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ASTRONOMY OF THE KORKU TRIBE OF INDIA

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Abstract: The Korku are an ancient tribe of India believed to be of Austro-Asian origin. They trace their origin to the eastern Indian region of Chota Nagpur but large numbers of these people are settled in the forest reserves of central India. We visited twelve villages almost exclusively populated by Korku people in Northern Maharashtra about 200 km north of the city of Amravati, and focused on recording their astronomical beliefs. While living in the same Satpuda Mountain ranges, these groups differ in their astronomical beliefs from other tribes in the region. They focus on the Big Dipper (part of Ursa Major), and also show an understanding of some other aspects of the sky. They are particularly fascinated by eclipses (but treat solar and lunar eclipses the same) and have elaborate ways of measuring time. They also are aware of conjunctions of Mars and Venus and consider these to be of importance for marriages. They also are fascinated by Taurus.

In this paper we report on the astronomical beliefs of the Korkus and compare these with the astronomical beliefs of other tribes in the region that have already been reported.

Keywords: India, Korku tribe, astronomical beliefs, Ursa Major, Taurus, conjunctions of Mars and Venus

1 INTRODUCTION

The tribes of India consist of Indo-Tibetan (or Tibeto-Burman), Indo-European, Dravidian and Austro-Asiatic (including Andamanese) (Reich et al., 2009). The Indo-European tribes are conventionally thought to be the people who travelled from northern India to the south and settled in intermediate locations where they mixed with the earlier Dravidian population (Rosenberg, et al., 2002). This is also visibile in Y chromosome studies (Sengupta et al., 2006). These locations, largely in Vindhyachal and Satpuda Mountain ranges, divide the Indian Subcontinent into two distinct parts. These ranges have been the reason for distinct identities of South and North India in terms of ancient culture and language, which were magnified by access to the sea for people living in the southern part of the Peninsula. The mountain ranges are well served by multiple rivers and their tributaries, particularly the Tapi and the Narmada. However, due to the extreme weather, where the summer-to-winter temperature difference can be >40° C, the region has not been overrun by modernisation and is sparsely populated.

In recent years, large parts of this region have been declared forest reserves and tiger reserves, which has largely prevented people from other parts of India settling in this region. Meanwhile, the original Korku residents of the forests largely have been allowed to stay in their traditional villages–except in those regions declared as 'core tiger reserves'. Villagers from these latter regions have been resettled (*en masse*) to outer parts of the forest reserves, allowing them to continue their traditional lifestyle. Tribal schools, access to modern amenities and other signs of modern civilisation are luring these groups into greater integration with Indian society, but by and large the older generation continues to adhere to the traditional lifestyle, which offers many benefits.

In view of the onslaught of modernity, however, the original lifestyle of the Korku is changing and, more importantly, their traditional knowledge is being lost. Several anthropologists—but particularly Devgaonkar and Devgaonkar (1990)—have done an admirable job in recording aspects of the social and cultural live of members of the Korku Tribe.

For our part, we have focused on Korku astronomy. This is part of a larger study of ethnoastronomy in India, and elsewhere we have recorded the astronomy of the Gonds (Vahia

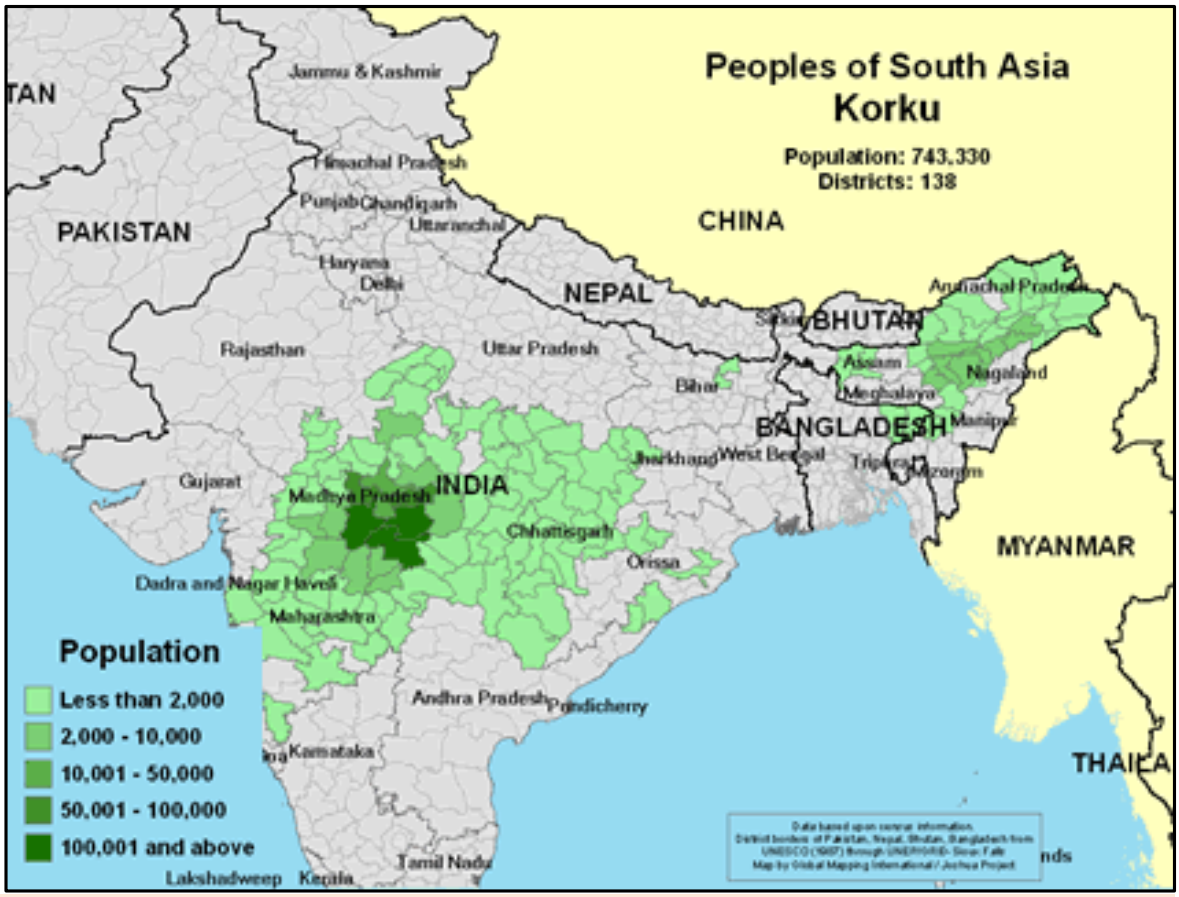

Figure 1: Geographical distribution of the Korku people (after joshuaproject.net/people_groups/17269/IN).

and Halkare 2013), the Kolams and the Banjaras (Vahia et al., 2016). In this paper we report on the astronomical beliefs of the Korkus.

2 THE KORKU TRIBE: A PROFILE

Devgaonkar and Devgaonkar (1990) have provided details of the Korku Tribe, and they have also been studied by Chaure (1987) and are briefly mentioned by Vaidyar (2008). Their currently geographical distribution is shown in Figure 1.

Although they now are largely concentrated in Central India, they have their roots in Eastern Orissa and in regions of north-eastern India (Nagaland and Arunachal Predesh) adjoining Myanmar. They belong to the Austro-Asiatic group of people, and as the earliest genetically-modern (*Homo sapiens sapiens*) 'out of Africa' migrants in the Indian sub-continent, are thought to have arrived in the region approximately 60,000 years ago (Rao et al., 2003, Reich et al., 2009, see also Chakravarti, 2009). Today, the Korku are geographically and culturally isolated from the mainstream population of India and have little contact with other groups or other tribal people (who may be of Dravidian or Indo-European origin). The Korku are by far the most western-situated of all Austro-Asians, and they belong to the Munda group of people who largely reside in Eastern India and Myanmar (Mukherjee and Chakravartti, 1964; Parkin, 1988). Another great Indian tribe, the Gonds (Deogaonkar and Deogaonkar, 1990), also live nearby in Central India.

The Korkus derive their name from the combination of the word 'koru', meaning 'man', and 'ku', which makes it plural, meaning 'tribal men' (Russell, 1916). Members of the Korku Tribe speak the Korku language, which is part of the Austroasiatic language family (Parkin, 1991). Currently, the Korku language is considered an endangered language (Sengupta, 2009). The Korku typically reside in small groups of no more than a few hundred people. Their houses are made from bamboo and other plant products and thatched with mud; in some cases cow dung is also used as a plaster.

The Korku live in a relatively arid region of India with forests and open plains. Originally they survived by scavengering and hunter/gathering, but within the last half century they have been introduced to agriculture and now live off farming and forest products. However, farming is marginal, and those who reside in forest reserves are no longer permitted to collect food from the forest, so they are forced to practise subsistence agriculture. To help compensate

Figure 2: Memorial stones for Korku people

for this ecologically-challenging existence, many Korku like to consume liquor made locally from the flowers of the *Mahua* tree.

According to a census conducted in 1991, the Korku tribe then numbered 452,149 (mptribalmuseum.com/tribes-korku.html), while the 2016 Joshua project website reports their current population as 1,015,000,000 (joshuaproject.net/people_groups/17269/IN).

The Korku bury their dead with the head to the south. This is because they believe that the gods are in the north so when the body springs to life in the presence of the gods it will look directly at the gods. The Korku erect a memorial pillar which is called *Munda*. A typical memorial for one of their dead is shown in Figure 2. These typically consist of a wooden staff with markings of gods and the dead (see Gordon, 1936 for further examples).

2.1 Genetic Data

In a recent study (Nayak and Das, 2015) showed that genetically the Korku are related to other Munda Austro-Asiatic tribes. Earlier, Rao et al. (2003) reported an extensive study of the genetic make-up of the Korku. They concluded that the Korku showed evidence of demographic expansion, consistent with a long history of migration and an origin in western Orissa (ibid.). Deora and Zade (2014) have studied the sickle cell disease amongst the Korku and suggested that this is a cause of the high infant mortality that typifies the tribe.

3 KORKU ASTRONOMY

In order to study Korku astronomy over a period of three days we travelled ~1,000 km within the region of northern Maharashtra, north of Amaravati city. Between 31 May and 4 June 2016 we visited ten villages where there was a pure Korku population that was not mixed with other communities. This was preceded by a survey study of two villages on 23 and 24 May 2016. Details of our visits, including the village names and other data, are given in the Appendix.

Details of Korku astronomical beliefs and the villages where these were recorded are listed in Table 1 below. The villages in the list are respectively Zingapur, Rani Tamboli, Kawadaziri,

Table 1: A summary of the astronomical beliefs of the Korku tribe.

Belief	Village												
	1	2	3	4	5	6	7	8	9	10	11	12	total
Milky way													
As path	1	1		1	1	1		1	1	1		1	9
Story of Elder brother and younger man's wife					1	1		1				1	4
As council of gods	1												1
Big Dipper													
The quadrilateral of Big Dipper as Golden Cot	1	1	1	1	1	1	1	1	1	1	1	1	12
Three trailing stars of Big dipper as thieves	1	1	1	1	1	1	1	1	1	1	1	1	12
Deformation of bed					1	1			1	1			4
Servants on the cot		1						1					2
Water bearer in the middle of the trailing star	1					1		1		1	1		5
As clock in the night				1	1	1			1				4
Polaris													
name	1	1											2
Mythology		1											1
Orion													
Plough	1	1	1	1	1	1	1	1	1	1	1	1	12
Bullocks	1	1	1		1	1		1		1			7
Man								1		1			2
Eggs (Head of the Orion)				1	1	1							3
Knowledge about it is not seen April to October	1	1	1	1	1	1		1	1	1			9

Belief	Village												
Myth about why it is not seen April to October					1	1							2
Whip to scare the birds								1				1	2
Pleiades													
Earthworm	1												1
Minced meat of cow		1	1	1	1	1					1	1	7
As a tool to remove husk							1	1	1	1			4
Canis Minor													
Bird	1							1	1	1			4
Eggs	1							1		1			3
Tree										1			1
Auriga – Gemini													
Well	1		1					1	1			1	5
Ladies taking water from the well	1		1					1	1			1	5
As bird nest											1		1
Taurus													
Other identification	1												1
Aldebaran as cowherd		1											1
As a place for grinding								1	1				2
Family								1					1
Scorpius													
Scorpius in the lower part	1			1	1				1				4
Complete Scorpius								1		1			2
Crux													
Dagger	1												1
As *Mahua* tree									1				1
Have a story associated with it	1								1				2
Virgo													
Linga	1												1
Moon													
Have a name for name	1	1	1	1	1	1	1	1	1	1	1	1	12
Give importance to glow around the Moon	1	1	1	1		1		1	1	1			8
As monsoon predictor	1	1	1	1		1		1	1	1			8
Mythology		1			1			1					3
Sun													
Name	1	1	1	1	1	1	1	1	1	1	1	1	12
Mythology		1						1					2
Eclipse													
As myth	1	1			1	1		1	1	1	1	1	9
Tool to track eclipse using a shaft	1			1	1	1	1	1	1	1			8
Omen for Eclipse	1	1		1	1	1		1	1				7
Venus													
As morning star	1		1	1	1	1	1	1	1			1	9
As evening star					1	1	1	1	1				5
Venus as cowherd					1	1							2
Mars													
Name			1		1	1	1	1	1				6
Conjunction of Mars and Venus													
As a time for marriage					1	1	1	1	1				5
Comet													
Star with tail	1	1	1					1	1	1	1		7
As broom				1	1	1							3
Omen for Comet	1				1			1	1				4
Meteor													
As excreta of stars	1	1	1	1	1	1	1	1	1	1	1	1	12
As a falling star	1												1
As a reminder of death of some important person		1							1				2

Makhala, Raipur, Borata Kheda, Bela, Jamunala, Baghalinga, Gaulkheda Bazar, Hatida and Gadgabhandum. They appear in the same sequence in the Appendix. Of these villages, Bela, Jamunala, Baghalinga and Gaulkheda Bazar (7–10 respectively) are located on the plains, while the others are within forest reserves.

Here we discuss the major Korku beliefs that were recorded in several villages. We begin with the Milky Way and conclude with Solar System objects. The relative importance of each belief can be gauged from the number of villages that repeat a particular story (see Table 1).

The Milky Way is recognised as a path, but many villagers were uncertain about the travellers on this path. However, several villagers told us that the Milky Way had two paths. On the primary path a gentleman was walking and when he encountered the wife of his younger brother she had to change to a subordinate path. One village also told us about the Milky Way as the meeting place of the Gods, who decide on the allocation of all the human needs.

The most commonly-held belief is about the Big Dipper part of Ursa Major (Figure 3). As with many other cultures in Central India (see Vahia and Halkare, 2013; Vahia et al., 2014), the Korku identify the four primary stars of the Big Dipper (Dubhe, Merak, Phecda and Megrez)

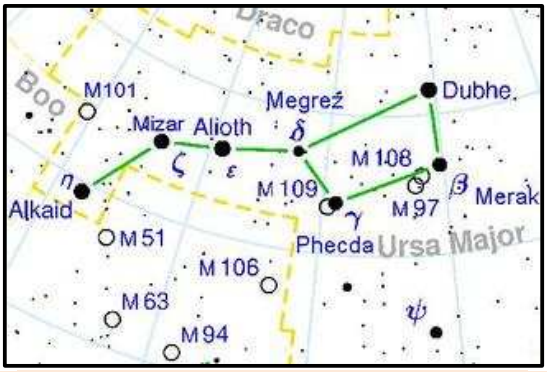

Figure 3: Big dipper part of Ursa Major (en.wikipedia.org).

as a cot, and the following stars, Alioth, Mizar, Alkaid, as three people trying to steal the cot. However, the stories vary in detail. The cot is believed to be made of gold and it is acknowledged that it does go below the horizon (unlike the Gonds, who insist that the lady in the cot never sleeps as it does not go below the horizon; see Vahia and Halkare, 2013). Also, the occupants of the cot are different for the Korku. In most villages they are undefined, but in two villages they reportedly are servants who need to get up in the morning and start work. In five villages the Korku also identify the double star Mizar, and call it a water jug. They also recognise the 'deformed' nature of the bed, caused by its being tugged by the thieves.

The Korku also are fascinated by the Orion region. They identify the belt of Orion as the plough, and Rigel and Saiph as bullocks, even though their involvement in agricultural activities is a relatively recent phenomenon. Betelgeuse is identified with the man ploughing the field. They can see a whip in the fainter stars of Orion, near Bellatrix, while some villagers (all living in the forest) can see birds' eggs at the head of Orion (near Meissa). Many villages know that Orion is not visible (at all) from April to October, and a few of them suggested that this is because the gods do not want humans to copy the gods' own plough. Very few Korku identified Taurus, but the Pleiades were identified in seven forest villages as the location of minced cow meat, while four villages identified it as a tool for beating wheat to remove the husk.

One major surprise was the identification of Auriga, as well as Castor and Pollux (the brightest stars in the constellation of Gemini). The Korku identify Auriga as a well of water (to be used for the farming activites that are done by Orion) and Castor and Pollux as two ladies who bring water from the well.

Several villages were familiar with *Bichu*, and identified it as the local name for Scorpius or a region close to Scorpius (generally near the tail of the scorpion). Based on these and other descriptions, in Table 2 we list the names of various stars identified by the Korku, and their conventional names. The magnitudes in this table are taken from Stellarium.

As regards the Sun and Moon, the Korku have an interesting tale. They say that amongst all the gods who influence our lives (see the creation myth below), only the Sun and the Moon are visible. Both are sons of a common mother. At one time the mother sent her children to attend a religious festival where some food was distributed. She asked them to bring back some food for her. In one version, the Sun ate all the food he collected, stole the food saved by the Moon, and then presented this to their mother. The mother, unaware of the treachery, blessed the Sun with brightness while cursing the Moon and causing it to wax and wane. In another version, since the Sun did not bring back any food, it was cursed to be burning hot while the Moon lived a more soothing life. The Korku believe that the Sun and Moon, being the guardian gods of humans, absorb human sins and when these overflow, an eclipse occurs. Then a demon tries to eat the Sun or the Moon. In some villages, the demon eating the Sun or the Moon is recited without the accompanying that during an eclipse they must take a long wooden pestle used to grind food and put it on a

Table 2: Korku star names of and their Western equivalents.

Korku names for stars	Conventional names of stars	Apparent Magnitude
Southern Sky		
Dhanay	Rigil Kent ([redacted]Cen)	0.10
Charakhaya	Hadar ([redacted]Cen)	0.55
Bharada	[redacted]Cen	2.25
Pechla	Menkent ([redacted]Cen - 5 Cen)	2.05
Northern sky		
Dhur tara	Polaris ([redacted]UMi - 1 Umi)	1.95
Pahila chor (thief 1)	Aloth ([redacted]UMa)	1.75
Dusara chor (thief 2)	Mizar ([redacted]UMa)	2.20
Kaseti or *Dhona* or *Ghanti* (bell) or *Kudapa* or *dadudi* (water jar)	Alcor (80 UMa) (binary to Mizar)	1.96
Tisara chor (thief 3)	Alkaid ([redacted]UMa)	1.85
Well and water		
Kunva (well)	Constellation Auriga	-
Reike (water bearer)	Castor ([redacted]Gem)	1.90
Chaike (water bearer)	Pollux ([redacted]Gem)	1.15
Farming scene		
Harnangar (plough)	Alnitak ([redacted]Ori), Alnilam ([redacted]Ori) and Mintaka ([redacted]Ori)	1.85, 1.65, 2.40
Doba 1 (bullock)	Rigel ([redacted]Ori)	0.15
Doba 2 (bullock)	Saiph ([redacted]Ori)	2.05
Nangarnara manus (the person ploughing the field)	Betelgeuse ([redacted]Ori)	0.45
Arrangement for separating seeds from whey		
Circular ground for thrashing rice husk (*Khiryan*) beater using cow (*Khiryan*)	Aldebaran ([redacted]Tau), Ain ([redacted]Tau), Hyadum II ([redacted] Tau), Hyadum I ([redacted]Tau)	0.85, 3.50, 3.75, 3.65
Michan (rope to control the bulls)	Tabit ([redacted] Ori) and stars around it	3.15
Miryan (Central pole)	[redacted] Tau	3.40
Bird and eggs		
Pankheru (bird)	Sirius ([redacted]CMa)	–1.45
Bhori Aakom (eggs)	Meissa ([redacted]Ori) and stars around it	3.50
Bhori Aakom (alternate)	Wezen ([redacted]CMa) and Adhara ([redacted]CMa)	1.80, 1.50
Family and gods		
Pati (husband)	[redacted] Tau (just north of Aldebaran)	420, 4.25
Patni (wife)	[redacted]Tau	4.25
Mulga (son)	72 Tau	5.50
Diya Gomez (god of the day)	Sun	
Rata Gomez (god of night)	Moon	
Pleiades		
Gai Jijulu, *Kuthali Ku*, *Gaikasai* (all implying minced meat of the cow)	Pleiades	-
Bhotmongari (tool to beat husk to remove husk)	Pleiades	-
Gugul gothu	Pleiades	-
Miscellaneous		
Kiding, *Clemp*	Tail of the Conventional Scorpius	-
Nangi	Corona Austrialis	-
Tree of *Mahua*	Constellation of Lupus	-
Devgan Panchayat, assembly of gods	In the Milky Way near Scorpius.	-

plate with water. As long as the eclipse is happening, they believe that this implement will remain upright on its own (see Figure 4). At the end of the eclipse it will fall, and some people believe that the direction in which it falls indicates the direction from which air-borne diseases will arrive.

Another interesting aspect of Korku astronomy is that many people are aware of Venus, both as an evening and a morning star. But they have an additional myth. They say that there is another nearly-stationary star of *equal brightness* (we suspect Mars) in the sky and Venus moves close to and away from this. When the two stars are close, it is a celestial suggestion that marriages may be arranged at this time. When they are far away, it is a bad time for marriage.

The Korku consider a comet to be a star with a tail, or a broom star, and have no strong feelings about it in terms of omens. They believe that a meteor is an stellar excreta. In two villages the people said that a meteor indicated that somewhere a good person had died.

The Korku are aware of the rainbow and have a variety of beliefs about it. They believe that at either end of the rainbow there is an anthill, and if the anthill is dug into you get small soft nuggets of great value. Some believe that if a rainbow is seen during the monsoon, the rains will halt.

Some of the common songs of the Korku also invoke the Sun and Moon gods, seeking their blessings (Fuch, 2000).

4 DISCUSSION

4.1 The Creation Myth

The Korku have a unique creation myth. They believe that when God wanted to create humans, he sent out a crow to get some soil. While getting the soil, the crow dropped some of it along the way and that became the Earth. From the remaining soil the Great God (*Mahadeo* or *Shiva*) fashioned a man and a woman. However, every time he made them, other beings would come at night and destroy them. So Shiva's wife (*Parvati*) created a dog that guarded the man and woman and hence dogs are man's best friend. Once they were given life, there was a dilemma since all humans were brothers and sisters and could not inter-marry.

Figure 4: A photograph showing the procedure adopted during an eclipse

So the humans went back to God, and he created a massive storm and everyone hid behind different objects (e.g. rocks, rivers, trees, some crops, etc.). There were 12½ such objects (half for the neuter gender). When the storm abated, God decreed that each group would get a name based on the object they had hidden behind, and the people who had hidden behind different objects could marry one another but those who had hidden behind the same object could not (see also Fuchs, 1946).

There is another story, which justifies the Korku passion for alcohol and hallucinogens. *Shiva* was instructed by his wife that he must always knock before coming into the house. Once Shiva forgot and entered without knocking only to find *Parvati* lying naked on her bed. She was very angry and told him off. He then left, and went away determined not to return. *Parvati* regretted her outburst, and tried to make peace with *Shiva* by sending various emissaries. She sent a dog and a tiger, but both were rebuffed. She then sent a naked female wild ass. *Shiva* simply put a cloth around its waist and sent it back to *Parvati*. At this stage other gods offered to step in and help resolve the problem. They threw a big party with alcohol and hallucinogens. *Shiva* came to the party and was happy to join in, and peace was restored between *Shiva* and *Parvati*.

4.2 The Forest versus the Plains and Korku Astronomy

Until agriculture was introduced, the forest and the plains offered the Korku totally different ecological regimes, but this is not clearly reflected in the range of astronomical beliefs listed in Table 1. While some beliefs, such as eggs seen in Orion or the bird's nest seen in Auriga were only reported by forest villagers, and are easily associated with a forest environment, minced cow meat and cowherds—also reported only in forest villages—are not. These relate more to a pastoral existence, which was only introduced to the Korku with agriculture. Meanwhile, other typical forest elements, such as the bird and eggs seen in Canis Minor, were reported by forest and plains villagers.

On the other hand, given that agriculture is now the subsistence base of the Korku living on the plains, it is no surprise that there are clear agricultural associations with the tool used for removing the husk from wheat seen in the Pleiades and reported (only) by all four plains villages; the ploughsman in Orion claimed by two of the four plains villages; and a place in Taurus where grain is crushed—also noted by informants from two plains villages. But all other obvious references to agriculture (in Orion, Gemini, and during eclipses) were reported at forest *and* plains villages. This is unexpected given the recent introduction of agriculture (and pastoralism) among the Korku, and is best explained as a relic of ealier times when their Astro-Asian ancestors in Nagaland, Orissa and even further east in South East Asia practiced agriculture.

Finally, it is a little surprising that the *Mahua* tree (seen in Crux) was only reported by one village, which was located on the plains. Apart from the production of alcoholic beverage, the flowers were used for medicine and jam, while the fruit provided a skin cream, soap, detergent, vegetable butter and fuel oil. The seed cakes made excellent fertilizer, and the bark also had medicinal properties (see https://en.wikipedia.Org/wiki/Madhuca_longifolia). As elsewhere in

Central India, surely this remarkable multi-functional native tree was highly prized by the Korku, and was cultuivated both on the plains and in the forest.

5 CONCLUDING REMARKS

We have presented a summary of the most important astronomical beliefs of the Korku Tribe that now resides largely in forest reserves in Central India. The Korku are believed to be the western-most of the Austro-Asian group of people called Munda who largely reside in eastern parts of India. Other Austro-Asians are found further afield, in Myanmar and in pockets throughout South East Asia.

Apart from sharing some commonly-held beliefs found elsehwere in Central India about the Big Dipper, the Korku have an interesting visualisation of the Orion-Taurus-Auriga-Gemini region. They identify Auriga as a well, which is unusual, as is their identification of Castor and Pollux as two women taking water from the well. Yet these elements surely reflect the importance of water for successful agricultural production. The identification of mashed cow meat in the Pleiades by the Korku also is interesting. The Korku also recognise the existence of Venus but note that the distance between it and another object, which we identify as Mars, varies. A conjunction of these planets occurs about every 1.7 years, which marks the marriage season.

Finally, we can see that Table 1 reveals an interesting mixture of forest and plains elements, but the interpretation of these is not always straightforward if we simply view Korku astronomy in a contemporary context. It only makes sense when we see the Korku in a chronological light, and allow for the transmission of an ancestral astronomical knowledge base that was prevalent elsewhere in South East Asia and came to Central India when the Korku settled this region. This is comparable to the preservation of the Proto-Polynesian concept of an historic supernovae, which may be represented by the term *Mahutonga* in Maori astronomy (see Orchiston 2016: Chapter 3).

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8 APPENDIX: KORKU VILLAGES NEAR AMRAVATI, MAHARASHTRA VISITED IN THE PRESENT STUDY

For the location of the study area in Central India see Figure 5 below.

Village 1: Zingapur

Post Popatkheda
Taluka Chikhaldara,
District Amravati,
Population: 375
How to reach: From Amravati go to Paratwada and then take the Paratwada Akot State Highway. On this road one comes to a junction called Divthana. From that junction, coming from Partwada, the town is on the right, about 11 km off the Highway.
GPS location 21° 13.218′ N; 77° 6.737′ E; ~310 meters above msl.
Date of visit: 31 May 2016

Name and age of persons interviewed:

1) Babulalji Baba Kasdekar – age 70 years
2) Raju Mula Gavate – age 70 years
3) Motiram Hore Chilatre – age 50 years
4) Madhukar Bhaku Chilatre – age 55 years
5) Sudhakar Madhukar Chilatre – age 35 years

Astronomical beliefs:

1) The first four stars of the Big Dipper are part of Ursa Major (see Figure 3) and are called *Sona Parkom* (i.e. the bed of gold). The three following stars are three thieves. The middle one (which is a binary) has a bell (called *Kasati*) and the last one has a little container made from a pumpkin for carrying water (called *Da dudi*).
2) They refer to Venus as *Suko.*
3) They refer to the Sun as *Diya Gomej* and the Moon as *Thendej* or *Rata Gomej.* *Gomej* means God; *Diya* means day; *Thandage* means darkness and *Rata* means night.
4) They call the Pole Star *Dhoor* (which is similar to the Sanskrit name for Polaris).
5) They refer to the belt of Orion as *Harnangar*—a plough with three blades.
6) They consider Auriga as a well, and they refer to the two main stars of Gemini, Castor and Pollux, as the two water-bearer ladies (*da Hinda*) taking water from the well. Their individual names are *Raike* and *Chaike*.
7) They consider the circle at the top of Virgo to be the place where the *Shivalinga* is placed.

Figure 5: Map showing the study area in Central India.

8) The first four stars of the Big Dipper are part of Ursa Major (see Figure 3) and are called *Sona Parkom* (i.e. the bed of gold). The three following stars are three thieves. The middle one (which is a binary) has a bell (called *Kasati*) and the last one has a little container made from a pumpkin for carrying water (called *Da dudi*).
9) They refer to Venus as *Suko.*
10) They refer to the Sun as *Diya Gomej* and the Moon as *Thendej* or *Rata Gomej. Gomej* means God; *Diya* means day; *Thandage* means darkness and *Rata* means night.
11) They call the Pole Star *Dhoor* (which is similar to the Sanskrit name for Polaris).
12) They refer to the belt of Orion as *Harn-angar*—a plough with three blades.
13) They consider Auriga as a well, and they refer to the two main stars of Gemini, Castor and Pollux, as the two water-bearer ladies (*da Hinda*) taking water from the well. Their individual names are *Raike* and *Chaike*.
14) They consider the circle at the top of Virgo to be the place where the *Shiva-linga* is placed.
15) They know the two main stars of Canis Minor as a bird and egg (while most people in the group agreed, a few of them had doubts about its exact location).
16) They refer to Taurus as *gai jijilu*—the mashed meat of the cow.
17) They know the Pleiades as *gugul gotho* (the earth worm).
18) They know Crux as a dagger (*katri*) with a lemon at the tip that is used in marriage ceremonies.
19) Among the Korku, the groom is required to pay the bride's family certain predecided money or perform labour for the bride's family in order to win the bride. In order to remind people of the importance of this payment, they have a story taken from the sky:

    To the east of Crux they identify two couples, *Dhanaya* (a female identified with 0.1 magnitude Rigil Kent), who is married to *Bharada* (a male, identified with the Greater Coucal bird here on Earth and with ε Cen, a 2.25 magnitude star in the sky), and *Dhanaya's* younger sister *Charakhaya* (a female, identified with Hadar) who is married to *Pelcha* (identified with the Red Whiskered Bul-bul bird here on Earth) and with Men-kent, a 1.01 magnitude star in the sky. The story is that *Pechla* (Menkent) did not pay the amount he had to pay for his bride *Charakhaya* (Hadar) and hence *Charkhaya* ate a betel leaf (which gives a red colour to the mouth) and spat on *Pechla*. On earth *Pechla* is identified with the Bulbul which has a red vest. This essentially emphasizes the need to pay for the bride as promised, or face life-long consequences.
20) They identify Corona Australis (just south east of Scorpius) as the *kidding* (Scorpio and the classical Scorpius as the fang of the scorpion).
21) They consider the Milk Way as a crowded path (*Rahadari Kora*). The Milky Way near Scorpius and between Scorpius and Crux is considered a place where the Gods (*Devgan Panchayat*) hold their meetings to discuss issues of importance to the Earth. Various forces such as diseases, water, wind, etc. seek permission from the gathering to go to Earth and the Gods decide which should go.
22) They refer to a comet as a star with a tail (*churia ifil*) and are ambivalent about its nature but somehow consider it a bad omen.
23) They do not distinguish between solar and lunar eclipses. Eclipses brings poison to the Earth.
24) They consider a meteor simply as a fallen star, without any association.
25) They use the glow around the Moon to decide on the season–a compact, yellow ring close to the Moon is bad for the monsoon while a large white ring will bring rain.
26) They consider a conjunction of Mars and Venus as very important, and if they are close to each other one can expect a good marriage season.
27) They bury their dead in a north-south direction, with the legs to the north.
28) They sleep with their legs to the south.
29) For weddings they create a special wooden pillar with markings for the Sun and the Moon.

Village 2: Rani Tamboli

Post: Rani Tamboli
Taluka Dharni
District Amaravati
Population: About 1,300
How to reach: Amravati to Dharni is 168 km.
From Dharani, to Titamba Road, Rani Tamboli is about 7 km away.

GPS location: 21°30.052′ N; 76°53.216′ E; 332 meters above msl.
Date of visit: 1 June 2016

Name and age of persons interviewed:

1) Loma Gopal Dhruve (Kasdekar) – age above 90 years
2) Movya Bhonya Jambekar – age above 90 years
3) Ramu Bhau Kasdekar – age 85 years
4) Surajlal Onkar Bhilavekar – 60 years

Astronomical beliefs:

1) They confirmed the story of the Big Dipper as the golden cot pursued by three thieves.
2) A servant couple (*Bhagya* and *Bhagini*) sleep in the quadrilateral in the Big Dipper and guard the cot. However, they need to get up to go and to collect *Mahua* (*Madhuca longifolia*) seeds when they see the Morning Star. But by then the Sun has risen in the sky and the thieves go away.
3) They confirmed that the Milky Way is a path (with an unspecified purpose).
4) The Milky Way has two paths on which the elder brother (*Jeth*) and the wife of his younger brother (*Bahu)* walk. Since, as per Kurku custom, she cannot cross *Jeth's* path, she has to go another way and hence the Milky Way is bifurcated.
5) They confirmed that the belt of Orion was the plough, but added that Rigel and Saiph are the two bullocks pulling the plough. They refer to these bullocks as *Doba*.
6) They identified the Pleiades as the minced meat of a cow (*gai jijilu*).
7) They identify Aldebaran as a cowherd (*bailmarya tara*).
8) They believe that there are many Gods, but when responsibilities were being distributed amongst gods, only the Sun and the Moon took responsibility for humans. Hence of all the Gods, only the Sun and the Moon are visible to humans.
9) They appreciate the fixed nature of Polaris and suggest that when a person can no longer see it, then he or she is on their deathbed.
10) They identify a small close circle around the Moon (called *Mandal*) as bad for rains, and a large outer ring as good for rains.
11) They consider a comet to be a star with a tail (*churya ifil*).
12) They consider a meteor (*ifil bocho*) as stellar excreta, and an indication that a good man has died somewhere on this Earth.
13) They consider eclipses (solar and lunar) as bad omens that bring epidemics.
14) They believe that at the base of a rainbow there exists an anthill and if this anthill is explored they will find small nuggets of great medical value.

Village 3: Kawadaziri

Post: Titambi
Taluka Dharni
District Amaravati
Population: 325
How to reach:
Amaravati to Dharani (150 km) then to Titamba (30 km) and from TItamba Kawadazili is 8 km.
GPS location: 21°23.882′ N; 76°54.881′ E; 462 meters above msl.
Date of visit: 1 June 2016

Name and age of persons interviewed:

1) Tumba Mithua Mavaskar - age 85 years
2) Babulal Dahalu Mavaskar - age 70 years
3) Mansaram Dahulu Mavaskar - age 65 years

Astronomical beliefs:

1) They confirm that the four stars of the Big Dipper that make a quadrangle are a bed of gold, with thieves following it.
2) They identify Orion with a plough and Rigel and Saiph as bullocks.
3) They identify Auriga as the well. They add that when it is seen in the west at sunset the monsoon will arrive.

4) They identify Castor and Pollux as two ladies taking water from the well.
5) They identify Venus (*Suko*) as a star and Mars as the Red Star (*Laal Suko*).
6) They identify the Pleiades as the minced meat of the cow.
7) They cannot identify Scorpius (*kiding*).
8) They identify rings around Moon and mention that the rings have different colours. A large circle implies a good monsoon, and a small ring a bad monsoon.
9) They are vague about meteors and comets, and indifferent to eclipses.

Village 4: Makhala

Post: Semadoh
Taluka: Chikhaldara
District: Amaravati
Population: ~900
How to reach: Amaravati to Semadoh and then 10 km from Semadoh is Makhala.
GPS location: 21° 31.7′ N; 77° 22.89′ E; 955 meters above msl.
Date of visit: 1 June 2016.

Name and age of persons interviewed:
1) Chandan Babu Bethekar - age 70 years
2) Wishram Babulal Kasdekar - age 65 years
3) Jajunu Babu Bethekar - age 65 years
4) Gunu Babanu Bethekar - age 65 years
5) Shivkali Sajju Selokar - age 45 years
6) R M Barde - age 57 years
7) Shankar Ringjuji Darsimbe - age 44 years

Astronomical beliefs:
1) They confirm that the first four stars of the Big Dipper are a golden cot that is being pursued by three thieves.
2) They recognise the belt of Orion as *Harnagar*—the plough.
3) They recognise the head of Orion as *Bhori Akkam*—the eggs of a bird.
4) They recognise the Pleiades as the minced meat of a cow.
5) They recognise the morning star (Venus) as *Suko.*
6) They identify a scorpion in the sky in the Scoprius-Corona Australis region and consider the classical Scorpius as its fang.
7) They recognise the Milky Way as the path (*Raha dando*) to heaven.
8) They interpret a comet as a broom star.
9) They consider meteors as excreta of the stars.
10) They recognise that a glow close to the Moon means poor rains while a wide ring around the Moon means good rain.
11) They have a custom of taking wooden pestle and putting it in water during an eclipse, and they insist that during the eclipse it will stand up by itself. Only when the eclipse ends will it fall, and airborne infections or epidemics will come from the direction in which it falls.
12) They also confirm that human burial is in the north-south direction, with the legs to the north.

Village 5: Raipur

Taluka: Chikhaldara
District: Amravati
Population: ~1,000
How to reach: Amravati to Semadoh (110 km) and then on Raipur Road (16 km)
GPS location: 21°34.905′ N; 77°16.068′ E; 553 meters above msl.
Date of visit: 2 June 2016

Name and age of persons interviewed:
1) Babu Bhau Semalkar - age 67 years
2) Motilal Dadu Dhande - age 65 years
3) Kande Bhau Semalkar - age 55 years
4) Manag Bhau Dhande - age 68 years
5) Sanu Bhurya Dhande - age 68 years
6) Manu Lala Sawalkar - age 70 years

Astronomical beliefs:
1) They confirm that the Big Dipper is golden cot with three thieves trying tosteal it. They suggest that the cot is not a rectangle since the first thief is trying to pull it.

2) They use the Big Dipper as a clock in the sky.
3) They confirm that the belt of Orion is the plough (*Harnangar*).
4) They recognise that Orion is not seen from April to September. This is because in April people plough the fields and if they see the heavenly plough they will imitate it. Hence the Gods hide the plough during these months.
5) They identify *Bhori Akkom*—bird eggs at the head of Orion.
6) They identify the conventional Scorpius as the true Scorpius.
7) They recognise the Pleiades as the minced meat of a cow.
8) They refer to Venus, the morning and evening star, as *Suko*. If it is seen in the morning, it marks the beginning of the day and if it is seen in the evenings then its appearance marks the time when shepherds return home.
9) They have a concept of a star of marriage (*lagin tara*). This is the time when Venus and Mars are in conjunction (Note: this will happen once every 1.7 years!). Hence there are more marriages every alternate year.
10) They suggest that the waxing and waning of the Moon is an indication to humans that their lives also will rise and fall with time.
11) They believe that eclipses occur when the Gods take on the of sins of mankind and a demon eats them up during the eclipse. After the eclipse, life moves on.
12) They recognise a comet as a broom star that brings illness.
13) They recognise the Milky Way as a path, and confirm the story of the elder brother and the wife of the younger brother.
14) Their Scorpio is below the conventional Scorpius.

Village 6: Borata Kheda

Taluka: Chikaldhara
District: Amaravati
Population: 300
How to reach: It is 10 km from Raipur.
GPS location: 21° 36.59′ N; 77° 14.055′ E; 493 meters above msl.
Date of visit: 2 June 2016

Name and age of persons interviewed:
1) Somaji Babanu Bedhkar – age 65 years
2) Hiraji Jirga Dhikar – age 63 years
3) Labu Bhura Dhikar – age 60 years
4) Tanu Raju Bethekar – age 64 years
5) Baby Sanu Sawalkar – age 55 years

Astronomical beliefs:
1) They confirm that the Big Dipper is a golden cot, but add that it is deformed (not a perfect rectangle) since it is being pulled by one of the thieves. The middle thief has a little pot of water with him called *da dudi* or *Kudapa*. This makes the outermost thief laugh. They also imagine that this laughter irritates the thief who is closest to the cot and wants to scold the outermost thief.
2) They recognise Orion as the plough and note that it is not visible in May. They have a story that Orion hides itself in May, the season of ploughing the field, to prevent the plough from being copied and does not appear until after harvesting, in October.
3) They recognise the head of Orion as bird eggs (*Bhori Akkom*).
4) They recognise the Pleiades as the minced meat of a cow.
5) They recognise Venus as rising at sunset and sunrise. The morning star is called *Suko* and the evening star *Bel Marya*.
6) They recognise that the Mars-Venus conjunction is a good time for marriage.
7) They recognise comets as broom stars but do not consider them to be an omen.
8) They think that meteors are star excreta.
9) They consider the rainbow as a good omen of the monsoon.
10) They consider the rings around the Moon in the conventional way, for predicting the monsoon.
11) During eclipses they put a staff in water.

Village 7: Bela

Taluka: Chikaldhara
District: Amaravati
Population: 295
How to reach: The village is on Amaravati Chikaldhara Road via Ghatang. About 80 from

Amravati, on this road is a village called Salona. Bela is in the interior about 5 km from this village.
GPS location: 21°24.906′ N; 77°25.765′ E; 830 meters above msl.
Date of visit: 2 June 2016

Name and age of persons interviewed:
1) Sonaji Bhima Kasdekar - age 65 years
2) Manang Moti Dahikar - age 63 years
3) Bansi Bhulji Jamunkar - age 55 years
4) Rajaram Bala Bhusum - age 55 years
5) Sonoji Sanu Dahikar - age 50 years.

Astronomical beliefs:
1) They recognise Ursa Major as a golden cot pursued by thieves.
2) They recognise the Pleiades as *Bhot Mangali*—a tool designed to beat wheat to remove husk.
3) They know that *Bhori Akkam* (eggs of birds) exists in the sky, but they do not know where.
4) They recognise the conjunction of Mars and Venus as a good omen for marriage.
5) They recognise comets.
6) They recognise the morning star.
7) They recognise eclipses but have no omen(s) attached to them.

Village 8: Jumunala

Taluka: Chikaldhara
District: Amaravati
Population: 371
How to reach: On Amaravati Chikaldhara Road, 85 km from Amaravati on this road is a village called Salona. Jumunala is 7 km off the road from this village.
GPS location: 21°25.841′ N, 77°23.552′ E; 874 meters above msl.
Date of visit: 2 June 2016

Name and age of persons interviewed:
1) Labu Shikari Belsare - age 70 years
2) Babulalji Budha Belsare - age 65 years
3) Ramchandra Muka Dhandekar - age 65 years
4) Moti Shikari Belsare - age 75 years
5) Shankar Ganu Kasdekar - age 65 years
6) Kalu Shikari Belsare - age 66 years
7) Surajlal Chotelal Kasdekar - age 48 years
8) Kalu Tambu Belsare - age 55 years
9) Lalji Kalu Belsare - age 42 years

Astronomical beliefs:
1) They confirm the Big Dipper as a golden cot with three thieves following it, including a water jar (*kudpa*) with the middle star (Mizar).
2) They confirm the plough as Orion's belt.
3) They identify Rigel and Saiph as the bullocks used to pull the plough.
4) They identify Betelgeuse as the man using the plough.
5) In Lepus, around Arneb, they identify a whip thrown by the man to scare away the birds.
6) They identify Sirius as a (generic) bird (*pankharu*) and Adhara and Wezen as two eggs of the bird (*Bhori Akkom)*.
7) They identify the Pleiades as *Bhot Mungali* (*Mogari*)—a tool used to beat wheat to remove the husk.
8) In Taurus they see a family with a wife and children (presumably those of the man who is ploughing).
9) They identify Auriga as a well, and Castor and Pollux as two ladies taking water from the well.
10) They identify Scorpius with the conventional Scorpius.
11) They identify the Milky Way with the path. But within the Milky Way around Scorpius they notice two non-intersecting paths. On the larger one walks the family elder and on the smaller path walks the wife of the younger brother, and since she is not supposed to cross the path of the elder brother she turns away near Rigil Kent.
12) They identify the conjunction of Venus and Mars as *Lagin tara*.
13) They recognise a comet as a star with a tail and consider it a bad omen.
14) They consider meteors to be stellar ex-

creta.

15) During eclipse they put the pounding stick in water and insist that it will remain upright as long as the eclipse is on. They believe that eclipses occur when the Gods suffer for sins of humans and as a result a demon engulfs them during the eclipse.
16) They also accept the standard belief about the monsoon and the ring of light around Moon.
17) They believe that the Sun and Moon had a common God, a mother who sent them to get some food. The Moon ate a little of what he got but brought the rest back to his mother who was happy and blessed him saying that he will be in a cool (night) environment. The Sun, on the other hand, brought nothing back and his mother cursed him into eternal burning. (At another village we were told that the Sun stole food that the Moon was bringing back and upon giving it to his mother was blessed with brightness, while the Moon, who now had nothing left to bring back for his mother was forced into waxing and waning.)

Village 9: Baghlinga

Taluka: Chikhaldhara
District:Amravati
Population: 1,230
How to reach: From Amravati to Paratwada to Dhamangaon to Badnapur to Baglinga
GPS location: 21° 21.542′ N, 77° 20.907′ E; 582 meters above msl.
Date of visit: 3 June 2016

Name and age of persons interviewed:

1) Babulal Deba Dahikar - age 70 years
2) Hiralal Mukka Dhandekar - age 60 years
3) Shikari Mundu Kale - age 70 years
4) Channy Mangal Dhandekar - age 50 years
5) Batu Moti Dhandekar - age 45 years
6) Champalal Laxman Jhamarkar - age 60 years
7) Dadu Mansu Mavskar - age 55 years
8) Shyamlal Dadu Dahikar - age 60 years
9) Santu Manang Belsare - age 56 years
10) Lalji Laxman Kavalkar - age 60 years
11) Shivram Laxman Jhamakar - age 45 years
12) Harichandra Jhol Dhandekar - age 64 years

Astronomical beliefs:

1) They repeated the Ursa Major story and stated that they use its location for relative time measurement, especially when the Moon is not in the sky.
2) They also contend that Ursa Major looks after the world when the Sun and the Moon are not in the sky.
3) They recognise the conjunction of Venus and Mars, but insist that one of them is stationary and as bright as Venus (note that only Venus and Mars have an apparent magnitude of –3).
4) They recognise the plough in Orion but do not identify the bullocks.
5) They identify Sirius as the bird, but not its eggs.
6) They recognise the Pleiades as the tool used for beating the husk of the wheat.
7) They recognise Taurus. Aldebaran and stars to the north of Aldebaran are bullocks and the star at the tip of the 'V' shape of Taurus (Hyadum) is the pole around which they rotate when crushing grain.
8) They recognise Auriga as a well and the Pollux and Castor as two women drawing water from the well.

9) They recognise the tail of Scorpius as Scorpius.
10) In the southern sky, in Circinus they recognise Rigil Kent and Hadar as *Dhanay* and *Charka*.
11) In Lepus they see the *Mahua* tree (*Madhuca longifolia*).
12) They recognise the Milky Way as a path crowded with stars.
13) They have a vague memory of comets but have no opinion on it.
14) They subscribe to the rule of thumb that a ring around the Moon is linked to rain.
15) They believe that eclipses are a bad omen and bring illness.
16) They believe that lightening is an arrow thrown by the Gods.
17) This village also told us about the creation myth discussed in the text.

Village 10: Gaulkheda Bazar

Taluka: Chikhadhara

District: Amaravati
Population: 1,700
How to reach: Amaravati to Parsapur Junction is about 70 km, and from there Gaukheda Bazar is 10 km.
GPS location: 21°20.064′ N, 77°22.243′ E; 516 meters above msl.
Date of visit: 3 June 2016

Name and age of persons interviewed:

1) Zholu Khuda Belsary - age 80 years
2) Babulal Onkar Darsimbe - age 55 years
3) Babulal Mhating Savalkar - age 70 years
4) Shivram Sanu Kale - age 66 years
5) Tumla Zinguji Mavaskar - age 60 years

Astronomical beliefs:

1) They identify the Big Dipper as the golden cot that is deformed by attempts to steal it.
2) In Orion they recognise the plough (belt), the cows (Rigel and Saiph) and the ploughsman (Betelgeuse).
3) They identify the Pleiades as the tool used for removing husk of wheat.
4) They recognise Sirius as a bird and Adhara and Mirzam as its eggs.
5) The associate the whole of Scorpius with a scorpion.
6) They see a tree in Canis Minor.
7) They recognise a comet as a star, with tail but are indifferent to it.
8) They recognize shooting star as star excreta.
9) They suggest that there is an anthill at either end of a rainbow which may even host a snake. But they suggest that these anthills have nuggets of great medical value.
10) They recognise the 'standard' interprêtation of rings around the Moon.
11) They recognise the Milky Way as a path in the sky.
12) They recognise that an eclipse occurs when a demon is eating the Moon, and they have the concept of putting a stick in water to mark the end of the eclipse.
13) Their burial practices are standard.
14) They believe that the Earth sits on the head of a cobra.

Village 11: Hatida

Taluka: Dharani
District: Amaravati
Population: 300
How to reach: From Dharni to Dhakna Road, Bijudhavdi is situated 15 km from Dharni. From Bijudhavdi take a left to Hatida, which is 1.5 km in the interior.
GPS location: 21°27.9′ N; 76°58.68′ E.
Date of visit: 23 May 2016

Name and age of persons interviewed:

1) Rajaram Dadu Bhilavekar - age 60 years
2) Ravaji Sanu Bhilavekar - age 55 years
3) Sanu Kalu Darsimbe - age 70 years
4) Motiram Khanu Kasdekar - age 60 years
5) Sonaji Kalu Jambekar - age 60 years

Astronomical beliefs:

1) They know the Big Dipper as the golden bed. The second thief also carries a water jar.
2) They know of the plough in Orion.
3) They know the Pleiades as the minced meat of a cow.
4) They know Auriga as a bird's nest, with Capella as the bird and the southern stars as eggs.
5) They know comets as stars with tails, and consider them a bad omen.
6) They know the rainbow.
7) They refer to east as *Gomej ot*, West as *Gomej Namur Lagken*, North as *Dhola* and South as *Barad*.
8) They bury their dead with the head to the south.
9) They know of eclipses and consider them to be a bad omen.
10) Their month goes from full moon to full moon.
11) They know Venus as morning star.
12) They believe meteors are stellar excreta.

Village 12: Gadgabhandum

Taluka: Dharani
District: Amaravati
Population: 1,540
How to reach: From Dharni to Dhakna Road, 24 km from Dharni there is a junction. Take a right from there and at 2 km is the village of Gadgabhandum.
GPS location: 21°26.68′ N ; 77°0.46′ E.
Date of visit: 24 May 2016

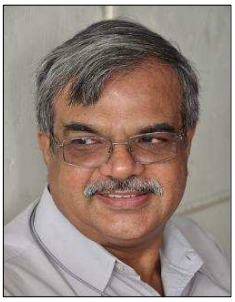
Name and age of persons interviewed:

1) Shaligram Babnu Mavaskar - age 55 years
2) Kaluram Bhau Mavaskar - age 60 years
3) Budha Patel Kasdekar - age 65 years
4) Darasingh Raju Kasdekar - age 40 years
5) Patel Sakharam Dahikar - age 45 years
6) Sakharam Bhau Dahikar - age 80 years
7) Batu Dadu Kasdekar - age 60 years
8) Hira Batu Kasdekar - age 60 years

Astronomical beliefs:

1) They know the Big Dipper as the cot made of gold, with three thieves trying to steal it.
2) They know the belt of Orion as the plough.
3) They recognise the whip used to frighten off birds (Sirius).
4) They know the Pleiades as the minced meat of a cow.
5) They know Auriga as a well.
6) They know Castor and Pollux as two ladies taking water from the well.
7) They know the Milky Way as a pathway which separately marks the paths of an elder brother and the wife of a younger brother.
8) They believe that during an eclipse a demon eats the Sun—but don't have a custom of helping him.
9) They know of Venus as *Suko*.
10) Their month goes from new moon to new moon.

Mayank Vahia is a Professor in the Department of Astronomy and Astrophysics at the Tata Institute of Fundamental Research in Mumbai. He began his career making satellite-based astronomical instruments for high energy astrophysics. He was the



Director of the Nehru Planetarium in Mumbai for a year in 2000–2001. He is currently the National Co-ordinator of the Astronomy Olympiad in India. In recent years he has become interested in the origin and growth of astronomy in the Indian subcontinent. He has been working on pre-historic records of astronomy in India and is deeply interested in documenting astro-nomical beliefs amongst Indian tribes. Mayank has published more than 200 papers in research journals, about 35 of which are on history of astronomy.

Ganesh Halkare is an advocate in Amravati, a town in Maharashtra. He is also a post-graduate degree holder in Archaeology and Anthropology from Nagpur University. He has a deep interest in tribal education, particularly in the removal of superstition among the

tribe members. He is also deeply interested in tribal anthropology and is highly respected amongst the tribesmen for his work in ensuring that they are aware of and can exercise their rights within the nation state. He also has been a regular columnist on constitutional rights. Ganesh has published more than a dozen research papers on the archaeology of the Nagpur region in Indian journals and conference proceedings. He is now working on the astronomy of other tribes in the Nagpur region.

Purushottam Laxmanrao Dahedar is a teacher in a tribal school in Washim district. He holds a master's degree in archaeology and a post graduate diploma

in anthropology and tribal development. He is the district coordinator, Center India Sky Watch Group, Chandrapur, and also works with anti-superstition groups. He has a special interest in painted rock shelters and has presented four papers on the subject at the Indian history congress. He is also an amateur astronomer and astronomical telescope maker. He is now involved in the study of astronomy of Indian tribes.