


Historicity of Ramayan Era: Scientific Evidences from the Depths of Oceans to the Heights of Skies

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 The beginning of the Holocene (post last ice age) is now universally accepted to be around 12000 BP. Consequently the civilizations of the world naturally and simultaneously started developing near the rivers which initially started flowing due to the melting of glaciers near the Equator e.g. South India, Sri Lanka and Africa. When populations multiplied, these river waters became insufficient. Therefore some people started travelling from south to north. Such northward migration continued for several centuries and finally when these people from south India reached the banks of Himalayan Rivers, they got climatic conditions conducive to long term development of civilization on the banks of these rivers providing security of water, food and shelter for a very long time. Thousands of years later, when some of these Himalayan Rivers became non-perennial or started drying up, some of these people started moving towards Central Asia and Europe. As per ecologists the ecological cycle has been repeating itself and will get repeated after every ice age and during the beginnings of all Holocene cycles. Therefore the history of growth of civilization in the world is not 4 to 5 thousand years old but it is more than 10,000 years old.

So far history of the world, particularly of Indian sub-continent, is based on linguistic guesswork and religious beliefs/hearsay. However, during last 30-40 years, several new scientific tools and techniques have been developed, which are

capable to determining the dates of any ancient events in scientific and precise manner. *For example:*

1. Computer aided extraction of planetary references from ancient books.
2. Planetarium softwares for astronomical dating of such references
3. Satellite based Remote Sensing techniques
4. Underwater explorations and Geospatial Technologies
5. Radiocarbon dating, Thermo Luminescence dating methods
6. Human Genome studies, Biological and Cultural Anthropology
7. Palaeobotanical, Palaeozoological and Palaeoclimatic studies
8. Geographic and Geological research tools.

Multi-disciplinary scientific research reports, prepared during last three-four decades by making use of such scientific tools and techniques, were used for dating the events narrated in Valmiki Ramayan and results were amazing! Once the astronomical dating was determined around 7000 BP, it appeared that almost all research reports were corroborating such conclusions and opening before us the pages of our true history; shifting many events from the domain of mythology to the realm of reality.

The story of Shri Ram's life was first narrated by Maharishi Valmiki in the 'Ramayan' which was written after Shri Ram was crowned as the king of Ayodhya, Maharishi Valmiki had a great sense of astronomy as he has made sequential astronomical references on important dates related to the life of Shri Ram indicating the location of planets vis-à-vis the zodiac constellations and other visible stars (*nakshatras*). Needless to add that similar position of planets and *nakshatras* vis-à-vis zodiac constellations and the equinoxes is not repeated in 25690 years. By entering the precise details of the planetary configuration of the important events in the life of Shri Ram as given in the Valmiki Ramayan in the software named 'Planetarium Gold' corresponding exact dates of these events according to English calendar can be known. Sh. Pushkar Bhatnagar of Indian Revenue Service had acquired from USA the software named 'Planetarium Gold' (of Fogware Publishing) which is used to predict the solar/lunar eclipses and distance and location of other planets from earth by the scientists and astronomers. He entered the relevant details about the planetary positions vis-à-vis zodiac constellations narrated by Maharishi Valmiki and obtained very interesting and convincing results, which almost determine the important dates starting from the

birth of Shri Ram to the date of his coming back to Ayodhya after 14 years of exile. Sh. Pushkar Bhatnagar has given very authentic and convincing details of these dates in his book titled 'Dating the Era of Lord Ram' published by Rupa and Co., some extracts from which are also being summarised in the succeeding paras.

Date of Birth of Lord Ram

The following verse in the Valmiki Ramayan provides the details of planetary configuration at the time of Shri Ram's birth.

ततो यज्ञे समाप्ते तु ऋतूनां षट् समत्ययुः ।
ततश्च द्वादशे मासे चैत्रे नावमिके तिथौ ॥८॥
नक्षत्रेऽदितिदैवत्ये स्वोच्चसंस्थेषु पञ्चसु ।
ग्रहेषु कर्कटे लग्ने वाक्पताविन्दुना सह ॥९॥
प्रोद्यमाने जगन्नाथं सर्वलोकनमस्कृतम् ।
कौसल्याजनयद् रामं दिव्यलक्षणसंयुतम् ॥१०॥

वा.रामा. ॥ १/१८/८-१० ॥

To a man totally unaware of astronomical knowledge of ancient India, this verse may not convey explicitly the details of planetary configurations at the time of Shri Ram's birth. However when one becomes familiar with the basics of Vedic astronomy and compares these with the planetary positions seen in the sky view generated by modern software 'planetarium', one will find the precision with which planetary positions are described by Valmiki as amazing! When Kaushalya gave birth to Sri Ram, the *Janma Lagna* i.e. cancer was rising on the horizon; Jupiter and Moon were just rising in Cancer as is clear from the expression 'Prodyamane'. Five planets were in their '*Uchha Sthan*' and were approaching their most exalted positions. This has been the way of expressing the location of planets vis-à-vis constellations in India since Vedic times, which has remained unaltered till date in respect of seven planets (including Sun and Moon), as shown in Table 1.

Table 1 : Exalted (Uchcha) position of *Grahas* in Indian System

ग्रह	<i>Graha</i>	उच्च स्थान की राशि	Constellation of Exalted Position
सूर्य	Sun	मेष	Aries
चन्द्रमा	Moon	वृषभ	Taurus
मंगल	Mars	मकर	Capricorn
बुद्ध	Mercury	कन्या	Virgo
बृहस्पति	Jupiter	कर्कट	Cancer
शुक्र	Venus	मीन	Pisces
शनि	Saturn	तुला	Libra

Since it is astronomical fact that if Sun is in its exalted position *i.e.*, in *Mesha* (Aries), *Buddha* (Mercury) cannot be in exalted position in *Kanya* (Virgo). Therefore five planets referred to by Valmiki do not include Mercury (*Buddha*) (Ref. Varaha Mihir in 'Brihat Jatak' and Narsinga Rao in 'Date of Sri Rama').

Therefore it is concluded that as per Valmiki (1/18/8-10), Shri Ram was born on 9th *tithi* of *Chaitra* month during day time when the position of different planets vis-à-vis zodiac constellations and *nakshatras* (visible stars) was as under:

1. Sun in Aries
2. Saturn in Libra
3. Jupiter in Cancer
4. Venus in Pisces
5. Mars in Capricorn
6. Lunar month of *Chaitra*
7. Ninth day after *Amavasya*
8. *Lagna* as Cancer
9. Moon near the star *Punarvasu* (Pollux in Gemini Constellation). Moon and Jupiter were shining together in Cancer.

This data was entered into the 'Planetarium Gold' software, the results indicated that this was exactly the location of planets/stars vis-à-vis zodiac constellations on the 10th of January noon time in the year 5114 BC if viewed from latitude/longitude of Ayodhya (25°N 81°E). If we start the software an hour before the time of birth, we can clearly see the moon moving from Gemini to Cancer at about 12.10 PM. Thus Shri Ram was born on 10th January in 5114 BC (7125 BP).

By making use of software to compute the dates of luni-solar calendar (*Indian*

panchang), it was found that this date also happened to be the 9th day of *Shukla Paksha* in '*Chaitra*' month and the time was around 12 to 1 noontime. This is exactly the time and date when *Ramnavmi* is celebrated all over India till date (Fig. 1).

Date of Exile of Shri Ram

In Valmiki Ramayan it is mentioned in *Ayodhya Kaand* (2/4/18) that Dashratha wanted to make Shri Ram the king because Sun, Mars and Rahu had surrounded

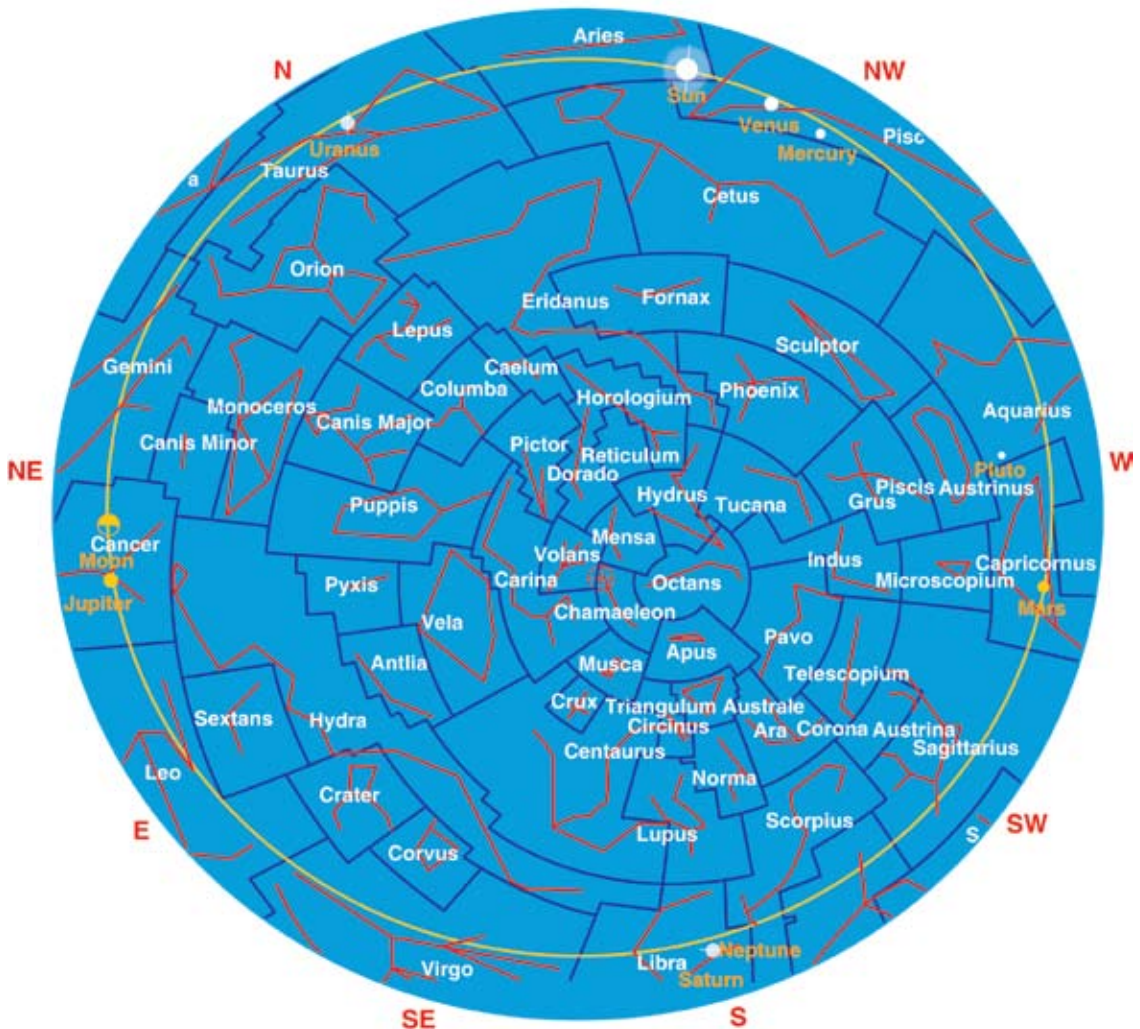


Fig. 1: Showing Planetary position on 10th January, 5114 BC, the date on which Lord Ram was born

his *nakshatra* and normally under such planetary positions the king dies or becomes a victim of conspiracies. Zodiac sign of king Dashratha was Pisces and his *nakshatra* was *Rewati*. This planetary position was prevailing on the 5th of January 5089 BC and it was on this day that Shri Ram had to leave Ayodhya for 14 years. Thus he was 25 years old at that time (5114-5089) and there are several *shlokas* in Valmiki Ramayan which indicate that Shri Ram was 25 years old when he left Ayodhya for his 14 years of exile.

Solar Eclipse during War with Khar-Dushan

Ramayan refers to the solar eclipse at the time of war with Khar-Dushan in later half of 13th year of Shri Ram's stay in the forests. Valmiki has also mentioned that it was *Amavasya* day and planet Mars was in the middle. When this data was entered, the sky view generated by computer software indicated that there was a solar eclipse on 7th October, 5077 BC (*Amavasya day*) which could be seen from Panchvati (20° N; 73° E) (Fig. 2). On that date planetary configuration was the same as has been described by Valmiki *i.e.* Mars was in the middle; on one side were Mercury, Venus and Jupiter and on the other side were Sun, Moon and Saturn.

Other Eclipses mentioned in Ramayan

In Kishkindha kaand there is a reference to solar eclipse (4/15/3) on the day Bali was killed. Software shows a solar eclipse on 3rd April 5076 BC which was the only solar eclipse during the entire year.

In Sunder Kaand there is a reference to lunar eclipse when Hanuman spots Sita in Ashok Vatika (5/19/14, 5/29/7, 5/35/87). Sky view reveals lunar eclipse starting from 4.15 pm on 12th September 5076 BC from Colombo (7°N; 80°E)

All these sequentially fully tally with the description in Ramayan.

Other Important Dates

Only six of the twelve constellations remain above the horizon at the same time. Valmiki Ramayan contains graphic and poetic details of eight constellations during Hanuman's return journey from Sri Lanka to Sunaabh Hill in the middle of the sea which apparently took about four and a half hours from 6:30 AM to 11 AM. All these details of planets and *nakshtras* with reference to eight



Fig. 2: Showing Planetary position on 7th October, 5077 BC (Amavasya), the day of Solar Eclipse, when Lord Ram fought the battle with Khar.

constellations described in Sarga 57 (1, 2, 3) of chapter five tally exactly with the sky view generated by the software for the morning of 14th September 5076 BC from Lanka (7°N, 80°E) (Fig. 3 and 4).

Slide at figure 3 shows the sky at 6.30 AM on 14th September 5076 BC from Sri Lanka. As described in Ramayan, see that the Sun and Moon are shining



Fig. 3: Showing Planetary position on 14th September, 5076 BC at 6.30 AM, when Hanuman started his return journey from Lanka.

together and Jupiter could also be seen very clearly. Punarvasu nakshatra in Gemini constellation which resembles a large fish, Pushya nakshatra in Cancer Constellation and Swati Nakshatra in Virgo Zodiac could be seen shining in the sky. Scorpio Zodiac which resembles the trunk of an elephant (Airavat) could also be seen. This is the sky view at the time when Hanuman started his return journey at about 6:30 AM on 14th September, 5076 BC.

Note that Capricorn constellation looks like an island if the sky is taken as sea as is described by Valmiki.

On the basis of planetary configurations described in various other chapters of Valmiki Ramayan, the date on which Ravana was killed works out to be 4th December 5076 BC and Shri Ram completed 14 years of exile on 2nd January, 5075 BC and that day was also *Navami* of *Shukla Paksha* in *Chaitra* month. Thus Shri Ram had come back to Ayodhya when he was 39 years old (5114-5075).

Such sequential matching of important dates in the life of Lord Ram narrated in Valmiki Ramayan with astronomical dating of planetary references done with help of planetarium software cannot be a mere coincidence. In fact if we extract more than fifty references to location of planets and nakshatras described in Valmiki Ramayan relating to important events in the life of Lord Ram and then put the skyview generated by planetarium on timer starting with the skyview at the time of birth of Shri Ram *i.e.* on 10th Jan, 5114 BC, the sequence is entirely matching and there is almost total internal consistency!

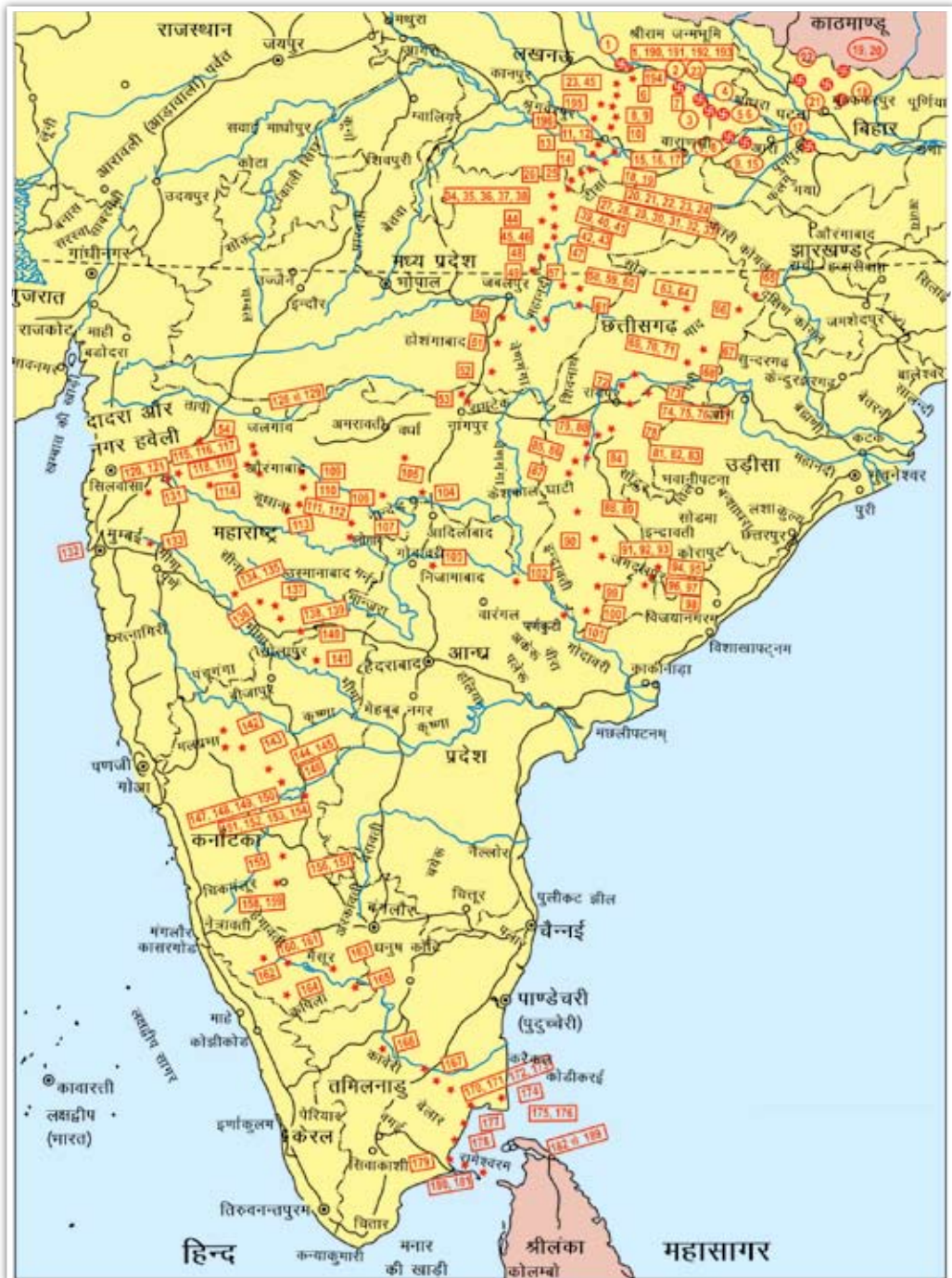
Sequential Details of Places visited by Shri Ram during 14 years of exile: Geographic Evidences

Many researchers, particularly a colleague Dr. Ram Autar, have researched on places visited by Shri Ram during 14 years of exile. They sequentially moved to the places stated as visited by Shri Ram in the Valmiki Ramayan. Starting from Ayodhya, they went right up to Rameshwaram. They found 189 (+60 identified later on) places, most of which still have the memorials connected to the events relating to the life of Shri Ram and Sita and also match the description given in Ramayan (Map 1).

The locals believe that Shri Ram had actually visited these places. These details have been compiled in his book 'In the Footsteps of Shri Ram'. These details can be broadly divided into five phases.

First Phase-Gangetic Belt

They went to Tamsa Nadi Tal (Mandah), 20 km from Ayodhya, thereafter crossed Gomti river (Point no. 2 to 7 of map 1) and reached on the banks of Saryu river. After crossing the boundary of Kosal Desh, they entered Shringaverapura (Srighaur) which was kingdom of Nishadraj Guh and is famous for Kewat taking them across Ganga in his boat (20 km from Allahabad).



Map 1 : Showing places visited by Lord Ram during Exile (shown in red spots)

After crossing Yamuna near Sangam they reached Chitrakoot on Uttar Pradesh (UP) and Madhya Pradesh (MP) borders – memorials here include Valmiki Ashram, Mandavya Ashram, Bharat Koop etc which still exist. After Bharat Milap they left Chitrakoot and went to Atri Ashram located in Satana in MP.

Second Phase in *Dandak Van*

Along with Laxman and Sita, Shri Ram extensively travelled through this land of rivulets, water bodies and dense forests in and around MP and Chhattisgarh. They roamed around in *Dandak Aranya* area and visited Sharbhanga and Sutikshan *Muni ashrams* in Satna (Points 36 to 41 of map 1). Thereafter, they visited several *Rishi ashrams* in Madhya Pradesh and Chhattisgarh area, along Narmada and Mahanadi rivers for 10 years, and then came back to Sutikshan *ashram*. Several memorials in Panna, Raipur, Bastar and Jagdalpur still exist which include Mandavya *ashram*, Shringi *ashram*, Ram Laxman *Mandir* and Koti Maheshwar etc.

After crossing many rivers, lakes, hills and forests they went to Agastya *ashram* in Nasik. As per Valmiki, weapons made in *Agnishala* were given to Shri Ram by Agastya *Muni* in this *ashram*.

Third Phase along Godavari

Shri Ram, Laxman and Sita travelled along Godavari, From Agastya *ashram* they went to stay in Panchavati – a place with 5 *Vatavriksha* located on the banks of Godavari in Nasik (Point no. 116 of map 1). This place is famous for Surpanakha episode and war with Khar and Dushan. There are memorials at the place where Mareech was stated as killed; these include Mrigvyadheshwar and Baneshwar. In fact, Nasik area is full of memorials, e.g. Sita *Sarovar*, Ram *Kund* and Triambakeshwar and Janasthan etc. After this incident, Sita was abducted by Ravana, who also killed Jatayu relating to which memorial '*Sarvatiratha*' in Taked Village, 56 km from Nasik, is still preserved.

Fourth Phase along Tungbhadra and Kaveri

Shri Ram and Laxman extensively travelled through these areas in search of Sita. After meeting Jatayu and Kabandh they moved towards south to reach Rishyamook *Parbat*. On the way they visited Shabari *ashram* in Pampasarovar area which is now known as Sureban in Belgaon and is still famous for *Ber* trees. (Point no. 146 and 147 of map 1). After crossing forests of Sandalwood, many gardens and water bodies, they went towards Rishyamook. Here they met

Hanuman and Sugreev, and were shown Sita's ornaments. Shri Ram killed Bali in this area. Rishyamook and Kishkindha are located in Hampi, Bellary District of Karnataka.

Fifth Phase

Ram with his *sena* marched towards the sea. After crossing Malay *Parbat*, Chandan forests, many rivers and ponds they went along Kaveri River. After crossing Trishirapalli, Thanjavur and Ramanathapuram, they reached Rameshwaram. **Almost all the details of travel narrated in all these five phases in Valmiki Ramayan tally with the existing geographic locations and memorials preserved.**

Places in Sri Lanka

The location and physical features of areas, covered under Ravana falls, Ravana caves and Ashok Vatika in and around Nuwara Elya Hills in Sri Lanka, will persuade anyone to believe that *Valmiki*, the author of Ramayan, was fully familiar with all these places. Vibhishan palace is also located almost at the same place as is described in Ramayan.

Most of these places have similar geographic features, flora, fauna and memorials as have been described in Ramayan. If Valmiki had not visited/known about these places, how could he give such precise details in Ramayan which was composed as biography of Shri Ram when he was coronated as the King of Ayodhya in 5075 BC (1/4/1, 2). Originally it was passed on through *shruti smriti* tradition for hundreds of years but was available in text form by around 1000 BC. References of Ram's story are available in:

- Kautilya's Arthasastra of 4th century BC.
- Buddhist literature in the form of 'Dasharatha Jaraka' ascribable to 3rd century BC.
- Terracotta figures of Ram ascribable to 2nd century BC excavated from Kaushambi.
- Stone panels excavated at Nagarjunakonda in Andhra Pradesh of 3rd century AD showing Ram-Bharat milap at Chitrakoot.
- Terracotta panels of 4th century AD excavated from Nachara Khera in Haryana.

- ‘Janaki Haran’, a poetic composition of Kumaradasa of Sri Lanka who lived in 7th century AD.

There are hundreds of other evidences found not only from India but from countries like Sri Lanka, Tibet, Thailand, Malayasia, Combodia and Indonesia. In Nepal oldest manuscript of Valmiki Ramayan written in 1041 AD in Newari script is still preserved, probably the oldest preserved manuscript of the world.

Corroborating Archaeological and Geological Evidences found at some of these places referred to in Ramayan:

The latest archaeological excavations, geological researches and remote sensing images have provided a large volume of new data revealing the indigenous origin and development of civilization in the Indian sub-continent since 10,000 BP (8000 BC). Many of these reports are related to the sites located in and around places referred to in Ramayan. Some important examples are:

- In Allahabad district, referred to in Ramayan as Sangam (confluence of Ganga and Yamuna), archaeological excavations at Koldihwa, Jhusi and Hetapatti have revealed remarkable evidence of continued and developing human settlements since 6th–7th millennium BC. Excavations at Sringaverpura and Bhardwaj Asram, which is located just opposite Anand Bhawan, have thrown important evidences corroborating references in Ramayan.
- In Ayodhya, which was the capital of Kosal Kingdom, archaeological excavations carried out twice on the orders of the court revealed existence of civilized settlements through many millennia as well as damaged remains of ancient Hindu temples [Ayodhya Matter Ram Janam Bhumi – Babri Masjid Disputes (Special Bench judgement) Allahabad High Court (Lucknow Bench) published by Malhotra Law House]. In adjacent district of Sant Kabir Nagar at Lahuradeva, excavations have revealed five cultural periods showing continuous cultural development from 7th millennium BC to the beginnings of Christian era. The evidence of cultivated rice, ornaments of steatite disc beads and copper arrowheads before 5th millennium BC has also been found at Lahuradeva; these articles have also been referred to in Ramayan. (Fig. 5A, B, C and D respectively).

Geological evidences gathered from Kotumsar caves located in the thick Dandak forests in Bastar district of Chhattisgarh, from areas around Sarbhang



Fig. 5A: Grains of domesticated rice from Lahuradeva, 7000 BC

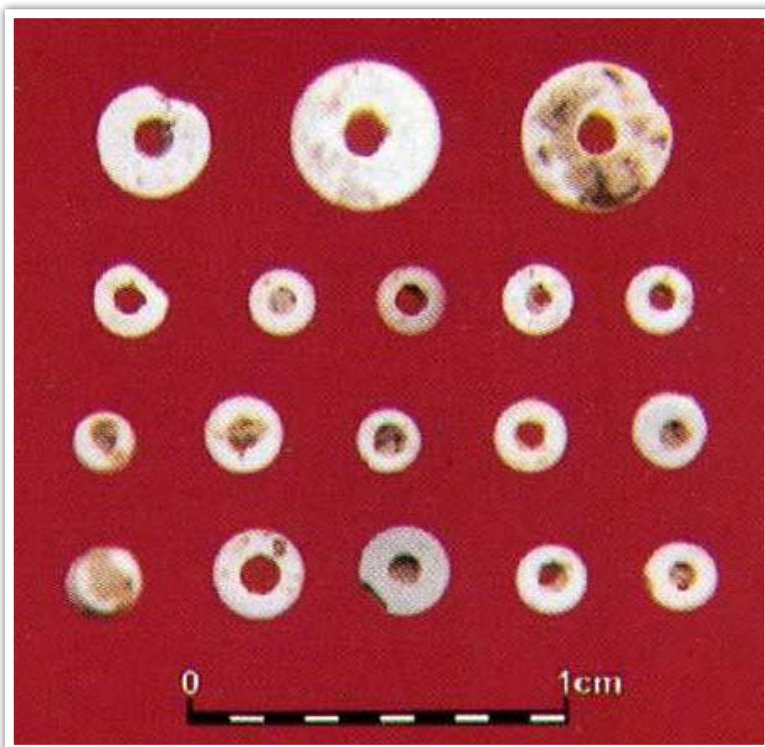


Fig. 5B: Micro to medium size steatite disc beads from Lahuradeva, 7000 BC



Fig. 5C: Copper arrowhead from Lahuradeva period IB 5000 BC



Fig. 5D: Broken copper object from Lahuradeva period IB, 5000 BC

Ashram, Agastya Ashram and Panchvati in Nashik also have very important evidentiary value.

Some related places described in Ramayan: continuity of physical features

Some of the places described in Ramayan were personally visited by the author in the company of archaeologists and geologists. These included Ayodhya in Faizabad district; Sringeripura, Akshayavat inside Akbar Fort and Bhardwaj Ashram opposite Anand Bhawan in Allahabad district; Chitrakoot; Kotumsar caves in Bastar district; Agastya Ashram and Panchvati in Nashik district; Ramsethu approaching from Rameshwaram as well as from Dhanushkoti and places related to Ramayan in Sri Lanka (Map 2).

Sringeripura

One look at the excavated site at Sringeripura situated on the left bank of Ganga in Allahabad district of Uttar Pradesh, brought back the vivid memories of several references in Ramayan to Guh Nishad and his little kingdom adjoining



Map 2 : Map showing places visited by author

the boundary of Kosal Desh *i.e.* Sringaverapura (Ramayan- 2/50-52). The unique water tank complex was having elaborate arrangements to bring in Ganga water through a channel, *nullahs* for water distribution, arrangements for harnessing the overflowing water through silting chamber and provision for sub-soil-water wells in the bed of the tank to guard against loss through seepage (ASI Report of 1993)! In which engineering college had those engineers studied and should not we feel proud of them?

Akshayavat and Bhardwaj Ashram

The roots of Akshayavat inside Akbar Fort at Allahabad are several meters

below the existing land level and are spread in hundreds of meters all around, reminding us of references in Ramayan about this extraordinary tree (2/53/33, 2/54/1). Even more interesting are the excavations relating to Bhardwaj Ashram underneath a municipal garden just opposite Ananda Bhawan, the ancestral house of Nehru family in Allahabad. The location is exactly at the place described in Ramayan *i.e.* near Sangam (2/54/8-13). The deposits of sandy loam with sherds of Northern Black Polished Ware (NBPW) and lumps of clay with reed-marks, indicating wattle-and-daub huts in an ashram-like setting were found during excavations!

Chitrakoot

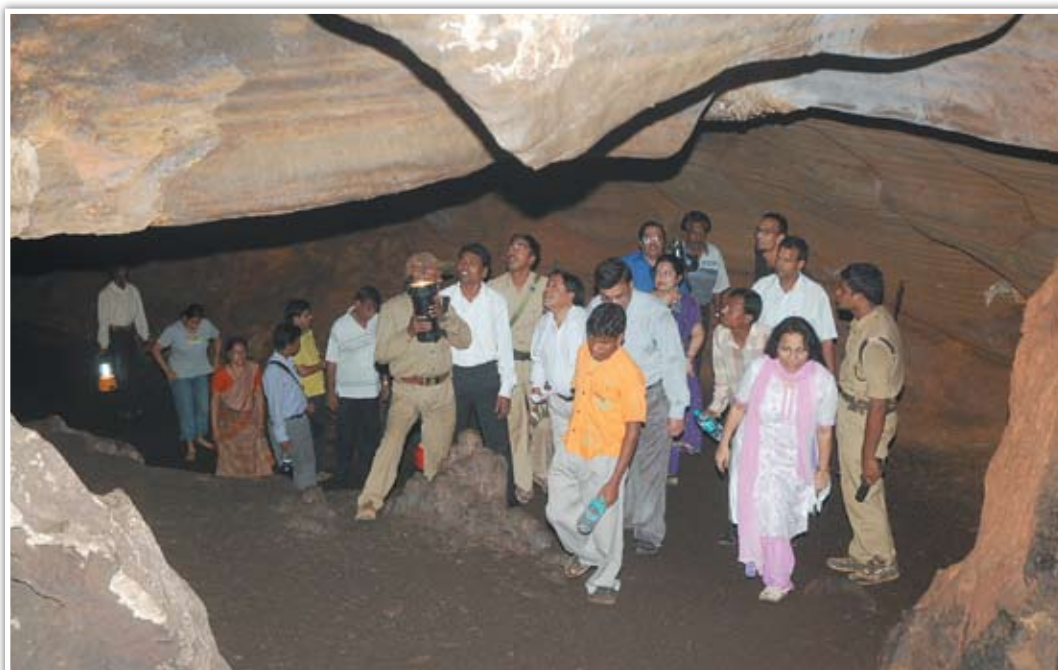
In Ramayan, Chitrakoot has been described as a place of unparalleled beauty, located at the bank of river Mandakini, a tributary of Ganga (2/94-95). Very rich in flora and fauna and having large variety of birds, fruits and flowers, Chitrakoot is described as having stunning cascades, fountains and springs. It also had beautiful caves for human habitation. One visit to Chitrakoot would reveal that all these features are still the same; with springs and fountains all around, ancient caves still being used by saints, birds chirping and singing on Kamadgiri and places full of fruit tree and flowering plants.

Kotumsar Caves in Dandak Van

Ramayan makes several references to thick forests, caves, lakes, gardens and *rishi-ashrams* in Dandak Van which were repeatedly visited for about 10 years by Lord Ram during exile (3/7-11 sargas). The existence of one such place named Kotumsar caves (Koti Maheshwar), situated in the middle of a dense forest in Bastar district having entry from the top of the hill, was discovered in 1958 but the entrance as well as passage through these magnificent caves were cleared only by 1993. Radiocarbon dates of the charcoal remains of grains and seeds found from the cave suggest a time range of 6940-4030 yrs BP. There are two drinking water wells inside these caves! One look at the pictures (Fig. 6 & 7) taken by the author will make its correlation with Ramayan description very clear!

Nasik

Ramayan also contains graphic details of Agastya Muni's Ashram, situated near Godawari and having ponds and gardens around; having an Agnishala in which various types of weapons were made (3/11-12). He had given several weapons,



Figs. 6 & 7: Inside view of Kotumsar caves

like *Diviya Dhanush*, *Amogh Vaan*, various kinds of arrows, and a sword, to Shri Ram which would enable him to eliminate cruel *asuras*. Site of Agastya Ashram and remains of Agastya temple are still identified by locals in *Ankai-Pinplner* area of Nashik. Shri Ashok Bhatnagar, an eminent astronomer, has displayed (elsewhere in this book) the sky view generated by planetarium software to show that star Canopus, named after sage Agastya, became visible from Vindhyas only around 5100 BC. This confirmed the legend referred to both in Ramayan and Puranas and also correlated the references to sage Agastya in both these books confirming that the events pertained to 7000 BP.

Ramsethu

During visit to Rameshwaram, author got an extra-ordinary opportunity to observe the depth at which Ramsethu was found submerged under the sea which measured 9.5 feet on the fisherman's oar. Author had also seen small portion as shown in figure 8 indicating contribution of human hand with marked boundaries and stone filling seen through the mask used for snorkeling.



Fig. 8 : Boundaries looking like ropes & the fillings in between

Places in Sri Lanka

In Ramayan there is a reference to labyrinth of caves and tunnels in the central hilly areas of Sri Lanka. The height of these hills is also stated to be similar to the height of hills in Malaya Giri (Cardamom hills) of Kerala (Sundar kand/1/204). A visit to the hills located around 90 kilometers from Nuwara Eliya towards Bandarawela in Sri Lanka appeared to be almost matching this description. As is clear from the Figs. 9A, 9B, 9C & 9D on the three sides of this hill (9A) are

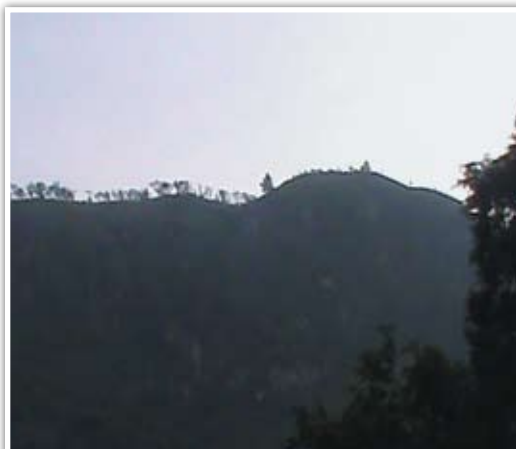


Fig. 9A: Hill top near Bandarawela, having network of caves



Fig. 9B: Ravana caves



Fig. 9C: Ravana falls with caves encircled



Fig. 9D: Udakirinda caves

Ravana Falls at 3500 feet above sea level (9C), Ravana Caves at 4500 feet (9B) and Udakirinda Caves (9D). The locals affirmed that such caves from all four sides have a meeting point deep inside but it was not possible to verify the accuracy of this assertion because it was impossible for us to go deep inside as the caves were full of webs, bats, insects and reptiles. A visit to Ashok vatika in Nuwara Eliya brought alive the memories of its references in Ramayan. Sri Lankans have also preserved the place where Vibhishan was coronated as Vibhishan Palace but most probably it will very soon be turned into a Buddhist site and its links with Ramayan era will get erased from the public memory.

Ram's Bridge – its satellite image and oceanographic evidences:

Ram-sena first camped in Koddikarai but after surveying the sea area, the location was found unsuitable for constructing the bridge. Therefore, Shri Ram shifted the entire army to Rameshwaram. In *Yuddh Kand, sarg 22 (shlokas 45-73)* Valmiki has given graphic details of Lord Ram carrying out research and exploration to identify a suitable location for construction of the bridge. After identifying the location, he requested Sugriva to search for an expert *Shilpakar* who could construct such a bridge. Sugriva recommended the name of Nal, a famous *shilpakar*, who had the expertise similar to that of Vishwakarma in constructing the bridge. Accordingly Nal was called; he concurred that bridge could indeed be constructed at the location identified by Shri Ram. He accepted the challenge and constructed the bridge (6/22/45, 6/22/53).

Satellite Image

A few years back, NASA had put pictures on internet of this bridge, the ruins of which are found submerged in Palk Strait between Rameshwaram (Dhanush Koti) and Mannar (Thalaimannar). The bridge is composed of a series of islands, rocks, and shoals and it is stated to be 30 kilometers long. It is found exactly at the location narrated in Valmiki Ramayan. See NASA picture of this Bridge (Fig. 10).

The construction of this bridge was completed under the supervision of Nal in five days by filling up of the gaps in the existing natural chain of land route consisting of islands, rocks and shoals (6/22/68-73).

The army men of Lord Ram utilized various tools and implements for uprooting trees like *saal, taar, coconut, mango, ashoka, arjun, bakul* and *bilva* etc (6/22/47).



Fig. 10: Image showing Sethu built by Sri Ram

With the help of various *yantras* they transported these stones, trees, creepers, and boulders to the seashore (2/22/60). *Shilpakar* Nal directed the army men to stand with long ropes on either side and got the bridge constructed in five days by binding such transported materials together. Even the use of measuring tools has been described (6/22/65).

Sea Level Curve

The use of this bridge as land route between India and Sri Lanka depended on the fluctuations in sea level for thousands of years as it was sometimes above the sea level and was at other times submerged under the seawater. **Dr. Rajiv Nigam**, *Scientist-G and Head of Palaeoclimate Project, Geological Oceanography Division, National Institute of Oceanography, Goa*, in his paper on “**Sea level Fluctuations during last 15000 years and their Impact on Human Settlements**”, has explained that the oceanographic reports on fluctuations of water levels in the oceans have revealed the existence of many coastal archaeological sites, either submerged or now found land locked, dated from 7500 BC onwards. With the help of Sea Level Curve (Fig. 11), he explained that between 7000 – 7200 BP the water level was about three meters below the present level. Incidentally, the astronomical dating of the Ram era has been placed around 7100 BP (DoB 10th Jan, 5114 BC) and Ramsethu is found submerged at about three meters depth at present, implying thereby that in 5100 BC this Sethu was above the sea level and could be used as a land route between Rameshwaram and Sri Lanka.

Fluctuations in sea level corroborate reference in Ramayan

This sea level curve corroborates another very important but little known fact. In 6/19/31 and 6/22/50, Valmiki has stated that water volumes in the sea were augmented by the ancestors of Lord Ram, particularly by Maharaja Sagar and Maharaja Bhagirath. Sagar was the 40th ruler and Shri Ram was the 64th ruler of *Surya Vansha* dynasty. Giving an average of 40 years for each ruler, a period of 900-1000 years is covered. See the way water levels have risen between 8000 BP to 7000 BP (6000 BC to 5000 BC)! Not only this, there are graphic details in Ramayan of attempts made by Ram’s ancestors, from Maharaja Sagar to king Bhagirath, for diverting massive volumes of Ganga waters from their source *i.e.* glaciers of Shivlinga peak towards east to reach the Bay of Bengal so that western parts of India could be saved from floods and eastern territories could be saved from severe droughts. (1/39-45).

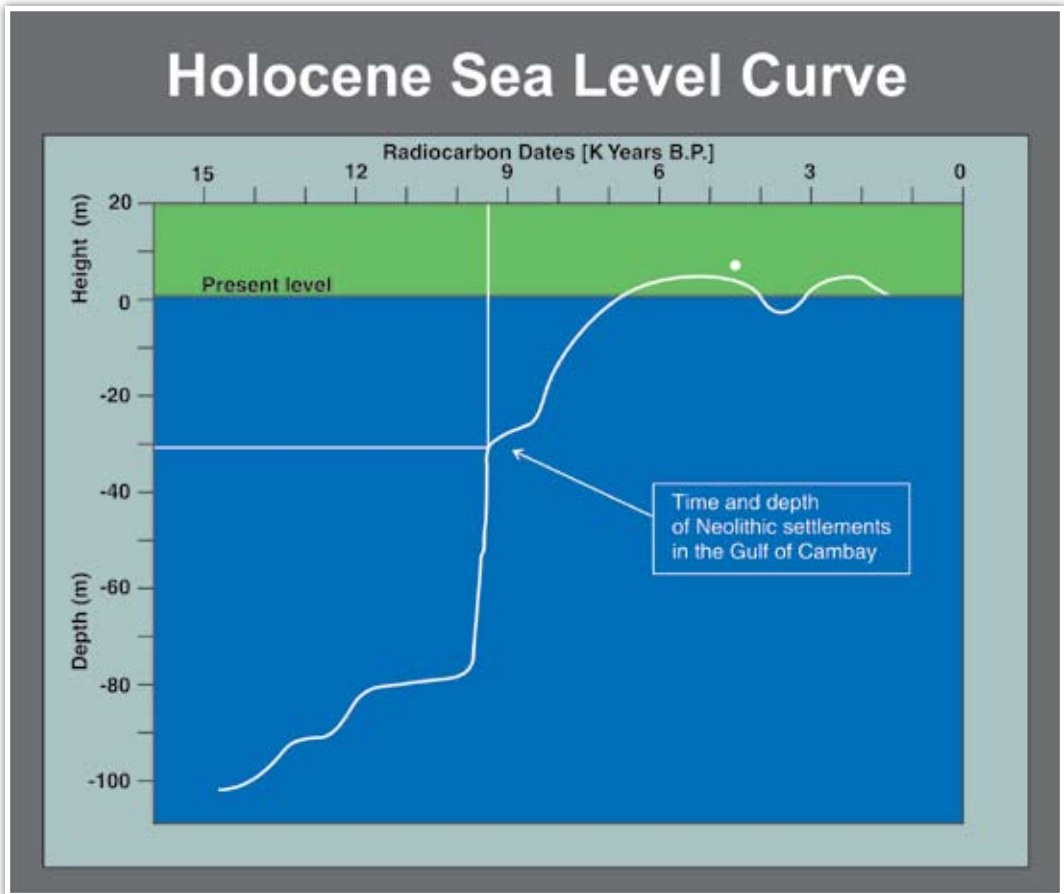


Fig. 11: Sea level curve of Holocene period

The sea level curve also indicates that within about 200 years of the completion of this bridge, the sea level had risen by about 1 to 3 meters, therefore the bridge submerged and remained submerged till 4000 BP (2000 BC). Thereafter, for about 1000 years water level had gone down; therefore the bridge would have come above the sea level to submerge again by around 1000 BC. This is also corroborated by the geological reports and remote sensing data as per which Saraswati River was flowing with full majesty from higher Himalayas to Rann of Kachchh in Gujarat around 6000 BC but it dried up during 2500-1500 BC due to the onset of arid phase as well as tectonic and palaeoclimatic changes in Himalayan region. This led to a drought like situation in north western areas of Indian sub-continent also leading to substantial reduction in water level of the sea.

Report by Department of Earth Sciences

According to Dr. Badrinarayan, former Director of Geological Survey of India, under whom geological aspects of the Sethusamudram Shipping Channel Project (SSCP) were studied, "Ramsethu is a natural formation, the top portion of which appears to be man-made" because in between marine sands, there is assemblage of corals, sandstones and boulders etc. The Ministry of Earth Sciences in a response sent to the then President of India Dr. Abdul Kalam (reported in The Telegraph of May, 2007) stated, "in the case of Adam's bridge area we observe that the coral formations hardly occur 1 to 2.5m in length and resting on loose marine sands. Most of these coral rock pieces seem to be rounded pebbles of corals. These things appear to point that these coral rock pieces and pebbles have been transported and placed in these areas. There are some raised Teri formations that supported a rich assemblage of Mesolithic – microlithic tools indicating the presence of strong human habitation and activity in these areas as early as 8000 to 9000 BP and as recent as 4000 BP" (Ref. Ram Setu by S. Swamy).

Report of National Remote Sensing Agency

The National Remote Sensing Agency of the Union Ministry of Space has published a book of satellite photographs (ISBN: 8175256524) claiming that "archaeological studies show" that the Setu "may be man-made" (page 67 of Ram Setu by S. Swamy). It is surprising that instead of taking pride in the achievements of our distant past, we continue to live in self-denial mode!

Other Interesting facts

All attempts to create shipping route by completing the Sethu Samudram project have so far failed. Shri Subramnian Swamy summarized the report dated January 23, 2007 published in the Asian Age stating that "the Dredging Corporation of India's (DCI) dredger imported from Holland had broken into two and sunk into the sea when it began work on the Ram Setu. The DCI crane that went to pick up the dredger pieces also broke and sank. The Russian engineer consultant who went to inspect the mishap broke his leg." As a result all efforts made on behalf of the Government so far to destroy remains of Ram Setu have failed and consequently Sethusamudram Shipping Canal could not become a reality.

In Rameshwaram, particularly from Dhanushkoti, the boatmen earlier used to take visitor in glass boats to show remains of Ram Setu found submerged around three meters deep, but it has become fashionable to call it Adam's bridge, probably because the expression 'Adam' is considered to be more secular or more British than the expression 'Ram'. Sri Lankan government wanted to construct a land route over this submerged bridge whereas Government of India wanted to blast it for shipping *i.e.* Sethusamudaram project. Shri Jaisurya, Energy Minister of Sri Lanka had proposed construction of land route between India and Sri Lanka on this submerged Ram Setu. There are several multi-nationals offering to construct the bridge under BOT (Build-Operate-Transfer) scheme. Can one imagine the number of people from India who will walk over this reconstructed Ram Setu every year and the kind of profit the builder as well as Indian and Sri Lankan Government would be able to earn.

Ancestors of Shri Ram: Co-relation of genealogy with genetic studies

Indian history has recorded that Shri Ram belonged to Surya Vansh and he was the 64th ruler of this dynasty. Most of the names and other relevant particulars of previous 63 kings are listed in '*Ayodhya Ka Itihas*' written about eighty years back by Rai Bahadur Sita Ram. In fact most of the names of these ancestors of Lord Ram have been listed in Valmiki Ramayan itself as narrated by Vashistha Muni to Raja Janak (1/70 and 71).

Professor Subhash Kak of Louisiana University (USA), in his book "The Astronomical Code of the Rigveda" has also listed 63 ancestors of Shri Ram who ruled over Ayodhya. The ancestors of Shri Ram have been traced out as under:

Shri Ram, s/o King Dashratha, s/o King Aja, s/o King Raghu, s/o Dirghabahu s/o King Dilipa-II, s/o King Visvasaha and so on) King Sagar (40th Ruler) Satyavadi Harish Chandra (33rd King) (all listed in table 2)

Professor Kak has also traced out 29 descendants of Shri Ram starting with his son Kusa f/o Atithi, f/o Nisadha, f/o Nala

..... 94th Ruler of Ayodhya being Brihatksaya (all listed in table 2).

Table 2: Showing Ancestors and descendants of Shri Ram

1. Manu	25. Anaranya	49. Ayutayus	73. Ahinagu
2. Ikshvaku	26. Trasadsva	50. Rtuparna	74. Paripatra
3. Vikuksi-Sasada	27. Haryasva (II)	51. Sarvakama	75. Bala
4. Kakutstha	28. Vasumata	52. Sudasa	76. Uktha
5. Anenas	29. Tridhanvan	53. Mitrasaha	77. Vajranabha
6. Prithu	30. Trayyaruna	54. Asmaka	78. Sankhan
7. Vistasrasva	31. Trishanku	55. Mulaka	79. Vyusitasva
8. Ardra	32. Satyavrata	56. Sataratha	80. Visvasaha (II)
9. Yuvanasva (I)	33. Hariscandra	57. Aidavida	81. Hiranyabha
10. Sravasta	34. Rohita	58. Visvasaha (I)	82. Pusya
11. Brihadrasva	35. Harita, Cancu	59. Dilipa (II)	83. Dhruvasandhi
12. Kuvalasva	36. Vijaya	60. Dirghabahu	84. Sudarsana
13. Drdhasva	37. Ruruka	61. Raghu	85. Agnivarna
14. Pramoda	38. Vrka	62. Aja	86. Sighra
15. Haryasva (I)	39. Bahu (Asita)	63. Dasaratha	87. Maru
16. Nikumba	40. Sagara	64. Ram	88. Prasusruta
17. Samhataasva	41. Asamanjas	65. Kusa	89. Susandhi
18. Akrsasva	42. Amsumant	66. Atithi	90. Amarsa
19. Prasenajit	43. Dilipa (I)	67. Nisadha	91. Mahashwat
20. Yuvanasva (II)	44. Bhagiratha	68. Nala	92. Visrutavant
21. Mandhatr	45. Sruta	69. Nabhas	93. Brihadbala
22. Purukutsa	46. Nabhaga	70. Pundarika	94. Brihatksaya
23. Trasadsyu	47. Amabarisa	71. Ksemadhanvan	
24. Sambhuta	48. Sindhudvipa	72. Devanika	

These genealogy details are partly described in Ramayan itself through the words of Guru Vashishth at 1/70. The ancestry of king Janak of Mithila is also described in 1/71 and is traced through Hrasvaroma to Keertiratha to Suketu to Janak, the first king who gave his name to the Raja Janak's dynasty.

Having shown that the date of Shri Ram was around 5100 BC and the names of 63 predecessors Surya Vanshi Kings are mentioned in Ramayan and Purans, the date of the first king, Manu is pushed back by at least 2000 years to 7000 BC. It is obvious that it would have taken at least two thousand years for the civilization to develop practices relating to agriculture and irrigation, trade and industry, navigation and shipping, urban planning and civil administration; leading to formation of large kingdoms and the institution of kingship. It would have taken a few thousand years for an evolving society to attain the level of intellectual, philosophical and scientific activity as evident in the Vedas and epics.

Almost all the major Genome studies carried out so far have revealed an amazing correlation of this genealogy with the genetic profile of humans settled in north, south, east and west of India since the Holocene (about 11000 years BP) to the present. Almost all the important studies in palaeo-anthropology, including those carried out by Kenneth A. R. Kennedy and Cavalli-Sforza, have concluded that genetic profile of people of the Indian sub-continent has remained the same for last more than 55000 years and that for last 11000 years this profile is of culturally developing people who had started speaking a structured language and were taking cooked food.

The Essence

From Kashmir to Kanyakumari and from Bengal to Gujarat, everywhere people of India believe in the reality of Shri Ram's existence and most of our festivals revolve around the events related to the life of Shri Ram. The events and places referred to in Ramayan represent our most ancient heritage, which has developed and got enriched subsequently during the eras of Lord Krishna, Mahatma Buddha, Mahavir Jain, Jesus Christ, Prophet Mohammed and Guru Nanak Dev.

The story of Shri Ram, when appreciated in its true perspective, would emerge as the biggest unifying factor for India and it establishes many ideals which we need to emulate today. He remains unparalleled as an ideal son, an ideal brother, an ideal warrior and an ideal king; that is why he is described as *Maryada Purushottam Ram*! He was a nationalist par excellence who left his kingdom to help the small kings located all over India to save their kingdoms from being usurped by wicked King Ravana of Sri Lanka and his relatives and devils like Khar, Dushan and Maarich representing him in India. Shri Ram moved from place to place to spread the message of unity by showing very high level of

respect for the people from backward tribes and those considered untouchable. He embraced Guh Nishad who belonged to a lower caste; he gave a strong message against untouchability by eating with great affection *jootha berries* of *Bhilni* (Shabri). He sent his wife and children to be brought up and educated by Maharishi Valmiki who is stated to be *Shudra* but was a great scholar in the ancient world. Shri Ram tried and succeeded in establishing victory of good over evil. He helped *rishis* and *munis* in living a life of honor. He got the kingdoms of small noble kings restored to them and acted as the biggest unifying factor.

The astronomical dating of planetary references given in Valmiki Ramayan with corroborating archaeological, geological, oceanographic, geographic evidences, further supported by genealogical studies duly correlated with genome studies have established with a fair amount of certainty that Shri Ram was actually born more than 7000 year back. Therefore discovering the physical details relating to the life and times of Shri Ram would be much more difficult as destruction caused by floods, droughts, earthquakes, tectonic movements, tsunamis and wars etc is bound to be far greater. But should that stop our quest for learning more and more about our most ancient rich cultural heritage? As Indians, let us all take pride in the fact that Indian civilization is the most ancient civilization surviving on planet earth. It is certainly more than 10,000 years old and has been growing and developing indigenously. Let us admit that during British Rule, we were educated in the schools based on Macaulay school of thinking which believed that Indians were inferior to the Englishmen and that entire 'Indian literature was not worth even one book rack in England'. If there were similarities in certain features of language of Indian people and people from Central Asia/Europe then automatic inference drawn was that the Aryans coming from Central Asia/Europe invaded India and settled here. No one dared of thinking in any other way. Therefore, there is urgency for the historians, scientists and all other intellectuals to stop reducing Indian history to myth.

There is need to gather, dig out, search, and analyse all the evidences, which would throw more light on ancient Indian civilization and culture. This in turn would facilitate unearthing scientific knowledge from Vedic and Post-Vedic literature which is needed by mankind today for developing nature friendly and pollution free technologies. The Government is requested to constitute a multidisciplinary team in order to carry out scientific research pertaining to most ancient events narrated in our ancient books and this team should consist of Sanskrit scholars, astronomers, archaeologists, geologists, oceanographers,

palaeobotanists, anthropologists, space scientists etc. This team should be asked to rewrite the history of Indian sub-continent based on purely scientific evidence. There is need for the print and the electronic media to take note of these facts and create atmosphere which would motivate our young and educated youth to carry out research and unearth true facts about ancient Indian civilization and wisdom and would also encourage them to put across the results of their research before the world fearlessly and with a sense of pride.

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