

# Timeline of Epics Using Astronomical Observations

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**Abstract:** This paper uses the astronomical observations provided by Valmiki in Ramayana and Veda Vyasa in Mahabharata to derive a timeline that fits neatly with the established timeline for Vedic civilisation. Author concludes that Mahabharata War occurred in 878 BC and Rama was born in 1485 BC. The author selectively uses genealogical data provided in Puranas as a basis for calculating an approximate era in which Mahabharata War would have occurred (9<sup>th</sup> century BC) and utilizes astronomical observations noted in the Mahabharata to hone in on a specific year (878 BC). Similarly, Puranic genealogical data is used to calculate the approximate time of occurrence of Ramayana (15<sup>th</sup> century BC) and astronomical observations are used to identify the year of the birth of King Rama (1485 BC).

Key Words: Ramayana, Mahabharata, Puranas, Timeline, Astronomical data, Dating of epics.

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## Introduction:

Various Puranas contain genealogies of dynasties of the Classical era. The length of rulership of Puranic kings is overstated, but the number of generations in each dynasty are reasonably consistent across Puranas (with same or similar names of the rulers).

The author postulated ninth century BC as the likely timeline for Mahabharata War and fifteenth century BC for Ramayana. For this, the author studied data of documented historical dynasties such as Mouryas, Guptas & Mughals, and arrived at eighteen years as average rule per ruler. The author used Puranic data for genealogy and multiplied average rule of eighteen years with the documented thirty-one rulers from Mahabharata to Mahananda to arrive at estimated 558 years that Mahabharata preceded Mahananda.

Similarly, thirty-six generations between Ramayana to Mahabharata yielded 648 years as the approximate timeline of Ramayana preceding Mahabharata.

The author has analysed astronomical observations noted in the Mahabharata and compared to actual astronomical events in a 250 year range (750 BC to 1000BC), and came to conclusion that there is compelling evidence that Mahabharata War occurred in 878 BC and Kali Yuga started in 860 BC.

Similarly, using astronomical observations in the Ramayana of Valmiki, and scanning astronomical data for second millennium BC, author has concluded that Rama was born in 1485 BC.

Some historians have claimed based on astronomical observations that Kali Yuga started on 3102 BC. This paper also proves that the observations in Puranas, *Surya Siddhanta* & *Aryabhatiya* are not sufficient to prove the same and Kali Yuga did start in 860 BC.

## 1. Historicity of Puranic Genealogy

### 1.1 Veracity of Genealogy in Puranas

Most of the *Puranas*<sup>1</sup> contain the genealogy of rulers of solar & lunar dynasties. Consider *Bhavishya Purana* (भविष्य पुराण). The word ‘*bhavishya*’ literally means ‘the future’. It is supposed to be a ‘History of the Future’ and is supposedly written after ending of Mahabharata War and is supposed to contain ‘predictions’ of events occurring in India and various nationalities of West Asia.

Section 1 of the *Pratisarg Parv* of *Bhavishya Purana* contains entire story of Bible from Adam (*Aadam*) & Eve (*Havya*), to Noah (*Newh*), Moses (*Moosha*), Jacob (*Yakoot*). It has the entire story of Noah’s Arc and the Great Flood described beautifully. An extract of these pages in Hindi are in Exhibit 1 at the end of this book.<sup>2</sup>

In the *Pratisarg-Parv*, section 3, there is a chapter called ‘Story of *Isa-Maseeh*’. It contains references to arrival of Prophet (*Maseeh*) Jesus (*Isa*) in India (3.35) (see Exhibit 2) and advent of Prophet Mohammad (3.36) (see Exhibit 3).

The *Bhavishya Purana* continues to have ‘predictions’ of most subsequent Indian kings such as Prithviraj, Akbar, Shivaji etc and as late as eighteenth century – just when British annexed India! (Chapter 3.37 through 3.82 & Chapter 4.88 through 4.123)

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<sup>1</sup> Purana, ( Sanskrit: ‘Ancient’) in the sacred literature of Hinduism, any of a number of popular encyclopaedic collections of myth, legend, and genealogy, varying greatly as to date and origin as per Britannica Encyclopedia

<sup>2</sup> (*Bhavishya Puran- भविष्य पुराण हिंदी*, 1992)

Supposedly, all these ‘predictions’ were done in the Bhavishya Purana centuries before the actual event, as the Bhavishya Purana is claimed to have been written in at least 750BC or before.

Clearly, it is irrational to think that these were true ‘predictions’. It seems more rational to assume that Bhavishya Purana is a running record of all the events that are NOT recorded in all the other Puranas and they are the historical records of the future from the standpoint of the base time-frame from which these Puranas were written. For example, many of the Puranas consider King Parikshit<sup>3</sup> to be the king at the time of writing of that Purana. Thus, it can be postulated that the major Puranas contained stories related to the individual deity for events that occurred before Mahabharata War and Bhavishya Purana could have been the chosen medium using which a running history was recorded of events that occurred after that base time frame and it was maintained in the guise of ‘*bhavishya*’ i.e. ‘future’, in other words, after Mahabharata War.

As time passed, some very selected and clever Brahmins (probably running in families) may have maintained this Purana by constantly adding the actual historical events as ‘predictions’ to the Purana! In fact, Ludo Rocher writes in his book that ‘The title Bhavishya means ‘future’ and implies it is a work that contains prophecies regarding the future, however, the ‘prophecy’ parts of the extant manuscripts are a modern era work.’<sup>4</sup>

On analysis, it is further found:

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<sup>3</sup> Grandson of Arjuna, the main character in Mahabharata – see more information in footnote 52 on page 38.

<sup>4</sup> (Rocher, 1986, *The Puranas*, pp. 151-154)

1. **The Bhavishya Purana is full of embellishments in the Ancient Era but has substantially fewer embellishments in the Historical Era.** For example, Rama<sup>5</sup> is supposed to have ruled for 11000 years, but, King Shalivahan's dynasty (a kingdom of early first millennium AD) of ten kings ruled only for 500 years! This is possibly due to Greeks' influence and rise of *Shramanic* religions (i.e. Buddhism & Jainism) that forced Brahmins to start keeping records shorn of any exaggeration and Hindu deification. (See more information on this in section 'Average Length of Rulership')
2. It contains the recording of genealogy of Indian kings going all the way to the beginning of Vedic civilisation.<sup>6</sup> All the dynasties that ruled over various parts of north India were listed with the name of each ruler and number of years they ruled. **The information in Bhavishya Purana matches with other Puranas for most of the genealogical data.** In most cases, about 90% of the generational data matches across multiple Puranas. More information on this topic is provided a little later.
3. **The farther you go back in the past, the number of years ruled by those rulers went absurdly high.** For example, Mahananda of fourth century BC is supposed to have ruled for ten years, but about ten generations back, Shishunaga is supposed to have ruled 100 years. Similarly, Yudhisthira is supposed to have ruled fifty years but his great grandfather Shantanu is supposed to have ruled 1000 years. Finally, Rama was supposed to have ruled 11000 years and King Ikshvaku, the ancestor of Rama who founded the dynasty is said to have ruled as many as 36000 years.

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<sup>5</sup> Rama, one of the most widely worshipped Hindu deities, the embodiment of chivalry and virtue. He is the seventh incarnation (avatar) of Vishnu. His story is told at great length in the Ramayana ('Rama's Journey') (as per Britannica Encyclopaedia)

<sup>6</sup> See Exhibit 4 in Hindi for Bhavishya Purana. Also see genealogy for Ikshvaku dynasty in Exhibit 6, Exhibit 7 and Exhibit 8, where the author has documented the names of the kings mentioned in various Puranas).

4. **There are many cases where the number of years ruled followed a pattern.** See this example from the Sat Yuga<sup>7</sup> genealogy mentioned in Bhavishya Purana<sup>8</sup>. King Kuvalparsha's son Drudascha ruled for 33,800 years. His son Nikumbhaka ruled for 1000 year lesser, i.e. 32800 years. His son, Sankatashcha ruled for 1000 year lesser i.e. 31,800 years. This goes on and on!

महाराज कुवलपराशके पुत्र दृदाशश्च भूय, जिन्होंने अपने  
पितासे एक हजार वर्ष कम अर्थात् तैतीस हजार आठ सौ  
वर्षोत्क राज्य किया। उनके पुत्र निकुम्भक भूय, उन्होंने पितासे  
एक हजार वर्ष कम अर्थात् बत्तीस हजार आठ सौ वर्षोत्क  
राज्य किया। उनके पुत्र संकटाशश्च भूय, उन्होंने एक हजार वर्ष  
कम अर्थात् इकतीस हजार आठ सौ वर्षोत्क राज्य किया।

One can imagine that the number of years were exaggerated, say by 1000 times, to please the king for whom the author is writing the story, but, it is impossible that they would follow a pattern. Death does not come on demand! **Clearly, the number of years ruled by rulers were absurd and were designed to be in sync with the overstated lengths of *Yugas* (eras)<sup>9</sup>!**

<sup>7</sup> Sat Yuga is first of the four Yugas. See footnote 9 on page 6 for further explanation on Yugas.

<sup>8</sup> (Bhavishya Puran- भविष्य पुराण हिंदी, 1992)

<sup>9</sup> According to Brahmanda Purana 1.2.29.31-34, Satya Yuga = 1,440,000 years, Treta Yuga = 1,080,000 years, Dwapar Yuga = 720,000, Kali Yuga = 360,000 years. Since Ramayana occurred in Treta Yuga and since at least 5100 years ago, it would imply that a minimum of 725,000 years have passed since the Ramayana story! Of course, this is another embellishment as the real number of years were specified in Manusmriti (an ancient legal text (Dharmaśāstr) of Hinduism) to match the precession of axis of earth, a very important astronomical concept, where Earth points to the same star (currently Polaris) in the north after every 26000 years, and was calculated to be 24000 years by ancient Indians. They divided the full cycle of 24000 years into 2 parts i.e. ascending and descending and then divided each half-cycle of 12000 years into 4 yugas as follows – 4800 years of Satya Yuga, 3600 years of Treta Yuga, 2400 years of Dwapar Yuga and 1200 years of Kali Yuga. But, these years were supposedly in 'Divya' years i.e. divine years. Since each Divine year equals 360 human years, we get the large numbers above. It is clear that the relationship of the divine years to human year was just an embellishment to make everything look humongous.

But, are genealogies in the Puranas are nonsensical as well? In midst of these ridiculous examples of exaggeration for length of rulership, can we conclude that the entire genealogy information in all the Puranas are total imagination? Or is there some underlying logic?

Does it make historical sense when one looks at the number of generations from one event to another? Historians like Romila Thapar believe that:

‘These sections of Puranas are not entirely mythical, since they contain references to historical dynasties. But, claims to factual history need to be used with circumspection.... There are substantial difference between genealogies in various texts. Genealogies are known to be stretched and contracted as required, and to have legends woven in.’<sup>10</sup>

An analysis was carried out for the information about dynasties in each of the Puranas and the estimate of the likely length of each dynasty based on an assumed rational length of average rulership.

Consider the data for Ikshvaku dynasty in Table 1. The entire list is detailed in Exhibit 6 & Exhibit 7.

**Table 1**

Era	Number of Generations as per various Puranas				
	Vishnu	Bhagavad	Bhavishya	Brahma	Matsya
Mahabharata <sup>11</sup> to Mahananda (345 BC) (see Exhibit 7)	30	28	28	Not Listed	Not Listed
Ramayana <sup>12</sup> to Mahabharata (see Exhibit 6)	31	29	29	15	17

<sup>10</sup> (Thapar, *Penguin History of Early India*, 2003, p. 100).

<sup>11</sup> See footnote 52 on page 36.

<sup>12</sup> Ramayana, (Sanskrit: ‘Rama’s Journey’) is shorter of the two great epic poems of India. The Ramayana was composed in Sanskrit, probably not before 300 bce, by the poet Valmiki and in its present form consists of some 24,000 couplets divided into seven books. The poem describes the royal birth of the god Rama in the kingdom of Ayodhya (Oudh), and his life story of struggle and success.

**While there are minor discrepancies between Vishnu Purana, Bhagavad Purana & Bhavishya Purana, they are more or less using the same genealogies.** It's true that names are not exactly the same, but many of the differences are clearly different variations of the same name. In Table 2 below are the first three rulers of the Ikshvaku dynasty around Mahabharata War. As one can see, the names are slightly different across Puranas.

**Table 2**

#	Vishnu	Bhavishya	Bhagavad
1	Brihadbala	Brihadbala	Brihadbala
2	Brihadkshan	Brihadkshan	Brihadrana
3	Urukshay	Murukshep	Ūrukriya

*Brahma Purana & Matsya Purana* record almost the same genealogies as the other Puranas, except that they stop recording the genealogy after about fifteen generations after Rama. (Thereby leading to a conclusion that they are possibly written about fifteen generations after Ramayana).

It is true that some names are different and there are instances of missing generations from one Purana compared to the other, but, this amount of corruption is not unreasonable for an oral tradition. Puranas have been handed down generations after generations from father to son by pure memorisation, and it is absolutely natural for some errors to creep in.

In addition, **there is a remarkable consistency in number of generations in different dynasties across multiple Puranas.** See Table 3 below :

Table 3

Dynasties	Lunar (Kuru) <sup>13</sup>	Magadha (see Note)	Ikshvaku (Solar)
Starting Point	Arjuna <sup>14</sup>	Jarasandh	Brhadbala
Number of Generations	29	30-33	32
Last Ruler	Kshemak, killed in fourth century BC <sup>15</sup>	Mahananda (died 321 BC)	Sumitra <sup>16</sup>
Puranic Reference	Bhavishya Purana.	Bhagavat Purana	References in multiple Puranas. See Exhibit 7 on page 79.

In view of all the above analysis, this author does not agree with Romila Thapar and others for their judgement that there are ‘substantial’ differences between various texts. On the other hand, it clearly seems that **the amount of synchronisation between Puranas that were written by different people in different parts of the country at different times can only point to their authenticity as a reasonably solid list of genealogy for Ikshvaku and Kuru dynasties.** It is obvious that there are many things in Puranas that cannot be considered history in view of the embellishments and religiosity, and the length of rulership mentioned in the Puranas are clearly irrational, but, **at a minimum, it makes sense to assume that the**

<sup>13</sup> Bhagavat Purana (the most followed Purana by Hindus, which provides detailed information on Lord Krishna’s life) also provides the same genealogy for Arjuna’s descendants with some minor differences. Read 9.22.33 through 9.22.46 read along with 12.1.1 through 12.1.13 at (Sri Mad Bhagavatam, n.d.)

<sup>14</sup> Arjuna, was the chief warrior of the Pandava clan of the Mahabharata War. See footnote 52 of page 36 for details on Mahabharata War.

<sup>15</sup> (Rapson, 1922, p. 308)– ‘The dynasty came to an end with Kshemaka, the fourth king to reign after Udayana, the contemporary of Buddha’. Since Buddha lived in fifth century BC, it is obvious that twenty-nine generations of Puru dynasty would end somewhere in fourth century BC.’

<sup>16</sup> (Rapson, *The Cambridge History of India – Volume 1 – Ancient India*, 1922, p. 309) - The Ikshvaku Dynasty, as per various Puranas, ‘concludes with Sumitra, the fourth successor of Prasenajit, who was contemporary with Buddha’

**number of generations between these major events can be considered as a valid data point for further analysis.**

A similar conclusion is reached by F.E. Pargiter, an orientalist, in his book ‘Ancient Indian Historical Tradition’:

“These considerations show that genealogies have strong claims to acceptance. This does not mean that they are complete and altogether accurate, because no human testimony is free from defects and errors.... Nevertheless, it is quite clear that they are genuine accounts and are substantially trustworthy.”<sup>17</sup>

## 1.2 Number of Generations Between Events

Let us now consider the generations that passed between major events:

1. From the Mahabharata time to the Historical Era (about fourth century BCE) - Based on the data for dynasties in various Puranas, **it can be concluded that approximately 31 generations are likely to have passed from the Mahabharata to the fourth century BCE.** See Table 4 below.

**Table 4**

Dynasties	Lunar (Kuru) <sup>18</sup>	Magadha <sup>19</sup>	Ikshvaku (Solar)
Starting Point	Arjuna	Jarasandh	Brhadbala

<sup>17</sup> (Pargiter, 1922, ‘Ancient Indian Historical Tradition’ p. 125)

<sup>18</sup> Bhagavat Purana (the most followed Purana by Hindus, which provides detailed information on Lord Krishna’s life) also provides the same genealogy for Arjuna’s descendants with some minor differences. Read 9.22.33 through 9.22.46 read along with 12.1.1 through 12.1.13 at (Sri Mad Bhagavatam, n.d.)

<sup>19</sup> Bhagavat Purana provides genealogy of all Magadha kings since Mahabharata (Jarasandh is known to be king of Magadha in Mahabharata). According to Bhagavat Purana, there are thirty-nine kings in Magadh since Mahabharata to King Mahananda, who is known to have ruled during fourth century BC. However, this was not one continuous dynasty. Instead, it was composed of twenty-three descendants of Jarasandha, five of Pradyot, ten of Shishungas followed by Mahanandas. However, it has been noted by historians that ‘The next two dynasties, the Pradyotas and Shishungas, were almost certainly contemporary’<sup>19</sup>, which would give us a net value of about thirty to thirty-three generations from Mahabharata time to fourth century BC.

Number of Generations	29	30-33	32
Last Ruler	Kshemak, killed in fourth century BC <sup>15</sup>	Mahananda (died 321 BC)	Sumitra <sup>20</sup>
Puranic Reference	Bhavishya Purana.	Bhagavat Purana	References in multiple Puranas. See Exhibit 7 on page 79.

2. From the Ramayana times to the Mahabharata times - The number of kings that followed Rama in Ayodhya to the time of Mahabharata is twenty-nine generations (in the solar dynasty of Ikshvaku) as per Bhavishya Purana (Pratisarg Varg – Chapter 1) and the twenty-ninth king Brihadbala is recorded in multiple Puranas to have been killed by Abhimanyu during the Mahabharata war. This is also corroborated by Bhagavat Purana (9.12.1 through 9.12.9), for most part with some minor discrepancies. Similarly, Vishnu Purana also provides very similar genealogy for the Ikshvaku dynasty in book 4 - chapter 4, having a total of thirty-one generations. Exhibit 6 contains details of all these dynasties and after accounting for missing names in one Purana or other, **it is logical to assume that thirty-four generations are likely to have passed between the times of Ramayana to Mahabharata.**<sup>21</sup>

### 1.3 Average Length of Rulership

With the assumption that Puranas contained mostly accurate list of kings of dynasties but false information on length of their rule, we can calculate timeline for each dynasty by

<sup>20</sup> (Rapson, *The Cambridge History of India – Volume 1 – Ancient India*, 1922, p. 309) - The Ikshvaku Dynasty, as per various Puranas, 'concludes with Sumitra, the fourth successor of Prasenajit, who was contemporary with Buddha'

<sup>21</sup> It is assumed for this analysis that if one Purana has recorded an additional ruler than another Purana, it is more likely that the second Purana has missed a generation. See exhibit 6 for the entire list.

arriving at a historically consistent ‘**average length of rulership**’ of each king. We have to consider following nuances:

1. It is natural that most rulers in ancient times would marry soon after puberty and will have their first male kid by the time they are about fifteen to twenty. Some may have kids at a later age.
2. Dynasties are not necessarily continuous. Brothers/cousins take over and sometimes, even outsiders take over, thereby adding more kings to the list in the same time period.
3. Some kings may live long and some may live very short. Therefore, some may rule for 40-50 years and some may just rule a couple of years.

Keeping these kinds of irregularities in mind, we can look at dynasties in the Historical Era and use the results to arrive at average rulership for longer dynasties.

### **Maury Kings 322 BCE – 180 BCE**

Chandragupta	322–297 BCE – 25 years
Bindusara	297–272/268 BCE – 25 years
Ashoka	272/268–232 BCE – 40 years
Dasharatha	232–224 BCE – 8 years
Samprati	224–215 BCE – 9 years
Shalishuka	215–202 BCE – 13 years
Devavarman	202–195 BCE – 7 years
Shatadhanvan	195–187 BCE – 8 years
Brihadratha	187–180 BCE – 7 years

This data shows that nine kings ruled over 142 years. **The average is sixteen years.** We know that some of these kings were dethroned by a relative and that contributed to the reduction in average age.

### **Gupta Kings 320 AD – 495 AD**

The Gupta Empire, a major dynasty during the first millennium AD shows that nine kings ruled over 175 years. **That average comes to nineteen years.**

Chandragupta I	320 – 335 – 15 years
Samudragupta	335 – 380 – 45 years
Ramagupta	Not known - 0
Chandragupta II	380 – 415 – 35 years
Kumaragupta I	415 – 455 – 40 year
Skandagupta	455 – 467 – 12 years
Purugupta	467 – 473 – 6 years
Kumaragupta II	473 – 476 – 3 years
Budhagupta	476 – 495 – 19 years

Consider an empire from the second millennium – the Mughal Empire. There were twenty kings, from Babur’s reign starting in 1526 to Bahadur Shah’s reign ending in 1857. It had four kings who were not natural heirs. This empire lasted 331 years and twenty kings, yielding **an average of seventeen years.**

Finally, consider Roman Empire. There were fifty-four kings in three centuries (first, second and third centuries AD)<sup>22</sup>. That’s an **average of just six years per ruler.**

Additionally, the data in the various Puranas for genealogy in the historical era (i.e. after third century BC, where the exaggerations were no longer employed), also show the trend of similar length of generations. For example, Vishnu Purana’s chapter 24 details many kingdoms as follows<sup>23</sup>:

- Mauryas 326 BC to 184 BC – 10 kings over 137 years – average 13.7
- Śungas 185 BC to 75 BC – 10 kings over 112 years – average 11.2
- Kañwa 75 BC to 30 BC - 4 kings over 45 years – average 11.2

<sup>22</sup> (List of Roman emperors, n.d.) - Encyclopaedia Britannica

<sup>23</sup> (Wilson H. H., 1840) - *The Vishnu Purana, translated by Horace Hayman Wilson, [1840], at sacred-texts.com*, Chap XXIV

- Ándhrabhritya (aka Satavahana) from 271 BC to 174 AD – 30 kings over 456 years – average 15.2 year.

With the data from these four well-known dynasties and corroboration from the Vishnu Purana for dynasties in the historical era, **the author decided to postulate that eighteen years is the average span of rule for each king** for further enquiry.

## 1.4 Genealogy's Relation to Timeline

With an assumption that the number of generations mentioned in Puranas are a reasonably accurate historical records and that average length of rulership for each generation is about eighteen years, the following Table 5 calculates total time between major events mentioned in Puranas and therefore arrives at approximate year in which the event is likely to have occurred.

**Table 5**

Era	# of Generations (a)	Years Per Generation (b)	Total Time for this era (a * b)	Year BC
Mahabharata to Mahananda (321 BC)	31	18	558	879
Ramayana to Mahabharata	34	18	612	1491

These estimated time, they fit in neatly with the historians' estimate of the antiquity of the Vedic civilisation. Based on these numbers, Mahabharata would have occurred about ~550 years before Mahananda of Paataliputra ruled in fourth century BC. This would put Mahabharata time frame to be about 850-900 BC. Romila Thapar writes in her book 'The Penguin History of Early India' that 'the flood at Hastinapur, evident from archaeology and

mentioned in the epic, has been used to date the (Mahabharata) war to 900 BC, but such correlation remains tenuous....<sup>24</sup>

FE Pargiter also reaches a similar conclusion, analysing each specific grouping of kings between the times of Mahabharata to Mahananda and arrives at 950 BC as the time at which Mahabharata war would have occurred.<sup>25</sup>

Since Ramayana happened thirty-four generations before Mahabharata, therefore, about 600 years before Mahabharata, that would lead us to the conclusion that Ramayana occurred about fifteenth century BC. As per the current evidences, historians do admit that if Ramayana & Mahabharata were to be true events, then, they would have to occur somewhere between middle of second millennium BC and early first millennium BC, as the rise of the Vedic civilisation is dated to early second millennium BC.

## 1.5 Conclusions

1. **The number of generations mentioned for dynasties in various Puranas** such as Bhavishya Purana, Bhagavat Purana, Vishnu Purana, Brahmanda Purana **are reasonably consistent with each other**, with exceptions that are likely due to errors that crept in over thousands of years of maintaining this large volume of literature.
2. **These Puranas noted these genealogy rather faithfully, but, used a lot of exaggeration when enumerating the number of years they ruled.** In fact, a similar conclusion has been reached by H.H. Wilson in his translation of the Vishnu Purana (published in 1840) and currently available on internet. He notes on page 60 regarding

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<sup>24</sup> (Thapar, 2003, *Penguin History of Early India*, p. 101)

<sup>25</sup> (Pargiter, 1922, p. 182). He also writes in footnote on the same page "Mr. Jayaswal fixes the battle in 1424 BC and other Indian writers favour similar early dates, all working on the chronological statements in the Puranas (which are discrepant) without checking their figures by comparison with reliable data from dynasties elsewhere.... Another consequence of such dating is to prolong the ages before the battle; and to put back the antiquity of any event is to weaken the trustworthiness of traditions about it."

genealogy noted in the Vishnu Purana, ‘That it is discredited by palpable absurdities in regard to the longevity of the princes of the earlier dynasties must be granted, and the particulars preserved of some of them are trivial and fabulous: still there is an inartificial simplicity and consistency in the succession of persons, and a possibility and probability in some of the transactions which give to these traditions the semblance of authenticity, and render it likely that they are not altogether without foundation.’<sup>26</sup>

3. The record of genealogy, in terms of number of generations and using eighteen years as the average age of each royal rulership, seems to provide timelines that are very much in line with the estimates of the timelines of Indian civilisation as accepted by modern historians based on other corroborative evidences such as archaeology. **There is a clear possibility that Mahabharata may have occurred in ninth century BC and Ramayana could have occurred in the fifteenth century BC.**
4. **An analysis of possible timeline of these epics needs to be attempted using the astronomical observations noted in the epics and restricting them to scientifically plausible eras.** As Ludo Rocher notes in his book ‘The Puranas’<sup>27</sup>:

“One characteristic feature of recent historical research is the search for extraneous evidence which corroborates the data contained in the Puranas, and, as a result, is considered to lift the suspicion which these data might otherwise be regarded with’. This extraneous evidence can take multiple forms.... Include epigraphy and archeology, popular sources, Buddhist and Jaina literatures generally and the Sinhalese chronicle Mahavamsa and Jaina Puranas in particular.”

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<sup>26</sup> (Wilson H. , 1840, Vishnu Purana, p. 60)

<sup>27</sup> (Rocher, 1986, ‘The Puranas’, p. 122)

5. Many historians with belief in Vedic religion's antiquity to 5000+ years want to use these astronomical events to date Mahabharata to thirty-second century BC and Ramayana to fiftieth century BC. Dating these episodes to such a distant past is not feasible from a historical standpoint due to lack of any corroborating evidence. But using the genealogy approach mentioned above, it will be more palatable if these events can be dated to timelines describe above. Accordingly, the next section of this paper attempts to use astronomical observations mentioned in the epics to define a possible date for these two events.

Before we look at astronomical observations to prove the timelines of epics, the author would like to clarify that **this paper assumes that the stories of Ramayana & Mahabharata are not mythological, but, true events that were manipulated by Valmiki<sup>28</sup> & Veda Vyasa by highly embellishing it and injecting it with religiosity with a view to provide a moral framework to the evolving society.** The author aims at publishing separate papers that will reinterpret verses of Ramayana & Mahabharata by using alternative meanings of the same words in the verses to derive a rational and plausible story, as opposed to an irrational and paranormal story that is apparent when using the standard translation or interpretation. This paper is limited to providing evidences for the dating of the two epics.

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<sup>28</sup> Author of the Ramayana

## 2. Using Astronomy to Date Epics

In the preceding section, an estimate of approximate dating of the epics is derived based on genealogy and average length of rulership. Here is the Table 5 for reference:

Era	# of Generations	Years Per Generation	Total # of years for this era	Year BC
Mahabharata to Mahananda (321 BC)	31	18	558	879
Ramayana to Mahabharata	34	18	612	1491

This timeline is in total conflict with some historians who are convinced that the Kali Yuga<sup>29</sup> (the last of four eras) began in 3102 BC and since Mahabharata happened just before that, it would mean that Ramayana would happen much earlier than that. For this claim of the beginning of the Kali Yuga epoch, many scholars have used astronomical and *Puranic* data.

Based on the research done for this paper, it can be concluded that their **hypothesis of Mahabharata war happening in early third millennium BC is not correct** and a detailed explanation of the same along with the astronomical evidences of the Ramayana and Mahabharata timelines have been presented below.

There are three topics to discuss:

1. Kali Yuga's timeline
2. Astronomical Evidence for Mahabharata

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<sup>29</sup> Kali Yuga is supposed to have started at the time of death of Lord Krishna, the eighth avatar (reincarnation) of Lord Vishnu.

### 3. Astronomical Evidence for Ramayana

#### 2.1 Kali Yuga's Timeline

According to Puranic sources, Krishna's<sup>30</sup> departure marks the end of Dvapara Yuga and the start of Kali Yuga. Traditionally, some historians date this event to 17/18 February 3102 BCE. There are some who claim that it is more likely to be on 7<sup>th</sup> February 3104 BCE.

These claims have been made using different basis. These historians have used *Surya Siddhanta*, Puranas and *Aryabhatiya* to conclude that Kali Yuga started in 3102 BC or thereabouts. Let's look at all.

#### *Surya Siddhanta*

*Surya Siddhanta* is a book written by Hindu astronomers to calculate the position of luminaries in the sky at any point of time. According to some, it claims to have reference of the start of the Kali Yuga, which is supposed to have begun when all seven heavenly bodies (Sun, Moon and five naked eye planets) were entering मेष (Mesha) (i.e. Aries) constellation.

However, this claim is totally misleading. The only reference in the entire *Surya Siddhanta* is in 1.57, which is reproduced below, and it talks only about the start of the Krita Yuga (supposedly another term for Sata Yuga, i.e. the first Yuga of the cycle)!

अस्मिन् कृतयुगस्यान्ते सर्वे मध्यगता ग्रहाः /

विना तु पातमन्दोच्चान् मेषादौ तुल्यताम् इताः // (इ विनेन्दु)

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<sup>30</sup> Eighth *Avatar* (reincarnation) of Lord Vishnu, one of the trinity in Hindu religion, responsible for sustenance of the world

‘At the end of this Krita Yuga, the mean places of all planets, except their nodes and apogees, coincide with each other in the first point of stellar Aries. (Translation by Pundit Babu Deva Sastri<sup>31</sup>)’

Since this clearly talks about Krita Yuga, it is rather incorrect to apply this to start of the Kali Yuga.<sup>32</sup> Even if this inconsistency is ignored and we assume that Kali Yuga started when all planets were in Mesha (Aries), we will soon see that this astronomical event has occurred many other times other than 3102 BC. Therefore this verse cannot be treated as evidence of Kali Yuga starting in 3102 BC in the *Surya Siddhanta*.

### *Puranas*

There are references in Puranas, for example, in Vishnu Purana (4.24.102<sup>33</sup>), Vayu Purana (99.413<sup>34</sup>) & Bhagavat Purana (12.2.24<sup>35</sup>) about planetary conditions of the start of the Yuga. But these references relate to start of next Krita Yuga and they only talk about a certain combination of Moon, Sun & *Brihaspati* (Jupiter). See Bhagavat Purana 12.2.24:

‘The moment the sun and the moon together with Jupiter [*Brihaspati*] in the same constellation [of Karkatha or Cancer] enter the lunar mansion of *Tishyâ* [or *Pushyâ*, 3° 20′ to 16° 40′ see zodiac], Satya-yuga [Krita] will begin.’

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<sup>31</sup> (Sastri, *Translation of Surya Siddhanta by Pundit Babu Deva Sastri & of the Siddhanta Siromani by Lancelot Wilkinson*, 1861)

<sup>32</sup> At the same, there may just be some truth to this. It could very well be that the 3102 BCE is the end of the previous cycle. Krita and Sat have been used synonymously by many. However, कृत् (krita), which literally means act of doing or accomplishing, when used as ‘Krita Yuga’ would mean as the ‘Finished Era’, while Sat Yuga is the ‘Era of the Truth’. Therefore, it is rather more appropriate to use the this verse to imply that the previous era ended at about 3102 BC, and the current full Yuga, beginning with Sat Yuga started at about 3102 BC. As Sat Yuga literally means ‘Era of the Truth’, it makes sense that it started somewhere in early second millennium BC or late third millennium BC, as that’s time from which Puranic records are maintained, starting with King Ikshvaku & King Bharat.

<sup>33</sup> (Vishnu Purana *Geeta Press, Gorakhpur*, page 302)

<sup>34</sup> (Shastri, *Vayu Puranam - with Hindi Translation*, 1987) – page 961

<sup>35</sup> (Sri Mad Bhagavatam, <http://www.srimadbhagavatam.org/contents.html>)

It is clear that there is no evidence of definition of Kali Yuga starting in 3102 BC in the Puranas.

### *Aryabhatiya*

The biggest evidence for starting of Kali Yuga in 3102 BC is claimed to be from ‘Aryabhatiya’. Aryabhata, a great Indian astronomer of fifth century AD, wrote this excellent book in which he correctly calculated value of Pi to four decimals, diameter of Earth and is the only one in pre-Galileo/Copernicus times to clearly make ‘an explicit statement that the apparent westward motion of the stars is due to the spherical Earth’s rotation about its axis. Aryabhata also correctly ascribed the luminosity of the Moon and planets to reflected sunlight.’<sup>36</sup>

Aryabhata also dabbled into defining the start of Kali Yuga. Without giving any explanation on how he arrived at it, he cryptically made the following statement in verse 10 of the chapter ‘Kalakriya’<sup>37</sup>:

**षष्ट्यब्दानां षष्टिर्यदा व्यतीतास्त्रयश्च युगपादाः ।  
त्र्यधिका विंशतिरब्दास्तदेह मम जन्मनोऽतीताः ॥ १० ॥**

**10. When sixty times sixty years and three quarter yugas (of the current yuga) had elapsed, twentythree years had then passed since my birth.**

This is the main evidence that many have used to define the start of the Kali Yuga in 3102 BC (or thereabouts).

<sup>36</sup> (Hayashi, n.d.) - Encyclopaedia Britannica

<sup>37</sup> (Shukla, *Aryabhatiya of Aryabhata*, 1976, p. 95)

However, we have to consider if this is a clear evidence. Aryabhata never uses the term ‘Kali Yuga’. Instead, he uses the terms त्रयश्च युगपादाः (*trayashch Yuga paadaah*) and defines 3600 years as षष्ट्यब्दनां षष्टर्यदा (*Shashtyabdnam shashtaryada*).

This has been translated to mean that ‘three of four Yuga have passed (i.e. Sata, Tretaa & Dwapara) and since then 3600 years have passed’.

In the next verse i.e. 11, Aryabhata that the Yuga (not specifying) began at the month of Chaitra, and that the time is without beginning and an end...’. See below<sup>38</sup>:

युगवर्षमासदिवसाः समं प्रवृत्तास्तु<sup>1</sup> चैत्रशुक्लादेः ।  
कालोऽयमनाद्यन्तो ग्रहभैरनुमीयते क्षेत्रे ॥ ११ ॥

- 11. The yuga, the year, the month, and the day commenced simultaneously at the beginning of the light half of Caitra.<sup>1</sup> This time, which is without beginning and end, is measured with the help of the planets and the asterisms on the Celestial Sphere.**

Reading this with the verse 10, it has been interpreted that a new Yuga started on the beginning of the year, and that all the luminaries started their movements from a zero point.

<sup>38</sup> (Shukla, 1976, *Aryabhatiya of Aryabhata*, pp. 98,99)

These two verses in the ‘*Kalakriya*’ section, are read along with verse 5 in the *Gitika* section (produced below<sup>39</sup>) to come to the conclusion that Kali Yuga started after all luminaries were at the zero point of Aries, right after completion of the Mahabharata war!

काहो मनवो ढ, मनुयु-  
गाः<sup>१</sup> शख, गतास्ते च, मनुयुगाः<sup>२</sup> छ्ना च ।  
कल्पादेर्युगपादा  
ग च, गुरुदिवसाच्च, भारतात् पूर्वम् ॥ ५ ॥

- 5. A day of Brahmā (or a Kalpa) is equal to (a period of) 14 Manus, and (the period of one) Manu is equal to 72 yugas. Since Thursday, the beginning of the current Kalpa, 6 Manus, 27 yugas and 3 quarter yugas had elapsed before the beginning of the current Kaliyuga (lit. before Bhārata).**

There are multiple issues here.

1. The verses are in totally different sections. Verse 5 that refers to Mahabharata war (which is also somewhat doubtful, as we will see shortly) is in the *Gitika* section, and the verse 10 & 11 that talk about 3600 years having been passed since the beginning of the Kali Yuga are in the *Kalakriya* section.
2. In verse 5 of the *Gitika* section, he only talks about three-fourth of the Yuga having been passed before ‘भारतात् पूर्व’ (*Bharatat Purvam* (Before *Bharat*)). It has been liberally translated as the war of the Mahabharata. But, it can also be interpreted to point to start of the country of India, as the term भारत ‘Bharat’ is the Hindi name of India, which has been used to define the name of the country after King Bharat (either an ancestor of

<sup>39</sup> (Shukla, *Aryabhatiya of Aryabhata*, 1976, p. 9)

Pandavas and Kauravas or son of King Rishabhdev, believed to be the first *Tirthankar*, a guide, of Jainism).

3. The verse 10 of the *Kalakriya* section does refer to the starting of the last of the four Yugas about 3600 years ago, but, it is not a very strong statement especially in view of the very next verse, where he makes time as a very loosely defined concept by stating that there is no beginning or end! Verse 10 needs to be read with verse 11. That's because verse 11 has no meaning by itself. Verse 9 talks about Yugas having an ascending and descending cycle and verse 12 goes to a new topic altogether by discussing 'equality of the linear motion of the planets'<sup>40</sup>. Verse 10 discusses the age of Aryabhata himself as related to the start of the fourth Yuga and Verse 11 discusses 'beginning of the Yuga, Year, Month and Day'.<sup>41</sup> Verse 10 & 11 must be read together. It then implies that about 3600 years may have passed in our history in Aryabhata's estimation but he could not vouch for it as time has no beginning or end.

Many historians have used a very noticeable conjunction of luminaries at around the 3600 years mark, as specified by Aryabhata, along with all the three verses that we have discussed, to calculate the date of 17<sup>th</sup> February 3102 BC as the date of the start of the Kali Yuga.

But, we must ask as to how Aryabhata arrived at the number of 3600 years!

It is very likely that a spectacular conjunction of all luminaries (i.e. Sun, Moon and five naked eye planets) was obviously noticed by people at the time of passing away of Krishna and the information was passed down the generations, with obvious errors. It is also likely, that Aryabhata with his phenomenal knowledge of movements of planets used this information about conjunction and then calculated in reverse to figure out the best time for

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<sup>40</sup> (Shukla, *Aryabhataiya of Aryabhata*, 1976, p. 100)

<sup>41</sup> (Shukla, *Aryabhataiya of Aryabhata*, 1976, p. 98)

this event. **The problem is that he seems to have applied the same lack of objectivity that many historians do in the modern era and assumed that Mahabharata would have happened in distant past, especially based on the exaggeration used in various Puranas. And due to that bias for placing the timeline to a relatively more distant past, he missed a very similar conjunction that took place much earlier in the first millennium BC!** For example, there was a closer conjunction in 860 BC than in 3102 BC, as is explained hereafter.

Let's see astronomical data for these years, 3102 BC, 3104 BC & 860 BC. (Data is taken from Astronomy software CyberSky 5).

Let's first take the year 3102 BC.

**Control**

Field of view: 090° 00' 00" Magnitude limit: 5.683

Time: Local  DST

Thu 02/17/3102 BC 08:35:32 AM

Y M D h m s

Julian date: 588464.62884 Sidereal time: 16h 33m 48s

Animation time step: 1 x Minutes

**Pointer**

Coordinates: Equatorial

RA: 19h 50m 29.50s, Dec: +21° 58' 53.5"

Constellation: Andromeda

**Planet Basics**

	Sun	Mercury	Venus	Moon	Mars
Right ascension:	20h 25m 13.70s	19h 21m 24.02s	21h 17m 31.49s	20h 30m 16.29s	20h 12m 50.87s
Declination:	-19° 46' 01.8"	-24° 50' 16.7"	-17° 28' 27.0"	-18° 15' 28.6"	-21° 33' 25.9"
Constellation:	Pisces	Pisces	Pisces	Pisces	Pisces
Magnitude:	-26.73	-0.6	-3.9	-4.10	1.2
Angular diameter:	31.8'	5.3"	10.0"	31.8'	3.8"
Illuminated fraction:		87.0%	97.6%	0.0%	100.0%

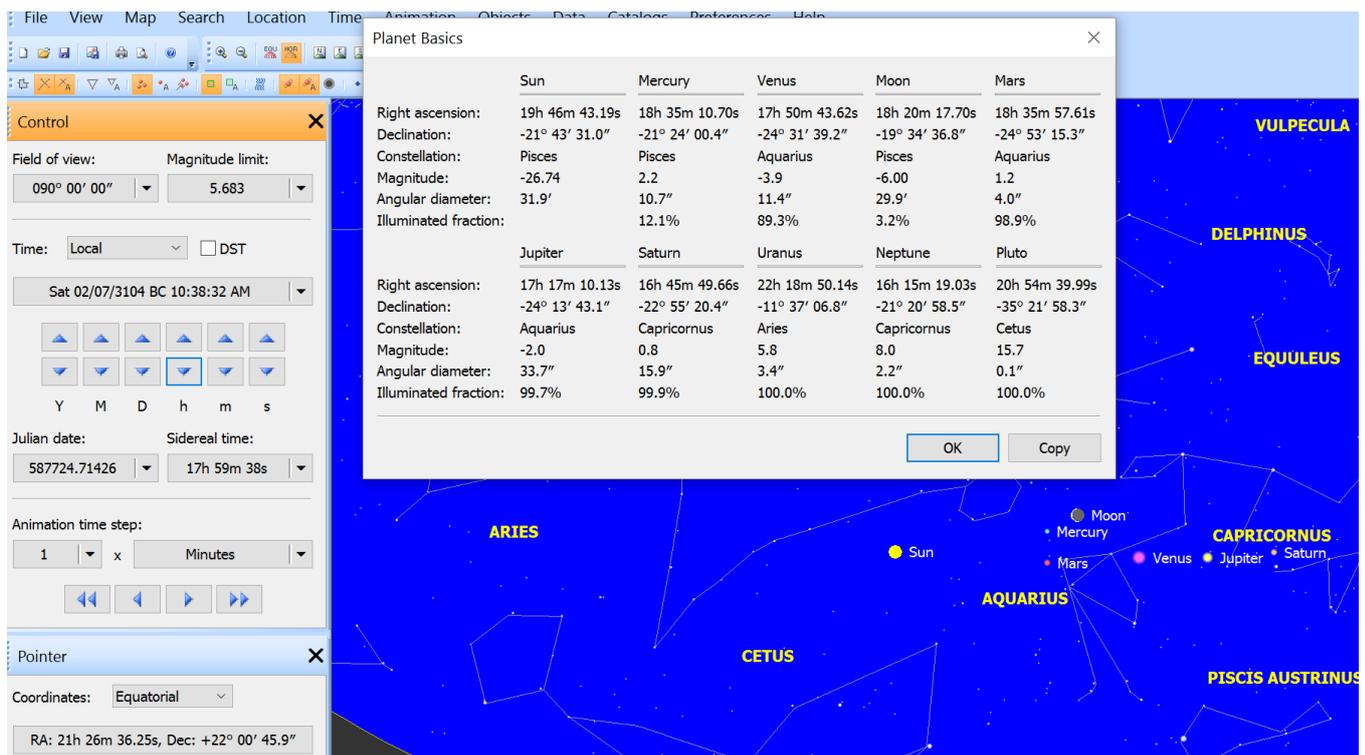
  

	Jupiter	Saturn	Uranus	Neptune	Pluto
Right ascension:	21h 21m 47.83s	18h 28m 43.36s	22h 50m 18.43s	16h 34m 34.90s	21h 06m 05.30s
Declination:	-17° 15' 18.5"	-24° 52' 31.9"	-08° 24' 10.3"	-22° 15' 40.2"	-34° 33' 34.2"
Constellation:	Pisces	Aquarius	Aries	Capricornus	Cetus
Magnitude:	-2.0	1.1	5.8	8.0	15.7
Angular diameter:	32.9"	16.1"	3.4"	2.2"	0.1"
Illuminated fraction:	99.9%	99.9%	100.0%	100.0%	100.0%

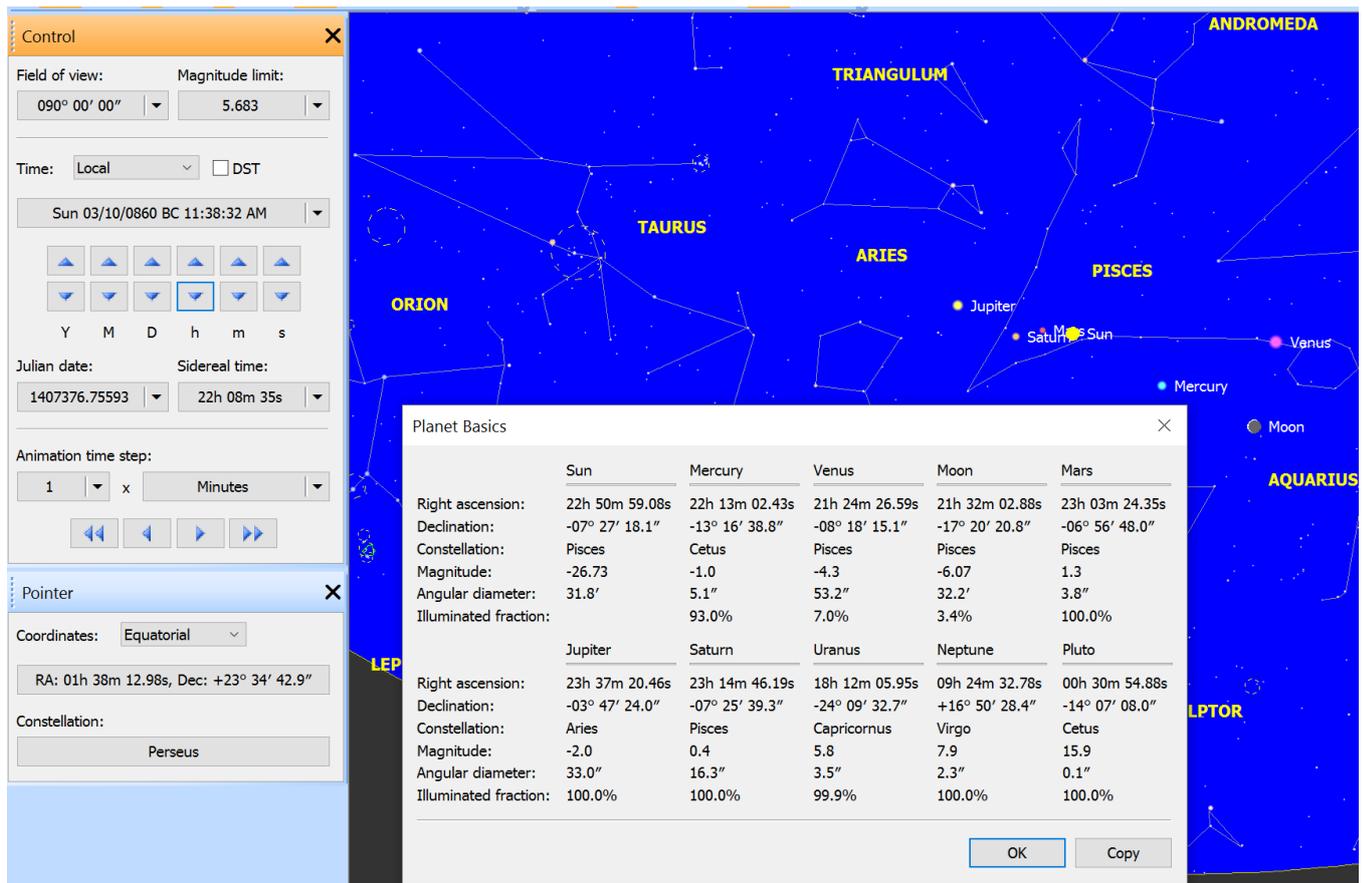
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It is easily noticeable that the conjunction was not that tight. Saturn is lagging behind all other luminaries. The difference between Jupiter (the leader at 21h21m) to Saturn (the last one at 18h28m) is two hours & forty-three minutes (2:43). That's hardly an evidence for proving a great conjunction.

Let us take the conjunction on 7<sup>th</sup> February 3104 BC, another date suggested by some historians. This conjunction is far away from Aries and is mostly occurring in Pisces & Aquarius. Even the conjunction is much looser than the previous one. The difference between Sun and Saturn is as much as two hours & fifty-nine minutes (2:59).



Now, let's compare this to a date that's closer to the likely date of Mahabharata as specified in page 14 i.e. 879 BC. The year 860 BC has a similar and closer conjunction than the options specified till now. **The difference between Jupiter (the leader) and Venus (the laggard) is only two hours and thirteen minutes (2:13)! See the chart below:**



**This conjunction in 860 BC is a spectacular conjunction and would have definitely stayed in memory of the observers** and may have been passed down the generation as the timestamp in which Krishna passed away!

*Kali Yuga 3102 BC or Earlier*

The evidence for Kali Yuga starting in 3102 BC is very flimsy and has been roundly rejected by all established historians. Romila Thapar states that ‘The date for this is given in form of planetary configuration. It was calculated many centuries later for astronomical purposes, probably by Aryabhata and is equivalent to 3102 BC. There seems to have been conflation of the date for the Kali Yuga with the date of the war, **as 3102 BC would have been too early**

**for such a war and would be in conflict with historical evidence suggesting a later date.**<sup>42</sup>

Additionally, **it does not match any logic on generations** as explained in section 1 of this paper. All the *Puranic* records mention no more than thirty-nine generations (even though thirty-one generation is clearly accurate) from the time of the Mahabharata to the time of Mahananda, which is a period of about 2700 years. **Even if we take thirty-nine generations, this will come to about sixty-nine years per generation.** As we have seen, almost all dynasties in the historical era has average rule of about eighteen years per generation. With these facts, it is difficult to argue that Kali Yuga started in 3102 BC. Any claim that humans had substantially longer lifespans (such as rulership of sixty-nine years per generation, which would mean a life span of at least 130-140 years) have been roundly rejected by scientists.<sup>43</sup>

**Finally, if Kali Yuga did start in 3102 BC, it would mean that from the time of Buddha & Mahavira<sup>44</sup> (who we know to have lived in fifth century BC), there would not be any noteworthy person for 2600 years!** Indian history has had many heroes who have done exceptional or heroic deeds throughout the last 2500 years. In descending order of time, we have had Mahatma Gandhi, Shivaji, Akbar, Prithviraj Chouhan, Shankaracharya, Harsha Gupta, Chandragupta Vikramaditya, Ashoka, Chandragupta Mourya, Buddha & Mahavira. To say that there was a gap of 2600 years (from Mahavira in fifth century BC to thirty-first century BC), with no history worth recounting in the intervening period, seems very far-fetched.

There is a counter-argument floated by proponents of Kali Yuga starting in 3102 BC, that the Mahabharata war very brutal and set the civilisation back many centuries as it killed most

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<sup>42</sup> (Thapar, Penguin History of Early India, 2003, p. 99)

<sup>43</sup> (The Animal Ageing and Longevity Database, n.d.), <http://genomics.senescence.info/>

<sup>44</sup> Founder of Jainism, a religion practiced in India.

warriors in the country and that's the reason for a long decline in the civilisation. But, we know that Brahmins did not fight the Mahabharata war (except Dronacharya and couple of others). The continuity would have been maintained by Brahmins who were the repository of knowledge in the Indian system. In view of the above, **a recovery period of 2600 years is clearly exaggerated.**

Based on all the arguments above, **it is obvious that the start of the Kali Yuga is very unlikely to be that far in the past.**

### *Kali Yuga Beginning Date by Using Saptarshi (The Big Dipper) asterism*

There is another Puranic observation mentioned by those who want to prove that Kali Yuga started in 3102 BC and the analysis presented below proves that the Kali Yuga did start in the ninth century BC.

Per Vishnu Purana – 4.24.104 thru 108:

1. Kali Yuga started when Saptarshi (i.e. the Big Dipper asterism in Ursa Major) were in Magha during the time of King Parikshit<sup>45</sup>.
2. Saptarshi asterism moves one *nakshatra*<sup>46</sup> every 100 years.

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<sup>45</sup> Grandson of Arjuna, who was the chief warrior of the Pandavas clan of Mahabharata War – see footnote 52 further information on Mahabharata War

<sup>46</sup> The Vedic astronomy divided the sky in 27 lunar mansions called Nakshatra (as opposed to 12 constellations). Each Nakshatra is 13 degrees 20 minutes long on the celestial equator.

यावत्परीक्षितो जन्म यावन्नन्दाभिषेचनम् । एतद्वर्षसहस्रं तु ज्ञेयं पञ्चाशदुत्तरम् ॥ १०४	परीक्षितके जन्मसे नन्दके अभिषेकतक एक हजार पचास वर्षका समय जानना चाहिये ॥ १०४ ॥ सप्तर्षियोंमेंसे ३ [ पुलस्त्य और क्रतु ] दो नक्षत्र आकाशमें पहले दिखाए देते हैं, उनके बीचमें यत्रिके समय जो [ दक्षिणोत्तर रेखापर समदेशमें स्थित [ अश्विनी आदि ] नक्षत्र हैं, उनमेंसे प्रत्येक नक्षत्रपर सप्तर्षिगण एक-एक सौ वर्ष रहते हैं । हे द्विजोत्तम परीक्षितके समयमें वे सप्तर्षिगण मघानक्षत्रपर थे । उसी समय धरत सौ वर्ष प्रमाणवाला कलियुग आरम्भ हुआ १ ॥ १०५—१०७ ॥ हे द्विज ! जिस समय भगवान् विष्णु अंशावतार भगवान् वासुदेव निजधामको पधारे थे उसी समय पृथिवीपर कलियुगका आगमन हुआ था ॥ १०८ ॥
सप्तर्षीणां तु यो पूर्वं दृश्यते ह्यदितौ दिवि । तयोस्तु मध्ये नक्षत्रं दृश्यते यत्समं निशि ॥ १०५	
तेन सप्तर्षयो युक्तास्तिष्ठन्त्यब्दशतं नृणाम् । ते तु पारीक्षिते काले मघास्वासन्द्भिजोत्तम ॥ १०६	
तदा प्रवृत्तश्च कलिर्द्वादशाब्दशतात्मकः ॥ १०७	
यदैव भगवान्निष्णोरंशो यातो दिवं द्विज । वसुदेवकुलोद्भूतस्तदैवान्नागतः कलिः ॥ १०८	

‘Take those two stars of Saptarshi (seven sages) which are seen first after the rise. From the middle of these two stars, draw a north-south line and the nakshatra that line falls on, is said to be residence of Saptarshi for 100 years of man's life. Oh great brahmin, they were in Magha (Regulus, Leo) at the time of Parikshit.’ (Vishnu IV 4.105-106)<sup>47</sup>

The biggest problem that everyone has faced with these assertions is that this asterism is mostly stable against other stars and therefore, the assertion that the asterism moved from one nakshatra to another every 100 years is totally illogical.

See the table below that presents the movement of star Kratu (known as Dubhe) against Magha (Regulus) (in Right Ascension)<sup>48</sup>. As we can notice, there is very small movement. In about 3200 years, Dubhe only gets closer by 2.15 hours (equivalent of about 2.4 nakshatras). With this data, we can say that Saptarshi moves an average of just 0.06 hours (or 0.07 nakshatra) every 100 years. Therefore, we can safely say that the assertion about Saptarshi moving one nakshatra every 100 years can be ignored. See Table 6 below.

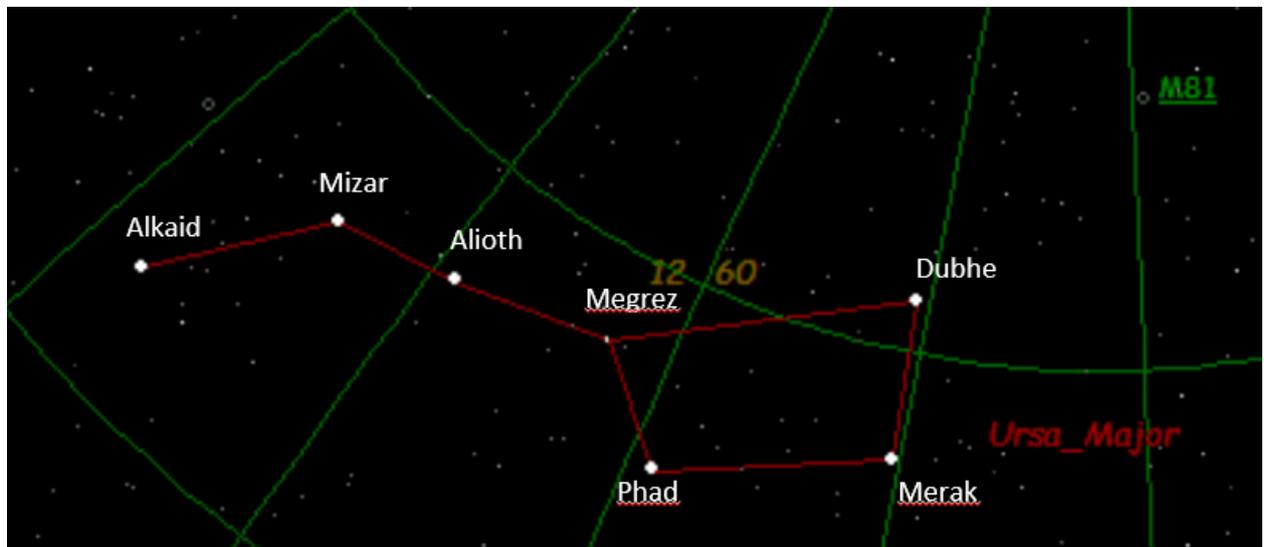
<sup>47</sup> (Vishnu Purana)

<sup>48</sup> Data taken from Alcyone Ephemeris Software

**Table 6**

Year BC	860	1860	3102	4102
Regulus	7.28	6.28	5.15	4.15
Dubhe	6.47	4.43	2.35	1.19
Separation in hours	0.81	1.85	2.8	2.96

There is another issue that needs to be understood. The entire Saptarshi asterism spans over almost three hours i.e. full three nakshatras. See below:



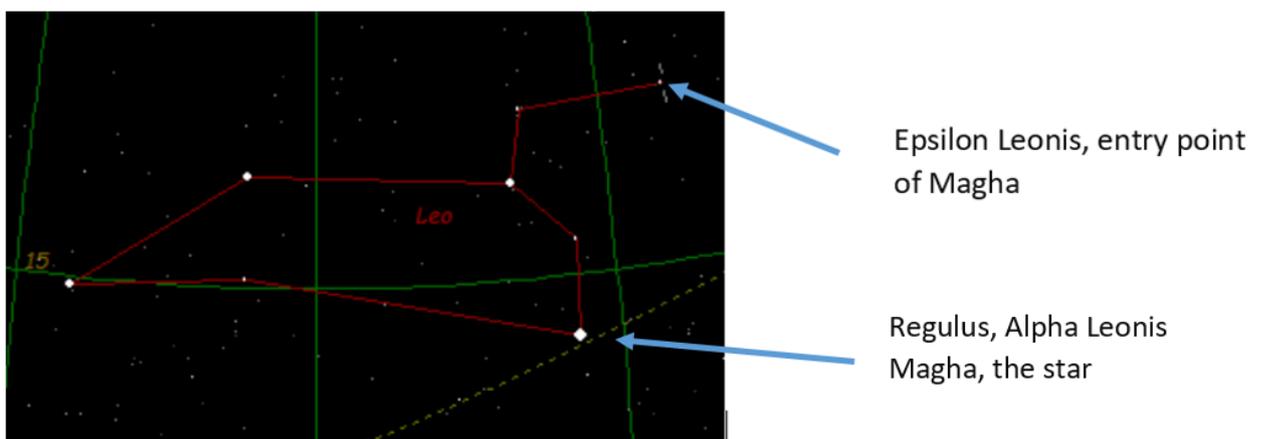
**Therefore, there is no possibility the entire asterism could be in Magha nakshatra.**

Then, what was meant by the *Puranic* observation, when it claimed that Saptarshis was in the Magha nakshatra at the time of starting of Kali Yuga? Which part of the Saptarshi was in Magha at the beginning of Kali Yuga?

The Vishnu Purana text makes it clear. It does not talk about the entire asterism, but, about the first two stars that are seen when the Asterism rises from the east. Clearly, those two stars are Dubhe & Merak.

This implies that when the middle of the line of the first two stars i.e. Dubhe and Merak are seen to have entered Magha, that would be time of King Parikshit.

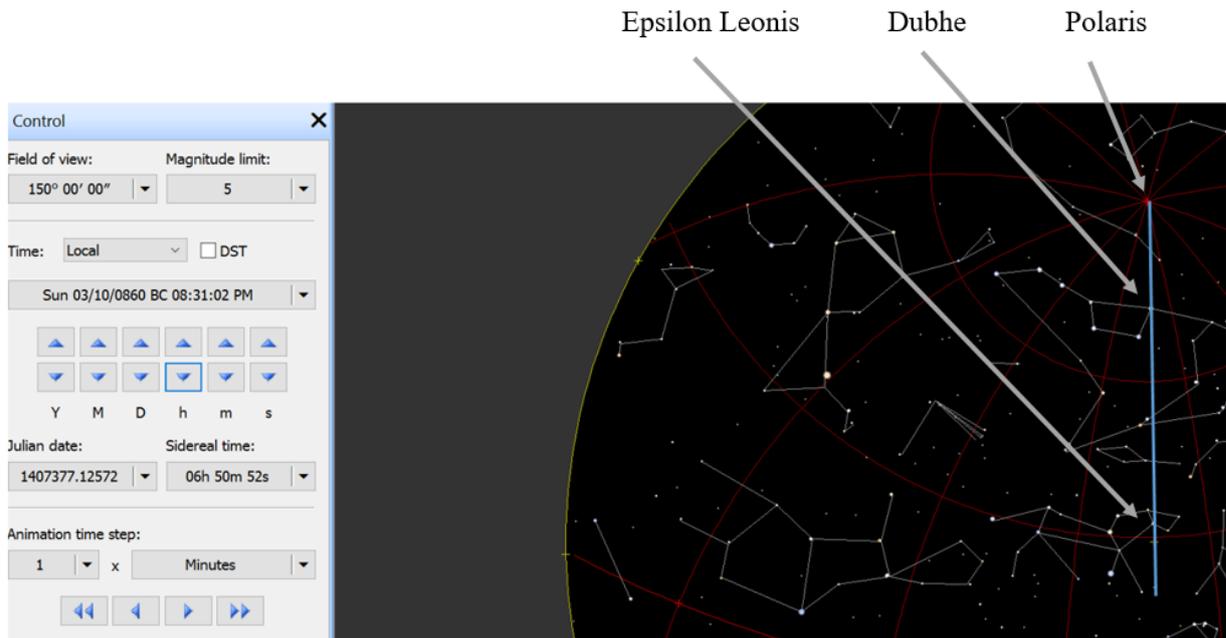
We also need to understand where Magha nakshatra starts. Magha, the star, is the Indian name for Regulus star in Leo constellation, but, Magha, the nakshatra, does not start where Regulus is. Magha Nakshatra starts at the star Epsilon Leonis.<sup>49</sup>



Based on this information, ‘Cyber Sky 5’, an astronomy software with less than an arc-second accuracy till at least 3000 BC, was used and it became clear that about 860 BC, one of the dates mentioned earlier, Dubhe (or Kratu), the last star of the Saptarshi asterism does

<sup>49</sup> Each nakshatra is 13.2 degrees (360/27) long and the count starts from the star Omicron Piscium, where Ashvini nakshatra (the first one in Aries) starts. Since Magha is the tenth nakshatra in the sky, one-third of the sky (nine of twenty-seven nakshatra), i.e. eight hours or 120 degrees are already covered by the preceding Nakshatra. Coincidentally, the star Epsilon Leonis, the head of the sickle, is where the eight hours exactly end. Based on this, it has been agreed for ages that Magha nakshatra starts at the star Epsilon Leonis. Also, see this website - <https://tamilandvedas.com/2012/06/20/27-hindu-stars-nakshatras-western-names/> (27 Hindu Stars (Nakshatras) & Western Names, n.d.)

enter Magha. See below:



As per this software, on March 10<sup>th</sup> 860 BC, the actual RA data for Dubhe is 6 hour 47 minutes, The RA data for Merak is 7 hour 12 m. Therefore, the middle line is about 6 hour 59 minutes and actual RA data for Epsilon Leonis is 6 degree 52 minutes. While the exact match is about 820 BC, we have to remember that these were manual, naked eye observations and therefore, an inaccuracy of seven minutes is within the range for any such event during the ninth century BC.

**Therefore, we can conclude that the astronomical observations that the Saptarshi entering Magha implies that the two leading stars of the asterism at rising would have entered in Magha, and this incident marking the beginning of Kali Yuga is accurate for ninth century BC.**

Another researcher Mr. Buddhike Indrasena has reached the same conclusion. ‘The Saptarishis Calendar is a reality: it is not just a convention but is an astronomically-explainable phenomenon. It followed the precessional rate and tropical zodiac of the ancient Greeks. Saptarishis (the Seven Sages) moves forwards from one lunar mansion to the next,

covering all 27/28 lunar mansions in one precessional cycle. The axis of the Saptarishis pointer always passes through the stars Dubhe and Merak in Ursa Major, and crosses the ecliptic at a point that can be identified using the tropical zodiac.’<sup>50</sup> According to this author, the Saptarshi entered Magha in 1177 BC, which is of course, different than the assertion by this author, but, the research of Mr. Indrasena emphasises the same conceptual point that this author is making.

### *Possibilities for Kali Yuga Start*

We can conclude that Mahabharata occurred somewhere in and around ninth Century BC and look for corroborating evidence, given that:

- We can assume that Valmiki and Veda Vyasa used actual data for astronomical observation during some of the events.
- It’s historically feasible to use eighteen years as the average timespan of rule by each generation (as discussed in the section 1 of the paper).
- The start of Kali Yuga in 3102 BC or thereabouts is not supported by any real evidence.
- The entry of Saptarshi (Big Dipper) asterism into Magha nakshatra in ninth century BC.

As we have seen, there is a close conjunction of all luminaries to point to the possible start of the Kali Yuga on 10<sup>th</sup> March 860 BC. But that’s just an example. There are many other close conjunction in the range of 1000 BC to 750 BC. The author has used this range, as this is the

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<sup>50</sup> Buddhike Indrasena – ‘The Saptarshi Calendar – The Indian Tropical Calendar’ published in Journal of Astronomical History and Heritage, 18(2), 190-198 of 2015.  
<http://www.narit.or.th/en/files/2015JAHHvol18/2015JAHH...18..190I.pdf>

era in which Mahabharata War is likely to have happened based on the logic of genealogy data, average length of rulership and entry of front 2 stars of Saptarshi in Magha nakshatra.

Using Alcyone Ephemeris software, an astronomy-based ephemeris calculator, data was downloaded for close conjunction of all luminaries nearing Aries in this time range (1000 BC to 750 BC) and three cases were found, which are shown in Table 7 below. As may be noticed, **each of these three cases are similar to or closer in conjunction of 3102 BC!**

**Table 7 - Option for Start of Kali Yuga**

	Option 1		Option 2		Option 3	
<b>Date</b>	<b>0918 BC March 26 16:55:28</b>		<b>0860 BC March 10 23:48:02</b>		<b>0802 BC March 27 06:40:35</b>	
<b>Julian Date</b>	1386218.976020		1407393.262520		1428567.549020	
<b>Planets</b>	Right Ascension	Constellations <sup>51</sup>	Right Ascension	Constellations	Right Ascension	Constellations
<b>Sun</b>	23.45	Ari	22.50	Ari	23.51	Psc
<b>Moon</b>	2.03	Tau	21.32	Psc	21.36	Psc
<b>Venus</b>	2.03	Tau	21.24	Psc	22.19	Psc
<b>Mars</b>	1.53	Tau	23.03	Ari	21.20	Aqr
<b>Jupiter</b>	1.59	Tau	23.37	Ari	21.36	Psc
<b>Saturn</b>	23.58	Ari	23.14	Psc	22.46	Psc
<b>Mercury</b>	0.56	Taurus	22.13	Psc	23.02	Psc
<b>Max</b>	2.03		23.37		23.51	
<b>Min</b>	23.45		21.24		21.20	
<b>Difference</b>	<b>2 hours 58 min</b>		<b>2 hours 13 min</b>		<b>2 hours 31 min</b>	

For one of these days to be the correct date, it must match with the astronomical observations noted in the Mahabharata epic written by Sage Veda Vyasa. Fortunately, he has given a few

<sup>51</sup> All constellations have been recorded in this table as per western boundaries of constellations

clues. In the next section, we will study those clues and determine as to which of the three dates mentioned above matches with the Mahabharata events.

## 2.2 Astronomical Evidence for Mahabharata

Let's take a few events for which astronomical details have been recorded in Veda Vyasa's Mahabharata<sup>52</sup> and check if they match with the great conjunctions of tenth and ninth century BC.

1. The number of years from the Great War to the death of Krishna.
2. The planetary arrangement when Veda Vyasa meets King Dhritrashtra<sup>52</sup> before the war.
3. Double Eclipse within thirteen *tithis* (lunar days) a little before the war.
4. The planetary arrangement when Krishna invites Karna<sup>53</sup> to join the Pandavas<sup>52</sup> just before the war.
5. Bhishma's<sup>54</sup> death.

*The planetary arrangement when Veda Vyasa meets King Dhritrashtra before the war*

A little before the war is supposed to start, Veda Vyasa (the author of Mahabharata) visits King Dhritrashtra (the blind father of Kaurava brothers) and narrates to him various bad

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<sup>52</sup> Per Britannica Encyclopaedia – 'Mahabharata, ( Sanskrit: 'Great Epic of the Bharata Dynasty') one of the two Sanskrit epic poems of ancient India. The Mahabharata consists of a mass of mythological and didactic material arranged around a central heroic narrative that tells of the struggle for sovereignty between two groups of cousins, the Kauravas (sons of Dhritrashtra, the descendant of Kuru) and the Pandavas (sons of Pandu) and was written by Veda Vyasa.'

<sup>53</sup> Half-brother of Pandavas, who was friends with Kauravas.

<sup>54</sup> Bhishma was the grand-uncle of both cousins

omens that are predicting destruction. He makes a few astronomical indications, the first of which discusses placement of some planets and their astrological significance.

Here is a reproduction of these verses from MB-6.3.14, 15, 18, 27.

14 मघास्व अङ्गारको वक्रः श्रवणे च बृहस्पतिः

भाग्यं नक्षत्रम आक्रम्य सूर्यपुत्रेण पीड्यते

15 शुक्रः परोष्ठपदे पूर्वे समारुह्य विशां पते

उत्तरे तु परिक्रम्य सहितः परत्युदीक्षते

18 वक्रानुवक्रं कृत्वा च श्रवणे पावकप्रभः

ब्रह्मराशिं समावृत्य लोहिताङ्गो वयवस्थितः

27 संवत्सरस्थायिनौ च गरहौ परज्वलिताव उभौ

विशाखयोः समीपस्थौ बृहस्पतिशनैश्चरौ

14 maghāsv aṅgārako vakraḥ śravaṇe ca bṛhaspatiḥ

bhāgyaṃ nakṣatRama ākramya sūryaputreṇa pīḍyate

15 śukraḥ proṣṭhapade pūrve samāruhya viśāṃ pate

uttare tu parikramya sahitaḥ pratyudīkṣate

18 vakrānuvakraṃ kṛtvā ca śravaṇe pāvakaprabhaḥ

brahmarāśiṃ samāvṛtya lohitāṅgo vyavasthitaḥ

27 saṃvatsarasthāyinau ca grahau prajvalitāv ubhau

viśākhayoḥ samīpasthau bṛhaspatiśanaīscarau

‘Mars wheeleth towards *Magha* and *Vrihaspati* (Jupiter) towards *Sravana*. The Sun's

offspring (*Sani*) approaching towards the constellation *Bhaga*, afflicteth it. The

planet *Sukra*, ascending towards *Purva Bhadra*, shineth brilliantly, and wheeling towards

the *Uttara Bhadra*, looketh towards it, having effected a junction (with a smaller planet).

The red-bodied (Mars) possessed of the effulgence of fire, wheeling circuitously, stayeth in a line with the constellation *Sravana* over-ridden by *Vrihaspati*. (MB-6.3.14,15,18).

Those two blazing planets, viz., *Vrihaspati* and *Sani*, having approached the constellation called *Visakha*, have become stationary there for a whole year. (MB-6.3.27)<sup>55</sup>

Unfortunately, the method of writing information in poetic form creates limitations for the poets as there is not enough space to explain the thought in full details. When things are mentioned in short and cryptic ways and must follow the rules of the *metre*, the same lines can carry different meanings.

In this section, Jupiter has been mentioned twice. Firstly in verse 14 & then in verse 27. Similarly Mars is also mentioned twice, verse 14 & 18 and Saturn is mentioned twice in 14 & 27. Any person, without the knowledge of Vedic Astrology (*Jyotish*), will consider such duplicate entry as an inherently contradictory piece of information. But, the moment you apply the Vedic Astrology concept of ‘Aspects’, it starts to make sense.

The Sanskrit term for ‘Aspects’ is दृष्टि (*Drishhti*) i.e. to look at. This term is used to explain the constellation at certain positions away from the constellation in which the planet is situated. All planets throw an aspect at the seventh house (in a 12 house horoscope, where one house stands for each zodiac sign), which basically means that they throw an aspect at the constellation exactly opposite of where the planet is. In addition, Saturn, Jupiter, and Mars have special aspects. In addition to seventh aspect, Saturn aspects on third and tenth, Jupiter on fifth and ninth, and Mars on fourth and eighth. As per *Jyotish*, a planet gives

<sup>55</sup> Translation reproduced from <http://sacred-texts.com/hin/m06/m06003.htm>.

results of the significations of the house in which it is situated, and it impacts the results of the significations of the house which it aspects. Therefore, from a *Jyotish* standpoint, one needs to know the location of the planet and its aspects to fully understand the nature of a person's horoscope.

This explains why there are two mentions of same planet. Mars is mentioned in verse 14 & 18. One of them talks about where Mars was and the other verse talks about where Mars is aspecting. Ditto for Jupiter and Saturn.

There is one more *Jyotish* concept to understand before we uncover this mystery. In *Jyotish*, a planet is moving 'normally', when it moves from east to west, as seen from Earth. However, when a planet is seen going west to east (as seen from Earth), it is considered as 'retrograde' (वक्र - *vakra*). Retrograde planets are supposed to cause more pronounced effects as compared to a 'normal' planet. Similarly, if it not moving on a night to night basis and is stationary as seen from the Earth, it's considered 'स्थायी' (*sthayi*) i.e. stationary. This is important as 'stationary' planets are supposed to cause an even more pronounced impact than a simply retrograde planet, when analysing the information from an astrology standpoint.

With this knowledge of *Jyotish*, all the relevant verses were reviewed to determine the expected position of all planets as mentioned in the verses, the conclusion of which is noted below in Table 8:

Table 8

	Prescribed Position	Movement	Prescribed Aspect
Mars	In Ashlesha (Cancer), going back from Magha (Leo) (verse 14)	Retrograde (वक्र - <i>vakra</i> ) (verse 14)	Seventh aspect on to Shravan (verse 14 & 18) (Sagittarius/Capricorn).
Jupiter	Nearing (समीप - <i>sameep</i> ) Vishakha (verse 27) (Virgo/Libra).	Stationary (स्थायी - <i>sthayi</i> ) (verse 27)	fifth aspect on to Shravan (verse 14). (Sagittarius/Capricorn)
Saturn	Passed through Purva Falguni (verse 14) and nearing (समीप - <i>sameep</i> ) Vishakha (shloka 27) (Virgo/Libra). Therefore, it should be between Uttara Falguni & Swati	Stationary (स्थायी - <i>sthayi</i> ) (verse 27)	Not specified
Venus	Purva Bhadrphad (verse 15) (Aquarius/Pisces)	Forward (Going from Purva Bhadra to Uttara Bhadra) (verse 15)	Not specified

Let us analyse the basis for these conclusions.

Comparing the two verses, it is clear that verse 14 discusses aspects for Saturn & Jupiter as it uses the word 'पीड्यते' (*peedyate*), which literally means 'harming', which is exactly how 'aspects' are understood in Vedic Astrology when a malefic planet<sup>56</sup> is giving a 'bad' aspect to any house. Verse 27 also uses the word 'स्थायी' (*sthayi*) i.e. stationary. Therefore, it can be concluded from the verse 27, the Jupiter and Saturn are slow and about to go retrograde.

<sup>56</sup> In *Jyotish*, planets are divided between 'malefic' and 'benefic'. Jupiter, Venus & Moon are 'benefic' i.e. beneficial. Saturn, Mars, Sun, Rahu & Ketu are considered 'malefic' i.e. harmful. Mercury is considered neutral.

For Saturn, it is clear from verse 14 line 2 that Saturn has attacked (आक्रम्य- aakramya) Purva Falguni (Leo/Virgo cusp) and the verse 27 says that it is nearing Vishakha (Virgo/Libra cusp) and about to slow down (become stationary). Therefore, it needs to be between Purva Falguni and Swati i.e. it can be in Uttara Falguni.

For Jupiter, the verse 27 makes it clear that it is nearing Vishakha (Virgo/Libra cusp) and line 14 points out that it is aspecting Shravan (Sagittarius/Capricorn cusp) (वक्रः श्रवणे च बृहस्पतिः) (as one of the meanings of the word वक्रः is cunning).

For Mars, the verse 14 says that Mars is going retrograde from Magha toward Shravan. Verse 18 says, that Mars is going retrograde and is lighting up Shravan (using the word पावक - *Paavak*, which means to lighten up), which can be interpreted as Mars is aspecting Shravan as well. But, where is Mars supposed to be? It has to be in a nakshatra where Mars can aspect Shravan (i.e. Capricorn/Sagittarius cusp). That can be from Ashlesha Nakshatra in Cancer constellation. Since Mars is going retrograde from Magha (Leo), it is logical that it has to be in Ashlesha (Cancer), the nakshatra just to the east of Magha, to be able to opposite of and aspect Shravan (Capricorn).

Finally, Venus is indicated to be in Purva Bhadrapada (Aquarius/Pisces cusp) per verse 15.

For reference, a table of all Nakshatras with their corresponding Constellation position is put in Exhibit 5.

With these expected position, data was downloaded from Alcyone Ephemeris (an Astronomy Ephemeris Calculator software) to find any period, where these planetary positions can be found. In short, **we need to find an astronomical event, where we have Saturn between Uttara Falguni & Swati and slowing down, Jupiter nearing Vishakha and slowing down, Venus in Purva Bhadrapad and Mars in Ashlesha in the period 1000 BC to 750 BC** (given that we calculate ninth century BC to be the approximate timeline of Mahabharata War as explained in section 1.5).

Only one time period was found that meets all the requirements, from the three options that have been specified in previous section (Option 2 mentioned in Table 7). See below a screenshot from Alcyone Ephemeris software:

Ephemeris data														
idx	UT+5h 30m	JD	Venus			Mars			Jupiter			Saturn		
			longitude	latitude	con.	longitude	latitude	con.	longitude	latitude	con.	longitude	latitude	con.
-8	-0878-12-28 17:34:22	1400730.0030	290° 00' 25"	-1° 34' 16"	Aqr	104° 44' 22"	4° 11' 28"	Leo	170° 31' 38"	1° 31' 52"	Vir	141° 44' 46"	2° 04' 27"	Vir
-7	-0878-12-31 17:22:34	1400732.9948	293° 43' 41"	-1° 34' 49"	Aqr	103° 39' 21"	4° 16' 23"	Leo	170° 40' 09"	1° 32' 43"	Vir	141° 38' 40"	2° 05' 12"	Vir
-6	-0877-01-03 17:10:46	1400735.9866	297° 26' 44"	-1° 34' 44"	Aqr	102° 30' 58"	4° 20' 29"	Leo	170° 47' 03"	1° 33' 35"	Vir	141° 31' 42"	2° 05' 55"	Vir
-5	-0877-01-06 16:58:59	1400738.9785	301° 09' 31"	-1° 34' 02"	Aqr	101° 20' 23"	4° 23' 43"	Leo	170° 52' 16"	1° 34' 27"	Vir	141° 23' 55"	2° 06' 37"	Vir
-4	-0877-01-09 16:47:11	1400741.9703	304° 52' 00"	-1° 32' 40"	Aqr	100° 08' 50"	4° 26' 00"	Leo	170° 55' 48"	1° 35' 19"	Vir	141° 15' 20"	2° 07' 18"	Vir
-3	-0877-01-12 16:35:23	1400744.9621	308° 34' 09"	-1° 30' 40"	Aqr	98° 57' 35"	4° 27' 20"	Leo	170° 57' 39"	1° 36' 11"	Vir	141° 06' 02"	2° 07' 57"	Vir
-2	-0877-01-15 16:23:35	1400747.9539	312° 15' 58"	-1° 28' 02"	Aqr	97° 47' 49"	4° 27' 42"	Leo	170° 57' 50"	1° 37' 03"	Vir	140° 56' 02"	2° 08' 34"	Vir
-1	-0877-01-18 16:11:48	1400750.9457	315° 57' 26"	-1° 24' 45"	Psc	96° 40' 38"	4° 27' 08"	Leo	170° 56' 18"	1° 37' 54"	Vir	140° 45' 22"	2° 09' 10"	Vir
0	-0877-01-21 16:00:00	1400753.9375	319° 38' 33"	-1° 20' 50"	Psc	95° 37' 04"	4° 25' 41"	Cnc	170° 53' 05"	1° 38' 44"	Vir	140° 34' 07"	2° 09' 43"	Vir
1	-0877-01-24 15:48:12	1400756.9293	323° 19' 17"	-1° 16' 18"	Psc	94° 38' 02"	4° 23' 25"	Cnc	170° 48' 10"	1° 39' 34"	Vir	140° 22' 18"	2° 10' 15"	Vir
2	-0877-01-27 15:36:25	1400759.9211	326° 59' 39"	-1° 11' 10"	Cet	93° 44' 23"	4° 20' 26"	Cnc	170° 41' 36"	1° 40' 22"	Vir	140° 10' 00"	2° 10' 44"	Vir
3	-0877-01-30 15:24:37	1400762.9129	330° 39' 36"	-1° 05' 26"	Psc	92° 56' 44"	4° 16' 47"	Cnc	170° 33' 24"	1° 41' 09"	Vir	139° 57' 16"	2° 11' 11"	Vir
4	-0877-02-02 15:12:49	1400765.9047	334° 19' 08"	-0° 59' 08"	Psc	92° 15' 39"	4° 12' 35"	Cnc	170° 23' 35"	1° 41' 54"	Vir	139° 44' 09"	2° 11' 36"	Vir
5	-0877-02-05 15:01:01	1400768.8965	337° 58' 10"	-0° 52' 18"	Psc	91° 41' 27"	4° 07' 55"	Cnc	170° 12' 13"	1° 42' 38"	Vir	139° 30' 43"	2° 11' 58"	Vir
6	-0877-02-08 14:49:14	1400771.8884	341° 36' 41"	-0° 44' 57"	Psc	91° 14' 21"	4° 02' 53"	Cnc	169° 59' 22"	1° 43' 19"	Vir	139° 17' 04"	2° 12' 18"	Vir
7	-0877-02-11 14:37:26	1400774.8802	345° 14' 38"	-0° 37' 08"	Psc	90° 54' 22"	3° 57' 34"	Cnc	169° 45' 07"	1° 43' 58"	Vir	139° 03' 16"	2° 12' 36"	Vir
8	-0877-02-14 14:25:38	1400777.8720	348° 52' 00"	-0° 28' 52"	Ari	90° 41' 23"	3° 52' 02"	Cnc	169° 29' 32"	1° 44' 35"	Vir	138° 49' 21"	2° 12' 50"	Vir
9	-0877-02-17 14:13:50	1400780.8638	352° 28' 45"	-0° 20' 12"	Ari	90° 35' 16"	3° 46' 21"	Cnc	169° 12' 41"	1° 45' 08"	Vir	138° 35' 23"	2° 13' 03"	Vir
10	-0877-02-20 14:02:03	1400783.8556	356° 04' 53"	-0° 11' 10"	Ari	90° 35' 49"	3° 40' 35"	Cnc	168° 54' 40"	1° 45' 39"	Vir	138° 21' 27"	2° 13' 12"	Vir
11	-0877-02-23 13:50:15	1400786.8474	359° 40' 23"	-0° 01' 49"	Ari	90° 42' 50"	3° 34' 47"	Cnc	168° 35' 36"	1° 46' 07"	Vir	138° 07' 37"	2° 13' 19"	Vir
12	-0877-02-26 13:38:27	1400789.8392	3° 15' 13"	0° 07' 49"	Ari	90° 56' 02"	3° 28' 58"	Cnc	168° 15' 34"	1° 46' 31"	Vir	137° 53' 57"	2° 13' 24"	Vir
13	-0877-03-01 13:26:40	1400792.8310	6° 49' 23"	0° 17' 41"	Ari	91° 15' 12"	3° 23' 12"	Cnc	167° 54' 43"	1° 46' 51"	Vir	137° 40' 30"	2° 13' 26"	Vir
14	-0877-03-04 13:14:52	1400795.8228	10° 22' 48"	0° 27' 43"	Ari	91° 40' 01"	3° 17' 28"	Cnc	167° 33' 09"	1° 47' 08"	Vir	137° 27' 21"	2° 13' 25"	Vir
15	-0877-03-07 13:03:04	1400798.8146	13° 55' 26"	0° 37' 53"	Ari	92° 10' 15"	3° 11' 50"	Cnc	167° 11' 02"	1° 47' 21"	Vir	137° 14' 34"	2° 13' 22"	Vir
16	-0877-03-10 12:51:16	1400801.8064	17° 27' 12"	0° 48' 06"	Tau	92° 45' 32"	3° 06' 16"	Cnc	166° 48' 31"	1° 47' 29"	Vir	137° 02' 12"	2° 13' 17"	Vir
17	-0877-03-13 12:39:29	1400804.7982	20° 58' 04"	0° 58' 20"	Tau	93° 25' 32"	3° 00' 49"	Cnc	166° 25' 43"	1° 47' 34"	Vir	136° 50' 18"	2° 13' 09"	Vir
18	-0877-03-16 12:27:41	1400807.7901	24° 27' 59"	1° 08' 31"	Tau	94° 09' 58"	2° 55' 28"	Cnc	166° 02' 48"	1° 47' 35"	Vir	136° 38' 55"	2° 13' 00"	Vir

**About 18<sup>th</sup> January 878 BC<sup>57</sup>, Jupiter slowed down in Swati (just before Vishakha) and ready to go retrograde. As a corroboration, Saturn was slowing down as well in Uttara Falguni and was already going retrograde at a very slow speed. Mars was in Ashlesha and going retrograde already, and Venus was in Purva Bhadrapada!**

This date is about eighteen years before the start of the Kali Yuga on 0860 BC March 10 (Option 2 in table on page 35). See next section ‘Number of years from the Great War to the death of Krishna’ on Page 44 for explanation for eighteen years.

<sup>57</sup> Alcyone Ephemeris software considers 0 AD or 0 BC as a valid year, even though, the general convention is to exclude that year. Accordingly, value of 1 needs to be added to the years mentioned above.

Based on this, **it can be hypothesised that the Kali Yuga started on March 10, 860 BC & the war occurred somewhere during late 879 BC.**

Let's move on to the next astronomical indicator in Mahabharata to further verify these dates.

### *Number of years from the Great War to the death of Krishna*

We have been told in Mahabharata that Krishna passed away (also equal to start of Kali Yuga) after thirty-six years of the ending of the war. There are two references for the same.

The first is in the form of a prediction from Gandhari<sup>58</sup>, who is cursing Krishna for killing all her sons right after the war ends. (MB-11.25.41 & MB-11.25.42).<sup>59</sup>

41 तवम अप्य उपस्थिते वर्षे षट्त्रिंशे मधुसूदन

हतज्ञातिर हतामात्यो हतपुत्रो वनेचरः

कुत्सितेनाभ्युपायेन निधनं समवाप्स्यसि

42 तवाप्य एवं हतसुता निहतज्ञातिबान्धवाः

सत्रियः परिपतिष्यन्ति यथैता भरत सत्रियः

41 tvam apy upasthite varṣe ṣaṭṭriṃśe madhusūdana

hatajñātir hatāmātyo hataputro vanecaraḥ

kutsitenābhyupāyena nidhanaṃ samavāpsyasi

42 tavāpy evaṃ hatasutā nihatajñātibāndhavāḥ

striyaḥ paripatiṣyanti yathaitā bharata striyaḥ

<sup>58</sup> mother of Kauravas

<sup>59</sup> All translations of The Mahabharat from here onward have been taken from Ganguli English Translation available on sacred-text.com. **Invalid source specified.**

‘Since thou wert indifferent to the Kurus and the Pandavas whilst they slew each other, therefore, O Govinda, thou shalt be the slayer of thy own kinsmen! In the thirty-sixth year from this, O slayer of Madhu, thou shalt, after causing the slaughter of thy kinsmen and friends and sons, perish by disgusting means in the wilderness. The ladies of thy race, deprived of sons, kinsmen, and friends, shall weep and cry even as these ladies of the Bharata race!’<sup>60</sup>

The second is in the form of a statement from Yudhishtira<sup>61</sup> just before the death of Krishna. (MB-16.1.1).

1 षट् त्रिंशे तव अथ संप्राप्ते वर्षे कौरवनन्दन

ददर्श विपरीतानि निमित्तानि युधिष्ठिरः

1 ṣaṭ trīṁśe tv atha saṁprāpte varṣe kauravanandana

dadarśa viparītāni nimittāni yudhiṣṭhiraḥ

When the thirty-sixth year (after the battle) was reached, the delighter of the Kurus, Yudhishtira, beheld many unusual portents. <sup>62</sup>

<sup>60</sup> Translation reproduced from <http://sacred-texts.com/hin/m11/m11024.htm>

<sup>61</sup> The eldest brothers amongst Pandavas

<sup>62</sup> Translation reproduced from <http://sacred-texts.com/hin/m16/m16001.htm>

In both of these cases, the traditional translation points to thirty-six years as the intervening period. This would mean that the war should have happened thirty-six years before the three options outlined in the previous section.

But, as we will shortly see, the rest of the astronomical events do not match with either of those years, except one, if we read this verse a little differently.

If we interpret षट्त्रिंशो (*ShatTrinshe*) as  $6*3 = 18$  years, it works with the first observation.

Admittedly it's manipulative, but since rest of the astronomical indication match with each other and let us bear with this inconsistency.

### *The planetary arrangement when Krishna invites Karna to join the Pandavas*

The next astronomical that Veda Vyasa has provided relates to the time when Krishna (Pandavas' advisor) meets Karna (half-brothers of Pandavas) a little before the war. This incident is covered under MB-5.143.8 & MB-5.143.9.

8 पराजापत्यं हि नक्षत्रं गरहस तीक्ष्णो महाद्युतिः

शनैश्चरः पीडयति पीडयन् पराणिनो ऽधिकम्

9 कृत्वा चाङ्गारको वक्रं जयेष्ठायां मधुसूदन

अनुराधां परार्थयते मैत्रं संशमयन्न इव

8 prājāpatyaṃ hi nakṣatraṃ grahas tīkṣṇo mahādyutiḥ

śanaīscarāḥ pīḍayati pīḍayan prāṇino 'dhikam

9 kṛtvā cāṅgārako vakraṃ jyeṣṭhāyāṃ madhusūdana

anurādhāṃ prārthayate maitraṃ saṃśamayann iva

That fierce planet of great effulgence, Sanaischara (Saturn), is afflicting the constellation called Rohini, in order to afflict greatly the creatures of the earth. The planet Angaraka (Mars), wheeling, O slayer of Madhu, towards the constellation Jeshthya, approacheth towards Anuradhas, indicating a great slaughter of friends.<sup>63</sup>

When seen initially, this looks to be a very confusing narration by Veda Vyasa. As we have seen, Karna and Krishna meet some time before war and Veda Vyasa meets Dhritrashtra just before the war is about to begin. Logically, there cannot have been more than a few months between these two incidences. But, based on the planetary conditions, these two incidents could not have happened this close to each other. As we have seen in the case of Veda Vyasa's meeting with Dhritrashtra, Mars was supposed to be going retrograde, going back from Magha (Leo) to Ashlesha (Cancer). The verse 9 here states another incident of Mars going retrograde, moving from Jyeshtha back into Anuradha (both in Scorpio).

Astronomically, it is not possible to have two retrograde movements of Mars in such close vicinity of each other.

However, we have to interpret this event a little differently and the meaning becomes clear.

The term वक्रं (*vakram*) is used as 'retrograde' for original translation, and that is the obvious

<sup>63</sup> Translation reproduced from <http://sacred-texts.com/hin/m05/m05143.htm>

translation, when being used with reference of planets. But, there is another meaning of this word, tortuous or cruel. (translation from spokensanskrit.de)

वक्र	<a href="#">vakra</a>	adj.	<a href="#">tortuous</a>
वक्र	<a href="#">vakra</a>	adj.	<a href="#">cruel</a>

We have to take liberty of reinterpreting this stanza to get a plausible meaning out of this stanza and interpret that Mars was aspecting (not located in) Jyeshtha first, as aspects are tortuous and cruel for malefic planets like Mars. After aspecting Jyeshtha, it was ready to aspect Anuradha. Which means that Mars was in Rohini (Taurus). Verse 8 talks of Saturn hurting Rohini as well (Taurus). With these combinations in mind, we just have to reverse the clock by a few months and we find that Mars was in Rohini (Taurus in June of 879 BC)<sup>64</sup> and thereby aspecting Jyeshtha and Saturn was still in Purva Falguni (Leo) at that time and aspecting Rohini with its tenth aspect.

---

<sup>64</sup> We have to add 1 to the year number as this software considers year 0 AD as a valid year.

Ephemeris data								
idx	UT+5h 30m	JD	Mars			Saturn		
			longitude	latitude	con.	longitude	latitude	con.
-24	-0878-05-08 23:43:38	1400496.2595	3° 33' 36"	-0° 55' 18"	Ari	123° 10' 33"	1° 41' 03"	Leo
-23	-0878-05-18 23:04:19	1400506.2322	10° 39' 56"	-0° 50' 56"	Ari	123° 40' 02"	1° 40' 03"	Leo
-22	-0878-05-28 22:25:00	1400516.2049	17° 39' 51"	-0° 46' 01"	Tau	124° 18' 05"	1° 39' 09"	Leo
-21	-0878-06-07 21:45:41	1400526.1776	24° 33' 21"	-0° 40' 34"	Tau	125° 03' 55"	1° 38' 22"	Leo
-20	-0878-06-17 21:06:22	1400536.1503	31° 19' 56"	-0° 34' 37"	Tau	125° 56' 41"	1° 37' 43"	Leo
-19	-0878-06-27 20:27:03	1400546.1229	37° 59' 23"	-0° 28' 11"	Tau	126° 55' 24"	1° 37' 15"	Leo
-18	-0878-07-07 19:47:44	1400556.0956	44° 31' 33"	-0° 21' 16"	Tau	127° 59' 07"	1° 36' 57"	Leo
-17	-0878-07-17 19:08:25	1400566.0683	50° 55' 43"	-0° 13' 52"	Gem	129° 06' 50"	1° 36' 51"	Leo
-16	-0878-07-27 18:29:06	1400576.0410	57° 11' 28"	-0° 05' 55"	Gem	130° 17' 31"	1° 36' 57"	Leo
-15	-0878-08-06 17:49:46	1400586.0137	63° 18' 14"	0° 02' 34"	Gem	131° 30' 12"	1° 37' 15"	Leo
-14	-0878-08-16 17:10:27	1400595.9864	69° 14' 44"	0° 11' 40"	Gem	132° 43' 47"	1° 37' 47"	Leo
-13	-0878-08-26 16:31:08	1400605.9591	74° 59' 59"	0° 21' 29"	Gem	133° 57' 13"	1° 38' 33"	Vir

With this insight, it is submitted that Krishna & Karna met in June 879 BC about four or five months before the war.

### *Bhishma's death*

The next astronomical indication relates to death of Bhishma, the grand-uncle of the warring cousins. He was injured by Arjuna, the expert archer, and was waiting on a bed of arrows for his death on the उत्तरायण (*Uttarayana*) day, the day when the Sun starts its journey toward the north every year around winter solstice. See these two verses (MB-13.167.26 & MB-13.167.27).

26 दिष्ट्या पराप्तो ऽसि कौन्तेय सहामात्यो युधिष्ठिर

परिवृत्तो हि भगवान् सहस्रांशुर दिवाकरः

27 अष्ट पञ्चाशतं रात्र्यः शयानस्याद्य मे गताः

शरेषु निशिताग्रेषु यथा वर्षशतं तथा

26 diṣṭyā prāpto 'si kaunteya saḥāmātyo yudhiṣṭhira

parivṛtto hi bhagavān sahasrāmśur divākaraḥ

27 aṣṭa pañcāśataṃ rātryaḥ śayānasyādya me gatāḥ

śareṣu niśitāgreṣu yathā varṣāśataṃ tathā

That thorough master of words said, 'By good luck, O son of Kunti, thou hast come here with all thy counsellors, O Yudhishtira! The thousand-rayed maker of day, the holy Surya has begun his northward course. I have been lying on my bed here for eight and fifty nights. Stretched on these sharp-pointed arrows I have felt this period to be as long as if it was a century.'<sup>65</sup>

As per the Ephemeris calculation, the declination of Sun started increasing (i.e. 'Uttarayana' occurred) on 30<sup>th</sup> December 879 BC.

<sup>65</sup> Translation reproduced from <http://sacred-texts.com/hin/m13/m13b132.htm>

Control

Field of view: 180° 00' 00" Magnitude limit: 5

Time: Local  DST  
Fri 12/30/0879 BC 07:19:40 AM

Y M D h m s  
1400731.57616 12h 58m 51s

Animation time step: 1 x Minutes

Pointer  
Coordinates: Equatorial  
RA: 21h 48m 43.26s, Dec: +28° 58' 16.1"

Planet Basics

	Sun	Mercury	Venus	Moon	Mars
Right ascension:	18h 03m 06.44s	16h 19m 07.20s	19h 36m 20.38s	15h 56m 58.72s	07h 03m 45.69s
Declination:	-23° 48' 07.0"	-19° 27' 42.9"	-23° 32' 04.2"	-26° 28' 17.9"	+27° 14' 39.8"
Constellation:	Capricornus	Sagittarius	Aquarius	Sagittarius	Leo
Magnitude:	-26.77	0.2	-3.9	-6.75	-1.1
Angular diameter:	32.5'	7.8"	10.8"	30.3'	13.6"
Illuminated fraction:		45.8%	93.5%	6.4%	99.5%

	Jupiter	Saturn	Uranus	Neptune	Pluto
Right ascension:	11h 28m 02.17s	09h 39m 24.82s	12h 57m 51.73s	06h 41m 33.62s	23h 24m 52.63s
Declination:	+05° 11' 14.2"	+16° 27' 08.0"	-05° 40' 15.7"	+23° 24' 56.3"	-22° 37' 09.7"
Constellation:	Virgo	Virgo	Libra	Leo	Cetus
Magnitude:	-2.1	0.8	5.6	7.8	15.8
Angular diameter:	38.1"	18.5"	3.7"	2.3"	0.1"
Illuminated fraction:	99.2%	99.8%	99.9%	100.0%	100.0%

OK Copy

90° EQUULEUS SERPENS CAUDA AQUILA SCUTUM SAGITTARIUS CORONA AUSTRALIS Sun Moon

Therefore, it is possible to conclude that Bhishma died on 30<sup>th</sup> December 879 BC. Now, let's use this information to backtrack when the war would have started.

Backtracking fifty-eight days from the *Uttarayana* day of 30<sup>th</sup> December 879 BC, we arrive at 2<sup>nd</sup> November 879 BC as the day of his defeat. Since he was defeated on the tenth day of the war, the war would have started on 24<sup>th</sup> October 879 BC.

You might wonder as to why the date of Veda Vyasa's observation to King Dhritrashtra (derived as 15<sup>th</sup> January 878 BC) happens after the war ended, which would have started on 24<sup>th</sup> October 879 BC and would have ended eighteen days later on 10<sup>th</sup> November 879 BC.

This is definitely a little confusing. But, let's remember that Veda Vyasa came to Dhritrashtra to plead to him to stop the war. Knowing very well that Duryodhan, the oldest Kaurava prince is very unlikely to relent, he had to try his best to persuade Dhritrashtra by scaring him of the bad omens. Veda Vyasa would have known that the actual astronomical event would

occur about 2 months later, but it is likely that he tried to use a forthcoming unfavourable planetary positions as the current position to scare Dhritrashtra.

*Double Eclipse within 13 tithis (lunar days) a little before the war*

Veda Vyasa, when in conversation with Dhritrashtra, also discusses a highly unusual astronomical event where a Solar Eclipse happens on the thirteenth तिथी (*tithi*) from the

Lunar Eclipse. See MB-6.3.32 below:

32 चतुर्दशीं पञ्चदशीं भूतपूर्वा च षोडशीम्

इमां तु नाभिजानामि अमावास्यां तरयोदशीम्

चन्द्रसूर्याव उभौ गरस्ताव एकमासे तरयोदशीम्

32 caturdaśīm pañcadaśīm bhūtapūrvām ca ṣoḍaśīm

imāṃ tu nābhijānāmi amāvāsyāṃ trayodaśīm

candrasūryāv ubhau grastāv ekamāse trayodaśīm

A lunar fortnight had hitherto consisted of fourteen days, or fifteen days (as usual), or sixteen days. This, however, I never knew that the day of new-moon would be on the thirteenth day from the first lunation, or the day of full-moon on the thirteenth day from the same. And yet in course of the same month both the Moon and the Sun have undergone eclipses on the thirteenth days from the day of the first lunation.<sup>66</sup>

<sup>66</sup> Translation reproduced from <http://sacred-texts.com/hin/m06/m06003.htm>

Let's first understand the system followed by Hindus for lunar calendar and *tithi* (the lunar day).

In the Indian system, the first tithi (a lunar day) starts from the exact point when Sun and Moon are on the same longitude (on the New Moon day) and continues for 1/30th of the sky. The next tithi starts from that point onward and so on till the next New Moon point arrives, giving us thirty tithis for the Lunar month. Since this conjunction of Moon & Sun can happen at any point of the day, the tithi can start at any point of the day. However, for practical purposes, the tithi that is operative at the time of Sunrise for any given solar day, is assigned to the entire day, even if the tithi was to actually end even a minute after the Sun rise. For example, if the fifth tithi was to end at 6.40 am in the morning (as per the fifth consecutive 1/30<sup>th</sup> area of the sky), then, if the Sun rise happened a little earlier, say at 6.30 pm, the entire day will be reckoned as the day of tithi, the fifth. Also, there are 29.5 solar days for 30 tithis and that causes an issue as well as the time of each tithi is about 23 hours and 36 minutes (it varies every month depending on the elliptical orbit of Moon around Earth).

We also know that a lunar eclipse to the next solar eclipse can happen on the fourteenth solar day. In fact, it was found that in the expected time horizon of eighth through tenth centuries BC, there were three examples of cases where difference between Lunar and Solar eclipse were fourteen solar days.

The nearest such incident to the event of beginning of Kali Yuga (in 860 BC) is recorded in 879 BC. (We have to adjust this software's results by one year as stated earlier).

Lunar Eclipses in Hastinapur (India)											
Date	Saros	delta T	Type	Mag. (umbra)	Penumbra phase begins	Partial phase begins	Total phase begins	Maximum eclipse	Total phase ends	Partial phase ends	Penumbra phase ends
-0878-09-19	52	6:27:41	partial	0.202	15:45:22 0.5°	17:06:43 -16.3°		17:54:19 -26.1°		18:41:55 -35.6°	20:03:16 -50.7°

Solar Eclipses in Hastinapur (India)										
Date	Saros	delta T	Mag.	First contact	Second contact	Maximum eclipse	Third contact	Fourth contact	Duration	Duration tot./ann.
-0878-09-04	40	6:27:42	0.290 P	14:19:36 -18.4°		15:02:49 -9.6°		15:49:17 0.1°	(1:29:41)	

Even after accounting for the tithi system, a situation cannot be found where there were thirteen tithis between the two eclipses. A search for any such eclipse combination in a 300 year range did not yield anything that fulfills the thirteen days criteria.

The only explanation here is that Veda Vyasa went a little hyperbolic while explaining all astronomical events to indicate the violent war. The very next verse after this (6.3.33), talks about raining of meat and demons having blood-covered faces. He was there to persuade Dhritrashtra to stop the war and probably used his knowledge of the luminaries to scare Dhritrashtra, likely with some hyperbole.

### *Conclusion*

There is no doubt that the exposition of the timeline of the Mahabharata war and Krishna's death, using astronomical observations, is not totally flawless. As we can see, the data regarding eclipses do not match. However, it is still a remarkable match, particularly given that the planetary match for the observations of Veda Vyasa during his meeting with Dhritrashtra are rather unlikely to be repeated over 2 to 3 centuries. Since it matches as a corroborative evidence for the beginning of Kali Yuga (although with eighteen years gap, instead of thirty-six years) and Karna's meeting with Krishna and most importantly, the entry

of Saptarshi (Big Dipper) asterism in Magha nakshatra, it is not at all difficult to admit that these are the likely historic dates.

**It can be concluded that the Kali Yuga started on March 10, 860 BC & the famed Mahabharata War started on or about 24th October 879 BC.**

### 2.3 Astronomical Evidence for Ramayana

Like Veda Vyasa, Valmiki has also left astronomical information for some of the main events in Ramayana. These are:

1. Birth of Ram
2. Exile of Rama to forest
3. A Solar Eclipse on day of the war with Khar & Dushan.

#### *Birth of Ram*

Here is the reproduction of relevant verses from Ramayana that explains the planetary position at the time of birth of Ram. All Ramayana translations from here on are taken from <http://www.valmikiramayan.net>.<sup>67</sup>

ततो यज्ञे समाप्ते तु ऋतूनाम् षट् समत्ययुः ।  
 ततः च द्वादशे मासे चैत्रे नावमिके तिथौ ॥ १-१८-८  
 नक्षत्रे अदिति दैवत्ये स्व उच्छ संस्थेषु पंचसु ।  
 ग्रहेषु कर्कटे लग्ने वाक्पता इंदुना सह ॥ १-१८-९  
 प्रोद्यमाने जगन्नाथम् सर्व लोक नमस्कृतम् ।  
 कौसल्या अजनयत् रामम् सर्व लक्षण संयुतम् ॥ १-१८-१०  
 विष्णोः अर्धम् महाभागम् पुत्रम् ऐक्ष्वाकु नंदनम् ।  
 लोहिताक्षम् महाबाहुम् रक्त ओष्टम् दुंदुभि स्वनम् ॥ १-१८-११

<sup>67</sup> (Valmiki Ramayan, n.d.) - www.valmikiramayan.net

8, 9, 10, 11. *tataH yaj~ne samaapte* = then, ritual, on completion; *R^ituuNaam SaT sam atyayuH* = seasons, six, well, passed by; *tataH* = then; *dvaadashe maase* = in twelfth, month; *chaitre naavamike tithau* = chaitra month [April-May], ninth, day;

*nakshatre aditi daivatye* = star of the day [*punarvasu*,] whose presiding deity is *aditi*;

*panchasu graheSu swa uccha samstheshu* = of five, planets, in their own, highest, positions - in their own *cCha sthAna*-s, viz., in their own ascendent positions - *meSha*, *makara*, *karkaTa*, *mIna*, *tula* - *rAshI*-s;

*chandra yukta guru karkaTa lagne prouyamane*;

*karkaTe lagne* = in Cancer [of Zodiac]; *vaak patiH* = when Speech's, Lord [Jupiter]; *indunaa saha* = Moon, along with; *pra udyamane* == when raising - when ascendent; [*abhijit lagna* = advancing daytime];

*kausalyaa* = Queen Kausalya; *jagat naatham* = worlds', lord [Vishnu]; *sarva loka namaskR^itam* = by all, worlds, adored; *divya lakshana samyutam* = divine, attributes, along with;

*viSNoH* = Vishnu's; *artham* = epitome of [not half of Vishnu];

*mahaa bhaagam* = greatly blessed one; *ikshwaaku nandanam* = Ikshvaaku dynasty, delight of; *lohita aksham* = lotus-red, eyes; *mahaa baahum* = lengthy, armed; *rakta oSTam* = roseate, lips; *dundubhi svanam* = drumbeat, voiced; *raamam* = Rama as; *putRama* = the son; *ajanayat* = gave birth.

On completion of the ritual, six seasons have passed by; then in the twelfth month, i.e., in *chaitra mAsa*, and on the ninth day of that *chaitra* month [April-May], when it is *punarvasu nakshatr yukta navamI tithi*, i.e., when the ruling star of that ninth day is *punarvasu*, for which Aditi is the presiding deity; and when five of the nine planets – *sUrya* (*Sun*), *kuja* (*Mars*), *guru* (*Jupiter*), *shukra* (*Venus*), *shani* (*Saturn*) are in *ucCha sthAna*-s, namely, when those planets are in ascension in their respective houses - *meSha*, *makara*, *karkaTa*, *mIna*, *tula* - *rAshI*-s; and when *chandra yukta guru, karkaTa lagne* - Jupiter in conjunction with Moon is ascendant in Cancer, and when day is advancing, Queen Kausalya gave birth to a son with all the divine attributes like lotus-red eyes, lengthy arms, roseate lips, voice like drumbeat, and who took birth to delight the Ikshwaku dynasty and

adored by all the worlds, and who is the greatly blessed epitome of Vishnu, namely Rama.

[1-18-8, 9, 10, 11]

These verses are stating the positions of the five planets. Sun, Mars, Jupiter, Venus & Saturn are all stated to be in their exalted<sup>68</sup> positions as per the traditional translation. An analysis of the planetary positions of these planets was carried out for the entire second millennium BC<sup>69</sup> and not a single period was found when each of these five planets were in their exalted signs!

Further review was conducted and an alternative interpretation soon emerged.

The traditional translation says that all planets are in their exalted positions. The accepted translation of 'स्व उच्छ संस्थेषु पंचसु' is 'planets are in ascension (aka exaltation) in their respective houses'. In this translation, उच्छ (*uchh*) stands for exaltation and स्व (*sva*) has been used to imply 'their' exaltation point.

However, the word स्व can also mean 'of self'. Therefore, it can be interpreted that the

'planets were either exalted or in their own house!<sup>70</sup> In fact, that seems to be the more accurate translation but traditionally it has been translated to mean 'its own exaltation house'.

(translation from [www.spokensanskrit.de](http://www.spokensanskrit.de))

स्व

**sva**

adj.

**of self**

<sup>68</sup> As per Vedic Astrology, *Jyotish*, a planet is said to be 'exalted' if it exists in a specific sign. Sun is known to be exalted in Aries, Moon in Taurus, Jupiter in Cancer, Mercury in Virgo, Saturn in Libra, Mars in Capricorn & Venus in Pisces. A planet gives extremely good results if it was in its exalted position at the time of the birth of any person.

<sup>69</sup> Given that a conclusion has been reached in the book that Mahabharata war happened in the ninth century BC and given that 36 generations passed between Ramayana and Mahabharat, it is extremely unlikely that Ramayana could have occurred in first or third millennium BC.

<sup>70</sup> As per the rules of Vedic Astrology, all planets, in addition to having their exaltation point, own one or two of the 12 houses. Mars owns Aries & Scorpio, Venus owns Taurus and Libra, Mercury owns Gemini & Virgo, Moon owns Cancer, Sun owns Leo, Jupiter owns Sagittarius & Pisces and Saturn owns Capricorn & Aquarius.

Using this alternative interpretation and using the additional information for Jupiter and Moon (Per VR-1.18.9, Jupiter & Moon are in Cancer), we get five possible combinations that are documented in Table 9 below:

**Table 9**

Dates	1663-Mar-17	1485-Mar-29	1248-Mar-19	1189-Mar-25	1129-Mar-22
Sun	341.54	355.16	347.1	353.38	352.08
	Aries	Aries	Aries	Aries	Aries
	Exalted	Exalted	Exalted	Exalted	Exalted
Venus	16.55	309.24	323.04	318.23	31.11
	Taurus	Pisces	Pisces	Pisces	Taurus
	Own	Exalted	Exalted	Exalted	Own
Mars	355.05	269.56	268.25	9.22	346.21
	Aries	Capricorn	Capricorn	Aries	Aries
	Own	Exalted	Exalted	Own	Own
Jupiter	85.09	90.04	86.14	78.33	99.44
	Cancer	Cancer	Cancer	Cancer	Cancer
	Exalted	Exalted	Exalted	Exalted	Exalted
Saturn	249.41	267.09	284.08	286.05	298.5
	Capricorn	Capricorn	Aquarius	Aquarius	Aquarius
	Own	Own	Own	Own	Own

With these alternative dates for the birth of King Rama, let us look at the corroborative evidence of Rama’s exile and see which of these five possible dates match the astronomical observation at the time of his exile.

*Exile of Rama to forest*

When Dashratha is told by astrologers about his possible death soon, he decides to make Rama as the next king and tells him bad planets are troubling him (VR-2.4.18). He also tells him about the location of the Moon on that day. (VR-2.4.21). See below:

अवष्टब्धं च मे राम नक्षत्रं दारुणैर्ग्रहैः |  
आवेदयन्ति दैवज्ञावः सूर्याङ्गारकराहुभिः || २-४-१८

18. *raama* = oh! Rama; *daivajnaaH* = astrologers; *aavedayanti* = are informing (that); *daaruNaiH* = fearful; *grahaiH* = planets; *suuryaaN^gaarakaraahubhiH* = like sun; Mars and Rahu; *avashhTabdham* = are encroaching; *me* = my; *nakshatrm* = natal star.

‘Oh, Rama! Astrologers are informing me that fearful planets like Sun, Mars and Rahu are encroaching my birth star.’

अद्य चन्द्रोभ्युपगतः पुष्यात्पूर्वं पुनर्वसू |  
श्वः पुष्ययोगं नियतं वक्ष्यन्ते दैवचिन्तकाः || २-४-२१

21. *adya* = today; *chandraH* = the moon; *abhyupagataH* = is getting; *punarvasuu* = the star of punarvasu; *puurvam* = earlier to; *pushhyaat* = the star of pushyami; *daivachintakaaH* = astrologers; *vakshyante* = inform that; *svaH* = tomorrow; *pushhyayogam* = when the moon joins pushyami star; *niyatam* = can be fixed (for coronation ceremony).

‘Today, the moon is entering the constellation known as Punarvasu which comes before Pushyami star. The astrologers inform that the coronation ceremony can be fixed for tomorrow, when the moon joins Pushyami star.’

Rama was twenty-five years of age at the time of his exile. This is corroborated by two separate evidences:

1. Seeta tells Raavan that Rama was twenty-five when they were exiled: (VR-3.47.10).

मम भर्ता महातेजा वयसा पंच विंशकः ॥ ३-४७-१०  
अष्टा दश हि वर्षाणि मम जन्मनि गण्यते ।

*10b, 11. mahaatejaa mama bhartaa = great resplendent my, husband; vayasaa panca vimshakaH = by age, five, twenty - twenty-five years; mama janmani = my, from birth; aSTaa dasha varSaaNi hi = eight, ten - eighteen, years, only; gaNyate = reckoned up.*

‘My great-resplendent husband was of twenty-five years of age at that time, and to me eighteen years are reckoned up from my birth. [3-47-10b, 11a]

2. When Kaushalya is grieving the fact that Rama has to go to forest (VR-2.20.45), she claims that she is waiting for seventeen years since his second birth. Since Hindus undergo thread ceremony at about the age of eight, this makes sense to consider his age as twenty-five:

दश सप्त च वर्षाणि तव जातस्य राघव ।  
असितानि प्रकान्क्षन्त्या मया दुःख परिक्षयम् ॥ २-२०-४५

*45. raaghava = Oh; Rama! aasitaani = sat down mayaa = by me dasha saptacha = for seventeen varshhaa Ni = years tava jaatasya = after your second birth of your thread ceremony praakaaNkshhantyaam = with hope of duHkha parikshhantyaam = disappearance of troubles*

‘Oh,Rama! I have been waiting for seventeen years after your second birth of thread ceremony, with the hope that my troubles will disappear at one time or the other.’

Based on these verses, let us take twenty-five years as the age of Rama when exiled, and check whether planetary conditions match for any one of the possible five time periods noted before. See below:

Birth Year BC	The BC year when Rama is 25
1664	1638
1485	1460
1248	1223
1189	1164
1129	1104

An analysis was done for each year in the second column and compared with the required planetary conditions:

1. Since the zodiac sign of king Dashrath was Pisces and his nakshatra was Rewati based on the first letter of his name, as per verse (VR-2.4.18), Sun and Mars should be in Rewati nakshatra.
2. Moon should be in Punarvasu nakshatra (VR-2.4.21)

Here are the results (compiled from Alcyone Ephemeris software), compiled in Table 10 below:

**Table 10**

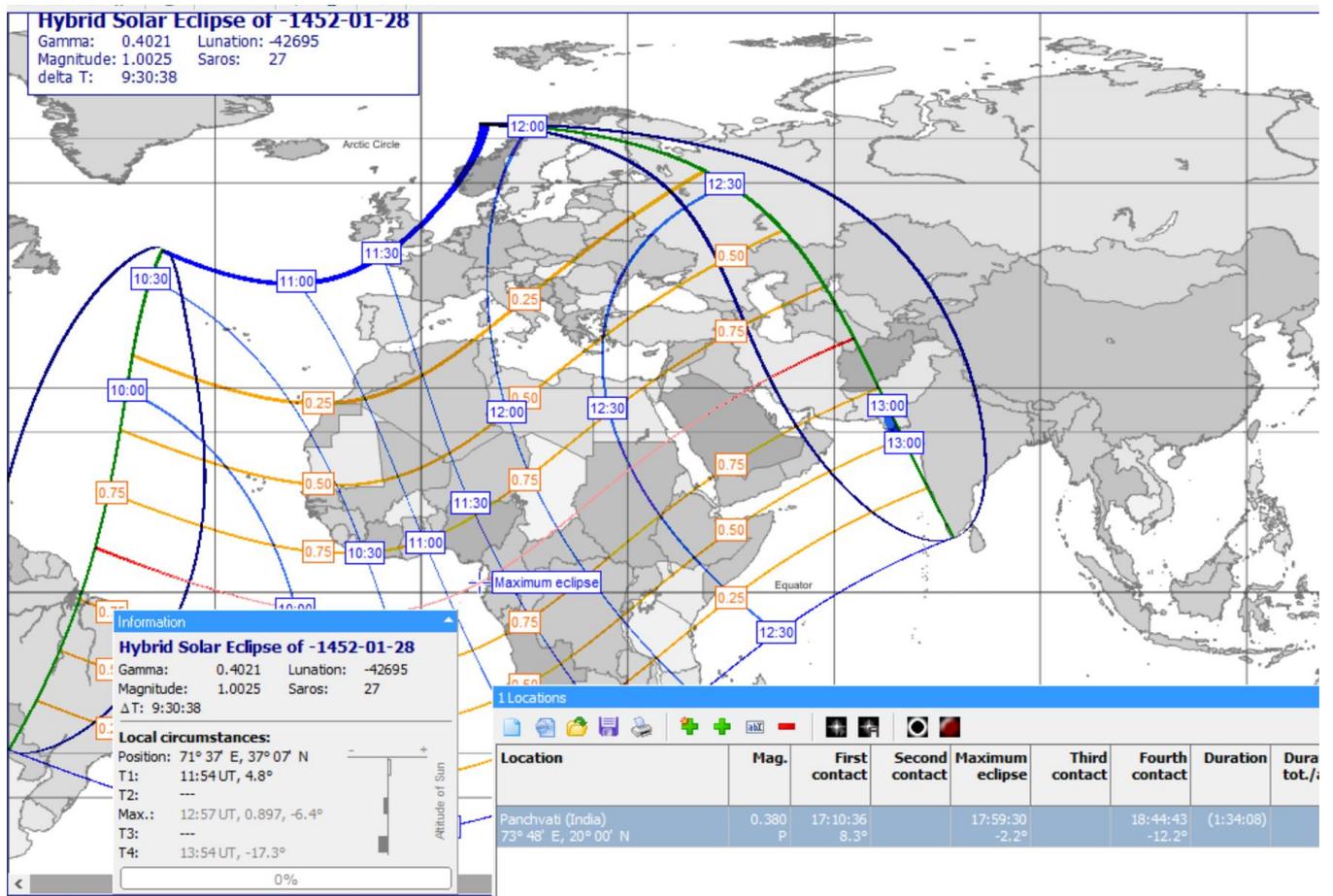
	Sun		Moon		Mars	
1638-Mar-10 BC	335	Aries	57	Cancer	57	Cancer
<b>1460-Feb-22 BC</b>	<b>321</b>	<b>Pisces</b>	<b>65</b>	<b>Cancer</b>	<b>324</b>	<b>Pisces</b>
1223-Mar-11 BC	339	Aries	59	Cancer	341	Aries
1164-Feb-19 BC	320	Pisces	64	Cancer	60	Cancer
1104-Mar-16 BC	345	Aries	64	Cancer	46	Gemini

Based on the above data, **it is clear that there is only one combination where the planetary conditions as specified by Valmiki at the time of Ram’s exile, occur exactly twenty-five years after Ram’s birth i.e. on March 27<sup>th</sup>, 1485.**

*A Solar Eclipse on day of the war with Khar & Dushan.*

When Rama & Lakshman got in trouble with Khar and Dushan, the Rakshasa brothers came with an army to attack them. Valmiki spends a few verses (VR-3.23) to explain that there is a

solar eclipse going on when they attack Ram. Interestingly, the eclipse is described to have left a little sliver of Sun’s disk visible, at Panchavati, where the attack took place. The description by Valmiki fits what we term as an ‘annular eclipse’, but, he may have been using poetic license to exaggerate a simple eclipse to an annular eclipse, a rare astronomical event that he may have seen at some point in his own life. Using Alcyone Eclipse Calculator, the next noticeable eclipse was found on January 28<sup>th</sup> 1453 BC, about seven years after the exile (1460 BC.) (Remember that we have to add 1 to the year specified by the software as it counts 0 AD as a valid year).



As noted multiple times by Valmiki, Rama was exiled for fourteen years by Kaikeyi.

However, as a future paper will prove that there are reasons to believe that Rama was thrown out without any timeline from the kingdom by Kaikeyi and Bharat in a palace coup. Just

because Valmiki needed to respect divinity in Bharat (having been born of same *Payasam*), that a fig leaf of finite exile was invented. This incident therefore occurred not necessarily in thirteenth year, but, at some time during the exile.

On the other hand, if we were to assume that Valmiki was not exaggerating, then one of these annular eclipses must back track to a birth date with the requisite planetary arrangement.

The annular eclipses that have occurred in Panchavati throughout the second millennium BC are:

1. 1913 BC, 5<sup>th</sup> January.
2. 1865 BC, 22<sup>nd</sup> March.
3. 1121 BC, 16<sup>th</sup> March.
4. 1062 BC, 25<sup>th</sup> January.

If we go back thirty-eight years in the past from each of these incidences and compare to our short list of possible birth dates, there is only one situation (1121 BC), where there is somewhat of a match. The possible birth year in that case is 1164 BC and Rama would have to forty-three years old. That is possible but, unlikely as we know that he was twenty-five years old when he was exiled and this would mean that he would be in his eighteenth year of exile. It would also be too close to Mahabharata, thereby reducing the average rulership to 8.4 years per generation. While that is possible, it is somewhat unlikely.

It is clear that the evidence for Solar Eclipse is not a clear match with the astronomical observations for Rama's birth and exile, as the eclipse in 1453 BC is not an annular eclipse, and the partial eclipse occurred about seven years into exile (whereas it is traditionally believed that the war with Khar & Dushan happened in the thirteenth year of the exile).

However, describing a partial eclipse as an annular eclipse may have been one of the many exaggerations that Valmiki employed to make his story much more fascinating.

### Conclusion

Final possibility that emerges that Rama was born on March 27<sup>th</sup>, 1485 BC at about 1 pm since Shravan nakshatra (Sagittarius/Capricorn cusp) was rising at that time. See the position of each of 5 planets below in Table 11:

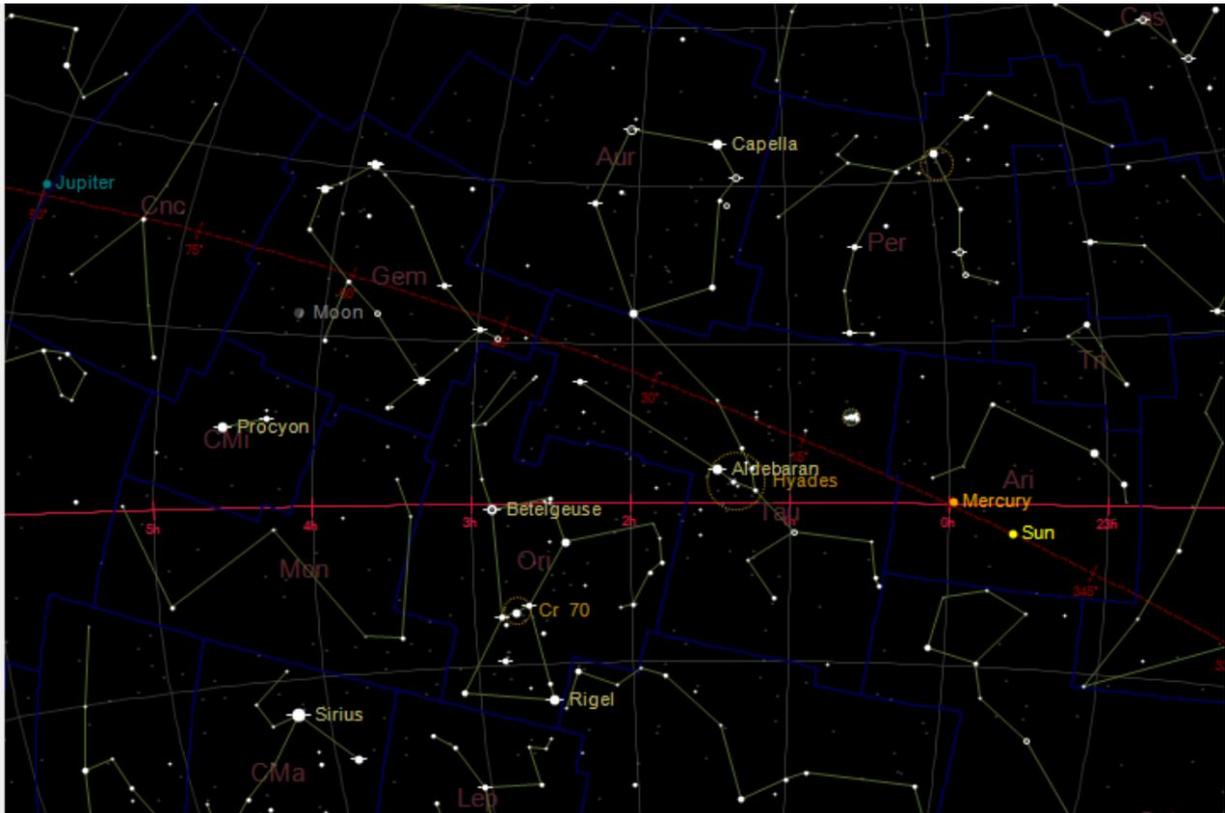
**Table 11**

Planets	Longitude	Constellation	Type
Sun	353.17	Aries	Exalted
Venus	307.32	Pisces	Exalted
Mars	268.33	Capricorn	Exalted
Jupiter	89.57	Cancer	Exalted
Saturn	267.04	Capricorn	Own

Here are screenshots of the Alcyone Ephemeris for this specific time. (Remember that we have to add 1 to the year specified by the software as it counts 0 AD as a valid year).

Ephemeris data													
		Sun		Venus		Moon		Mars		Jupiter		Saturn	
idx	UT+5h 30m	longitude	latitude	longitude	latitude	longitude	latitude	longitude	latitude	longitude	latitude	longitude	latitude
-10	-1484-03-27 03:00	352° 58' 17"	-0° 00' 01"	307° 14' 08"	0° 54' 39"	57° 44' 54"	-4° 07' 21"	268° 20' 16"	-0° 52' 02"	89° 56' 40"	0° 54' 21"	267° 04' 00"	0° 05' 04"
-9	-1484-03-27 04:00	353° 00' 42"	-0° 00' 01"	307° 16' 23"	0° 54' 22"	58° 16' 37"	-4° 09' 11"	268° 21' 57"	-0° 52' 06"	89° 56' 49"	0° 54' 21"	267° 04' 06"	0° 05' 04"
-8	-1484-03-27 05:00	353° 03' 06"	-0° 00' 01"	307° 18' 38"	0° 54' 04"	58° 48' 22"	-4° 10' 59"	268° 23' 38"	-0° 52' 10"	89° 56' 57"	0° 54' 21"	267° 04' 12"	0° 05' 04"
-7	-1484-03-27 06:00	353° 05' 31"	-0° 00' 01"	307° 20' 54"	0° 53' 47"	59° 20' 10"	-4° 12' 46"	268° 25' 19"	-0° 52' 15"	89° 57' 05"	0° 54' 21"	267° 04' 18"	0° 05' 04"
-6	-1484-03-27 07:00	353° 07' 55"	-0° 00' 01"	307° 23' 09"	0° 53' 30"	59° 51' 59"	-4° 14' 31"	268° 27' 00"	-0° 52' 19"	89° 57' 13"	0° 54' 21"	267° 04' 23"	0° 05' 03"
-5	-1484-03-27 08:00	353° 10' 20"	-0° 00' 01"	307° 25' 25"	0° 53' 13"	60° 23' 49"	-4° 16' 16"	268° 28' 41"	-0° 52' 23"	89° 57' 22"	0° 54' 21"	267° 04' 29"	0° 05' 03"
-4	-1484-03-27 09:00	353° 12' 45"	-0° 00' 01"	307° 27' 40"	0° 52' 56"	60° 55' 42"	-4° 17' 59"	268° 30' 22"	-0° 52' 27"	89° 57' 30"	0° 54' 20"	267° 04' 35"	0° 05' 03"
-3	-1484-03-27 10:00	353° 15' 09"	-0° 00' 01"	307° 29' 56"	0° 52' 39"	61° 27' 37"	-4° 19' 41"	268° 32' 03"	-0° 52' 32"	89° 57' 38"	0° 54' 20"	267° 04' 41"	0° 05' 03"
-2	-1484-03-27 11:00	353° 17' 34"	-0° 00' 01"	307° 32' 11"	0° 52' 23"	61° 59' 34"	-4° 21' 22"	268° 33' 45"	-0° 52' 36"	89° 57' 47"	0° 54' 20"	267° 04' 47"	0° 05' 03"
-1	-1484-03-27 12:00	353° 19' 58"	-0° 00' 01"	307° 34' 27"	0° 52' 06"	62° 31' 33"	-4° 23' 02"	268° 35' 26"	-0° 52' 40"	89° 57' 55"	0° 54' 20"	267° 04' 53"	0° 05' 02"
0	-1484-03-27 13:00	353° 22' 23"	-0° 00' 01"	307° 36' 43"	0° 51' 49"	63° 03' 33"	-4° 24' 40"	268° 37' 07"	-0° 52' 45"	89° 58' 03"	0° 54' 20"	267° 04' 59"	0° 05' 02"
1	-1484-03-27 14:00	353° 24' 47"	-0° 00' 01"	307° 38' 59"	0° 51' 32"	63° 35' 36"	-4° 26' 17"	268° 38' 48"	-0° 52' 49"	89° 58' 12"	0° 54' 20"	267° 05' 05"	0° 05' 02"
2	-1484-03-27 15:00	353° 27' 12"	-0° 00' 01"	307° 41' 14"	0° 51' 15"	64° 07' 41"	-4° 27' 53"	268° 40' 29"	-0° 52' 53"	89° 58' 20"	0° 54' 19"	267° 05' 11"	0° 05' 02"
3	-1484-03-27 16:00	353° 29' 36"	-0° 00' 01"	307° 43' 30"	0° 50' 58"	64° 39' 48"	-4° 29' 28"	268° 42' 10"	-0° 52' 58"	89° 58' 29"	0° 54' 19"	267° 05' 16"	0° 05' 02"
4	-1484-03-27 17:00	353° 32' 01"	-0° 00' 01"	307° 45' 46"	0° 50' 41"	65° 11' 57"	-4° 31' 01"	268° 43' 51"	-0° 53' 02"	89° 58' 37"	0° 54' 19"	267° 05' 22"	0° 05' 02"
5	-1484-03-27 18:00	353° 34' 25"	-0° 00' 01"	307° 48' 02"	0° 50' 24"	65° 44' 07"	-4° 32' 33"	268° 45' 32"	-0° 53' 06"	89° 58' 46"	0° 54' 19"	267° 05' 28"	0° 05' 01"
6	-1484-03-27 19:00	353° 36' 50"	-0° 00' 01"	307° 50' 18"	0° 50' 07"	66° 16' 20"	-4° 34' 03"	268° 47' 13"	-0° 53' 11"	89° 58' 54"	0° 54' 19"	267° 05' 34"	0° 05' 01"
7	-1484-03-27 20:00	353° 39' 15"	-0° 00' 01"	307° 52' 34"	0° 49' 50"	66° 48' 36"	-4° 35' 32"	268° 48' 54"	-0° 53' 15"	89° 59' 03"	0° 54' 19"	267° 05' 40"	0° 05' 01"
8	-1484-03-27 21:00	353° 41' 39"	-0° 00' 01"	307° 54' 50"	0° 49' 34"	67° 20' 53"	-4° 37' 00"	268° 50' 35"	-0° 53' 19"	89° 59' 11"	0° 54' 19"	267° 05' 45"	0° 05' 01"
9	-1484-03-27 22:00	353° 44' 04"	-0° 00' 01"	307° 57' 07"	0° 49' 17"	67° 53' 12"	-4° 38' 27"	268° 52' 16"	-0° 53' 24"	89° 59' 20"	0° 54' 18"	267° 05' 51"	0° 05' 01"
10	-1484-03-27 23:00	353° 46' 28"	-0° 00' 01"	307° 59' 23"	0° 49' 00"	68° 25' 33"	-4° 39' 52"	268° 53' 57"	-0° 53' 28"	89° 59' 28"	0° 54' 18"	267° 05' 57"	0° 05' 00"

This is the sky map at the time of King Ram's birth:



**Based on all the astronomical information, it can be concluded that the King Rama was born on March 27th, 1485 & he was exiled on or about February 22nd 1460BC.**

This date fits in neatly with the estimates of the rise of Vedic civilisation, which is believed to have developed after the abrupt demise of Indus Valley civilisation around 21<sup>st</sup> century BC.

The Gangetic civilization would have started with small villages, slowly growing in size to city-states. Sanskrit language would have flourished as well with advancement of culture and civilisation and Valmiki had the intellect, creativity and imagination to build a poetic epic based on the likely actual events of life of Prince Rama of Ayodhya. There is no doubt that the text of Ramayana interpreted in the traditional way leads one to the conclusion that this is too irrational and fanciful to be a real history. However, the author has researched into Ramayana story of Valmiki to reinterpret most of the paranormal events, using the alternative meanings of the words to reveal a rational view of the same events. A future paper will

discuss each of the exaggerations that Valmiki has employed to make rational events into religious and supernatural events for the purposes of making the story entertaining and didactic at the same time.

This paper proves conclusively that Ramayana and Mahabharata are real events documented by their authors using astronomical observations and the Puranas contain logical historical information for genealogies of Indian dynasties, even as they contain many nonsensical exaggerations. Additionally, the timelines calculated based on these astronomical observations are well within the scientifically accepted timelines of advent and growth of Vedic civilisation.

## Exhibits

### Exhibit 1

**Bhavishya Purana – Pratisarg Parv Chapter – Section 1. (page 240 & 241).** All the material for Bhavishya Purana is taken from Geeta Press Hindi translation. (Bhavishya Puran- भविष्य पुराण हिंदी, 1992).

### म्लेच्छवंशीय राजाओंका वर्णन तथा म्लेच्छ-भाषा आदिका संक्षिप्त परिचय

**सुतजीने पुनः कहा—**मुने ! द्वापर युगके सोलह हजार वर्ष शेष कालमें आर्य-देशकी भूमि अनेक कीर्तियोंसे समन्वित रही; पर इतने समयमें कहीं शूद्र और कहीं वर्णसंकर राजा भी हुए। आठ हजार दो सौ दो वर्ष द्वापर युगके शेष रह जानेपर यह भूमि म्लेच्छ देशके राजाओंके प्रभावमें आने लग गयी। म्लेच्छोंका आदि पुरुष आदम, उसकी स्त्री हव्यवती (हौवा) दोनों इन्द्रियोंका दमनकर ध्यानपरायण रहते थे। ईश्वरने प्रदान नगरके पूर्वभागमें चार कोसवाला एक रमणीय महावनका निर्माण किया। पापवृक्षके नीचे जाकर कलियुग सर्परूप धारणकर हौवाके पास आया। उस धूर्त कलियुग हौवाको धोखा देकर गूलरके पत्तोंमें लपेटकर दूधित वायुयुक्त फल उसे खिला दिया, जिससे विष्णुकी आज्ञा भंग हो गयी। इससे अनेक पुत्र हुए, जो सभी म्लेच्छ कहलाये। आदम पत्नीके साथ स्वर्ग चला गया। उसका श्वेत नामसे विख्यात श्रेष्ठ पुत्र हुआ, जिसकी एक सौ बारह वर्षकी आयु कही गयी है। उसका पुत्र अनुह हुआ, जिसने अपने पितासे कुछ कम ही वर्ष शासन किया। उसका पुत्र कीनाश था, जिसने पितामहके समान राज्य किया। महल्लल नामका उसका पुत्र हुआ, उसका पुत्र मानगर हुआ। उसको धिरद नामका पुत्र हुआ और अपने नामसे नगर बसाया। उसका पुत्र विष्णुभक्तिपरायण हनूक हुआ। फलौका

हवन कर उसने अध्यात्मतत्त्वका ज्ञान प्राप्त किया। म्लेच्छधर्मपरायण वह सशरीर स्वर्ग चला गया। इसने द्विजोंके आचार-विचारका पालन किया और देवपूजा भी की, फिर भी वह विद्वानोंके द्वारा म्लेच्छ ही कहा गया। मुनियोंके द्वारा विष्णुभक्ति, अग्निपूजा, अहिंसा, तपस्या और इन्द्रियदमन—ये म्लेच्छोंके धर्म कहे गये हैं। हनूकका पुत्र मतोच्छिल हुआ। उसका पुत्र लोमक हुआ, अन्तमें उसने स्वर्ग प्राप्त किया। तदनन्तर उसका न्यूह नामका पुत्र हुआ, न्यूहके सीम, शम और भाव—ये तीन पुत्र हुए। न्यूह आत्मध्यान-परायण तथा विष्णुभक्त था। किसी समय उसने स्वप्नमें विष्णुका दर्शन प्राप्त किया और उन्होंने न्यूहसे कहा—‘वत्स ! सुनो, आजसे सातवें दिन प्रलय होगा। हे भक्तश्रेष्ठ ! तुम सभी लोगोंके साथ नावपर चढ़कर अपने जीवनकी रक्षा करना। फिर तुम बहुत विख्यात व्यक्ति बन जाओगे। भगवान्की खात मानकर उसने एक सुदृढ़ नौकाका निर्माण कराया, जो तीन सौ हाथ लम्बी, पचास हाथ चौड़ी और तीस हाथ ऊँची थी और सभी जीवोंसे समन्वित थी। विष्णुके ध्यानमें तत्पर होता हुआ वह अपने ऋशियोंके साथ उस नावपर चढ़ गया। इसी बीच इन्द्रदेवने चालीस दिनोंतक लगातार मेघोंसे मूसलधार वृष्टि करायी। सम्पूर्ण भारत सागरीके जलसे प्रदूषित हो गया। चारों सागर मिल गये, पृथ्वी डूब गयी, पर हिमालय पर्वतका बटरी-क्षेत्र पानीसे ऊपर ही रहा, वह नहीं डूब पाया। अट्टासी हजार

ब्रह्मवादी मुनिगण, अपने शिष्योंके साथ वहीं स्थिर और सुरक्षित रहे। न्यूह भी अपनी नौकाके साथ वहीं आकर बच गये। संसारके दोष सभी प्राणी विनष्ट हो गये। उस समय मुनियोंने विष्णुमायाकी स्तुति की।

**मुनियोंने कहा—**‘महाकालीको नमस्कार है, माता देवकीको नमस्कार है, विष्णुपत्नी महालक्ष्मीको, राधादेवीको और रेवती, पुष्यवती तथा स्वर्णवतीको नमस्कार है। कामाक्षी, माया और माताको नमस्कार है। महावायुके प्रभावसे-मेघोंके भयंकर शब्दसे एवं उग्र जलकी धाराओंसे दारुण भय उत्पन्न हो गया है। भैरवि ! तुम इस भयसे हम किंकरोंकी रक्षा करो।’ देवीने प्रसन्न होकर जलकी वृद्धिको तुरंत शान्त कर

दिया। हिमालयकी प्रान्तवर्ती शिविना नामकी भूमि एक वर्षमें जलके हट जानेपर स्थलके रूपमें टीखने लगी। न्यूह अपने वंशजोंके साथ उस भूमिपर आकर निवास करने लगा।

**शौनकने कहा—**मुनीश्वर ! प्रलयके बाद इस समय जो कुछ वर्तमान है, उसे अपनी दिव्य दृष्टिके प्रभावसे जानकर बतलाये।

**सूतजी बोले—**शौनक ! न्यूह नामका पूर्वनिर्दिष्ट म्लेच्छ राजा भगवान् विष्णुकी भक्तिमें लीन रहने लगा, इससे भगवान् विष्णुने प्रसन्न होकर उसके वंशकी वृद्धि की। उसने वेद-शास्त्र और संस्कृतसे बहिर्भूत म्लेच्छ-भाषाका विस्तार किया और कलिकी वृद्धिके लिये ब्राह्मी\* भाषाको अपशब्दवाली भाषा बनाया और उसने अपने तीन पुत्रों—सीम, शम तथा भाषके नाम क्रमशः सिम, हाम तथा याकृत रख दिये। याकृतके सात पुत्र हुए—जुम्र, माजूज, मादी, यूनान, तूबलोम, सक तथा तीरास। इन्हींके नामपर अलग-अलग देश प्रसिद्ध हुए। जुम्रके दस पुत्र हुए। उनके नामोंसे भी देश प्रसिद्ध हुए। यूनानकी अलग-अलग संतानें इलीश, तरलीश, कित्ती और हूटा—इन चार नामोंसे प्रसिद्ध हुईं तथा उनके नामसे भी अलग-अलग देश बसे। न्यूहके द्वितीय पुत्र हाम (शम) से चार पुत्र कहे गये हैं—कुश, मिश्र, कुज, कनर्आ। इनके नामपर भी देश प्रसिद्ध हैं। कुशके छः पुत्र हुए—सषा, हबोल, सर्वत, उरगम, सवतिष्ठा और महाबली निमरुह। इनकी भी कलन, सिना, रोराक, अकट, वायुन और रसनादेशक आदि संतानें हुईं। इतनी बातें ऋषियोंको सुनाकर सूतजी समाधिस्थ हो गये।

## Exhibit 2

## Story of Jesus Christ in Bhavishya Purana (page 273)

एक समयकी बात है, वह शकाधीश शालिवाहन हिमशिखरपर गया। उसने हूण देशके मध्य स्थित पर्वतपर एक सुन्दर पुरुषको देखा। उसका शरीर गोरा था और वह श्वेत वस्त्र धारण किये था। उस व्यक्तिको देखकर शकराजने प्रसन्नतासे पूछा—‘आप कौन हैं?’ उसने कहा—‘मैं ईशपुत्र हूँ और कुमारीके गर्भसे उत्पन्न हुआ हूँ। मैं म्लेच्छ-धर्मका प्रचारक और सत्य-व्रतमें स्थित हूँ।’ राजाने पूछा—‘आपका कौन-सा धर्म है?’

ईशपुत्रने कहा—महाराज ! सत्यका विनाश हो जानेपर मर्यादाहीन म्लेच्छ-प्रदेशमें मैं मसीह बनकर आया और

दसुओंके मध्य भयंकर ईशामसी नामसे एक कन्या उत्पन्न हुई। उसीको म्लेच्छोंसे प्राप्त कर मैंने मसीहत्व प्राप्त किया। मैंने म्लेच्छोंमें जिस धर्मकी स्थापना की है, उसे सुनिये—

‘सबसे पहले मानस और दैहिक मलको निकालकर शरीरको पूर्णतः निर्मल कर लेना चाहिये। फिर इष्ट देवताका जप करना चाहिये। सत्य वाणी बोलनी चाहिये, न्यायसे चलना चाहिये और मनको एकाग्र कर सूर्यमण्डलमें स्थित परमात्माकी पूजा करनी चाहिये, क्योंकि ईश्वर और सूर्यमें समानता है। परमात्मा भी अचल है और सूर्य भी अचल है। सूर्य अनित्य भूतोंके सारका चारों ओरसे आकर्षण करते हैं। हे भूपाल ! ऐसे कृत्यसे वह मसीहा विलीन हो गयी। पर मेरे हृदयमें नित्य विशुद्ध कल्याणकारिणी ईश-मूर्ति प्राप्त हुई है। इसलिये मेरा नाम ईशामसीह प्रतिष्ठित हुआ।’

यह सुनकर राजा शालिवाहनने उस म्लेच्छ-पूज्यको प्रणाम किया और उसे दारुण म्लेच्छ-स्थानमें प्रतिष्ठित किया तथा अपने राज्यमें आकर उस राजाने अश्वमेध यज्ञ किया और साठ वर्षतक राज्य करके स्वर्गलोक चला गया।

## Exhibit 3

### Story of Mohammad (page 274)

#### राजा भोज और महामदकी कथा

सूतजीने कहा—ऋषियो ! शालिवाहनके वंशमें दस राजा हुए। उन्होंने पाँच सौ वर्षतक शासन किया और स्वर्गवासी हुए। तदनन्तर भूमण्डलपर धर्म-मर्यादा लुप्त होने लगी। शालिवाहनके वंशमें अन्तिम दसवें राजा भोजराज हुए। उन्होंने देशकी मर्यादा क्षीण होती देख दिग्विजयके लिये प्रस्थान किया। उनकी सेना दस हजार थी और उनके साथ कालिदास एवं अन्य विद्वान् ब्राह्मण भी थे। उन्होंने सिन्धु नदीको पार करके गान्धार, म्लेच्छ और काश्मीरके शठ राजाओंको परास्त किया तथा उनका कोश छीनकर उन्हें दण्डित किया। उसी प्रसंगमें आचार्य एवं शिष्यमण्डलके साथ म्लेच्छ महामद नामका व्यक्ति तपस्थित हुआ। राजा भोजने मरुस्थलमें विद्यमान महादेवजीका दर्शन किया। महादेवजीको पञ्चगव्यमिश्रित गङ्गाजलसे स्नान करके चन्दन आदिसे भक्तिभावपूर्वक उनका पूजन किया और उनकी स्तुति की।

## Exhibit 4

## सत्ययुगके राजवंशका वर्णन

नारायणं नमस्कृत्य नरं चैव नरोत्तमम् ।

देवीं सरस्वतीं व्यासं ततो जयमुदीरयेत् ॥

'भगवान् नर-नारायणके अवतारस्वरूप भगवान् श्रीकृष्ण एव उनके सखा नरश्रेष्ठ अर्जुन, उनकी लीलाओंको प्रकट करनेवाली भगवती सरस्वती तथा उनके चरित्रोंका वर्णन करनेवाले वेदव्यासको नमस्कार कर अष्टादश पुराण, रामायण और महाभारत आदि जय नामसे व्यपदिष्ट ग्रन्थोंका वाचन करना चाहिये ।'

**महामुनि आचार्य शौनकजीने पूछा—**मुने ! ब्रह्माकी आयुके उत्तरार्धमें भविष्य नामके महाकल्पमें प्रथम वर्षके तीसरे दिन वैवस्वत नामके मन्वन्तरके अट्ठाईसवें सत्ययुगमें कौन-कौन राजा हुए ? आप उनके चरित्र तथा राज्यकालका वर्णन करें ।

**सूतजी बोले—**शेतवाराहकल्पमें ब्रह्माके वर्षके तीसरे दिन सातवें मुहूर्तके प्रारम्भ होनेपर महाराज वैवस्वत मनु उत्पन्न हुए । उन्होंने सरयू नदीके तटपर दिव्य सौ वर्षोंतक तपस्या की और उनकी छींकसे उनके पुत्ररूपमें राजा इक्ष्वाकुका जन्म हुआ ।

ब्रह्माके वरदानसे उन्होंने दिव्य ज्ञानकी प्राप्ति की । राजा इक्ष्वाकु भगवान् विष्णुके परम भक्त थे । उन्हींकी कृपासे उन्होंने छत्तीस हजार वर्षोंतक राज्य किया । उनके पुत्र विकुक्षि हुए, अपने पिता इक्ष्वाकुसे सौ वर्ष कम अर्थात् पैंतीस हजार नौ सौ वर्षोंतक राज्य करके वे स्वर्ग पधार गये । उनके पुत्र रिपुञ्जय हुए और उन्होंने भी पिता विकुक्षिसे सौ वर्ष कम अर्थात् पैंतीस हजार आठ सौ वर्षोंतक राज्य किया । उनके पुत्र ककुत्स्थ हुए । उन्होंने पैंतीस हजार सात सौ वर्षोंतक राज्य किया । उनके पुत्र अनेना हुए, उन्होंने पैंतीस हजार छः सौ वर्षोंतक राज्य किया । अनेनाके पुत्र पृथु नामसे विख्यात हुए । उन्होंने पैंतीस हजार पाँच सौ वर्षोंतक राज्य किया और उनके पुत्र विष्वगश्च हुए, उन्होंने पैंतीस हजार चार सौ वर्षोंतक राज्य किया । उनके पुत्र अद्रि हुए, उन्होंने पैंतीस हजार तीन सौ वर्षोंतक राज्य किया । उनके पुत्र भद्राक्ष हुए, जिन्होंने पैंतीस हजार दो सौ वर्षोंतक राज्य किया । राजा भद्राक्षके पुत्र युवनाश्व हुए, उन्होंने पैंतीस हजार एक सौ वर्षोंतक राज्य किया । उनके पुत्र श्रावस्त हुए । (इन्होंने श्रावस्ती नामकी नगरी बसायी थी ।) उस समय सत्ययुगमें समग्र भारतवर्षमें धर्म अपने तप,

राज्य, दया तथा सत्य चारों चरणोंसे<sup>१</sup> विद्यमान था। इन सभी इक्ष्वाकुवंशी राजाओंने उदयाचलसे अस्ताचलपर्यन्त सम्पूर्ण पृथ्वीपर नीति एवं धर्मपूर्वक राज्य किया। महाराज श्रवस्तने पैंतीस हजार वर्षोंतक राज्य किया। उनके पुत्र बृहदश हुए, उन्होंने चौतीस हजार नौ सौ वर्षोंतक राज्य किया। उनके पुत्र कुञ्जलयाध हुए, उन्होंने चौतीस हजार आठ सौ वर्षोंतक राज्य किया।

महाराज कुञ्जलयाधके पुत्र दृढाश हुए, जिन्होंने अपने पितासे एक हजार वर्ष कम अर्थात् तैंतीस हजार आठ सौ वर्षोंतक राज्य किया। उनके पुत्र निकुम्भक हुए, उन्होंने पितासे एक हजार वर्ष कम अर्थात् बत्तीस हजार आठ सौ वर्षोंतक राज्य किया। उनके पुत्र संकटाश हुए, उन्होंने एक हजार वर्ष कम अर्थात् इकतीस हजार आठ सौ वर्षोंतक राज्य किया। उनके पुत्र प्रसेनजित् हुए, उन्होंने तीस हजार आठ सौ वर्षोंतक राज्य किया। इसके बाद रवणाश हुए, उन्होंने उनतीस हजार आठ सौ वर्षोंतक राज्य किया। उनके पुत्र मान्धाता हुए, उन्होंने अपने पितासे एक सौ वर्ष कम अर्थात् उनतीस हजार सात सौ वर्षोंतक राज्य किया। महाराज मान्धाताके पुत्र पुरुकुत्स हुए, उन्होंने उनतीस हजार छः सौ वर्षोंतक राज्य किया। उनके पुत्र विशदश हुए, उनके रथमें तीस श्रेष्ठ घोड़े जुते रहते थे, इन्होंने वे विशदशके नामसे विख्यात हुए। राजा विशदशके पुत्र अनरण्य हुए, उन्होंने अट्ठाईस हजार वर्षोंतक शासन किया। महाराज अनरण्यके पुत्र पृषदश हुए, वे छः हजार

वर्षोंतक राज्य करके अन्तमें पितृलोकाको चले गये। अनन्तर हर्षशनामके राजा हुए, उन्होंने राजा पृषदशसे एक हजार वर्ष कम अर्थात् पाँच हजार वर्षोंतक राज्य किया। उनके पुत्र वसुमान् हुए, उन्होंने उनसे एक हजार वर्ष कम अर्थात् चार हजार वर्षोंतक राज्य किया। तदनन्तर उनको त्रिधन्वा नामका पुत्र हुआ, उसने अपने पितासे एक हजार वर्ष कम अर्थात् तीन हजार वर्षोंतक राज्य किया। तबतक भारतमें सत्य-युगका द्वितीय पाद समाप्त हो गया।

महाराज त्रिधन्वाके पुत्र ब्रध्वरुणि हुए, वे अपने पितासे एक हजार वर्ष कम अर्थात् दो हजार वर्षोंतक राज्य करके

स्वर्ग चले गये। उनके पुत्र विशंकु हुए और उन्होंने मात्र एक हजार वर्ष राज्य किया। छटाके कारण राजा विशंकु हीनताको प्राप्त हुए। उनके पुत्र हरिश्चन्द्र हुए, इन्होंने बीस हजार वर्षोंतक राज्य किया। उनके पुत्र रोहित हुए, उन्होंने पिताके समान ही राज्य किया। उनके पुत्रका नाम हारीत था। राजा हारीतने भी पिताके समान ही दीर्घकालतक राज्य किया। उनके पुत्र चंचुभूप हुए। पिताके तुल्य वर्षोंतक उन्होंने राज्य किया। उनके पुत्र विजय हुए। इन्होंने भी पिताके तुल्य वर्षोंतक राज्य किया। उनके पुत्र रुक हुए, उन्होंने भी पिताके तुल्य वर्षोंतक राज्य किया। ये सभी राजा विष्णुभक्त थे एवं इनकी सेना बहुत विशाल थी। उनके राज्यमें मणि-स्वर्णकी समृद्धि तथा प्रचुर धन-सम्पत्ति सभीको सुलभ थी। उस समय सत्ययुगका पूर्ण धर्म विद्यमान था।

सत्ययुगके तृतीय चरणके मध्यमें राजा रुक्मके पुत्र महाराज सगर हुए। वे शिवभक्त तथा सदाचार-सम्पन्न थे। उनके (एक रानीसे उत्पन्न साठ हजार) पुत्र सागर नामसे प्रसिद्ध हुए। मुनियोंने तीस हजार वर्षोंतक उनका राज्य-काल माना है। (कपिल मुनिके शापसे) सगर-पुत्र नष्ट हो गये। दूसरी रानीसे असमंजस नामका एक पुत्र हुआ। उनके पुत्र अंशुमान् हुए। उनके दिलीप और दिलीपके पुत्र भगीरथ हुए, जिनके द्वारा पृथ्वीपर लायी गयी गङ्गा भगीरथी नामसे प्रसिद्ध हुई। भगीरथके पुत्र श्रुतसेन हुए। महाराज सगरसे श्रुतसेनतक सभी राजा शैव थे। श्रुतसेनके पुत्र नाभाग तथा नाभागके पुत्र

राजा अम्बरीष अत्यन्त प्रसिद्ध विष्णुभक्त हुए, जिनकी रक्षामें सुदर्शनचक्र रात-दिन नियुक्त रहता था। तबतक भारतमें सत्ययुगका तीसरा चरण समाप्त हो चुका था।

सत्ययुगके चतुर्थ चरणमें महाराज अम्बरीषके पुत्र विम्बुद्वीप हुए, उनके पुत्र अयुताश, अयुताशके पुत्र प्रतुपर्ण, उनके पुत्र सर्वकरम तथा उनके पुत्र कल्पापपाद हुए। कल्पापपादके पुत्र सुदासको वसिष्ठजीके आशीर्वादसे मदन्यन्तीसे उत्पन्न अश्मक (सौदास) नामका पुत्र प्राप्त हुआ। सौदासतकके वे सात राजा वैष्णव कहे गये हैं। गुरुके शापसे सौदासने अङ्गोसहित अपना सम्पूर्ण राज्य गुरुको समर्पित कर

१-मनुस्मृति (१।८५)में तप, ज्ञान, यज्ञ तथा दान—ये धर्मके चार पाद बताये गये हैं।

दिया। गोकर्ण लिङ्ग-भक्त शैव कहा जाता है। राजा अश्मकके पुत्र हरिवर्मा साधुओंके पूजक थे। उनके पुत्र दशरथ (प्रथम) हुए, उनके पुत्र दिलीप (प्रथम) हुए, उनके पुत्र विश्वासह हुए, उन्होंने दस हजार वर्षोंतक राज्य किया। उनके अधर्म-आचरणके कारण उस समय सौ वर्षोंतक भयंकर अनावृष्टि हुई, जिससे उनका राज्य विनष्ट हो गया और रानीके आग्रह करनेपर महर्षि वसिष्ठने यज्ञकर यज्ञके द्वारा खट्वाङ्ग नामक पुत्र उत्पन्न किया। राजा खट्वाङ्गने शस्त्र धारण कर इन्द्रकी सहायतासे तीस हजार वर्षोंतक राज्य किया। तदनन्तर देवताओंसे वर प्राप्त कर मुक्ति प्राप्त की। उनके पुत्र दीर्घबाहु हुए, उन्होंने बीस हजार वर्षोंतक राज्य किया। उनके पुत्र सुदर्शन हुए। महामनीषी सुदर्शनने राजा काशीराजकी पुत्रीसे विवाह कर देवीके प्रसादसे राजाओंको जीतकर धर्मपूर्वक सम्पूर्ण भरतखण्डपर पाँच हजार वर्षोंतक राज्य किया।

एक दिन स्वप्नमें महाकालीने राजा सुदर्शनसे कहा— 'वत्स ! तुम अपनी पत्नीके साथ तथा महर्षि वसिष्ठ आदिसे समन्वित होकर हिमालयपर जाकर निवास करो; क्योंकि शीघ्र ही भीषण इंद्रावातके प्रभावसे भरतखण्डका प्रायः क्षय हो जायगा। पूर्व, पश्चिम आदि दिशाओंके अनेक उपद्वीप इंद्रावातके कारण समुद्रके गर्तमें विलीन-से हो गये हैं। भारतवर्षमें भी आजके सातवें दिन भीषण इंद्रावात आयेगा।' स्वप्नमें भगवतीद्वारा प्रलयका निर्देश पाकर महाराज सुदर्शन प्रधान राजाओं, वैश्यों तथा ब्राह्मणों और अपने परिकरोंके साथ हिमालयपर चले गये और भारतका बड़ा-सा भूभाग समुद्री-तूफान आदिके प्रभावसे नष्ट हो गया। सम्पूर्ण प्राणी विनष्ट हो गये और सारी पृथ्वी जलमग्न हो गयी। पुनः कुछ समयके अनन्तर भूमि स्थलरूपमें दिखलाई देने लगी।

(अध्याय १)



### त्रेतायुगके सूर्य एवं चन्द्र-राजवंशोंका वर्णन

सूतजी बोले—महामुने ! वैशाख मासके शुक्ल पक्षकी तृतीया तिथिमें बृहस्पतिवारके दिन महाराज सुदर्शन अपने परिकरोंके साथ हिमालयपर्वतसे पुनः अयोध्या लौट आये। मायादेवीके प्रभावसे अयोध्यापुरी पुनः विविध अन्न-धनसे परिपूर्ण एवं समृद्धिसम्पन्न हो गयी। महाराज सुदर्शनने<sup>१</sup> दस हजार वर्षोंतक राज्यकर नित्यलोकको प्राप्त किया। उनके पुत्र दिलीप (द्वितीय) हुए, उन्हें नन्दिनी गौके वरदानसे श्रेष्ठ रघु नामक एक पुत्र उत्पन्न हुआ। राजा दिलीपने दस हजार वर्षोंतक भलीभाँति राज्य किया। दिलीपके बाद पिताके ही समान महाराज रघुने भी राज्य किया। भृगुनन्दन ! त्रेतामें ये सूर्यवंशी क्षत्रिय रघुवंशी नामसे प्रसिद्ध हुए। ब्राह्मणके वरदानसे उनके अन्न नामक पुत्र हुआ, उन्होंने भी पिताके समान ही राज्य किया। उनके पुत्र महाराज दशरथ (द्वितीय) हुए, दशरथके पुत्ररूपमें (भगवान् विष्णुके अवतार) स्वयं राम उत्पन्न हुए। उन्होंने ग्यारह हजार वर्षोंतक राज्य किया। श्रीरामके पुत्र कुशने दस हजार वर्षोंतक राज्य किया। कुशके

पुत्र अतिथि, अतिथिके नियध, नियधके पुत्र नल<sup>२</sup> हुए, जो शक्तिके परम उपासक थे। नलके पुत्र नभ, नभके पुत्र पुण्डरीक, उनके पुत्र क्षेमधन्वा, क्षेमधन्वाके देवानीक और देवानीकके पुत्र अहीनग तथा अहीनगके पुत्र कुरु हुए। इन्होंने त्रेतामें सौ योजन विस्तारका कुरुक्षेत्र बनाया। कुरुके पुत्र पारियात्र, उनके बलस्थल, बलस्थलके पुत्र उक्थ, उनके वज्रनाभि, वज्रनाभिके पुत्र शङ्खनाभि और उनके व्युत्थनाभि हुए। व्युत्थनाभिके पुत्र विश्वपाल, उनके स्वर्णनाभि और स्वर्णनाभिके पुत्र पुष्पसेन हुए। पुष्पसेनके पुत्र ध्रुवसन्धि तथा ध्रुवसन्धिके पुत्र अपवर्मा हुए। अपवर्माके पुत्र शीघ्रगन्ता, शीघ्रगन्ताके पुत्र मरुपाल और उनके पुत्र प्रसुश्रुत हुए। प्रसुश्रुतके पुत्र सुसंधि हुए। उन्होंने पृथ्वीके एक छोरसे दूसरे छोरतक राज्य किया। उनके पुत्र अमर्षण हुए। उन्होंने पिताके समान राज्य किया। उनके पुत्र महाश्व, महाश्वके पुत्र बृहद्दल और इनके पुत्र बृहदैशान हुए। बृहदैशानके पुत्र मरुक्षेप, उनके वत्सपाल और उनके पुत्र वत्सव्यूह हुए। वत्सव्यूहके पुत्र राजा

१-राजा सुदर्शनकी विनष्ट कथा देवीभागवतके तृतीय स्कन्धमें प्राप्त होती है।

२-वे नल दमयन्तीके पति अत्यन्त प्रसिद्ध महाराज नलसे भिन्न हैं।

प्रतिश्रयोम हुए। उनके पुत्र देवकर और उनके पुत्र सहदेव हुए। सहदेवके पुत्र बृहदक्ष, उनके भानुरत्न तथा भानुरत्नके सुप्रतीक हुए। उनके मरुदेव<sup>1</sup> और मरुदेवके पुत्र सुनक्षत्र हुए। सुनक्षत्रके पुत्र केशीनर, उनके पुत्र अन्तरिक्ष और अन्तरिक्षके पुत्र सुवर्णाङ्ग हुए। सुवर्णाङ्गके पुत्र अमिश्रजित्, उनके पुत्र बृहद्राज और बृहद्राजके पुत्र धर्मराज हुए। धर्मराजके पुत्र कृतञ्जय और उनके पुत्र रणञ्जय हुए। रणञ्जयके पुत्र सञ्जय, उनके पुत्र शाक्यवर्धन और शाक्यवर्धनके पुत्र क्रोधदान हुए। क्रोधदानके पुत्र अतुलविक्रम, उनके पुत्र प्रसेनजित् और प्रसेनजित्के पुत्र शुद्धक हुए। शुद्धकके पुत्र सुरथ हुए। ये सभी महाराज रघुके वंशज तथा देवीकी आराधनामें रत रहते थे। यज्ञ-यागादिमें तत्पर रहकर अन्तमें इन सभी राजाओंने स्वर्गलोक प्राप्त किया। जो बुद्धके वंशज हुए, ये सब पूर्ण शुद्ध क्षत्रिय नहीं थे।

## Exhibit 5

**Nakshatra List**

#	Name	Associated stars	Rashi	Deity
1	Ashvini	$\beta$ and $\gamma$ Arietis	Mesha	Ashvins
2	Bharani	35, 39, and 41 Arietis	Mesha	Yama, god of death or Dharma
3	Krittika	Pleiades	Mesha/ Vrishabha	Agni, god of fire
4	Rohini	Aldebaran	Vrishabha	Brahma or Prajapati, the Creator
5	Mrigashīrsha	$\lambda$ , $\phi$ Orionis	Vrishabha/ Mithuna	Soma, Chandra, the Moon god
6	Ardra	Betelgeuse	Mithuna	Rudra, the storm god
7	Punarvasu (dual)	Castor and Pollux	Mithun/Karka	Aditi, mother of the gods
8	Pushya	$\gamma$ , $\delta$ and $\theta$ Cancri	Karka	Bṛhaspati, priest of the gods
9	Āshleshā	$\delta$ , $\epsilon$ , $\eta$ , $\rho$ , and $\sigma$ Hydrae	Karka	Deity : Sarpas or Nagas, deified snakes
10	Maghā	Regulus	Simha	Pitrs, 'The Fathers', family ancestors
11	Pūrvā Phalgunī	$\delta$ and $\theta$ Leonis	Simha	Bhaga, god of marital bliss and prosperity
12	Uttara Phalgunī	Denebola	Simha/Kanya	Aryaman, god of patronage and favours
13	Hasta	$\alpha$ , $\beta$ , $\gamma$ , $\delta$ and $\epsilon$ Corvi	Kanya	Saviti or Surya, the Sun god
14	Chitra	Spica	Kanya/Tula	Tvastar or Vishvakarman, the celestial architect
15	Swāti	Arcturus	Tula	Vayu, the Wind god
16	Vishakha	$\alpha$ , $\beta$ , $\gamma$ and $\iota$ Librae	Tula/ Vrishchika	Indra, chief of the gods; Agni, god of Fire
17	Anuradha	$\beta$ , $\delta$ and $\pi$ Scorpionis	Vrishchika	Mitra, one of Adityas of friendship and partnership
18	Jyeshtha	$\alpha$ , $\sigma$ , and $\tau$ Scorpionis	Vrishchika	Indra, chief of the gods
19	Mula	$\epsilon$ , $\zeta$ , $\eta$ , $\theta$ , $\iota$ , $\kappa$ , $\lambda$ , $\mu$ and $\nu$ Scorpionis	Dhanu	Nirrti, goddess of dissolution and destruction
20	Purva Ashadha	$\delta$ and $\epsilon$ Sagittarii	Dhanu	Apah, god of Water

21	Uttara Ashadha	$\zeta$ and $\sigma$ Sagittarii	Dhanu/ Makara	Visvedevas, universal gods
22	Abhijit/Shravan	$\alpha$ , $\epsilon$ and $\zeta$ Lyrae - Vega	Dhanu/ Makara	Vishnu, preserver of universe
23	Dhanishta	$\alpha$ to $\delta$ Delphini	Makara/ Kumbha	Eight vasus, deities of earthly abundance
24	Shatabhisha	$\gamma$ Aquarii	Kumbha	Varuna, god of cosmic waters, sky and earth
25	Purva Bhadrapada	$\alpha$ and $\beta$ Pegasi	Kumbha/ Meena	Ajikapada, an ancient fire dragon
26	Uttara Bhādrapadā	$\gamma$ Pegasi and $\alpha$ Andromedae	Meena	Ahir Budhyana, serpent or dragon of the deep
27	Revati	$\zeta$ Piscium	Meena	Pushan, nourisher, the protective deity

## Exhibit 6

**Genealogy Between Ramayana & Mahabharata as per various Puranas for Ikshvaku Dynasty**

#	Vishnu	Bhagavad	Bhavishya	Brahma	Matsya
1	Ram	Ram	Ram	Ram	Ram
2	Kush	Kush	Kush	Kush	Kush
3	Atithi	Atithi	Atithi	Atithi	Atithi
4	Nishadh	Nishadh	Nishadh	Nishadh	Nishadh
5	Anal		Nal	Nal	Anal
6	Nabhas	Nabhas	Nabhas	Nabh	Nabhas
7	Pundarik	Pundarik	Pundarik	Pundarik	Pundarik
8	Kshemdhanva	Kshemdhanva	Kshemdhanva	Khemdhanva	Kshemdhanva
9	Devanik	Devanik	Devanik	Devanik	Devanik
10	Ahinagu	Aniha	Anihag	Ahinagu	Ahinagu
11			Kuru		
12	Paripatra	Paripatra	Pariyatra	Sudhanva	Sahrashva
13	Deval	Balasthala	Balasthala		Chandraylok
14	Vachal			Shal	Tarapeed
15	Ukta		Ukta	Uky	Chandragiri
16	Vajranabh	Vajranabh	Vajranabh	Vajranath	Bhanu
17	Sankhanab	Sagan	Sankhanab		Shrutayu
18	Abhyutthistasva	Vidhriti	Vyutthnabhi	Nal	Nal
19	Vishvasaha		Vishvapal		
20	Hiranyanabh	Hiranyanabh	Swarnanabh		
21	Pushya	Pushya	Pushpa		
22	Dhruvasandhi	Dhruvasandhi	Dhruvasandhi		
23	Sudharashana	Sudharashana			
24	Agnivarma	Agnivarma	Apavarma		
25	Shighra	Shighra	Shighraganta		
26	Maru	Maru	Marupal		
27	Prashushruta	Prashushruta	Prashushruta		
28	Susandhi	Sandhi	Susandhi		
29	Amarsha	Amarshan	Amarshan		
30	Sahasvan	Mahasvana	Mahasvana		
31	Vishrutavat	Vishvabahu			
32	Vrhadbala	Prasenjiti			
33		Takshak			
34		Vrhadbala	Vrhadbala		
<b>Count</b>	<b>31</b>	<b>29</b>	<b>29</b>	<b>15</b>	<b>17</b>

## Exhibit 7

**Genealogy Between Mahananda & Mahabharata as per various Puranas for Ikshvaku Dynasty**

#	Vishnu	Bhavishya	Bhagavad
1	Brihadbala	Brihadbala	Brihadbala
2	Brihadkshan	Brihadkshan	Brihadrana
3	Urukshay	Murukshep	Ūrukriya
4		Vatsapal	
5	Vatsavyuh	Vatsavyuh	Vatsavridha
6	Prativyoma	Prativyoma	Prativyoma
7			Bhanu
8	Divakar	Devakar	Divâka
9	Sahadeva	Sahadeva	Sahadeva
10	Brihadas'va	Brihadas'va	Brihadas'va
11	Bhanurath	Bhanurath	Bhânumân
12	Pratikâs'va		Pratikâs'va
13	Supratîka	Supratîka	Supratîka
14	Marudeva	Marudeva	Marudeva
15	Sunkshatra	Sunkshatra	
16	Kinnar	Keshinar	
17	Antariksh	Antariksh	
18	Suparn	Suvarnang	Sutapâ
19	Amitrajit	Amitrajit	Amitrajit
20	Brihadrâja	Brihadrâja	Brihadrâja
21	Dharmee	Dharmaraj	Barhi
22	Kritanjay	Kritanjay	Kritañjaya
23	Rananjay	Rananjay	Ranañjaya
24	Sanjay	Sanjay	Sañjaya
25	Shakya	Shakyavardhan	S'âkyâ
26	Shuddhodhan	Krodhadan	S'uddhoda
27	Rahul	Atulvikram	Lângala
28	Prasenjrit	Prasenjrit	Prasenjrit
29	KShudrak	Shudrak	Kshudraka
30	Kundak		Ranaka
31	Suratha	Suratha	Suratha
32	Sumitra		Sumitra
<b>Count</b>	<b>30</b>	<b>28</b>	<b>28</b>

## Exhibit 8

**Genealogy From Beginning of the Ikshvaku Dynasty till King Rama as per various Puranas**

#	Bhagavat	Brahma	Vayu	Vishnu	Bhavishya
1	Ikshvâku	Ikshvâku	Ikshvâku	Ikshvâku	Ikshvâku
2	Vikukshi	Vikukshi	Vikukshi	Vikukshi	Vikukshi
3	Purañjaya	Purañjaya	Purañjaya	Purañjaya	Kakutstha
4	Anenâ	Anenâ	Anenâ	Anenâ	Anenâ
5	Prithu	Prithu	Prithu	Prithu	Prithu
6	Vis'vagandhi	Vishtarashva	Vishtarashva	Vishvagashva	Vishvagashva
7	Chandra	Ardra	Andhra	Aardra	Adri
8					Bhadrashva
9	Yuvanâs'va	Yuvanâs'va	Yuvanâs'va	Yuvanâs'va	Yuvanâs'va
10	S'râvasta	S'râvasta	S'râvasta	S'râvasta	Shravast
11	Brihadâs'va	Brihadâs'va	Brihadâs'va	Brihadâs'va	Brihadâs'va
12	Kuvalayâs'va	Kuvalayâs'va	Kuvalayâs'va	Kuvalayâs'va	Kuvalayâs'va
13	Dridhâs'va's	Dridhâs'va's	Dridhâs'va's	Dridhâs'va's	Dridhâs'va's
14	Haryas'va	Haryas'va	Haryas'va	Haryas'va	
15	Nikumbha	Nikumbha	Nikumbha	Nikumbha	Nikumbha
16	Bahulâs'va	Sahantash	Samhataśva	Sanhataśva	Sankataśva
17	Kris'âs'va	Kris'âs'va	Kris'âs'va	Kris'âs'va	
18	Senajit	Prasenjit	Prasenjit	Prasenjit	Prasenjit
19	Yuvanâs'va	Yuvanâs'va	Yuvanâs'va	Yuvanâs'va	Ravanasva
20	Mândhâtâ	Mândhâtâ	Mândhâtâ	Mândhâtâ	Mândhâtâ
21	Purukutsa	Purukutsa	Purukutsa	Purukutsa	Purukutsa
22	Trasaddasyu	Trasaddasyu	Trasaddasyu	Trasaddasyu	Trasaddasva
23		Sambhrut	Sambhrut	Sambhrut	
24	Anaranya		Anaranya	Aranya	Anaranya
25			Trasaddasva	Prasadasva	Prasadasva
26	Haryas'va		Haryasva	Haryas'va	Haryas'va
27	Prâruna			Sumanas	Vasuman
28	Tribandhana	Tridhanva	Tridhanva	Tridhanva	Tridhanva
29		Thrayaruni	Thrayaruna	Trayyaruna	Trayyaruni
30	Tris'anku	Satyavrat-Trishanku	Satyavrat-Trishanku	Tris'anku	Tris'anku
31	Haris'candra	Haris'candra	Haris'candra	Haris'candra	Haris'candra
32	Rohita	Rohita	Rohita	Rohitaswa	Rohita
33	Harita	Harita	Harita	Harita	Harita
34	Champa	Chanyu	Chanyu	Chunchu	Canchubhoo p

35	Sudeva				
36	Vijaya	Vijaya	Vijaya	Vijaya	Vijaya
37	Bharuka	Ruruk	Ruruk		Ruruk
38	Vrika	Vrika	Vrika	Vrika	
39	Bâhuka	Bâhuka	Bâhuka	Bahu	
40	Sagara	Sagara	Sagara	Sagara	Sagara
41	Asmanjas	Asmanjas	Asmanjas	Asmanjas	Asmanjas
42	Ansuman	Ansuman	Ansuman	Ansuman	Ansuman
43	Dilipa	Dilipa	Dilipa	Dilipa	Dilipa
44	Bhagiratha	Bhagiratha	Bhagiratha	Bhagiratha	Bhagiratha
45	Shrut	Shrut	Shrut	Shrut	Shrutsena
46	Nâbha	nabhag	nabhag	nabhag	nabhag
47		Ambarish	Ambarish	Ambarish	Ambarish
48	Sindhudwip	Sindhudwip	Sindhudwip	Sindhudwip	Sindhudwip
49	Ayutâyu	ayutajit	ayutajit	ayutsva	Ayutâyu
50	Ritûparna	Rituparna	Rituparna	Rituparna	Ritûparna
51	Sarvakâma	atuparni	atuparni	sarvakarma	Sarvakâma
52					Kalmashpad
53	Sudâsa	Sudas	Sudas	Sudas	Sudâsa
54	Saudasa	Saudasa	Saudasa	Saudasa	Saudasa
55		sarvakarma	sarvakarma	Asmaka	Asmaka
56	Mulaka	Anaranya	Anaranya	Mulaka	Harivarma
57	Das'aratha 1st			Dashrath 1st	Das'aratha 1st
58		Animitra	Animitra	Ilavala	Dilipa 1st
59	Vis'vasaha			Vishvasaha	Vis'vasaha
60	Khathvânga				Khathvânga
61	Dirghabahu	Dululaha	Dululaha	Dirghabahu	Dirghabahu
62					Sudarshan
63		Dilipa 2nd	Dilipa 2nd	Dilipa 2nd	Dilip 2nd
64	Raghu	Raghu	Raghu	Raghu	Raghu
65	Aja	Aja	Aja	Aja	Aja
66	Dasharatha	Dasharatha	Dasharatha	Dasharatha	Dasharatha
67	Rama	Rama	Rama	Rama	Rama
<b>Coun t</b>	<b>57</b>	<b>56</b>	<b>59</b>	<b>61</b>	<b>61</b>

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