==========*Attadhisthanam's*==========

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WHO WERE THE BURIN ASTRONOMERS OF KACHCHH?

ABSTRACT

Kachchh District of Gujarat forms the westernmost part of India. Its shoreline abuts against the Arabian Sea (Fig. 1). It is a rocky semi-desert country with low hills, and the capital town of this sparsely populated land is Bhuj. Way back in 1984, the author discovered an astronomical site on Nalia - Narayan Sarovar highway in the coastal Kachchh at Vayor 3Km – Kharai 3Km Stone. The site has three prominent equipments: in the north is a small, shallow pit containing a burin, and several stone pillars around it. The pit is of about 40 cm in diameter with an erect burin in the center. It is dated as 11600 years or older in the midst of possibly globally falling temperatures. Construction of the site was an enigma for vey many years owing to two reasons. Firstly, the burin and massive stones around were sourced from a local rock-formation; but, the crude measuring and counting equipments were brought at the site of burin-pit from a rock-formation no closer than 800 kilometers. Secondly, intriguing was the acquisition of an essential material for construction. The equipment was used during the night for studying the position of stars in the sky by their reflection in the water- filled burin pit in a sandy soil. A clear reflecting liquid in the pit was an inflexible requirement and a water-impervious-lining of the pit a must. The lining-material – pine resin – was no closer to 2000 kilometers from burin-pit.

Nearly two decades after the find of Kachchh astronomical site, enigma of pathway for the transfer of knowledge and movement of materials disappeared after *Vedic River Systems* was published in 2003. A river Pureeshaani , active during 11500 to 14500 years, was discovered, It connected Kalsi in Himalayas to Jaisalmer in Rajasthan and flowed close to the astronomical site.

Discovery of a connecting channel between the Kachchh – Rajasthan – Himalaya around 11 to 14 thousanf years ago, that formed a pathway for the astronomers between Himalayas and Kachchh removed major glitch into construction of the burin-pit astronomical apparatus in Kachchh as the people could easily travel to the sources of exotic measurement equipment in Rajasthan and of the resin-balm in Himalayas. Only important factor, now, was a congenial relationship and sharing of the astronomical acumen between Himalayan and downstream men. There was a strong probability of positive mutual transaction between the two because seasonal climatic changes affected both; and, both needed astronomy as a tool to forecast future weather. It could be proved easily by existence of Kachchh like burin-equipment in the broad valley of Dehradun between rivers Yamuna and Ganga. However,

such an equipment could not be located even after intense investigation. Yet, there was another possibility also for establishing the linkage. It was through the use of common tools for astronomical measurement; and, the existence of their left behind tools in the Yamuna river-bed. Effort to locate the tools from a shingle-spread of Rive Yamuna succeeded. Forty-five of these were gathered along with two exotic ones from Jaisalmer. It proved that during Paleolithic astronomy between 11 and 14 thousand years the Himalayan and downstream astronomers were communicative. They constituted Vedic population.

The then Vedic people looked like men of Rajasthan, though slightly shorter in stature. Then, the northern segment was Brahmaavart, especially between Sarasvatee and Yamuna; and, the southern was a part of land named as Brahmarshi-desh. Prosperous population, possibly 50 million, was spread between River Surat, Suraa or Aasura (=Tapi) in Gujarat and Himalayas. They were Suras or Aasuras and Vishas in the southern river-county around Gulf of Cambay, and Gaurs, Rawats, Sarasvats and Purees in North-western India.

Vedic men faced unprecedented and never repeated calamity for about 2000 years between 10500 and 8500 years. Sea level rose during the period by 125 meters; there was a cooling in Himalayas; and, the existing main water artery of North-western India dried and disappeared. A massive exodus followed; and, around 40 out of the 50 million people moved out. Suras or Aasuras were first to move due to rise of sea level; and they settled in Iran. Tamils decamped from north and reached south India. Mundas and Khasis moved eastwards and reached up to plateau of Meghalaya. Dwellers of Irarvatee segment of Yamuna-Sarasvatee country moved eastwards. They named river of the land as Irrawaddy and country as Brahmdesh. It is Myanmar now. Most people move west. There, these people reached up to Nile valley, Italy and Germany. Sea level fell later; and, and was just ten meters above the present four thousand years ago. People settled again on the once sunk land, but the Kachchh astronomer were extinct.

Introduction

Kachchh District of Gujarat forms the westernmost part of India. Its shoreline abuts against the Arabian Sea (Fig. 1). It is a rocky semi-desert country with low hills, and the capital town of this sparsely populated land is Bhuj. Way back in 1984, the author discovered an astronomical site on Nalia-Narayan Sarovar highway in the coastal Kachchh at Vayor 3Km – Kharai 3Km Stone (1). The site has three prominent equipments: in the north is a small, shallow pit containing a burin, and several stone pillars around it; to its south is a flat inclined stone; and, in further south lies the third instrument (Fig. 2). Purpose of the equipments is obvious as indicated in Figure – 2. The burin in the pit was an instrument to mark equinoxes and dates of first appearance of key stars in the eastern sky with reference to equinoxes and solstices. The second, made of an inclined flat-stone, indicated winter solstice; and, the third composed of two linear and parallel massive stones standing vertical marked summer solstice1, figs. 7. 22-28)). 160 'degree units' were conceived initially to be the most likely divisions of the circle used by astronomers for their work (1, p.144). Soon after the initial assessment, however, it was realized the value was erroneous. The circle was divided into only 112 units; and the ratio of the radius and quarter circle, by their measurement in ***Kti****, was 40:63. Standard length of Kti was 40 cm and corresponding segment of quarter circle measured 63 cm. This acumen was achieved more than ten thousand years before discovering ratio *Pi* (7diam*: 22* circ.).

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* meaning hand and length of hand in Khasi language. In ancient Mundari it isTi. Khasi **K*ti*** is a contracted Tamil **Kai + ti** . Sanskrit **Has*t*** is coined very late; it is a transformed ***kh***(*as*)***t*** → hast..

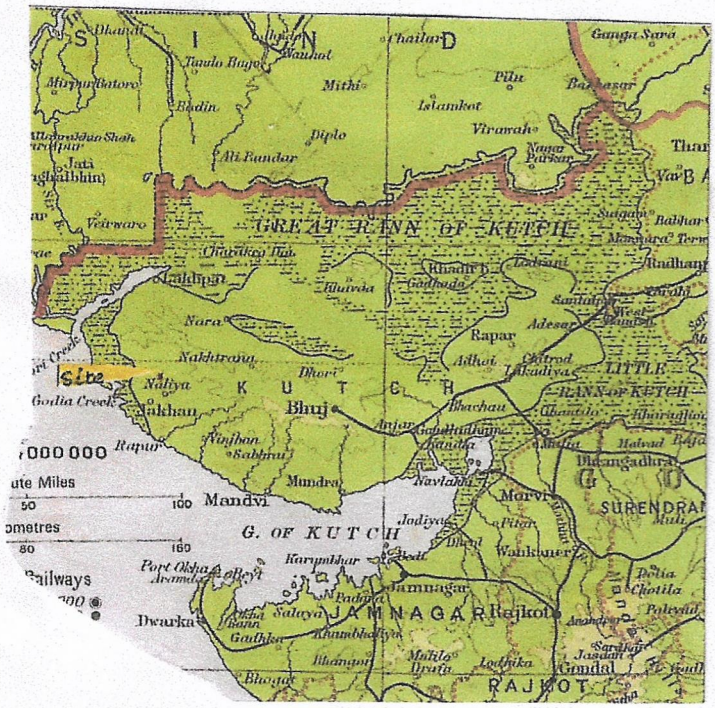

Figure 1: Map of Kachchh region.

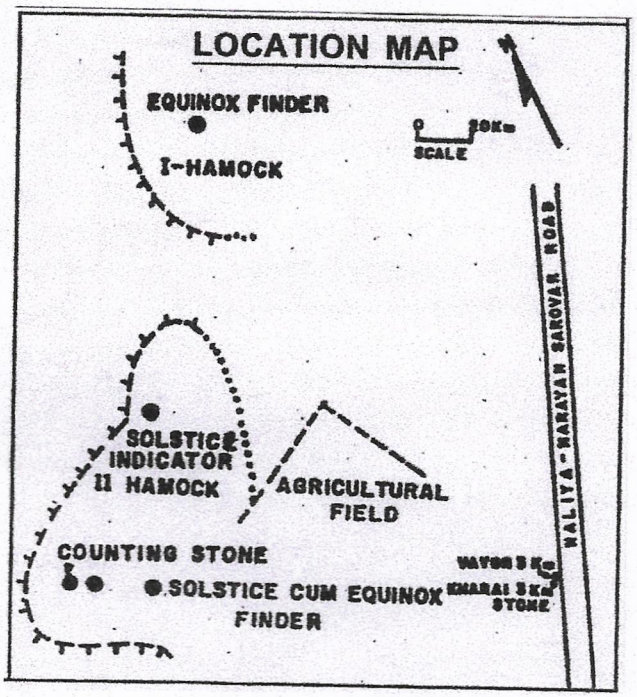

Figure 2: Location of burin-apparatus

The pit of about 40 cm in diameter and 30 cm deep with erect burin in the center was dated as 11600 years or older (1), in the midst of possibly globally falling temperatures (2; Fig.3). Construction of the site was an enigma for vey many years owing to two reasons. Firstly, the burin and massive stones around were sourced from a local rock-formation; but, the crude measuring and counting equipments of Late Paleolithic age (10-32 thousand years old; 1, p. 53) were all exotic – brought at the site from a rock-formations no closer than 800 kilometers away.* Secondly, more intriguing was the construction material used in making the burin-apparatus comprising of a pit of 40 cm diameter with an erect burin in the middle (Figs. 4 - 7)[@]. It was used during the night for studying the position of stars in sky by their reflection in the burin pit. A clear reflecting liquid in the pit was an inflexible requirement. The liquid used was surely water. But, its fate in normal conditions was obvious. The pit is in a sandy soil; and, if water filled it, the first filling would be lost in the soil in no time, and the second must turn dirty and non-reflecting fast.

A water-impervious- lining was a must for the pit to sustain a clear reflecting liquid day after day, week after week and month after month. Such a lining-material was nowhere in a radius of 2000 kilometers from burin-pit. It could have either been natural asphalt, common in the Middle East, but, missing in India. Alternatively, a thick resinous pine-balsam-draping dried over the sandy surface of the pit was essential. Pines are nowhere around this locality or, for that matter, even in Rajasthan. The resin could only be sourced from Himalayas at distance of 1200 kilometers. Also, procurement of the resin was not a onetime affair; the pit had to be coated regularly with the resin for maintenance. Kilos of balsam were annual requirement.

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*The rocks used for making the burin and most of heavy stone implements around it are from locally outcropping yellowish sandstones belonging to Lower Member of the Jurassic Jhuran Formation, about 150 million years old (3, fig. 11, p. 108). Length and 'degree' measuring instruments are, in contrast, made of coarse, gritty, burnt red sandstones and ironstones. Nearest outcrop of their mother-rock is Jurassic Lathi Formation exposed near Jaisalmer in Rajasthan (*idem* p.153, fig. 5: J3). Aerial distance between the two is 850 Km.

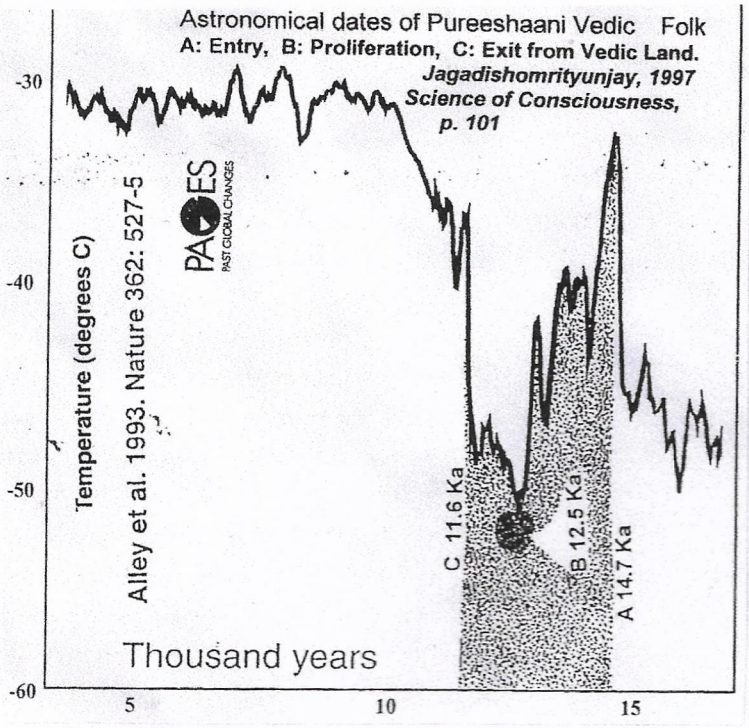

Figure 3: Temperature scenario during Burin-astronomers

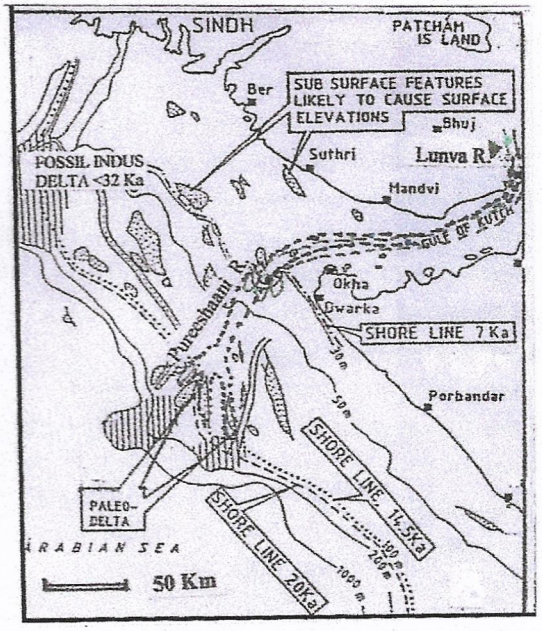

Figure 4 Terminal Pureeshaani channel

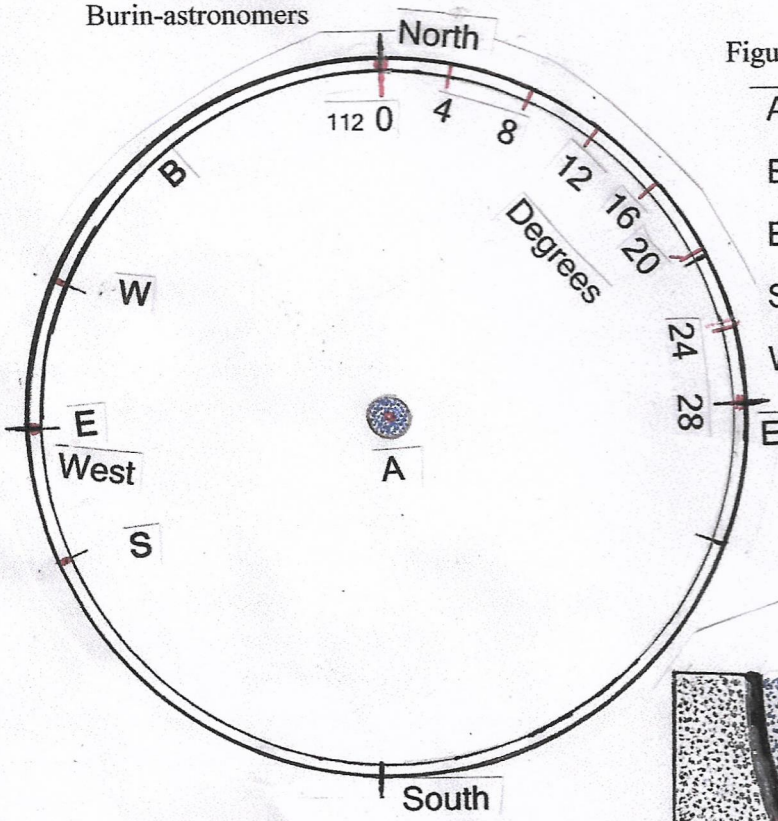

Figure 5: Elements of Burin-apparatus.

A: Reflection pit with Burin

B: Circle with marks

E: Vernal and autumnal solstice indicator

S: Summer solstice indicator

W: Winter solstice indicator

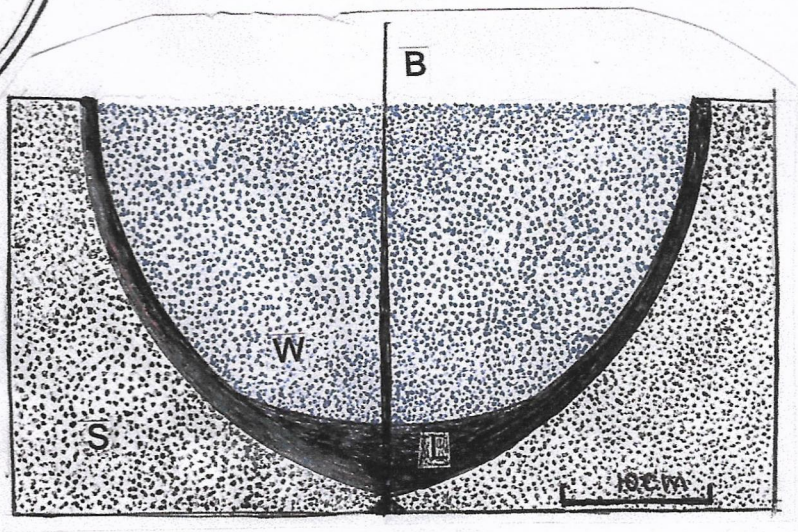

Figure 6: Vertical section of the Burin-pit.

Burin-pit Elements

S: Soil

W: water

B: Burin

L: Impervious layer

Figure 7: Kachchh Astronomer's Burin

Discovery of a movement corridor

There was no plausible scenario in the past for the academician astronomers of Kachchh to enable them to construct an apparatus with exotic tools and pine resin 800 and 1200 kilometers away. No such corridor and condition are seen in the recent past. Neither there was knowledge about existence of required materials at such far flung locations nor was the movement of materials possible between the far separated localities without an easy pathway.

Nearly two decades after the find of Kachchh astronomical site, enigma of pathway for the transfer of knowledge and movement of materials disappeared. It was no more an irresolvable topic after *Vedic River Systems* was published (2). There were three very long Vedic channels from Himalayas, Marut, Sarasvatee and Pureeshaani, draining into seas of Gujarat between 11500 and 25000 years ago. They passed through Rajasthan. Basically, this was a single Himalayan channel shifting westward in geological time and its three prominent stable courses were named differently by the three successive Vedic men one after the other (2, fig. 15). For the local population, however, there was hardly a change in the name. River Marut, Marot, Marta or Marli (2, fig. 11) remain unchanged even after a shift of 300 kilometers in 10, 000 years when Vedic names changed from Marut to Sarasvatee to Pureeshaani. Past river names are often preserved and indicated by locality names on their dry beds.

River Marut, had its mouths in the Gulf of Cambay; but, the other two – Sarasvatee and Pureeshaani – drained into the Arabian Sea through a land-tract now submerged and called Gulf of Kachchh (2, fig. 15).The youngest of these, Pureeshaani River, flowing between 11500 and 14500 years was less than 100 kilometers away from the burin-site (Fig. 4). It passed close to Jaisalmer in Rajasthan and originated in the Himalayas with head waters of Sutlej, Tons (Eeta/Yamuna). Today there is no river connecting Himalayas, Jaisalmer and Kachchh. But, the landscape during Pureeshaani channel was very different. The river connected Himalayas, Rajasthan and Kuchchh. People could walk along Pureeshaani without any hindrance from Kachchh to Kalsi – a town of Asoka edict-boulder at Tons-Yamuna confluence in outer Himalayas.

Discovery of a connecting channel between the Kachchh – Rajasthan – Himalayas and existence of a pathway for the astronomers between Himalayas and Kachchh, around 11 to 14000 years ago, removed the first and major glitch into the possibility of construction of the burin-pit apparatus in Kachchh. Kachchh people could easily travel to the source of resinous balm – an essential requirement for the construction of their burin pit.

@The burin site has a 'degree' marking stone of *its* circle due north of the burin-pit (1, fig.7.17b). The radius of the circle is 320 cm or 8 Kti (1,fig. 7.16); accordingly, the circumference of the circle is 2011.42 cm. Quarter-length of the circle works out as 502.86 cm. The length of the '*degree-marking-stone*' of reference figure 7. 17b is 18 cm. The measurement-standard of the past divides the quarter-circle in 28 equal parts. Physical circumference quarter it is 504 cm. It is longer only by 1.14 cm than ***Pi*** value of circumference 502.86 cm. The ratio of radius (320cm) to quarter circle (504) is 40:63. Accordingly, 320 cm radius is the best choice for making a handy standard-measuring-degree-stone of 18 cm for a circumference divided into 112 units.

In Blind Alleys

A common element affecting the hill and plains populations of India with equal impact is climatic change associated with the rainy, winter and summer seasons. It impacts them differently and forces the two to acquire different living patterns since ages. In Himalayas, annual snowing in the winter and melting in the summer, has promoted a nomadic system in mainly hunting–gathering people of stone-age. Men were ascending into higher Himalayas up to 5500 meters in summers; and, when the snowing set in at higher altitudes during winter they descended to the foot hills at 500 meters. In the alluvial plains or rocky low lands of Kachchh- Rajasthan extreme weathers were absent; and; the people were only adjusting themselves with moderate seasonal variations between rain and winter, and winter and summer. There were neither ploughs nor cultivation around 13000 years, but naturally growing cereals and pulses in the forests along the river banks were in plenty. One could make his granary even for a year*. People dwelling in forests had an easy life when the rains were regular.

Yearly climate change was equally important for both. If Hill people were forced to move uphill in the summer and downhill during the winter; the other had to wait eagerly for the end of the rainy season for harvesting a new forest-crop to sustain life till the next rain. Astronomical knowledge related to north-south movement of sun was valuable for both as it triggered winter-summer change in Himalayas as also rainy season-winter season change in the Plains. Movement of the astronomers from Kachchh into deeper Himalayas above 1000m@ during the summer along the river for procurement of resin also looked an established reality for thousands of years.

There were strong reasons for cooperation between the Hill and Plain tribes. But did two contrasting populations find a commonplace of meeting for exchanging or using of knowledge of astronomy for cooperation benefitting both? Unless there existed a place for common mutual transaction, a continuous exchange of knowledge and goodwill between the two men was difficult. The Himalayan tribe will not allow the plain's man to collect pine-resin in their domain or territory smoothly. What was the situation about their cooperation – positive or negative?

An astronomical site comparable to Kachchh could not be discovered in low altitude (around 500m) in the nearly plain-county between Ganga and Yamuna Rivers from Rishikesh to Kalsi. Nor were found a stone implement like burin (Fig. 5), length-measuring-stones and week-days-counter at the site in Kachchh.

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*Manusmriti is the first conduct-book of Vedic people; and, its initial format dates back to about 8000-9000 years when agriculture and cultivation were in their initial phase (2). In the tradition prevailing those days, the elderly were deserting their grown up children and took to forest-dwelling for penance. There are instructions for them in the book "Discard the earlier collected cereals and stored granary in the first month after rains...Never eat food from the cultivated grains even if someone offers it insistently; and, even if hungry and agitated or perplexed due to hunger eat not the village grown fruits and roots. Eat only forest-picked-grains fried in fire, forest fruits or the former by just chewing them in the mouth. *Collect and store cereals and pulses for a day, a month,* ***six months or a year"*** (Manusmriti. 6. 15-18). Collection and storing of cereals from rain forests for a year was a routine practice in India commencing around 13 or 14 thousand years ago. Food in rain-forest was aplenty for the human population dwelling on the river banks.

@ In the Himalayas, there is a vertical variation in the tree-forest-vegetation. At the lower altitudes below 1000m the trees are all tropical. Then, follows the temperate vegetation typified by Pines. Pine forests of the mountain are mainly between 1000 and 2500 meters The Cedar forests replace pines at still higher levels. Pine-resin needed for waterproofing the burin-pit of the past astronomers could only be gathered by the then men from the trees growing above an altitude of 1000 meters in deeper Himalayas.

Shingle-spread for Help

Kalsi, nearly 500 meters above the sea-level is at the head of a broad Yamuna valley that flows into Indo-Gangetic Plains south of Himalayas. The area of Tons-Yamuna confluence at Kalsi was the winter-habitation-ground during snowing for the nomads who descended down from higher valleys of the two rivers. An Asoka boulder edict at Kalsi (3rd century B.C.) also indicates its accessibility to Plain-dwelling people like Burin-astronomers of Kachchh. Kalsi area, therefore, was the likely interaction locale of burin-astronomers and their Himalayan counterpart; and, there was a strong possibility of exchange of their tools in the area along the river banks in the summer, it was reasoned. The tools, flowing down the stream in the swollen river during rainy season were deposited in the down–stream-course of Yamuna south of Kalsi. There was, therefore, a fair possibility of discovering them in the river-bed- material south of Kalsi. It was a simple surmise in a geologist's mind hunting for evidence for decades to establish contact between Himalayas and Kachchh.

A small portion of my residential compound – 15m x 5m – grows dwarf mango trees. There, the soil is covered with a shingle spread, 4 to 7 cm thick. Its source, I was aware, is Yamuna Riverbed nearly five kilometers downstream from Kalsi.

Search for the key tools commenced a few years ago by sifting the 3 to 4 inch thick shingle spread of my garden with a view to establishing communication between the Hill and Plain communities during Pureeshaani period of 14500 to 11500 years ago. An exotic material from the Lathi formation of Rajasthan was hit a year ago. It is a reddish week-day- ounting pebble that augured a strong possibility of my success. An irrefutable proof of communication among the two people and flow of knowledge using same standards for linear measurements is available only now. Drive for hitting the bull's eye in my search of artifacts came to an end at this point in 2018.

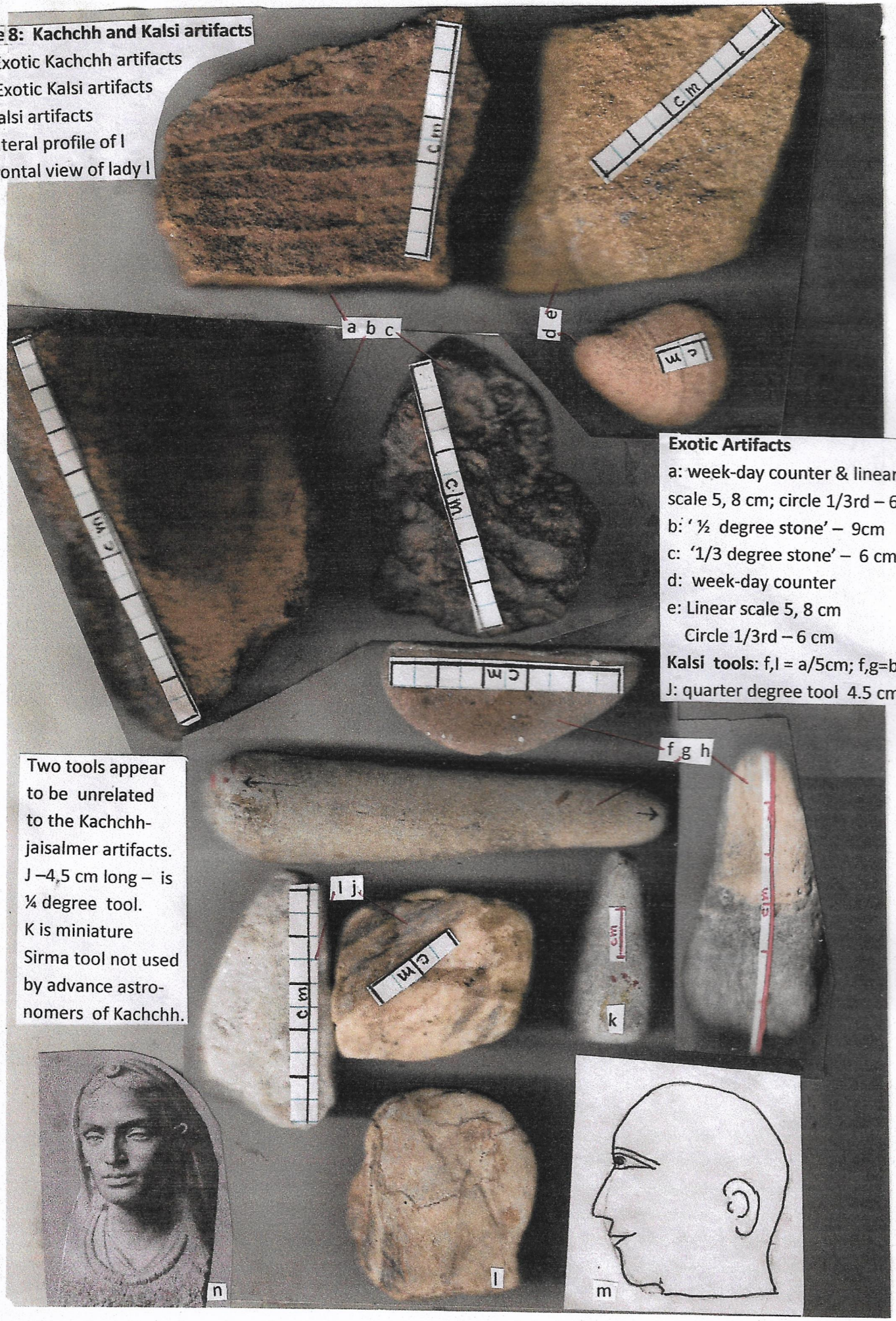
Other artifacts matching the standards exhibited by this just discovered Jaisalmer-tool were also present in the shingle bed. Even specialized tools marking the declination of sun and fixing the dates for downward and upward migration were discovered. Total number of these tools from the shingle–spread is 45. Relevant ones for establishing relationship among astronomers are illustrated here (Fig. 8).

The people

River related surnames of Indians like Rawat* are common in Rajasthan and Himalayas both. It is easy to infer, therefore, that Rawats of Himalayas as well as Rajasthan were dwelling on the banks of same river in the past; and, also that this was the very water artery that joined uphill Kalsi with the downhill Jaisalmer in Rajasthan, and, then it continued further till Arabian Sea near Kachchh. The river has been identified recently as Vedic people's Pureeshaani (2). Vedic names of the River Systems have a peculiarity. River names like Pureeshaani or Sarasvatee tend to be lengthy and are also too deeply entrenched in the tradition of Sanskrit grammar in the derivation of names. Thus the same channel became Marut, Sarasvatee and Pureeshani in the Vedic work (2, table 3). Contrarily, Marut and its related name Marot, Marta or Marli, remain same for the locals even after its shift for long distance (2, fig. 11; Fig. 9). It is indicated by the locality names on the now dried river beds. The tradition has continued in the local population till date. Tons and Yamuna Eeta (Eta-wah)of today were named as Vedic Pureeshaani, Ira and Ila between Kalsi and Kachchh once upon a time (14.5-11.5 Ka); but, their local names have continued as such.

Derivation of clan- names like Rawat is based mostly on the simple river names*. Ancient people Rawat, living on the banks mighty river Ga, Sarasvatee or Pureeshaani, were spread once between Kachchh and Himalayas; but the title survives only between Himalayas and Rajasthan. Seemingly, there was no language barrier between Rawats and no restrictions in the movement of pine-resin from higher Himalayas to Kachchh for the burin-sites in this riverside community.

There are other surnames names also related to river Ga, denoting Ganga, Sarasvatee of Pureeshaani.



ure 8: Kachchh and Kalsi artifacts
c: Exotic Kachchh artifacts
e: Exotic Kalsi artifacts
l: Kalsi artifacts
ı: lateral profile of l
: frontal view of lady l

Exotic Artifacts
a: week-day counter & linear scale 5, 8 cm; circle 1/3rd – 6 cm
b: '½ degree stone' – 9cm
c: '1/3 degree stone' – 6 cm
d: week-day counter
e: Linear scale 5, 8 cm
Circle 1/3rd – 6 cm
Kalsi tools: f,l = a/5cm; f,g=b,c.
J: quarter degree tool 4.5 cm

Two tools appear to be unrelated to the Kachchh-jaisalmer artifacts. J –4,5 cm long – is ¼ degree tool. K is miniature Sirma tool not used by advance astro-nomers of Kachchh.

Evidence is lacking about the morphology or racial type of the Ga dwellers. The material from the river bed near Kalsi, however, includes an artifact exhibiting a rough lateral profile of a man (Fig.8 l). It helps to reconstruct the height of forehead approximately and guess about the look of the person (Fig.8m). The reconstructed forehead is slightly lower than Harappa man's (1, fig. 6.2e). Face and features of the ancestral person were probably no different than the person in Fig. 6n, lifted from the MAP OF MANKIND (4). The individual is from Rajasthan.

Again, a fair guess about the height of the then population is possible by the measurement standard of Kti – 40 cm (measured from elbow to little finger). Length of the astronomer's Kti suggests that their height was around 155 cm, slightly lower than the brown skinned, dark haired Gaurs, Rawats and Saraswats. Evolution during the last 10,000 years has raised the average height of the clans by 8 to 12 centimeters.

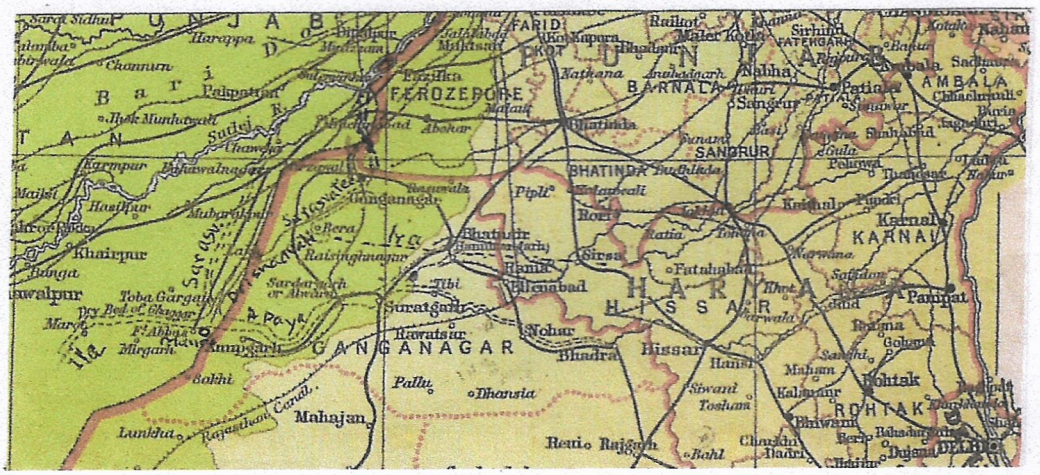


Figure - 9

Terminal part of Vedic Rivers

*There is a small township on Tons River near its head waters, named as Tiuni . It relates to the earliest surviving name of the river [Ti: river + uni = umi: watery]. In the downstream, close to Kalsi the river is Tons [Ta: river + un =um: water + s::masculine termination for its big status]. The name terminates, these days, at Kal***s***i* when it joins river Kaal***t***i* [Kaal = Kalindi = Yamuna – *t*→*s* transformation]. In Sanskrit, Tons is Tamasa [=Tons' feminine ending]. It joined sea around Ganga Sagar in an area lately (10 Ka). Here, its original name Tiuni has changed to Luni [Tiuni →Diuni→Liuni→Luni transformation]. Lunva of Kachchh was its southerly continuation corresponding to past Pureeshaani [Lun + Va: water]. Eet, Ira, Ila, Ga, Gami, Ganga,Hami, Hindon Yami, Jamuna, orYamuna was the same big river; and, its names were derived through route Ga→Ja→Ya:river + un=um: water + a feminine termination. Route in river is Ganga was Ga + um + Ga. These were Vedic Pureeshaani during 14500 and 11500 years.

Vedic Sarasvatee was common man's Ga; hence Ganga, Vaga or Vaja [Va: water + ga→Ja:river]. Ga was an 'Ut' or a multi-channel. Ga-ut was its common name those days when the Himalayan channel joined the Arabian Sea. Ut changes to Wat (in *samprasaaran*) and Ga to Ra (Ast. 8.2.66). Accordingly, *Gaut* transforms into Rawat for denoting a specific community. When Yamuna's name was Ganga, Ganga of today was named as Kan. Sarasvatee equivalent Ganga, followed the same course between Marot and Gangasarovar (Figs. 1,9) There was also a second derivation from root Ga-ut: *Gaut→Gaud→Gaur.*

Thus dwellers on the banks of Sarasvatee or Ga had three time-separated older geographic titles. latest of these people called themselves as Saraswats. The earlier settled locals who derived their names from channel name Ga fall under two groups. Earlier ones followed t → d→r transformation to name themselves as Gaurs (mainly Brahmins).The later, took to route of semivowels converted from vowels; hence, Ga-ut changes to Rawat through route Gaut →Rawat. Pureeshaani men were designated by the three as Purees. Purees were not Vedic in a way. They were animal worshippers, called themselves Kayisth (Cow-worshippers = Kaysathas of today); and, their god was Sky-Bull (Fig. 10). All four titles are common in North-western India of today, but missing in Kachchh and Gujarat.

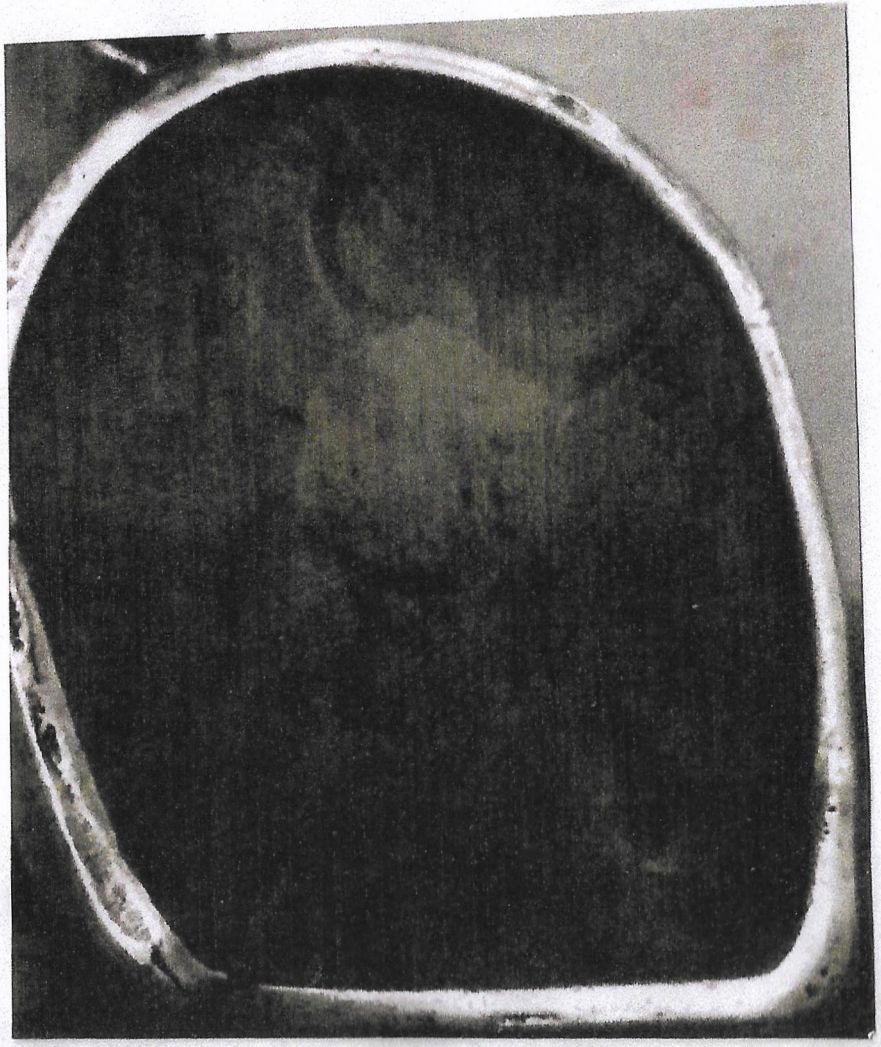
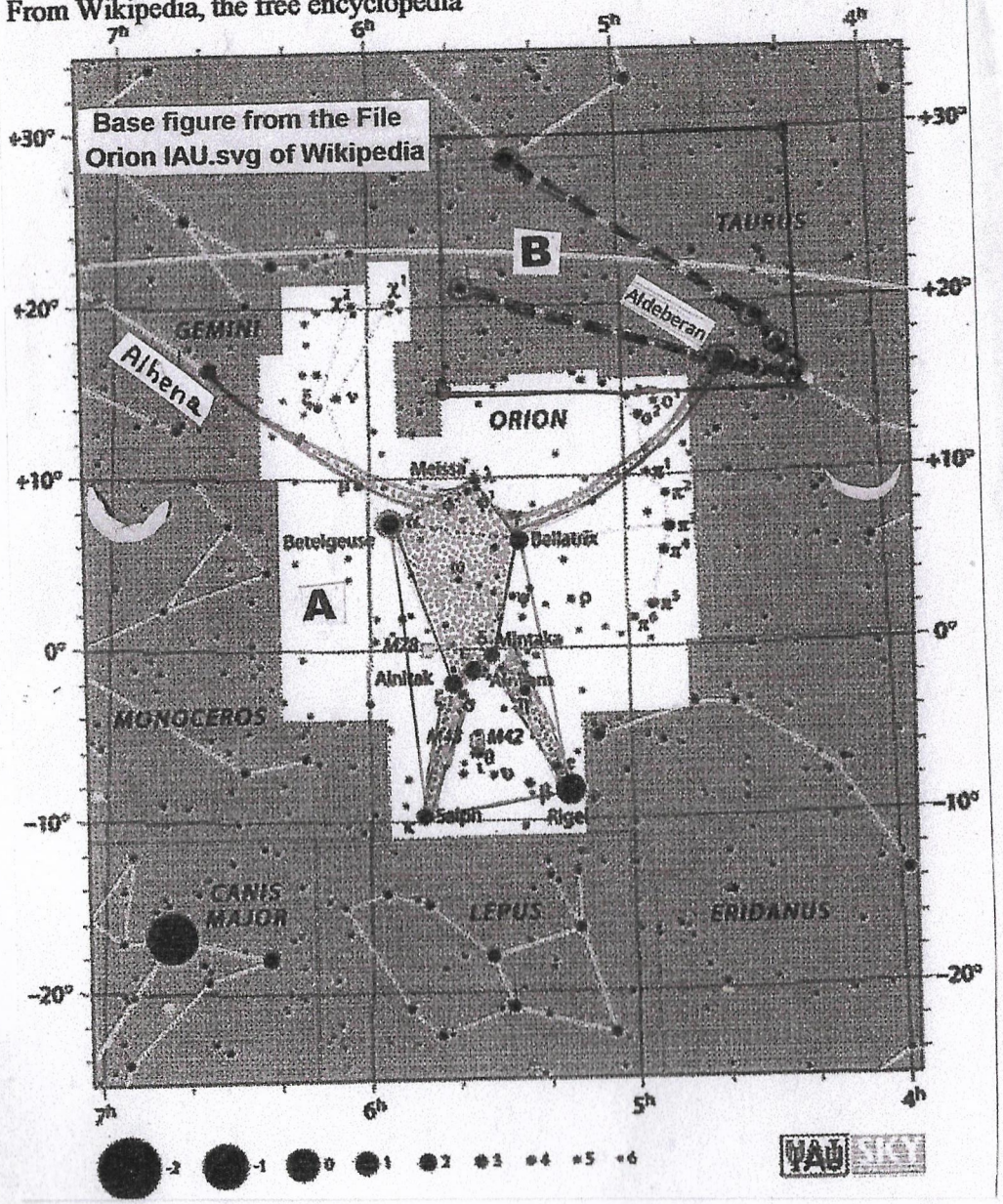


Figure 10 : God Celestial Bull of Pureeshaani River people

From Wikipedia, the free encyclopedia



Days of Prosperity and Disaster

Pureeshaani period between the14500 and 11500 years ago was a time of prosperity in the Vedic land. The sea level was nearly a hundred meters below the present and the sea coast nearly one hundred to three kilometers west of the present shoreline. Owing to melting of last-glaciation-ice and tectonic activity related to rise of Himalayas, sea level rose by a hundred and twenty-five meters in a thousand years between 11,000 and 10,000 at rate of 10m+ per century. Large stretch of costal land soon turned into a sub-sea fifty fathom flat; and, when water column rose by another 25 meters, entire alluvial plain of Gujarat was under the sea as the shore line reached close to Ganga Sorovar in Rajasthasthan (Fig. 1). In the further north-west was formed a bay between Chor in India and Nawbsha in Pakistan (2, fig. 5). Nearly two hundred thousand square kilometers of habitable land of Rjasthan and Gujarat was snatched by an invading sea within a thousand years. Nearly half the length of Himalayan Marut,Pureeshaani, Ira or Ila were swallowed by sea. Kachchh and Saurashtra turned into inaccessible Islands, because boats were not invented by then. Further, between 10 and 9 thousand years ago Pureeshani or renamed Ila died because its two major contributory channel Sarasvatee and Yamuna joined Sutlej and Kan (Ganga) respectively. Added to it was a chill in the Himalaya around 8500years ago.

Drastic sea level rise, tectonic activity and climatic calamities befell on nearly 50 million inhabitants in less than two thousand years; and impacted severely to destabilize them. There was no option for most of them to leave the land migrate to safer pastures. Probably merely ten million people out of the fifty million heads were the leftovers; rest migrated in two and half thousand years to varied distances. The migrants included some close by settlers but most moved to far-distance.

The impact accelerated sequentially, more or less. It commenced with the movement of men from the farthest end of the mouths of River Tapti-Narmada in Arabian Sea, almost 300 kilometers west of the present shoreline around 11000 years ago. Possibly the last people to move away from the area were dwellers Sarasvatee-Tamas-Ila plains around 8500 years ago. It was due to excessive chill in Himalayas.

The short-distance migrants include Mundas, Khasi and Tamils. When the sea engulfed Pureeshaani or Ila up to Ganag Sagar in Rajasthan, there was no option for the driven away people except to run away from the sea rising perilously. The Ganga Sagar - Jawai population of Rajasthan migrants took to east. Mundas migrants settled in Ranchi Plateau of Bihar; and,a handful of Jawai settlers reached Meghalaya plateau and settled in their new township. It is called Jowai these days. Nearest to their inundated homeland, however, were occupants of sunken Gujarat – Kapisthals, Visas and Panchaals. They just moved into upper valleys of Sabarmati, Mahi, Narmada and Tapti. Next to them were Tamasa-Ila dwellers or Tamils of Himalayan belt who moved to southIndia to quell their shiver after the Himalayan Yaks of 3000 meters came down and were comfortable in Delhi at 200 meters some 8500 years ago.

Long distance migratory exodus commenced with fast rise of the Arabian Sea sinking quickly the riverside terrain occupied by the Atharvan population in the southerly segment of the Vedic land. It was a territory occupied by two rivers Surat,Sura,Aasura (Tapti) and Masta (Narmad) The two rivers had joined not far from the present day coast and continued for another 300 kilometers in the coastal plain before draining into Arabian Sea. The great and wide river after the confluence was: Atharvan or Aasur-Masta and the people called themselves as Atharva, Suraa ,Aasur and Avestan. These people were first to be hit by the fast rising Arabian Sea. Their long distance migration along the coast drove them to Iran and adjoining Turkey; and, theysettled there.

Subsequently another major exodus followed when river Pureeshaani or Ila dried leaving a dry river bed. People in the dry river bed of Gagghar and Iravatee around Buria and Marot (Fig. 9) moved to east through Ganga-Brahmputra River route. They landed in a country which they named

Braahm-desh or Brahma deformed as Burma (now Myanmar). Its main water artery was called Irrawaddy by the new settlers to remember their roots.

Bulk of the population on Ila Bank, however, moved to Turkey and beyond Turkey. Here, they named River Dax of Turkey as Dax-Ila (now Dachila of Turks) and named another long channel as Marut (now spelled as Marat in Turkey). River Euphrates was named as Tyrut (Ta + Ir + Ut = Big Ira). Their final destination of the Middle East was Mai-Ila in Egypt (now spelled as Nile). I have seen a Brahmin's sacred thread of reed from Kirkuk in Iraqi Museum, Bagdad. It dates back to about fifth or sixth millennium BC. By this date the migrants of original Ga and lately Ila River had settle well in Mesopotamia. Basra inhabitants, peaking Arabic now, remember till date the swallows as birds of Sanood (Indus) – Hanood (Yamuna) Land – nearly seven or eight thousand years after their fore-fathers settled in Mesopotamia. Their westerly migration ended up in Italy; the Plains-men did not cross Alps.

The other group of people moving through Azerbaijan – Ukraine reached Germany and mainland Europe. Max Muller, the German scholar, noted long ago the linguistic similarity Indo-European population. It is the contribution of an exodus unparalleled between eleven and nine thousand years ago.

Habitation returns but without stone-age astronomers

Sea level fell rather fast after the disaster in the Vedic land; and, the strand-line of 4000 years ago was merely ten meters above the present day (2, fig.6). Indus valley civilization sprang up in the destroyed Vedic land. Gujarat was rehabilitated rather quickly by the people from the upland valleys. So was also the state of affairs in Kachchh. However, its stone-age astronomers are now extinct. Only some of their tools are in the repository of Attadhisthanam as fossil artifacts to ponder over them, the Vedic culture and astronomical acumen during the period.

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With complements of Attadhisthanam

Figure 13: Displayed Astronomy-related artifacts in Attadhisthanam.