name of the territory is prefixed with the name of an individual such as Karimpuzha Kungan, Paanapuzha Kungan, Kuppanmala Kethan, Taalipuzha Kungan, Puuchappara Kungan etc. Similarly, women are also known after their territories, which are exogamous, patrilineal and patrilocal.

Cholanaikkan of one territory live close to one another, there are numerous occasions for give and take. Among the Cholanaikkan, members of all territory often visit one another, the frequency reaching its maximum between March and May. Visiting guests stay for a day or two, and are fed and given shelter. They are also presented with honey by the local *tsenmakkaran* (territorial chief); if he is too busy he takes the guest to the forest, shows him a honeycomb and asks him to collect the honey himself (Bhanu 2014).

Salient Features of Cholanaikkan Tribe

- It is classified as Primitive Tribal Group by Government of India classification in 1976 (Niju 2013).
- "The *Cholanaikkan* call themselves as *Malanaikan* or *Sholanaikan*. *Shola* or *chola* means deep thicket in the forest and *naikan* means king" (Padmanabhan 2007). They are called *Cholanaikkan* because they inhabit the interior forests. They are said to have migrated from Mysore forests.
- The reason for their settling in the Nilambur forests has two versions. One is that they failed in a battle and had to hide deep in the forest. The second version is that they were displaced by flood and they sought shelter in the forests. However the only credential to substantiate the former version is an antique sword which the community still holds on.
- The total population of the community is 56 families comprising of a *total population* of 176 persons. This is down from about 360 people in 1991 census. They are divided into smaller groups called *Jenmam*.
- They have no fixed dwellings but prefer to live close to water sources (Figure 10).
- "They live in rock shelters called *Kallulai* (*Kallu* means rock, *alai* means 'cave') or in open campsites made of leaves (Figure 7). They are found in groups consisting of two to seven primary families. Each group is called a *Chemmam*. They are the only cave dwelling community in India (<https://en.wikipedia.org/wiki/Cholanaikkan>).

- The group must have been much larger in the past as they remember four different identities of Arnadan, Kattunayikkar, Cholanayikkar and Paniyar.
- Each cave of the community has a name. And people with same names are distinguished by suffixing their name with that of their caves.
- The dwellers of rock shelters are called *Mannalar*. There are others in the tribe who are always shifting from one location to another.
- The community used to live scavenging the forest. Now they are also supported by ration.
- Their day starts with sunrise and ends with sunset – they do not use fire to extend the day. There is no clear evidence that this tribe have no knowledge of fire. The settlement areas are not electrified.
- They live in a protected forest with elephants and other wild animals including occasional sighting of tigers. Antelopes are very common.
- Until about 30 years ago (till mid to late 1980's) they wore no clothes and their bodies were not covered in any way (*informed directly by present Mooppan during his visit to RSC Calicut*). They now have clothing provided by government and other charities.
- They occasionally come with surplus bamboo baskets and other forest produce which they sell to the government agency. The community has no use of this but the youngsters occasionally going to school etc (Figure 11). use this money. This practice has started in recent times when some charity institutions were providing them tools to cut trees and bamboos.
- They speak a language which is weakly called Dravidian but it is not directly related to any of the modern Dravidian languages – the sound of their talking gives a whiff of similarity to Malayalam, Tamil and Telugu but direct association of words is not seen. The standard claim is that the language is a mix of Malayalam and Kanada. A detailed study of the language [5 see section 10] suggests that the language is Dravidian. However it does seem to have a lot root words of many of the modern words in the Dravidian languages. Their names also suggest local words and do not carry any names from Hindu mythologies or other more prevalent names suggesting long period of isolation allowing the formation of distinct language isolates.
- While men and women of the group tend to move and sit separately, there is, in general no gender separation nor gender suppression. The women are quite happy to take lead in activities.



Figure 7: House of Cholanaikkans (Picture Courtesy: Vaidyar 2012)



Figure 8: Faces of Cholanaikkans (www.hrdsindia.org/tribals.html)

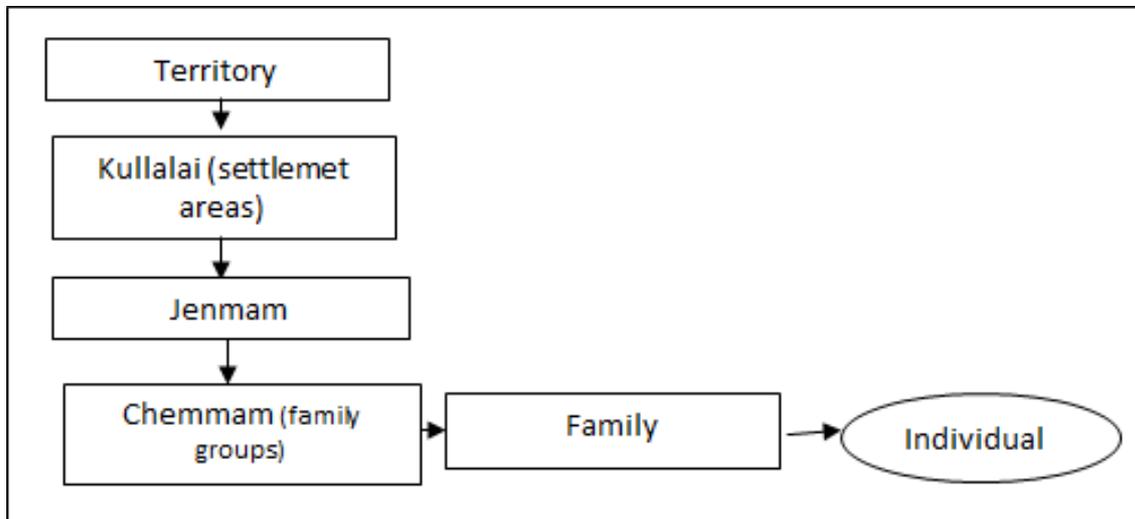


Figure 9: A simple anthropological model of the Cholanayakkar tribe residing in Karulai and Chungathara forest ranges in Nilambur in Kerala

Anthropology of Cholanaikkan Tribe

- The Cholanayakkans are generally of short stature about 1.6 meters (5 feet 5 inches) with well-built sturdy bodies. The complexion varies from dark to light brown. The faces (Figure 8) are round or oval with depressed nasal root, their bridge being medium and the profile straight, lips are thin to the medium, hair tends to be curly. They tend to have some features which are more African like than that of the common population. No genetic profile is available. It is likely that they are Austro Asian in origin (https://en.wikipedia.org/wiki/Cholanai_kkan).
- The group that we met was a good mix of the young and the old but their age is impossible to determine. The absence of infants in the group must almost certainly be data bias as the people with infants may not want to travel during their first visit to Kozhikode as mentioned previously.
- Household chores such as storing food grains, cleaning, drying, cooking, sharing and entertaining guests are done by the women. In the absence of a woman a male member may do the cooking and serving (Mohanty 2004).
- They primarily eat plants, leaves, fruits, mushrooms, seeds and tubers but can also include fish, birds, rabbits, pigs, wild buffalos, monkeys and turtles. However, they do not use milk at all (Mohanty 2004). In general however, they favour vegetarian food as informed by Mooppan during their interaction at RSC Kozhikode. Now they augment it with the ration that the Government gives them.
- The way they entrap monkey is quite peculiar. It is a collective venture. They chase the monkey and track it towards a tree, which stands separated in the forest. Once they make sure that there is no way out for the monkey to get away they would cut down the tree to catch the animal.

- Scavenging and fishing are done by both the genders but men play the primary role with women assisting more in gathering and transportation.
- The *Cholanaikkan* tame animals and birds only as a hobby. Though they birds like parrot, hen and hornbills they never use them for milk, egg or meat. Thus, domestication and using them not a part of their culture.
- *Cholanaikkans* abide by a set of rules framed by their ancestors.
- The Chief of the community is called the *Mooppan*. He has the authority to resolve disputes among their members. The authority and power of the *Mooppan* is transferred to the next generation symbolically by conferring his inherited Staff of Power to whomever he wishes to transfer. And invariably it would be to his son if he has one. The Staff of Power is called the *Chemmathadi*.
- They are governed by a council of elders (called *Jenmekkaram*) which controls the activities of the group.
- They celebrate their own forest festivals when they percussion musical instruments of their own creation.

Modes of Cholanaikkan's Worship

- For worship, they take an undressed stone with a curved top (shaped like the head of a snake), keep it under a large tree and worship it. But have no great expectations from their god.
- The tree is called the '*Dheivamaram*' which means tree of god.
- They do have a concept of ancestor worship – but do have more broad based spirit worship. They worship divine power and spirits. They worship god of the jungle (*Malalli Diavam*), metal image of a tiger (*Uliuruvu*), and images of Ox (*Kalaiuruvu*) and snake god (Mohanty 2004).
- One of their traditional feasts which can be compared with the harvest festival of farming communities is '*Dheivaoottu*' (meaning - feeding the deity). This festival is during the honey harvesting season invariably in April. People offer a part of the honey to their god.
- They do not have rituals for birth. However, when a child is born in a *Cholanaikkan* family they lay the child on the ground in east-west direction (the head towards the east). Just as the 'east' marks the beginning of the day, it represents the dawn of the individual's life.
- They refer to Sun as *Nyaram* or *Dinga* and Moon as *Thinkam*.
- They regard Sun with reverence and bury their dead with the head to the East.

- One celestial feature they know well is shooting stars which they call *Katui* and to them it resembles ambers of the fire sent by the gods.

Marriage Customs and Practices

- Cholanayakkan is an endogamous unit. They only marry within the community. They follow exogamy within each *jenmam* (Figure 9). This is one of the reason why they avoid all contact with the outside world.
- They prefer to have a bride from another subgroup of their own group and prefer to marry mother's brother's daughter/son or father's sister's daughter/son as a companion (Mohanty 2004).
- It is customary for a young man to find his mate. If they wish to continue their relations, the husband (*gunda*) and the wife (*ennu*) allow themselves to be seen by the girl's parents or the local chieftain. Thus the relationship is recognised as a marriage companion (Mohanty 2004).
- In the event of too many men wanting the same bride, the community chose the groom through certain competitions. It could be like climbing up a tree with many honeycombs and bring down maximum honey. And in the event of tie the competitors had to prove their mettle venturing into wrestling! The winner marry the girl.
- The dowry system prevailing among Cholanayakkan is called *Mothalana*. It is rather different from conventional dowry system. There are two types of *Mothalanas*. One is given at the time of marriage and the other at the time of the death of husband. At the time of marriage *Mothalana* has to be given to the bride by the groom's family. At the time of the death of a husband she is entitled for *Mothalana* from the siblings of her husband. Their traditions and customs have paramount importance for safety and welfare of women in the community.
- A girl may also be abducted by the boy and such a capture is called '*edippiyodu*' resulting in a sexual union (*oppamaladu*), and if they allow themselves to be seen later to be living together, the marriage is considered complete companion (Mohanty 2004).
- They do not have any ceremony in connection with marriage [3] (Mohanty 2004).
- Nowadays, marriages are arranged by elders. The marriages are patrilocal – the bride goes to the groom's family (Mohanty 2004).
- Polygamy is generally discouraged, but a man in the community may have a maximum of three wives provided he can demonstrate a capability to sustain them. Polyandry is not practices in general.
- On passing away of a spouse, the partner (male or female) is allowed to remarry.

- A girl may be married at an age as young as twelve to thirteen years as rejecting a proposal may result in not being proposed to at all (Seetha 2014).

Integration Approach for Cholanayakkan Tribe

- In order to assist them, the government of Kerala has a weekly interaction programme every Wednesday. During these meetings, they are given weekly ration which includes rice, wheat, oil, potatoes, spices and onions. During such interactions the Cholanaikkans may also sell their items such as honey, baskets etc (Padmanabhan 2007).
- The state government has built about thirty houses for them by the banks of river Karimpuzha. Further, government also has provided single teacher residential school (called the Indira Gandhi Modern Residential school at Karulai) for them. However, all but two houses have been abandoned. No takers for these permanent dwellings (except two houses) since they prefer to stay in their original habitations. About twenty children have passed through this school at some stage.
- Children coming to the residential school (at Karulai) typically last one term only and the dropout at the end of one term is very significant (Seetha 2014; Paul 2013). So while some youngsters can speak broken Malayalam, the literacy rate is very poor and well below the official claim of 16%. However, there is a general feeling of the need to be educated.
- Only one youngster (Vinod) from the family has left the village to pursue studies – his initial education was in Ernakulum and is studying for ‘Bachelor of Commerce’ in a college in Pathanamthitta. He was not amongst the visitors. His ambition in life is to become an IAS officer.
- Three of the fifty families claim to have someone with basic literacy amongst them.
- The mobile phone penetration is 98%. From this it may be inferred that they have abstract concept of numbers as a tool for counting, or they may understand it as a string of symbols with or without order.
- During this visit, many in the community saw the sea for the first time. All of them refused to go in, excluding about ten youngsters who went in to wet their feet. However, egged on by the female volunteers, the women were quite happy to play common beach games while the men continued to cluster and watch.

Recent Observation and Information about Cholanayakkans

- Recently (within last two years from the date of present Moopan’s with the group visit to Kozhikode) their Chief (Moopan) passed away. The people were afraid of him since he knew black magic and most people avoided him.
- Not being involved with others all their lives, *their cultural expressions were also*

different – none for example clapped at magic show of the 3D show even though others in the audience did. They were generally unimpressed (or non-comprehending) of what they saw – it just amused them and occasionally they smiled to themselves but there were no animated discussions or excited gesturing about what they had experienced.

- The present Moopan is a man named Konkan. He has a sister named Vellan. She is married to Panapooyam. They have five children who are all being educated.
- A person called Balan who has studied till class twelve, works as a forest guard and provides a link to the community. He stated his age as thirty four years.
- During the meeting with the ration distributing people, the community shows no really interest in communicating or mixing with outsiders, preferring to keep the contact to a minimum.
- When asked to talk amongst themselves in their own language in front of a video camera, they were quite excited and merrily talked, but by and large men and women had separate discussion groups and there was little cross talk between males and females.
- Members often remained separate by gender to the extent that it was impossible to even guess who was married to whom – neither the spouses nor the children of a family form separate subgroups. The segregation was by age and gender. There were very few exceptions. One young child, confused and scared searched for security with an elder, presumably her father who provided protection without any serious communication between them. She just came and sat on the father's lap and then they moved together. Hardly any word was exchanged between them.
- In recent times, due to decline in female population they have married women from another equally unknown but relatively larger tribe called '*Kattunaikkans*'.
- All through the trip, the group remained unconcerned about the outsiders – showing neither anxiety nor interest and only occasionally looked around the galleries at the science centre. They exhibited no interest in communicating with the hosts. Even when felicitated, they remained indifferent. Some youngsters who could speak Malayalam and had probably seen more of the world were an exception.
- The impression of the group is that they are largely pacifistic and not given to violence. The children seem remarkably unconstrained and seem to be growing up in a relatively unstressed environment. This is confirmed by a more detailed description of their life *in situ* (Seetha2014). However, no one ill-behaved, neither displayed curiosity about exhibits to the level of being destructive. At the same

time, they were willing to experiment with some of the strange demonstrative artefacts of the Science Centre.

- While eating, appear to satisfy hunger rather than relishing the taste – they often ate each item in the food – rice, dal and chicken separately. However, there was little wastage of food and they left their eating place clean unlike the discarded material left behind by the volunteers who were with them.



Figure 10: Water Collection using Bamboo Splits (Courtesy: RSC Calicut)

Their Science Temperament

- Time of the day is determined by a person's shadow. For example, they come for their weekly ration collection at a time when their shadow is the smallest (at noon).
- They have no sense of passage of time beyond the day.
- They identify seasons by sounds of crickets, birds etc. Cholanaikkans foresee the transition of the seasons taking indications from the nature and its life. They listen to the chirping of crickets (beetles). They say that the kind of crickets in each season varies and so also the sound. Moreover, the presence of yellow butterflies in huge number towards the end of the monsoons is yet another placard of nature announcing the arrival of sunny days ahead.
- They can also hear and smell animals at great distances. This in turn indicates their extreme endurance in auditory and olfactory body functions. It follows that they have high concentration power.

- They are aware of plants that can provide relief from ailments. Further investigation through interacting with them would throw more light on their traditional knowledge of medicine.
- *However, they do not ferment foods to produce alcohol and are unaware of intoxicating drinks (except by contamination through recent contacts).* From this it may be inferred that they are ignorant about 'fermentation' process. Thus they may have better functioning of liver compared to a large section of modern urban or rural dwellers.

Cholanayakkan's Astronomy

- Absence of farming activities made sky-watching a never compelling affair for the Cholanaikkans. Hence their knowledge of star pattern in the sky is minimal.
- They refer to Sun as '*Nyaram*' (close to *Nhayar* in Malayalam; which means Sunday) or '*Dinga*' and Moon as '*Thinkam*' (*Thinkal* in Malayalam represents Moon).
- They are very happy when the Sun is overhead as they feel being protected by the Sun.
- They regard Sun with reverence and bury their dead with the head towards West indicating the end of life as opposed to birth.
- They had a vague memory of eclipse. They remember that the sun can turn blue.
- One celestial feature they know well is shooting stars which they call *Katui* and to them it resembles ambers of the fire sent by the gods.
- They consider shooting as gods and they call them '*ChootuPaayuka*'. '*Choot*' in Malayalam means 'Dry coconut Leaves, which is used for making Fire torches'; '*Payuka*' means 'to run fast'. Thus they correlate with the phrase with comets or shooting stars.
- They know stars as *Koram* and *Udumbam*. They do not identify the stars and know no star patterns – in the planetarium when the night sky was shown to them, they smiled and walked out.
- They also do not know the fact that the sun rises at different points in the horizon over the year and hence do not associate it with seasons.

Linguistic Studies

The most extensive documentation of *Cholannaikan* language is done in (Nair2013). The text below is reproduced from (Nair2013). The reason for reproducing it here is that it gives a reader an opportunity to judge the similarity and contrast between the *Cholanaikkan* language and the different Dravidian languages. We have more or less

directly reproduced from (Nair2013) and we apologize for any typing errors that may have inadvertently crept into our reproduction.



Figure 11: Tribal School at Nilambur (Courtesy: wikipedia)

“Certain linguists such as consider Cholanaikka language as a distinct Dravidian language in its own right, and the notion they consider the notion that it is an admixture of Tamil, Malayalam and Kannada as erroneous.

An interesting feature of Cholanaikkan speech is the absence of plural markers, which are used in all other Dravidian languages. Hence they use. *ondumara* ‘one tree’ and *eedumara* ‘two trees’. The accusative case marker is *-a*, which sometimes freely varies with *-e* and it occurs after the inflectional increment *-in*. For example both *kūsina* and *kūsine* mean ‘child’. The instrumental case marker is *-indu*, which freely varies with *-indu*. The *-indu* marker is used more frequently. This is not related to proto Dravidian suffixes. For example, *kayttindu* means ‘by knife’. The ablative case is expressed by the marker *-liddu* and it has two variants, viz., *-liddu* and *-ddu*. For example *alliddu* means ‘from there’ while *maraliddu* ‘from the tree’.

The genitive case marker is *-ø* and it freely varies with variant *-e*. This cannot be considered as a reflex of the proto Dravidian. **-aor* **-atu*. Muralidharan (Muralidharan 1998) considers this is an independent innovation in this language. For example the words *ennuandennule* are used to imply ‘my’. Similarly, the locative marker is *-lu* and

it has a variant *-kad_oe*. *-lu* occurs only with non-human nouns. For example *maralu* means 'on the tree' while *ennukad_oe* 'with me'. The purposive case is marked by *-gāgi*, which freely varies with *-ga*. Hence *manegāgi* means 'for the house' can also be pronounced as *manega*.

The vocative case is marked by the marker *-ā* and it has three variants viz., *-ā*, *-e* and *-ī*. The first one occurs after nouns ending in *-annu*. And *-ē* occurs after stems ending in *-u* or *-e*, and *-ī* occurs with feminine nouns. The personal pronouns are given in table 1.

Table 1: Personal Pronouns

Cholanaikkan word	Meaning	Cholanaikkan word	Meaning
<i>naanu</i>	I	<i>nānke/nanke</i>	we
<i>en</i>	my	<i>enke</i>	our
<i>niinu</i>	you	<i>nīnke/ninke</i>	you (Pl.)
<i>taan/tan</i>	oneself	<i>tanke/tānke</i>	themselves
<i>avnu</i>	that-he	<i>avru</i>	that-they
<i>ivnnu</i>	this-he	<i>ivru</i>	this-they
<i>ave</i>	that-she	<i>ive</i>	this-she
<i>adu</i>	that-it	<i>idu</i>	this-it

In general the personal pronouns agree with those of Malayalam. The interrogative forms of Cholanaikka are listed in table 2.

Table 2: Interrogative Forms

Cholanaikkan word	Meaning	Cholanaikkan word	Meaning
<i>Aanu</i>	who	<i>eennei</i>	how many
<i>Evnu</i>	which man	<i>eve</i>	which woman
<i>Edu</i>	which thing	<i>evru</i>	who
<i>Ellī</i>	where	<i>enda</i>	what kind
<i>Etteku</i>	which side	<i>endu/etteku</i>	when /now
<i>Ende</i>	in which manner		

The gender system agrees with other south Dravidian languages except Toda. The masculine gender markers *-nu*, and *-anu* can be connected with proto Dravidian suffixes.

The feminine gender markers are *-itti*, *-i*, *-e*, *-ci*, *-atti*, *-iti* and *-ø*. The markers *-tti* and *-e* are reconstructed to south Dravidian Suffixes. For example *-atti* is attested in all south Dravidian Languages and Telugu. The marker *-cci* is retained by Tamil, Kodagu and Kannada. In other cases, they prefix *gandu* and *ennu* to denote male and female gender respectively. Hence *eṇṇukūsu* is a female child while *gaṇḍāṭu* means a male goat. The future tense marker *-mu* found in this language is not found in any other South Dravidian language. This is considered as an independent innovation in this language.

After future tense markers *-um* and *-mu* there is no *-adu* (personal termination) ending. In all Dravidian languages except Malayalam there is pronominal termination.

A word typically has Verbal base + tense marker + personal termination (*va + nt + aann* ‘came’ in Tamil). However, Muralidharan (1988) points out that in this language, the common pronominal termination *-adu* is used for all persons of past and present tenses. The form *-ø* personal termination, is used for the future tense. This is a special feature of this language.

The negative existential is denoted by the addition of auxiliary *-illa* to the infinitive form of the main verb and verbal noun forms in this language. Hence *baralilla* implies ‘won’t come’ while *tinnadilla* implies. ‘Won’t eat’. The causative markers *-picc-* and the permissive marker *-aku* are also unique features of this language. Hence *nood, piccum* means ‘will cause (someone) to see’ and *nillaku* ‘(one) may stand’ while *caad, aku* means ‘(one) may jump’.

The hortative form is expressed by the marker *-il* as in Kannada. Hence *nad, li* means ‘let (someone) plant’ while *tereli* means ‘left (someone) open’. Some additional peculiar lexical items found in this language are given in table 3.

Table 3: Peculiar Lexical Items

Cholanaikkan word	Meaning	Cholanaikkan word	Meaning
<i>iṇḍ, reci</i>	Wife	<i>iid, ubooyi</i>	‘penis’
<i>Eme</i>	Frog’s croak	<i>eru</i>	join
<i>Aviḷikuusu</i>	twin	<i>udiletaadddi</i>	moustache
<i>divvenumkalu</i>	crescent moon	<i>cikku</i>	hiccough
<i>cinnoonnu</i>	mole	<i>karse</i>	lungs
<i>Cuvale</i>	earthworm	<i>kuuṭruseyṭṭi</i>	dove
<i>Kaanana</i>	dowry	<i>kuuyennu</i>	friend
<i>gool, imara</i>	banyan tree	<i>mondu</i>	rainbow
<i>niiraad, alu</i>	puberty		

All this suggests that the language, while sharing some characteristics of the Dravidian languages, they have subtle but significant differences which may suggest a parallel growth of the language” (Nair 2013).

Discussion and Analysis

The main aspect of this study was to ascertain the development of curiosity and scientific temper among the members of Cholanayakkan tribe. Further considering that as pre present estimate, there are about 176 remaining persons in the tribe, a sample of 50 can be considered as adequate to reflect upon the group knowledge as a whole. To analyze these, we have to move into the arena of the sociology of knowledge, or more accurately, of beliefs. The difference here is a distinction between belief, which is a naturalistic notion, and knowledge or rational belief, which are normative notions in

that they involve rationality conditions such as reasons and justifications for belief, or coherence of belief. Importantly, any explanation of why a person knows something must refer the involvement of knowledge with normativity, unlike belief, places it outside the realm of empirical sociological investigation. We have noted that Cholanayakkans could correlate the presence of day with the sun. Their day starts with sun rise and ends with sunset. Further, they have provided a name to the moon (i.e. Thinkam). There is no common knowledge of using moon as a time measuring object, as per the present Moopan, or the tribal chief. But an immediate conclusion based on the present Moopan's interaction with us may not be totally indisputable as it is also learnt that the present Moopan is the young son of the last Moopan, who expired some time back, and with him some of their traditional knowledge may get lost. Further, it is learnt from the interaction that when a child is born in a Cholanaikkan family they lay the child on the ground in east-west direction (the head towards the east). Just as the 'east' marks the beginning of the day, it represents the dawn of the individual's life. So, from this remark it may be concluded that this tribe has a notion of direction for east and west based on sunrise and sunset. But from this it may not immediately follow that they have also developed the notion of north and south, as these are more abstract. There is no information whether they have observed any solar eclipses and which is difficult to observe directly, but on the other hand they might have witnessed a lunar eclipse (partial & total), which is easy and safely observable. As per Moopan, there is no fable or story developed by them to depict their belief on the phenomenon of eclipse.

As already highlighted before that they identify seasons by sounds of crickets and birds. Cholanaikkans foresee the transition of the seasons taking indications from the nature and its life. They listen to the chirping of crickets (beetles). They say that the kind of crickets in each season varies and so also the sound. Moreover, the presence of yellow butterflies in huge number towards the end of the monsoons is yet another placard of nature announcing the arrival of sunny days ahead. This method of identifying season is a part of their traditional knowledge. From this information it may be deduced that their curiosity faculty of understanding nature has not matured to try to know how actually different seasons occur. Since Cholanayakkans reside and move about in deep forest, they will always encounter the sound of cricket sounds and based on the pitch, intensity and other audio modulations of the sound of the cricket, get an insight into the type of season they may witness shortly. So, relative to this particular tribe, knowledge of season and sound of cricket has led to a belief formation regarding season. Observation is what distinguishes science from other epistemic enterprises like mathematics, philosophy and other pseudo-sciences. The content of our observations is given to us by nature itself – it constitutes our data. Thus its pronouncements are mandatory. But we may adopt opinions that go beyond what has been observed. So, in our pursuit to learn about the scientific temperament and beliefs regarding Cholanayakkans, there is nothing wrong to form conclusions, which are not directly provided by the information gathered (Psillos and Martin 2008).

The naturalistic orientation of “strong programme” of the Sociology of scientific knowledge is spelt out in four tenets, namely – *casuality, impartiality, symmetry and reflexivity*. The *casuality* tenet says that all scientific beliefs of all persons are to be casually explained in terms of purely naturalistic factor that leads to belief formation, from non-social matters such as our brain and cognitive structures, perceptual apparatus and sensory inputs, to social matters, such as a person’s socio-political and cultural context. The *impartiality* tenet tells us that , for the purpose of explanation, it does not matter what epistemic properties our scientific belief have, viz., whether they are true or false, rational or irrational, or lead to success or failure; all are to be explained. The third tenet, *symmetry*, tells us that “the same type of cause would explain, say, true and false beliefs.” The final tenet, *reflexivity*, tells us that the above tenets also apply to beliefs within sociology (Psillos and Martin 2008).

Thus from the “strong programme” point of view, we may make some generalisations regarding the scientific culture of Cholanayakkans:

- Their observation of nature and correlations with various natural phenomenon are at a very preliminary level incorporating their own belief structure.
- Their reasoning faculty avoids complications. They do not pounder upon higher complexity.
- Due to their limited needs for leading their life, they did not pounder upon why any event takes place.
- As per their process of nurturing, they lose the faculty of curiosity and inquisitiveness which every infant has at the time of their birth. This is the reason respond less when they interact with models and exhibits in the science centre, perceive a planetarium shown with simulation of starry night.
- They are fearful of the unknown. This limits their mental faculty to probe further. This is also the reason they beliefs in spirits of departed being, they do not move to wet their feet in waters, when taken to beach.
- They have knowledge of east and west direction without any indication of having the knowledge of east and west directions.
- They are aware of plants that can provide relief from ailments. So, they have some type of knowledge of medication.
- They fail to comprehend the phenomenon of shooting stars, and attribute it to act of god.

Conclusion

Cholanaikkansis a district tribe with several unique characteristics indicating that they are under severe strain of modernisation. It is therefore important and urgent to

document all aspects of their life, language and belief systems. Taking advantage of their visit to Regional Science Centre, Kozhikode on 3 March 2016, we have attempted to record observations and interactions with these people to the extent possible.

In many ways they define a unique culture with little connection with other tribal communities of India. They have very intermittent relation with the settled communities of India. This shows up in their approach to other people and in their own base of learning and science (Vahia and Halkare 2013; Vahia et al. 2014). Their lifestyle, language and scientific belief systems are highlight their individuality and identity. We speculate that they also live in a region rich in megaliths and may well be an Austro Asian tribe that built such megaliths. This needs to be investigated through their genetic profiling.

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