3067BCE

A Fresh Perspective on the Astronomy of the Mahabharata War

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Dedicated To
My Gurus and Divine Mother Kali

Foreword

3067BCE: A Fresh Perspective on the Astronomy of the Mahabharata

This book was one of the nominations for the Lakatos Award of 2021

I made the film "Krishna: History or Myth" in 2008 after a set of severe arguments on the subject of the historicity of Sri Krishna and Sri Rama, one of which was with a junior doctor when working as a surgeon in 2002 in the West Midlands. I had come across several pieces of research which claimed to corroborate the astronomy of the Mahabharata war. Amongst these were the research by PV Vartak, (5561BCE) a senior MBBS doctor residing in Pune who I have had the pleasure of meeting years ago in Pune, the research by Dr Narahari Achar from Memphis (3067BCE), Balakrishna and Sengupta (2449BCE) among others. I never wanted to really make a film on the subject, but nobody else was willing, partly due to the cost involved in the shooting of such a film (those were the days when digital film cameras were only just about becoming affordable) and of the course nobody wanted to take the risk of making a film which most Indian, English language, Hinduphobic channels would not show. I also had to check and see which piece of research was actually true: 5561BCCE, 3067BCE, 3139BCE, 3043BCE or indeed 1478BCE or 2449BCE among others. It took me a lot of time to go through the various pieces of research from 2004 to 2007 and eventually after taking great care to exclude the wrong pieces of research, I sat down and corroborated the research on Redshift. It was a laborious process in those days and computers used to crash more often after even basic searches. Only after I was satisfied that 3067BCE was the year of the war did I dare make the film "Krishna History or Myth". It would be very difficult for me to make a film whose featured research could be easily debunked. Hence I ended up featuring the war proposal of 3067BCE, which is perhaps the most credible dating effort of the Mahabharata

war ever proposed, in my film with interviews by Dr Narahari Achar. The film became a major success with screenings in 30+ countries and +1.5 million views at least.

Then in 2015, I came across a set of different pieces of research by various researchers including Shri Nilesh Oak, which challenged the basis of 3067BCE and claimed that other dates (and only their dates) were the date of the war. I started examining these claims afresh and eventually last year in 2019, I started to re-read the Mahabharata and undertook a deep study of the astronomy references (I dug up my old 2008 notes on the Mahabharata). I eventually arrived at a modified theory of 3067BCE which includes a Tri- Pushya theory (for Krishna's Mission of Peace), a new theory of Balarama's pilgrimage, a new war theory to fix the 18th day of the war instead of the first day (thereby changing the first day of the war) and a fresh reasoning for Bhisma Moksha. I also took a completely different view of the entire comet theory of the Mahabharata, the reasoning for Saturn's position at Rohini and indeed Jupiter's position during the 17th day of the war. I have verified the astronomy surrounding Karna's death and corroborated the 4 timelines of the war, providing scientific reasoning why these conditions are not fulfilled in other astronomy proposals. Dr Achar has given a fresh theory for Gautam Buddha's Nirvana too. We have also provided a complete rebuttal of some dates for the war, 5561BCE gets a special chapter as does the so called "revolutionary theory of Vakra motion" which has been rebutted. Rebuttals to other dating efforts will feature on my blog as and when I have the time.

I hope that this will serve as learning material for those people who come to learn the astronomy of the Mahabharata in the future. There are some short film links included in this book in various chapters which will clearly illustrate my point as well.

I would like to reiterate that 3067BCE is the only viable date of the Mahabharata war.

I would like to give my deep and heartfelt gratitude to all my Gurus, the Divine Mother Kali, and Dr Narahari Achar. I would like to thank my late parents and especially my late father for all his support. I would also like to thank Smt. Jayasree Saranathan and of course Nilesh Oak whose challenge was partly what made me learn the astronomy of the Mahabharata in this manner. I would also

like to thank PVR Narasimha Rao whose free software JHora made my life somewhat easier and DK Hari and Anuraag Saxena who provided me encouragement in this endeavour.

I hope that this book will provide learning material for people who attend my free workshops on the Mahabharata. These are announced on my Twitter handle at regular intervals @mmpandit and on my astronomy Wordpress blog.

Those who wish to look at my spiritual blog can go to: Je Suis

My films are mostly available on two sites:

1: YouTube site: https://www.youtube.com/user/SaraswatiFilms

2: www.saraswatifilms.org

I will slowly update the blog and my Twitter site with many more learning links and short films. Following me on Twitter and Facebook (my page is Saraswati Films) ensures that one can see all my films as they arrive.

Thanks

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Krishnamurti Jyotisha Visharad

Released on Hanuman Jayanti 2020
Jai Hanuman

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Further Reading and Learning:

1: **Book 3: Criteria Governing the Astronomy of the Mahabharata War:**

https://www.academia.edu/51214389/Criteria_Governing_The_Astronomy_of_the_Mahabharata_War

2. **PGURUS Episode 1:** 3 ways of computing the date of the Mahabharata war: https://youtu.be/POHHsMlutfU

3. **PGURUS Episode 2:** Finding the date of the Mahabharata war: https://youtu.be/MH6MFZM3Lhg

4. **PGURUS Episode 3:** Textual points of Amavasya, Purnima, Tithis and Nakshatras in the war, Mission of Peace and Balarama's Pilgrimage timelines:

https://youtu.be/wwQaW4EhtVk

5. **Short film: Position of Jupiter during the Mahabharata War**

https://youtu.be/icrE36Wodq4

6. **Short Film: Saturn's Position during the Mahabharata War**

https://youtu.be/g9-RmVeNCRk

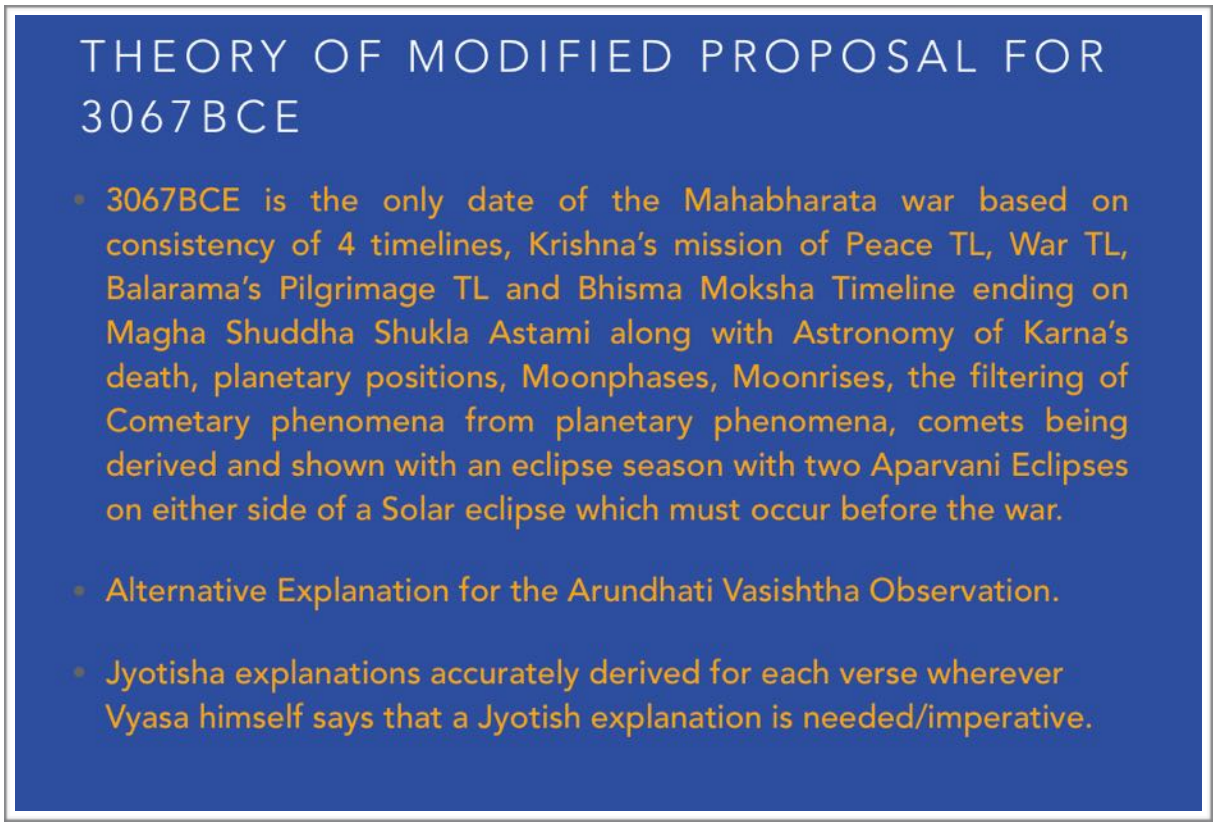
7. **Book 2: Dissection of Theories of the Mahabharata War**

https://www.academia.edu/44792423/3067BCE_Dissection_of_Theories_on_The_Mahabharata

8. **Lokagatha Workshop Part 1 on the Mahabharata War**
https://www.youtube.com/watch?v=o9nX4pjlah8

9. For other workshops subscribe to my Youtube channel:
https://www.youtube.com/user/SaraswatiFilms

Scientific basis of the war proposal of 3067BCE



Dr Manish Pandit

Dec 2019

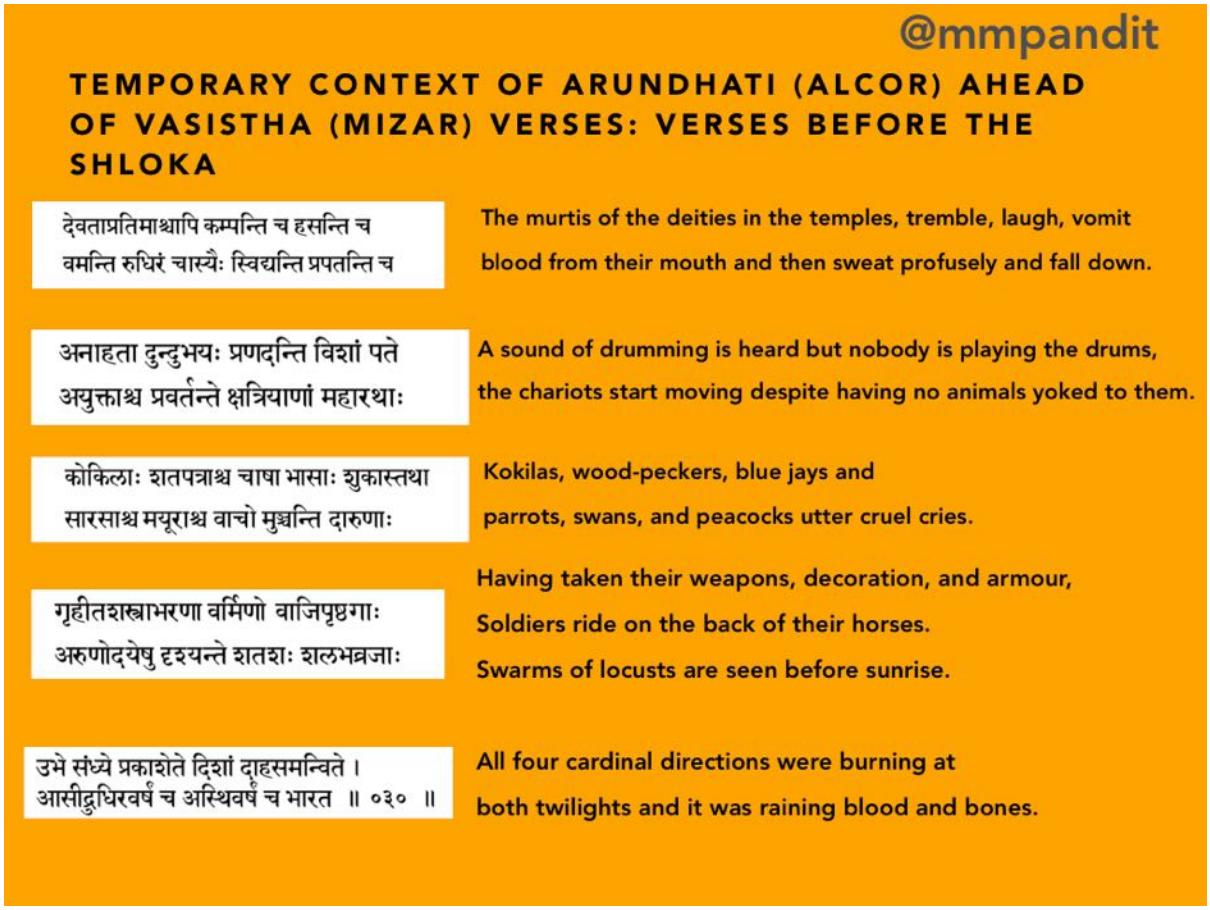
Scientific basis of the war proposal of 3067BCE

The Arundhati Vasistha observation:

The verse in the Mahabharata 02:31 of Bhisma Parva is as below:

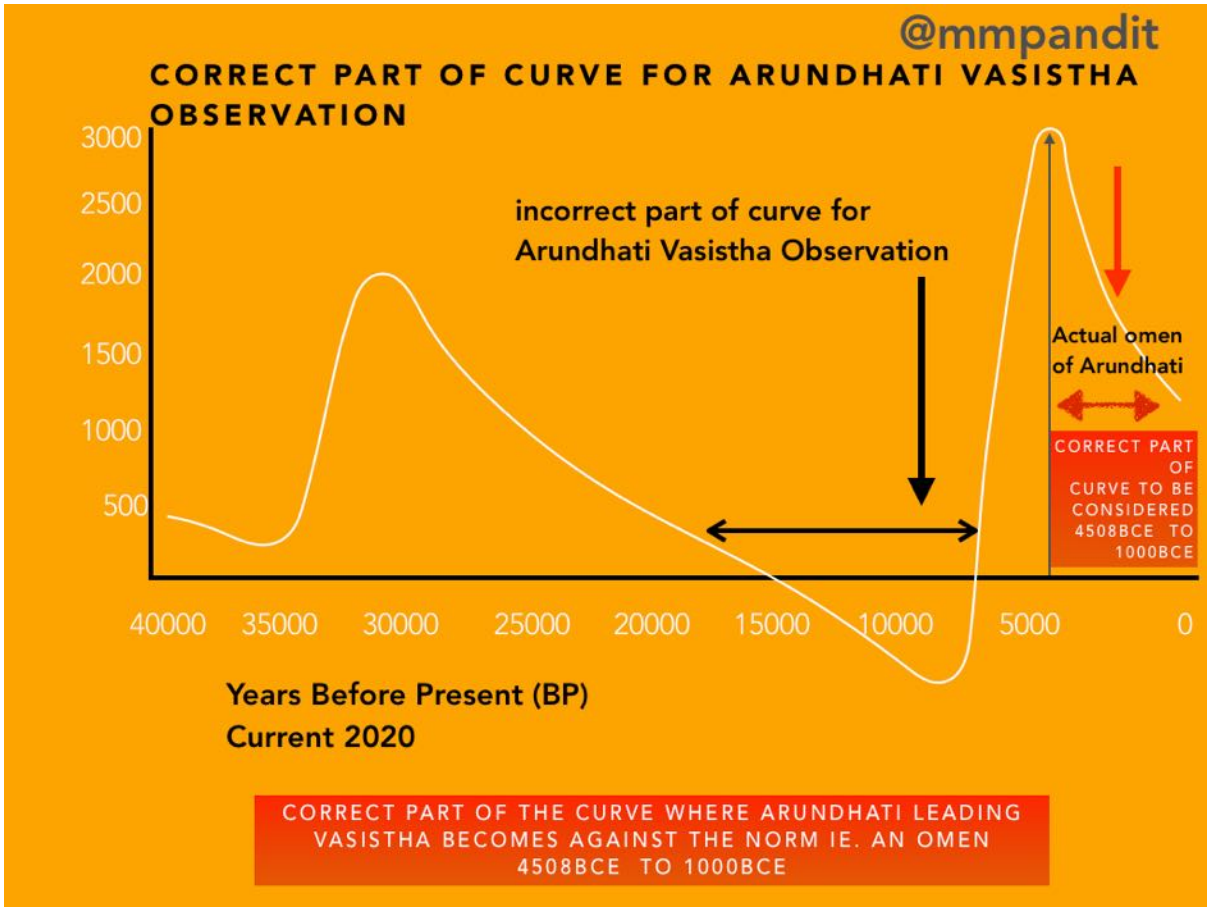
या चैषा विश्रुता राजंस्त्रैलोक्ये साधुसंमता ।
अरुन्धती तयाप्येष वसिष्ठः पृष्ठतः कृतः ॥ ०३१ ॥

We already know that the Arundhati Vasistha observation is an omen based on the context of its verses as follows:



The problem with the observation of Arundhati leading Vasistha in the time period 11091BCE to 4508BCE is that at this point the observation is already happened for approximately 5500 years prior to 5561BCE and around a 1000 years afterward as well. Therefore this observation cannot qualify as an omen in the time period of 11091BCE to 4508BCE.

Hence the only logical answer is that the Arundhati Vasistha observation would only qualify as an omen later than 4508BCE and unto 1000 BCE or so. This actually fits perfectly with the Mahabharata war proposal of 3067BCE.



(We give a longer exposition on the AV observation in chapter 8, page 114 of **Book 2: Dissection of Theories of the Mahabharata War downloadable here:**

https://www.academia.edu/44792423/3067BCE_Dissection_of_Theories_on_The_Mahabharata

Scientific Test of a Theory:
Can 3067BCE be derived from first principles. Is it reproducible?

The first criteria of any piece of research is whether it is reproducible or not. In the case of 3067BCE as our proposed year of the Mahabharata war, we have excluded data sets of Saturn at Vishakha and Mars retrogression at Magha. The former is excluded because a far more likely and logical alternative explanation is found from the text itself which points to two comets near Vishakha which are penetrating the Saptarishi mandala which is at a great distance from Vishakha.

The latter data set of Mars retrograde at Magha is discarded (along with Jupiter retrograde at Shravana) because it requires the Sun to be in two positions at the same time in the same verse (the Sun is required to simultaneously be near Satabhisha and near Pushya which is impossible).

Hence Saturn at Rohini and Mars going retrograde before Jyestha/Antares and at Anuradha are clearly two angles of the triangle which have been used to find the date of the Mahabharata war. Saturn also has the well known reputation of causing calamitous war events during its transit of Rohini nakshatra as famous wars of the last centuries have shown. We explain each of these points in great detail in separate chapters within this book.

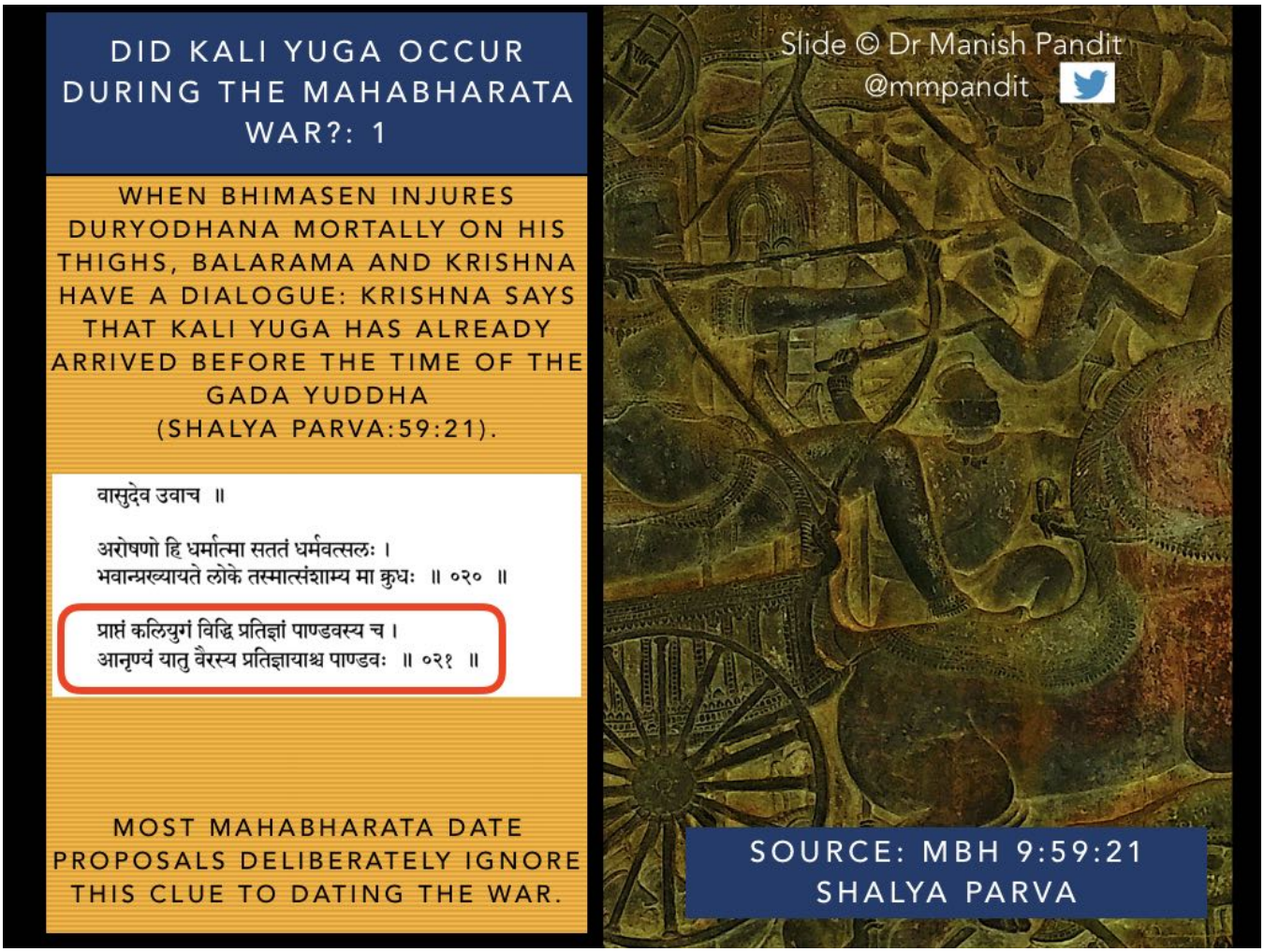
Thus we can clearly see that without taking any recourse to Kaliyuga or anything else, that the basic data points of Saturn at Aldebaran/Rohini between 5600BCE and 500CE can be intersected with Mars going retrograde before Jyestha/Antares and at Anuradha. We can clearly reproduce 210+ data points for Saturn at Aldebaran/Rohini and this set of 210 data points reduces to around 19 data sets when Mars going retrograde before Jyestha/Antares and at Anuradha is intersected with it.

Then the lunar eclipse at Plaeides/Kartika Purnima preceding the Solar eclipse at Jyestha/Antares before the war date is used as a triangulation tool and produces 2 final possible dates 2183BCE and 3067BCE. In 2183BCE, the war must commence on an Amavasya and this is impossible as we know from the late waning phase Eastern sky Moonrise data on the 14th war late night described in Drona Parva chapter 159 verse 42 and hence 3067BCE must be the year of the war. (later the waning phase, the later is the Moonrise in the night)
Thus the 3067BCE war proposal is reproducible from scratch and therefore scientific.

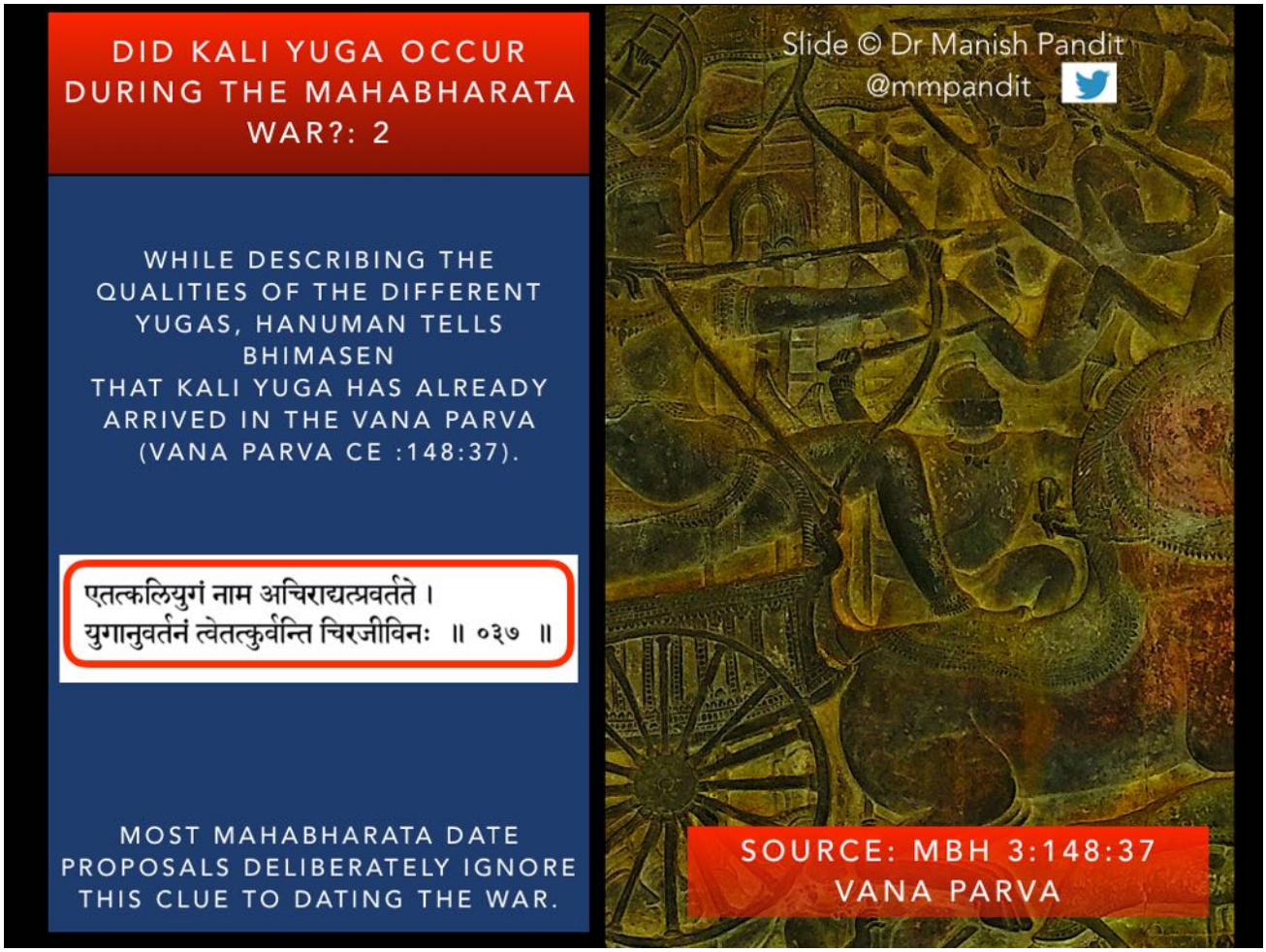
Does the Mahabharata war proposal of 3067BCE depend on Kaliyuga?

The straight answer to this question is a resounding no. However there are multiple points in the Mahabharata text where the text describes that Kaliyuga has already arrived at the time of the Mahabharata war. While we do not require this for our proposal of the Mahabharata war in 3067BCE, it is something which we want to show because many war proposals deliberately ignore this reference as it would exclude their date of the Mahabharata war.

In fact, any date earlier than 3102BCE (for example: 3137/3138/3139/3140 / 3143/ 3162 BCE/ 5561BCE) can therefore be rejected on the basis of these references.



Lets look at the next verse now where Hanuman describes the qualities of the various Yugas.



Lets search for some more evidence for the start of Kali Yuga at the time of the Mahabharata war. In Udyoga Parva Chapter 140, in Karna Krishna Samvada, we find repeated references by Sri Krishna to this fact that it is not Satya Yuga, Treta Yuga or Dwapara Yuga but instead is surely Kali Yuga.

Here are the 5 verses which are testimony to this fact:

Translation: "When you, Karna, see that Arjuna with his Divya Astras such as

गाण्डीवस्य च निर्घोषं विस्फूर्जितमिवाशनेः ।
न तदा भविता त्रेता न कृतं द्वापरं न च ॥ ००७ ॥

the Aindra, Vayavya and Agneya astras and the twang of his mighty bow, the Gandiva, then

it will not be Satya, Treta or Dwapara Yuga but instead it will be Kali Yuga definitely."

आदित्यमिव दुर्धर्षं तपन्तं शत्रुवाहिनीम् ।
न तदा भविता त्रेता न कृतं द्वापरं न च ॥ ००९ ॥

Translation: When you, Karna, see Yudhisthira who is normally engaged in Homa, fighting along with his army like the mighty Aditya, then it will not be Satya, Treta or Dwapara Yuga but instead it will be Kali Yuga definitely.

प्रभिन्नमिव मातङ्गं प्रतिद्विरदघातिनम् ।
न तदा भविता त्रेता न कृतं द्वापरं न च ॥ ०११ ॥

Translation: When you, Karna, see that Bhismasen is drinking the blood of Dushasana and destroying the Elephant army, then it will not be Satya, Treta or Dwapara Yuga but instead it will be Kali Yuga definitely.

विगाढे शस्त्रसंपाते परवीररथारुजौ ।
न तदा भविता त्रेता न कृतं द्वापरं न च ॥ ०१३ ॥

युद्धायापततस्तूर्णं वारितान्सव्यसाचिना ।
न तदा भविता त्रेता न कृतं द्वापरं न च ॥ ०१५ ॥

Translation:

When you, Karna, see that Savyasachi Arjuna has stopped the advance of the mighty Drona, Bhisma, Kripacharya along with Sindhuraja Jayadratha and Duryodhan, then you will be astonished and it will not be Satya, Treta or Dwapara Yuga but instead it will be Kali Yuga definitely.

A further verse in the same chapter also makes the same point.

Lets look a bit further at other points of the modified 3067BCE thesis.

The crucial moonrise detail of the 14th war night is not omitted from our thesis:

We know that the war could never have started on any Amavasya using the Moonrise detail in the Eastern sky of the 14th war night given in chapter 159 of Drona Parva. This indicates a waning phase Moon on the 14th war night which is 4 or 5 days from an Amavasya which must therefore occur at or around the 18th day of the war. In 3067BCE, the Moonphase fits perfectly right from Krishna's Mission of Peace to the 18th day of the war which ends on a Shravana

Nakshatara consistent with an Amavasya on the 12th of Dec 3067BCE exactly was the epic tells us.

The Madhavacharya Tradition and 3067BCE Mahabharata war proposal:

It is well known that the great saint Madhavacharya (said to be a reincarnation of Bhimasen) was born around 1237AD. He had written a beautiful commentary on the Mahabharata wherein he states that Bhimasen was born approximately 4300 years prior to his own advent in 1237AD.

This is the exact verse (courtsey @pranasutra)

चतुः सहस्रे त्रिशतोत्तरे गते संवत्सराणां तु कलौ पृथिव्यां |

जातः पुनर्विप्रतनुः स भीमो दैत्यैर्निगूढं हरितत्त्वमाह || 32-120 ||

This parampara thus brings us to around 3063BCE which is within 4 years of the Mahabharata war. This cannot be a coincidence. This is further indirect corroboration for 3067BCE as the year of the Mahabharata war.

Conclusion:

The modified 3067BCE war proposal is reproducible and therefore scientific. In addition, this theory is the only one to verify all four timelines of the war (including the diplomatic mission of peace timeline, Balarama's pilgrimage timeline, war timeline and Bhisma's moksha timeline). It also verifies the astronomy prevalent at the time of Karna's death and the Tri-Pushya theory with Moonphases.

It makes correct use of the Arundhati Vasistha observation as an omen. It is the only 3K date to be independent of Kali Yuga (all other 3K dates state that the date of Kali Yuga must coincide with the departure of Sri Krishna. 3067BCE is unique in the sense that it does not need to rely on a Mahabharata war proposal at or around 36 years before the advent of Kali Yuga.

You will notice that many researchers mistake all "graha" positions for "planets" or say that "all explanations must be purely astronomy based in nature". I have

THEORY OF MODIFIED PROPOSAL FOR 3067BCE

- 3067BCE is the only date of the Mahabharata war based on consistency of 4 timelines, Krishna's mission of Peace TL, War TL, Balarama's Pilgrimage TL and Bhisma Moksha Timeline ending on Magha Shuddha Shukla Astami along with Astronomy of Karna's death, planetary positions, Moonphases, Moonrises, the filtering of Cometary phenomena from planetary phenomena, comets being derived and shown with an eclipse season with two Aparvani Eclipses on either side of a Solar eclipse which must occur before the war.
- Alternative Explanation for the Arundhati Vasishtha Observation.
- Jyotisha explanations accurately derived for each verse wherever Vyasa himself says that a Jyotish explanation is needed/imperative.

not fallen into this trap, as Vyasa himself has astrological/ Jyotisha explanations for the majority of his observations.

SHORT THEORY OF MODIFIED PROPOSAL FOR 3067BCE

- All Mahabharata observations must be shown to have an explanation which fits logically and accurately with Vyasa's own meaning/ import.

In any case, the modified 3067BCE proposal is able to refute quite comprehensively all dates at or around the 3139BCE mark (3137BCE, 3138BCE, 3139BCE, 3140BCE and 3143BCE war proposals are all refuted)
Some of those findings can be seen here:
https://astronomyofindia.wordpress.com/2020/01/31/why-3139bce-is-an-impossible-date-for-the-mahabharata-war-1-balarama-misses-gada-yuddha/

Further Reading:

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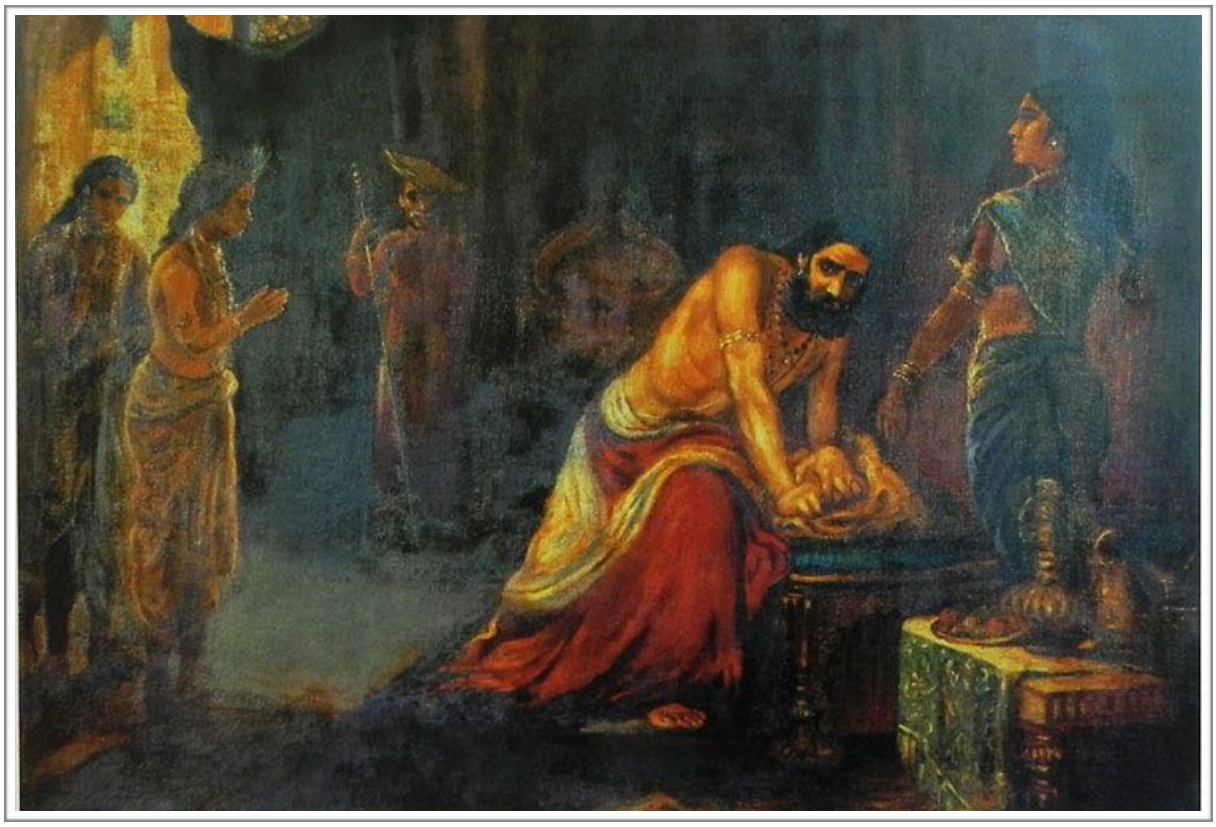
Krishna's mission of Peace



Krishna Pleads with Dhritarashtra to avoid war

Astronomy

Dr Manish Pandit

Dec 2019

Krishna's mission of Peace

Introduction:

Krishna's diplomatic mission of peace forms a series of astronomy observations which are impossible to duplicate in any other year of the war other than 3067BCE. Let us show why this is the case.

Observation 1: Start of the Mission of Peace:

Krishna starts at Upaplavya on a Revati nakshatra day. He reaches Hastinapur three days later. The Moon's transit of each nakshatra takes roughly a day. Thus if he started when the Moon was transiting the start of Revati nakshatra, then he would reach on the third nakshatra from Revati , ie. Bharani nakshatra day. If on the other hand, he started when the Moon was transiting the end of Revati nakshatra, then he would possibly reach on the fourth nakshtra from Revati , ie.

Krittka nakshatra day. Either way, Sri Krishna must reach Hastinapur on a Bharani or at the most, on a Krittika nakshatra day.

Observation 2: Failure of Peace talks on a Pushya Nakshatra day

Peace talks fail a few days later when Duryodhan decides to declare war and that nakshatra is a Pushya nakshatra day. Please note that this Pushya nakshatra day is not the same as the start of Balarama's pilgrimage, a mistake made by many researchers. (see below why this cannot be the case).

The gap between Bharani and Pushya nashatras (not including either) is 5 days. (as the Moon transits the 5 following stars: Krittika, Rohini, Mrigashira, Ardra and Punarvasu nakshatras)

Stringent conditions of the Tri-Pushya Theory: (Three Pushya Theory)

I thought about and formulated the Tri-Pushya theory a long time ago, however, I was only able to put it into concrete form in the few months before Dec 2019. This theory was first presented in the Birmingham workshop of Dec 29th last year.

The Pushya nakshatra of the failure of the Mission of Peace is "Pushya nakshatra number 1" to be followed around 27 days later by "Pushya nakshatra number 2" of Balarama's pilgrimage . In between the Moon's transit of these two Pushya nakshatras separated by around 27 days is the Jyestha nakshatra referred to in Udyoga Parva 140:18 (***Saptamaccchapi Divasaat Amavasya Bhavisyati***".)

Then roughly a further 27 days later is the 3rd Pushya nakshatra which is in the war timeline which must be be present on days 4/5 of the war.

Implicit within the Tri-Pushya Theory are the Moonphases which includes a Kartika Purnima before "Pushya number 1" with a lunar eclipse near Plaeides immediately followed by a Solar eclipse at Jyestha Amavasya. These Moonphases must be and are in exact synchrony right upto the 18th day of the war which must be a Shravana Nakshatra and an Amavasya some point late on that 18th war day.

Observation 3: 4 days after observation 2 above at Pushya Nakshatra, Krishna rides with Karna and there are 4 further observations made:

Krishna says as per Udyoga 140:18 that "there is an Amavasya occurring at the nakshatra ruled by Indra (at Jyestha) and war preparations must be started on that day"

सप्तमाच्चापि दिवसादमावास्या भविष्यति ।
सङ्ग्रामं योजयेत्तत्र तां ह्याहुः शक्रदेवताम् ॥ ०१८ ॥

Thus if there is a New moon or Amavasya day which occurs on the 7th day from the day of the Krishna-Karna Samvada, then the day of Krishna-Karna Samvada must be a Krishna Paksha (waning phase) Asthami day. If we calculate backwards, then the day on which Sri Krishna arrives at Hastinapur must be a Purnima and is 15 Tithies behind the Amavasya at Jyestha Nakshtra which is about to happen.

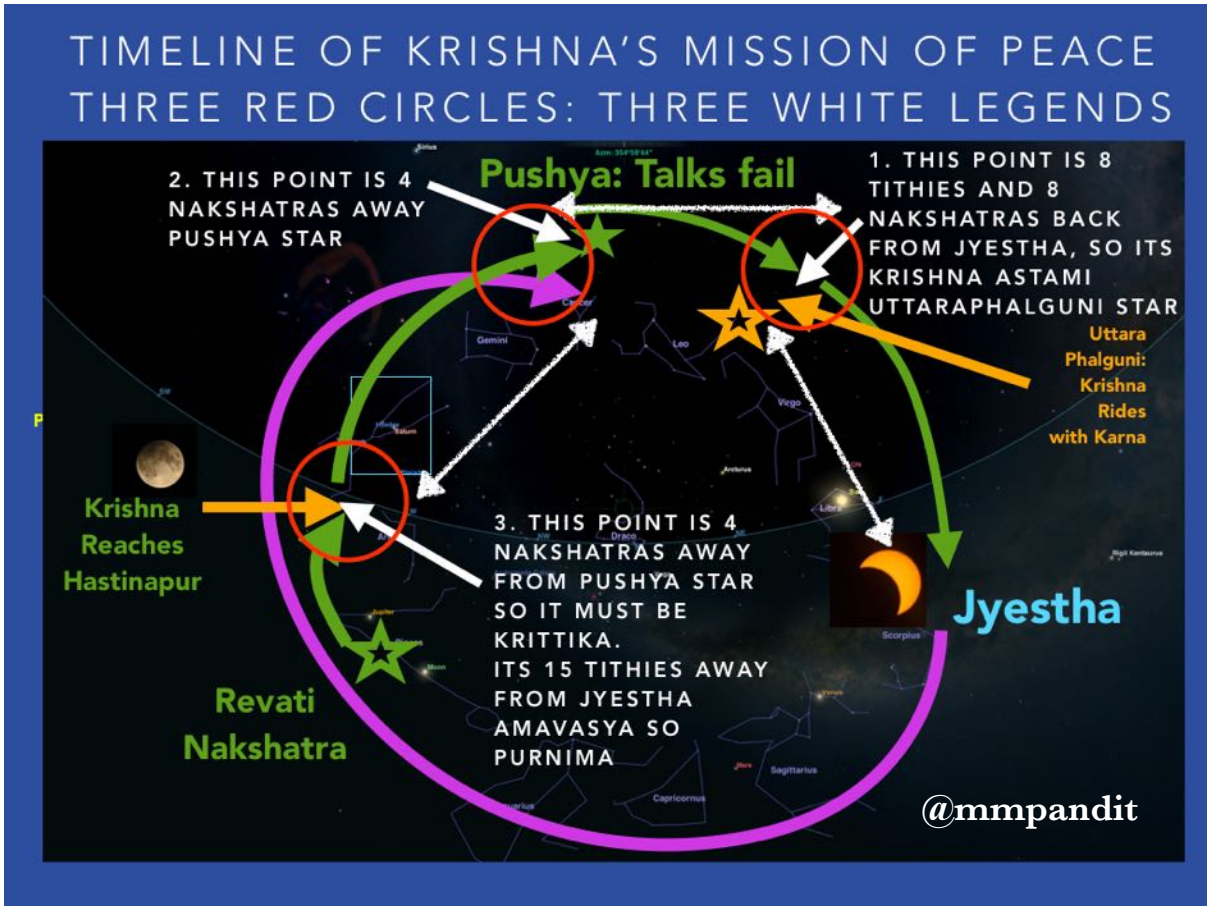
On the the day of the Samvada between Sri Krishna and Karna, (Krishna Astami), Karna makes three important observations which we discuss in great detail in relevant chapters (on Saturn and Mars primarily)

One of those observations is important from the view point of this chapter:

सोमस्य लक्ष्म व्यावृत्तं राहुरर्कमुपेष्यति ।
दिवश्चोल्काः पतन्त्येताः सनिर्घाताः सकम्पनाः ॥ ०१० ॥

Karna says in Udyoga Parva, Chapter 141, verse 10, that a lunar eclipse has already occurred and a solar eclipse is about to happen in the near future.

(***the lunar eclipse referred to in past tense and the solar eclipse in future tense: Rahur Arka Mupeshyati)*** Most researchers find it impossible to explain why this verse and its two eclipses must occur before the war. (because the meeting of Karna with Krishna AND Vyasa who meets and explains these observations later to Dhritarashtra are both before the war, hence the eclipses cannot be during or after the war. The Critical Edition supports this completely)



Can we find out the positions of the two eclipses?

Since solar eclipses can only happen on Amavasya days and because he says that a lunar eclipse has already occurred at the time of the conversation between Krishna and Karna, it stands to reason to deduce that the lunar eclipse must have occurred on the Purnima just gone and the solar eclipse must occur on the Jyestha Amavasya that is about to occur in 7 days time.

Observation 4:

There is a verse (Bhisma Parva 02:23) which clearly mentions that the lunar eclipse is to occur at Kartika Purnima (ie. Plaeides). Thus we can infer that this Purnima (full Moon) can only be Bharani nakshatra or Krittika nakshatra.

अलक्ष्यः प्रभया हीनः पौर्णमासीं च कार्त्तिकीम् ।
चन्द्रोऽभूदग्निवर्णश्च समवर्णे नभस्तले ॥ ०२३ ॥

This verse above (Bhisma 02:23) is spoken by Vyasa on the eve of the war as he describes the events already gone by to the King Dhritarashtra.

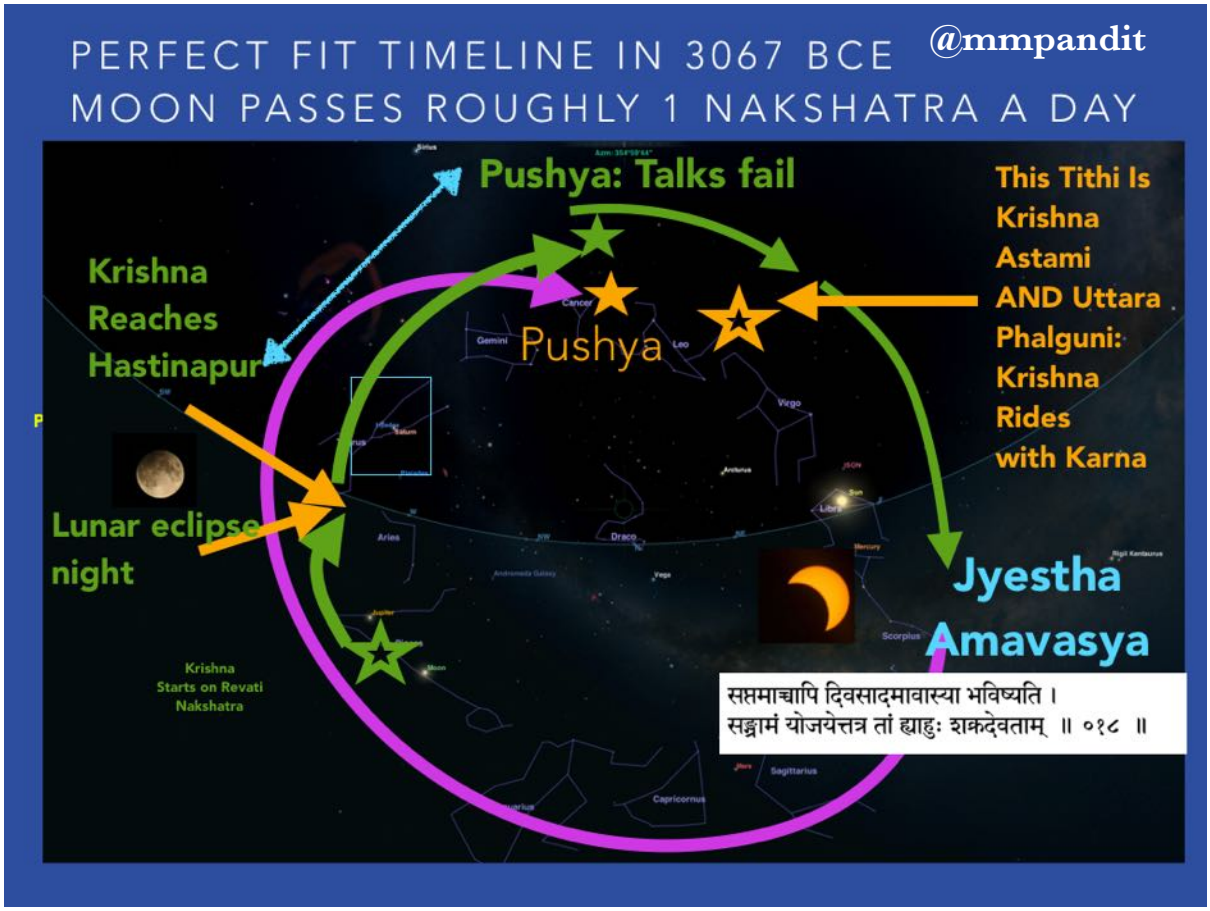
Thus we can clearly establish that the Purnima which has just occurred must have happened at Bharani nakshatra or Krittika nakshatra day and that the lunar eclipse must have occurred on that very Purnima and the solar eclipse will occur on the Jyestha Amavasya that is about to occur in 7 days time.

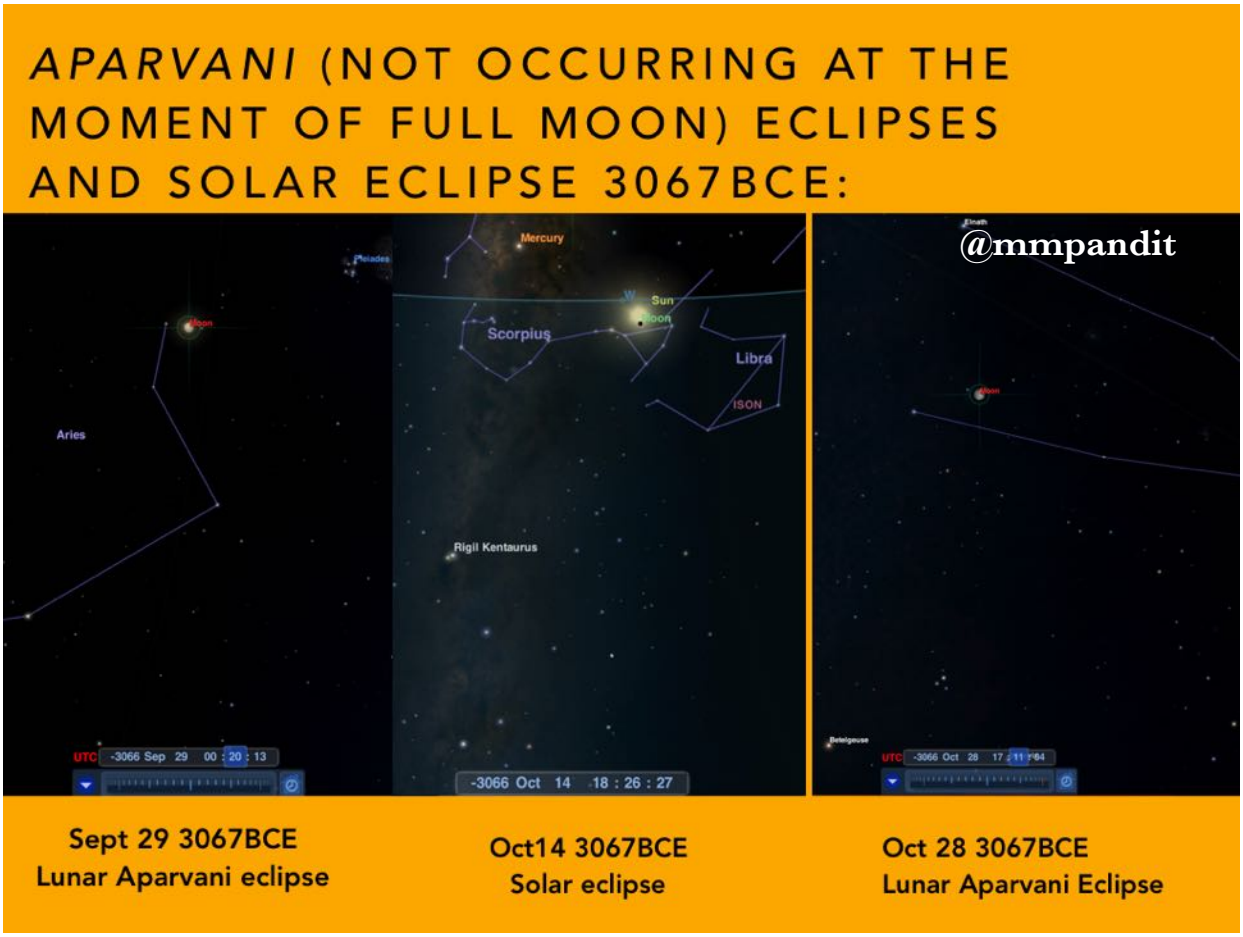
Both of these eclipses we must remember can only happen before the war (and not during it) as these observations clearly show.

Observation 5:

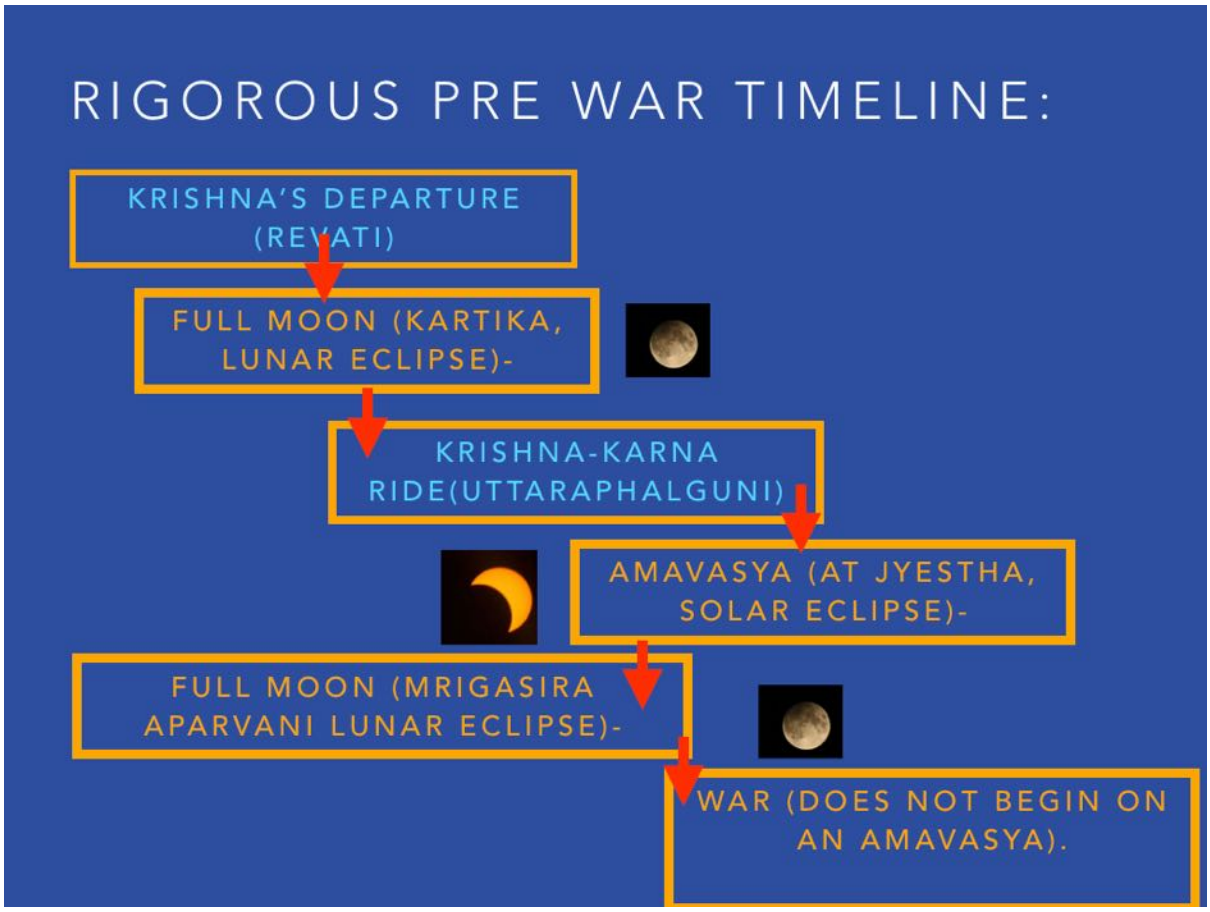
Thus the rigorous sequence for Krishna's Diplomatic Mission of Peace is:

Krishna's departure (Revati)- >Full Moon(Kartika, Lunar eclipse)- > Krishna-Karna ride(Uttaraphalguni)- >Amavasya (at Jyeshtha, solar eclipse)- > war (does not begin on an Amavasya).





If we incorporate all three eclipses (since they are described as Aparvani) hence the ideal requirement is that these eclipses are "Aparvani" or penumbral. The sequence is as follows and fits the Critical edition of the Mahabharata exactly.



This sequence clearly incorporates all the major 5 observations given above in the text of the Mahabharata.

No researcher of the Mahabharata except Dr Achar and me for 3067BCE attempts to verify the pre war timeline of Sri Krishna's Mission of Peace or my Tri-Pushya theory in their war proposal. Most researchers will agree that it is too rigorous to be verified.

In fact out of the 5 observations given above, most researchers only verify one observation . However, in 3067BCE, we corroborate all 5 observations given above and the Tri-Pushya theory along with the lunar eclipse of Sept 29th at Plaeides (Kartika Purnima) followed by the solar eclipse of October 14th at Jyestha followed by the third eclipse at Mrigasira of Oct 28th 3067BC.

The "13 day eclipse pair" conondrum:

Many researchers have been fixated on having a 13 day eclipse pair as "quoted by the Mahabharata". In actual fact, nowhere does it state that exact point. However, keeping that point aside for the moment, let us continue debating this further assuming hypothetically for a moment that this 13 day eclipse pair is indeed mentioned as exactly that in the Mahabharata text.

The 13 day eclipses cannot occur anyway as the distance between a full Moon and a New Moon in succession is a minimum of 13.8 days.

Therefore exact 13 day eclipses are an absurdity from an astronomy point of view. Because we can prove this point to be an absurdity, then all sorts of adjustments are needed and so the argument becomes subjective and my truth is as good or in fact much better than anybody else's.

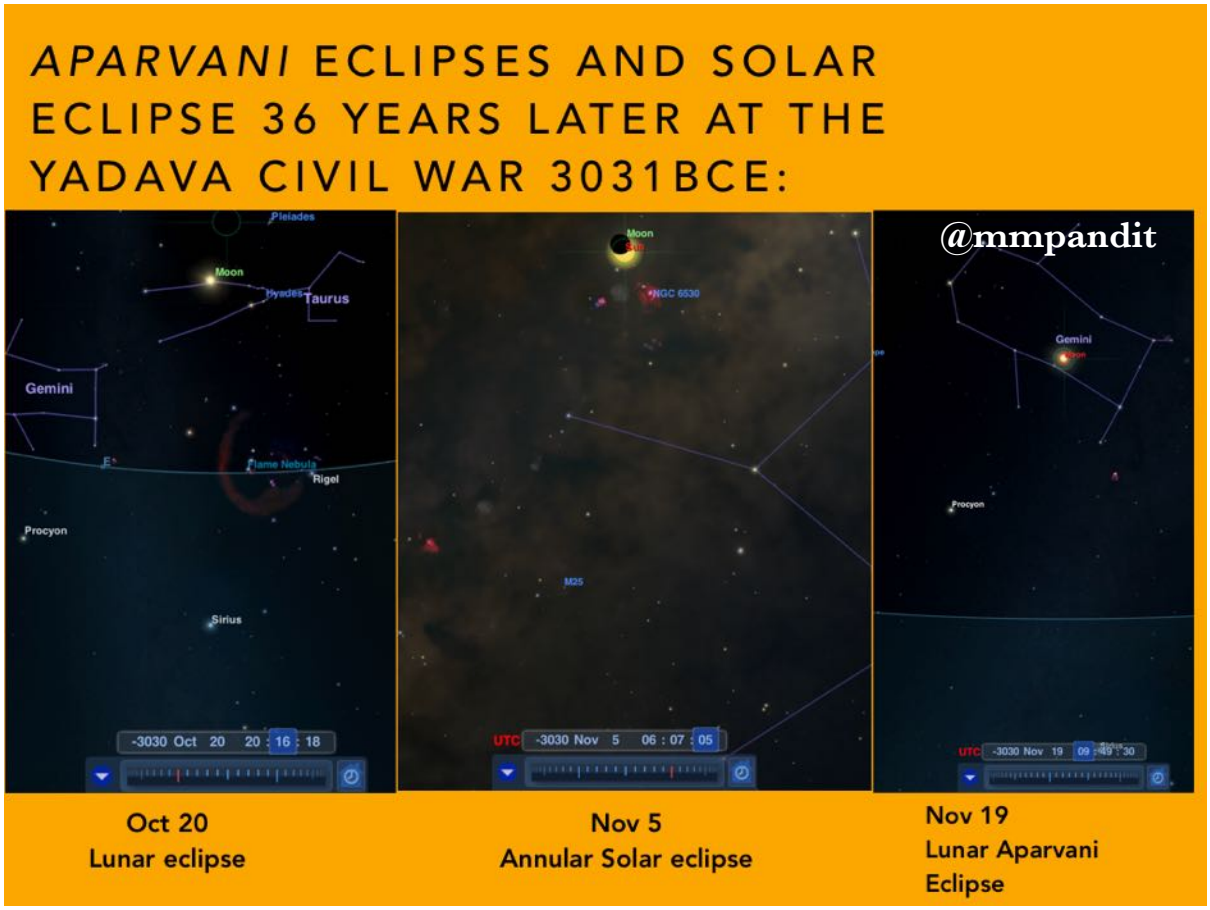
If one looks at it objectively, then all one needs to do is ask the question whether 13.8 (as the distance between a full Moon and a New Moon in succession is a minimum of 13.8 days.) is nearer to 14 or nearer to 13?

The objective answer to this question is that 13.8 is far closer to 14 than to 13 and therefore 13 day eclipse pairs cannot occur in real life. The closest we can come to defining a 13 day eclipse pair is one which is less than 14 days. This we

can prove in 3067BCE (eclipse pair one is a few hours less than 14 days thus fulfilling the criteria).

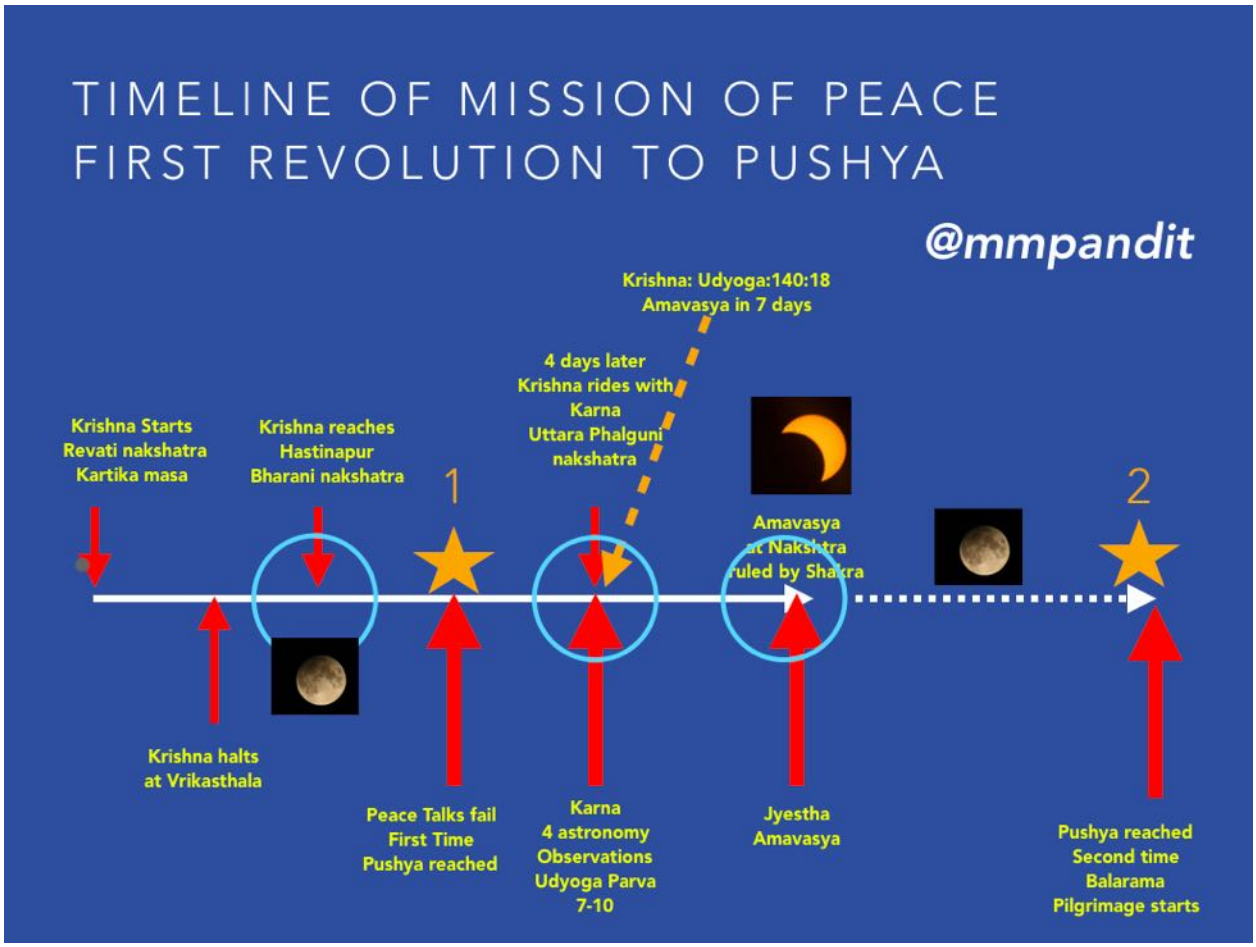
The Recurrence of the three eclipses 36 years later in 3031 BCE:

In fact we are also able to verify three more eclipses which occur 36 years after the war in 3031BCE as specified by the Mahabharata text.



In the 3067BCE proposal for the Mahabharata war, we can corroborate the lunar eclipse of Oct 20th 3031BCE at Rohini/ Aldebaran followed by the solar eclipse of November 5th 3031BCE followed by the third eclipse of Nov 19th 3031BCE.

The First Two Pushyas of the Tri-Pushya Theory of 3067BCE



Short Critique of 5561BCE in reference to Sri Krishna's Mission of Peace:

In the 5561BCE war proposal, the sequence is wrong as follows:

Krishna's departure(Revati)-> Full Moon(Ashvina)->Krishna-Karna-ride(Uttaraphalguni)->Amavasya(at Vishakha) -> Kartika paurnima -> war on Amavasya(at Moola, Solar eclipse).

This difference between the critical edition and 5561BCE in terms of the Mission of peace is represented in a short film as follows:

https://www.youtube.com/watch?v=uSf3yFp-v6g

Balarama's Pilgrimage and

the Gada Yuddha: Chapter 3

Fixing the 18th day of the Mahabharata war

Dr Manish Pandit

Dec 12th 2019

Balarama's Pilgrimage and the Gada Yuddha

Fixing the 18th day of the Mahabharata war

Introduction: Balarama was the brother of Krishna. He refused to fight in the Mahabharata war. He left for a pilgrimage on the banks of the Saraswati river before the war and returned only during the Gada Yuddha (Duel of Maces) between Bhimasena and Duryodhana. The astronomy references to the duel between these two disciples of Balarama form the basis of an excellent timeline for the Mahabharata war.

Aim: Fixing the 18th day of the Mahabharata war in synchrony with Balarama's pilgrimage is an important part of the 3067BCE theory for the war timeline. Raghavan's theory from the year of 1969, although otherwise reasonably good, rather erroneously glosses over the fact that Balarama arrives 3 days too late for the Gada Yuddha as he arrives after the war has ended in that 3067BCE theory. This war timeline was erroneously fixed by Raghavan based on the first day of the war being Nov 22nd 3067BCE. However, Raghavan's methodology is somewhat clumsy and he tries to fix the first day of the war based on rigid adherence to tradition. In fact, there is no definite astronomy reference for fixing the first day of the war. However, I will show by the end of the paper that contrary to Raghavan's methodology, there is a much easier method of arriving at the first day of the war. Fixing the 18th day of the war is in fact far more crucial as there are two solid references pointing to the end of the war on the 18th day coinciding with Balarama's return from pilgrimage. Moreover, making sure that the the 14th late night/15th early morning Moonrise fits into the Moonphase data of the last seven days of the war timeline is another most useful adjunct for our calculations.

Inferences from Balarama's Pilgrimage:

The verses for Balarama's Pilgrimage arise from two primary chapters of the Shalya Parva.

These verses lead to the derivation of the following statements:

1. Balarama comes to Upaplavya to meet Krishna and realises that the mission of peace has failed. This is on Maitre Nakshatra day; ie. Anuradha Nakshatra. He decides to go for a pilgrimage.
2. Amavasya (New Moon day) occurs at Jyestha and the preparations for war are started.
3. Pushing fast forward 15 more nakshatras in between Jyestha and Pushya, we arrive at the Nakshatra Pushya (Al Tarf), Krishna and the Pandavas start towards Kurukshetra and.…
4. At that time, Balarama starts his Pilgrimage just before Krishna moves towards Kurukshetra in the Nakshatra of Pushya.
5. Balarama returns in Shravana Nakshatra day to Kurukshetra. That day must be the 18th day of the Mahabharata war and it was in the evening.
6. Balarama's pilgrimage lasts 42 days.
7. Duryodhana dies on the following morning on the 19th day. It was Krishna Chaturdashi at sunrise on the 17th day unto the 17th night at least and Amavasya would have arrived late on the 18th day.
8. Additionally: The 14th war night Moonrise description of a waning Krishna Paksha Moon rising late at around 2/230 am must fit in with this entire timeline which starts from Jyestha Amavasya war preparations.

Verse references for the above:

1. **Shalya 34:12 leads to point 1 above:**

ततो मन्युपरीतात्मा जगाम यदुनन्दनः ।
तीर्थयात्रां हलधरः सरस्वत्यां महायशाः ॥ ०१२ ॥

मैत्रे नक्षत्रयोगे स्म सहितः सर्वयादवैः ॥ ०१२ ॥

2. **Shalya Parva 34: 14**

रौहिणेये गते शूरे पुष्येण मधुसूदनः ।
पाण्डवेयान्पुरस्कृत्य ययावभिमुखः कुरून् ॥ ०१४ ॥

This verse leads to point 3 and 4 above.

3. **Shalya Parva 33:05**

चत्वारिंशदहान्यद्य द्वे च मे निःसृतस्य वै ।
पुष्येण संप्रयातोऽस्मि श्रवणे पुनरागतः ॥ ००५ ॥

शिष्ययोर्वै गदायुद्धं द्रष्टुकामोऽस्मि माधव ॥ ००५ ॥

This verse leads to points 4, 5 and 6 above.

Do we have a Tithi and a Nakshatra for the 18th day of the Mahabharata war?

There are two references which pinpoint the 18th day of the war:
1. The first reference from Shalya Parva says that Balarama's return must coincide with a Shravana Nakshatra (Altair) which is also the 18th day of the war.

चत्वारिंशदहान्यद्य द्वे च मे निःसृतस्य वै ।
पुष्येण संप्रयातोऽस्मि श्रवणे पुनरागतः ॥ ००५ ॥

शिष्ययोर्वै गदायुद्धं द्रष्टुकामोऽस्मि माधव ॥ ००५ ॥

2. The second reference which is from Gada Buddha Parva points to the Tithi being an Amavasya according to the verse below:

राहुश्चाग्रसदादित्यमपर्वणि विशां पते ।
चकम्पे च महाकम्पं पृथिवी सवनद्रुमा ॥ ०१० ॥

3. In addition we have the verse on the late 14th day Moonrise in the eastern sky which shows us that 4 days later, ie on the 18th day, the war must have ended either on an Amavasya or very close to an Amavasya.

Thus we know that the 18th day of the war is a Shravana nakshtra which must coincide with an Amavasya which must be prevalent on the same day in the afternoon.

How do we check the war timeline in 3067BCE?

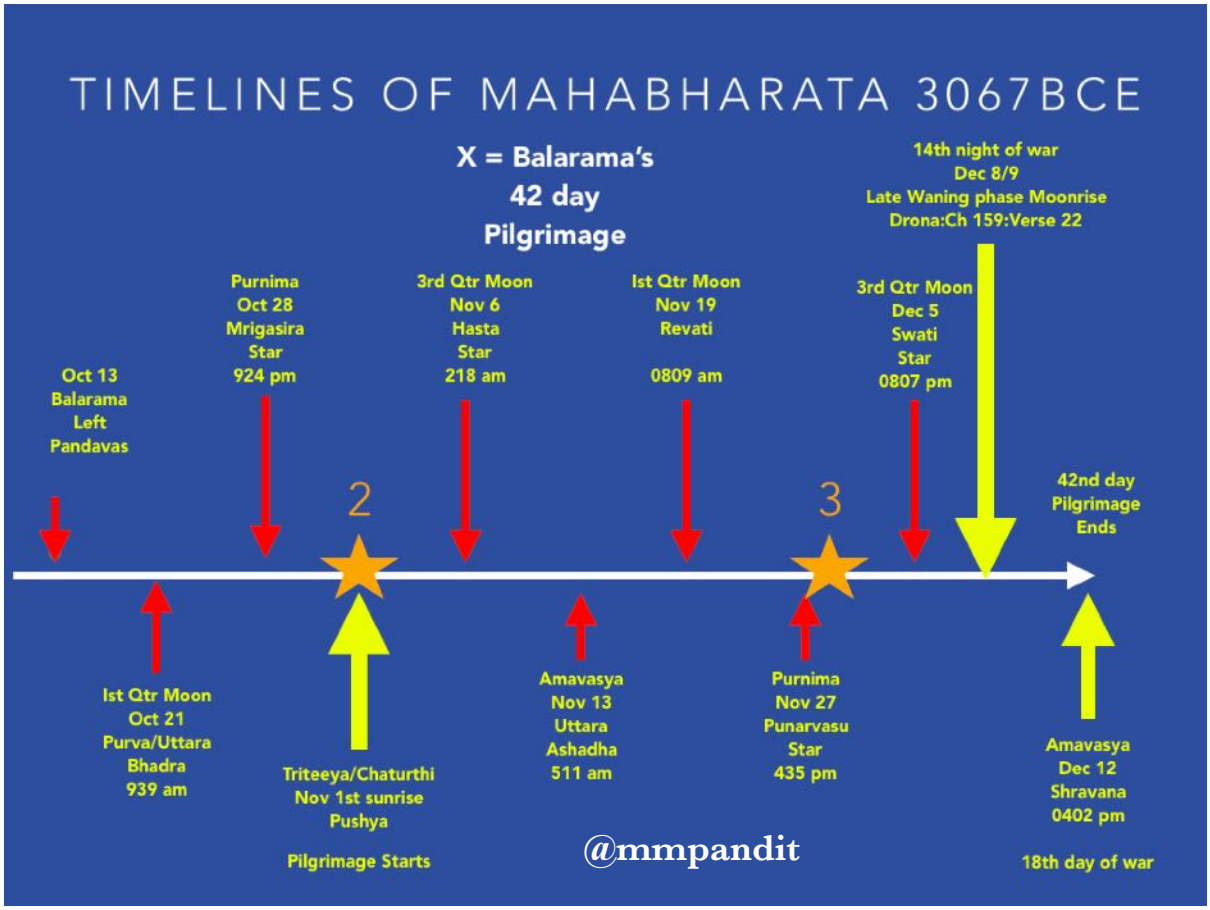
1. We need to take the day of Pushya nakshatra, which occurs (16 nakshatras) after the Jyestha Amavasya mentioned in Udyoga Parva Chapter140:18 to be the start of the Pilgrimage and then end this pilgrimage after 42 days. That day needs to coincide in synchrony with Shravana Nakshatra day on which Balarama's return must be in the evening and must coincide with the 18th day of the war which must be an Amavasya like situation.
Are all these statements true and do they all reconcile with the Jyestha Amavasya which occurred earlier?

2. Thus we can see that counting from Jyestha Amavasya , we get Jyestha 1, Moola 2, Purvashadha 3, Uttarashadha 4, Sharavana 5, Dhanistha 6, Shatabhisha 7, Purvabhadrapada 8, Uttarabhadrapada 9, Revati 10, Ashwini 11, Bharani 12, Krittika 13, Rohini 14, Mrigashira 15, Ardra 16 and Punarvasu 17. Thus 17 nakshatras pass from Jyestha (count includes Jyestha) to the start of Balarama's pilgrimage. Please note that as counting starts from Jyestha Amavasya, Purnima must occur just before the start of the pilgrimage.

3. **Lets count nakshatras further from Pushya and see what happens to Balarama's pilgrimage.**
Pushya 1, Ashlesha 2, Magha 3, Purvaphalguni 4, Uttaraphalguni 5, Hasta 6, Chitra 7, Swati 8, Vishakha 9, Anuradha 10, Jyestha 11, Moola, 12, Purvashadha 13, Uttarashadha 14, Sharavana 15, Dhanistha 16, Shatabhisha 17, Purvabhadrapada 18, Uttarabhadrapada 19, Revati 20, Ashwini 21, Bharani 22, Krittika 23, Rohini 24, Mrigashira 25, Ardra 26, Punarvasu 27, Pushya again 28,

Ashlesha 29, Magha 30, Purvaphalguni 31, Uttaraphalguni 32, Hasta 33, Chitra 34, Swati 35, Vishakha 36, Anuradha 37, Jyestha 38, Moola 39, Purvashadha 40, Uttarashadha 41, Shravana 42.

Thus 42 stars are covered in this Pushya to Sharavana journey of Balarama. The next question to be asked is whether in 3067BCE, can the start of this pilgrimage be corroborated on Pushya star day and can we show it to end on a Shravana nakshatra day on the last day of the war.



My Postulates for the Apogee and Perigee phase of the war:

Based on the fact that the Perigee Moon (when the Moon in its elliptical orbit is nearest to the Earth) is bigger and brighter and the Apogee Moon (when the Moon in its elliptical orbit is farthest away from the Earth) which is smaller to the human eye and 30% less bright, I have postulated the following:

1. The Moon close to a Perigee Moon which is brightest and easier to see (30% brighter and 14% larger) is the one which should be seen during the Moonrise sighted on the 14th night of the war. This is what constitutes "Netrandena chandrena" in verse 42 of chapter 153 of Drona Parva ie that which brought pleasure to the eyes. This Moon would be easily be brighter then a normal Krishna Paksha crescent Moon seen otherwise.
2. Shravana Nakshatra must have started by the evening on the day of the Gada Yuddha in 3067 BCE.
3. Thus it should be Jyestha Amavasya day around 17 days prior to Balarama's pilgrimage. The war preparations were being started on that Jyestha Amavasya day.
4. There should be a full Moon occurring just before the start of the pilgrimage which has started on 31st October 3067BCE.

Testing the Postulates:

Let us check the apogee and perigee table of the Moon for 3067BCE (-3066 in the Swiss ephemeris calculator) to see if the postulates can be tested.

Perigees and Apogees

Perigee	Apogee
	Jan 2 22:17 405052 km F-5d 3h
Jan 18 20:22 366705 km N-3d 6h	Jan 30 18:09 404272 km F-6d21h
Feb 13 12:58 369962 km F+6d21h	Feb 27 13:49 404242 km N+6d23h
Mar 11 12:17 366333 km F+3d 9h	Mar 27 7:32 404989 km N+5d 5h
Apr 8 8:01 361408 km F+1d20h	Apr 23 21:32 405960 km N+3d 5h
May 6 13:59 358006 km F+ 19h	May 21 4:43 406505 km -- N+ 21h
Jun 3 23:36 357082 km + F- 1h	Jun 17 7:46 406360 km - N-1d14h
Jul 2 8:47 358943 km F- 23h	Jul 14 17:10 405618 km N-3d20h
Jul 30 13:17 363242 km F-2d 3h	Aug 11 9:16 404718 km N-5d19h
Aug 26 23:21 368562 km F-4d 4h	Sep 8 5:10 404321 km N-7d13h
Sep 20 17:25 369323 km N+4d22h	Oct 6 2:20 404746 km F+6d 7h
Oct 17 19:35 363966 km N+2d11h	Nov 2 21:16 405651 km F+4d 9h
Nov 15 1:17 358977 km N+1d 5h	Nov 30 8:04 406346 km + F+2d 0h
Dec 13 13:16 356698 km -- N+ 6h	Dec 27 8:15 406493 km + F- 18h

The war ends on an Amavasya Tithi. This word indicates that it must have been the Krishna Chaturdashi Tithi on the 17th war day. (14th day of the dark phase of the Moon). Amavasya has occurred on the 12th of December at 402pm.

The Amavasya Tithi happens on the 12th of December and that would be the 18th day of the war. This and the 14th night of the war just 4 days before the end of the war is when the Moon is in the Perigee phase as we postulated in 1 above. This is what constitutes "Netrandena chandrena" on the 14th war night in verse 42 of chapter 153 of Drona Parva ie that which brought pleasure to the eyes. This 14th war night Moon Moon would be easily be brighter then a normal 11th Krishna Paksha crescent Moon seen otherwise.

Lets try and check postulate 2 of my premise. Balarama's pilgrimage constitutes 42 days. If we count back for 42 days from 12th December, we get the starting point for the pilgrimage as the 1st of November. This is a Pushya Nakshatra day and is also a Thursday/ Guruvaar. This is why Balarama's pilgrimage started here on the famed **Guru Pushya Yoga.**

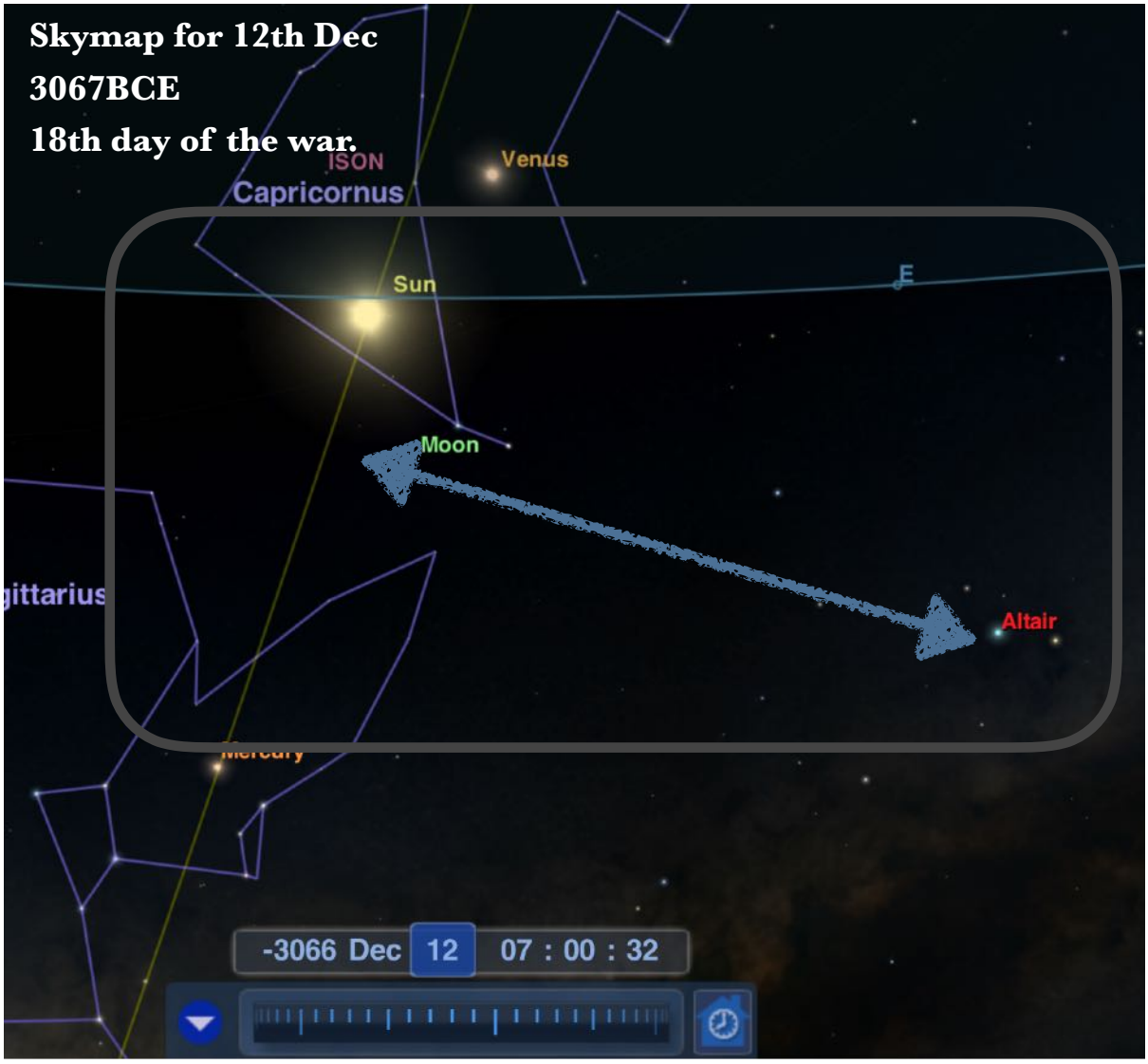
Let us check postulate 4 of this premise. There should be an Amavasya and it should be at Jyestha, 17 days prior to the start of Balarama's pilgrimage. Is this statement true?
Ans: On the 15th of October 3067BCE, there was indeed a new Moon and it was at Jyestha at 7:47 am UTC.

Let us check postulate 5 of this premise. There should have been a full Moon just before the start of the pilgrimage (31st October late pm/ 1st November 3067BCE). Is this true?
Ans: The 28/29th of October 3067BCE was a full Moon just before Balarama's pilgrimage.

Thus on that Shravana Nakshatra day, we can show that Balarama returns AND it is an Amavasya later that day AND the Gada Yuddha also does start at that time in the evening.

Conclusions:

1. The Moon close to a Perigee Moon which is brightest and easier to see (30% brighter and 14% larger) is the one which should be seen during the 14th night of the war. This is what constitutes "Netrandena chandrena" ie that which brought pleasure to the eyes. This Moon would be easily brighter then a normal late Krishna Paksha crescent Moon.
2. Shravana Nakshatra has started on the day of the Gada Yuddha in 3067 BCE. That day is raptly conjunct Sun and Moon at Amavasya at 402pm on that same day according to Redshift and close enough to this time using other software.
3. The skymaps show that on the 12th of December 3067BCE, Shravana Nakshatra is prevailing and this coincides with an Amavasya at 0402pm. Thus, this must be the last day of the war. The 14th war night/ 15th morning synchronises exactly with the very late night Moonrise in this timeline.
4. Counting reverse from the 18th day of the war ie. 12th Dec 3067BCE (since the first day of the war doesn't have a concrete set in stone astronomy reference to fix, we arrive at a date of 25th November 3067BCE as the start of the Mahabharata war. This methodology synchronises three timelines of the Mahabharata war perfectly. No other Mahabharata year except 3067BCE or researcher (of the 110+ researchers) has ever been able to fix these three complex timelines in perfect harmony (war timeline, Balarama's pilgrimage and Krishna's mission of peace timelines).
5. It is important to take into consideration the fact that Pushya Nakshatra is the most auspicious nakshatra of the zodiac and therefore it is a desirable star for the start of the war which is why Balarama has chosen it, moreover, it is a Guruvaar/ Thursday at sunrise on that day which is one of the most desirable yogas of Jyotisha for start of something auspicious. This famed Guru Pushya yoga which is used by a variety of researchers to buy gold nowadays (remember the full page advertisements) actually refers to the gold of pure consciousness which our ancestors tried to obtain and is the precise reason why the pilgrimage must begin on a Pushya nakshatra as opposed to some researchers who have tried to switch nakshatras around and start the pilgrimage on a Shravana nakshatra day because of the problem of the extremely rigorous criteria in fitting this timeline. Therefore, the pilgrimage cannot begin on a Shravana nakshtra, Pushya is too important a nakshatra

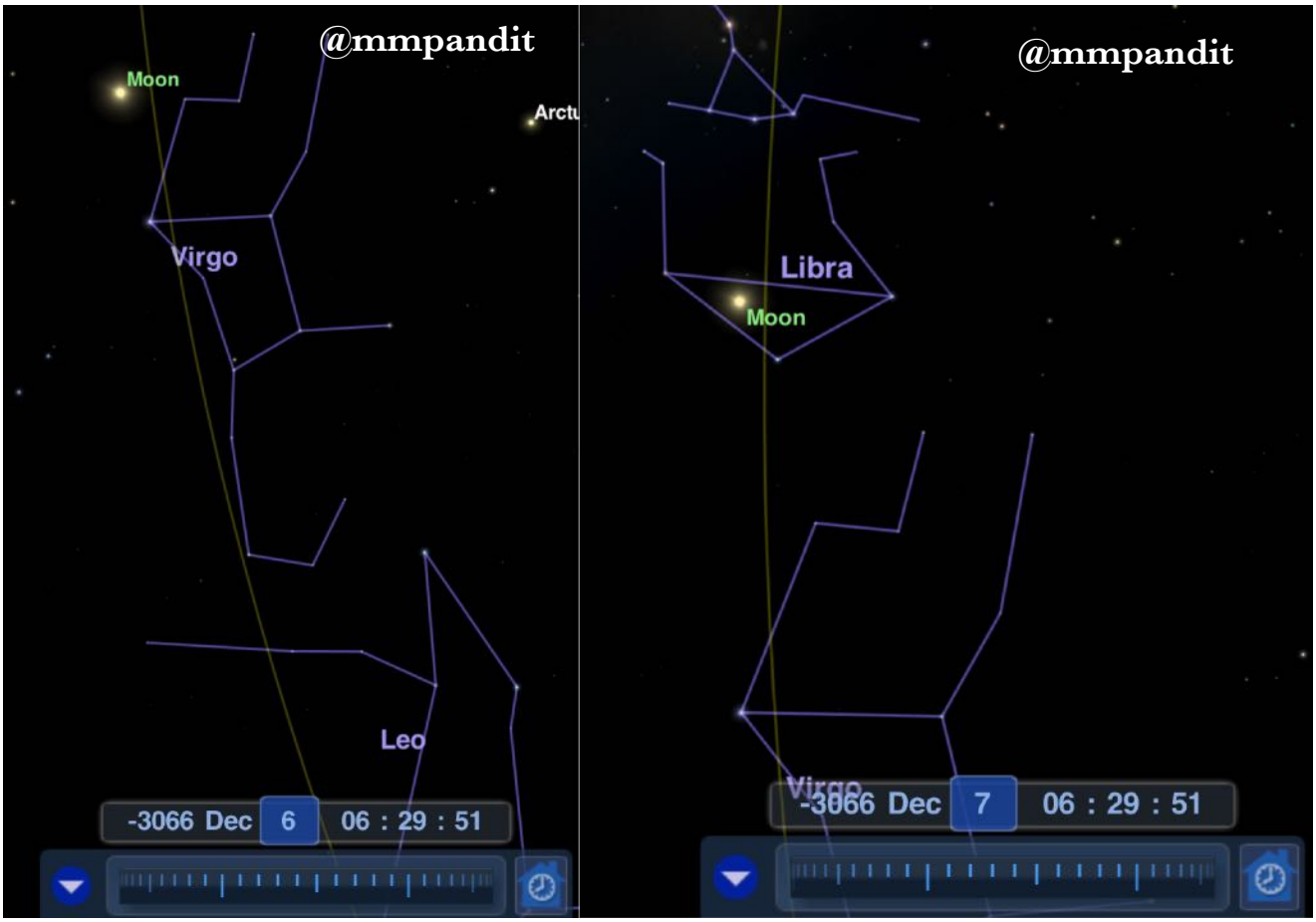


for the start of auspicious beginnings for the start of the pilgrimage to be any other star, especially when the text explicitly mentions the start of the pilgrimage as a Pushya star.

6. The last timeline of Bhisma Moksha will also be shown to match the other three timelines in a separate chapter.

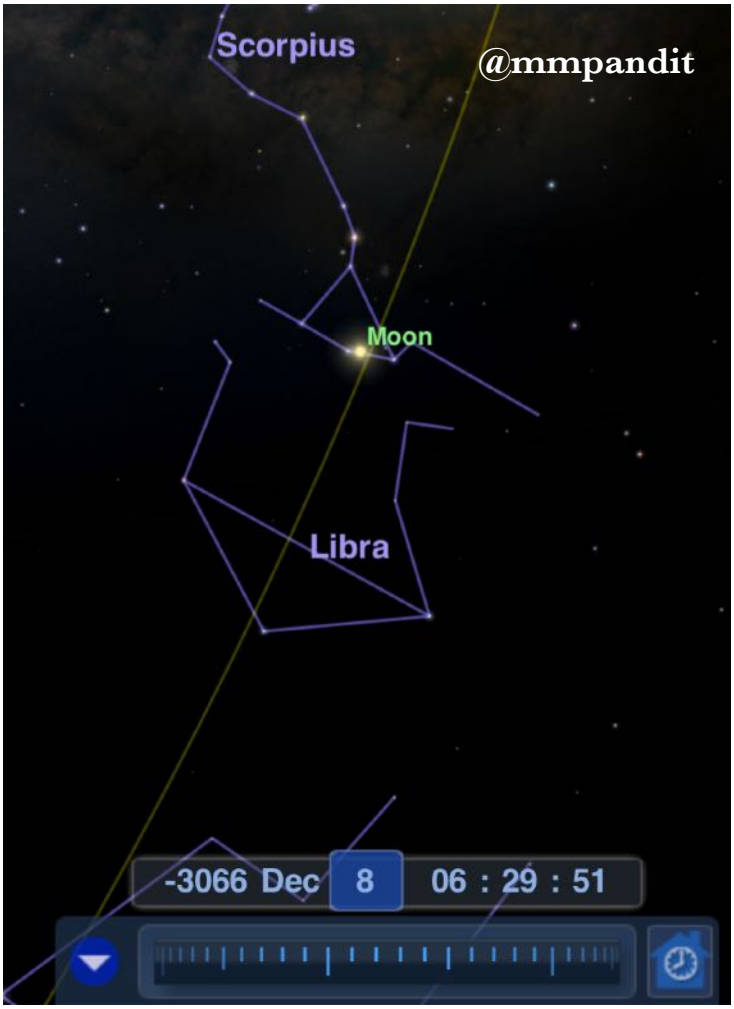
Thus in 3067 BCE, our timeline fits perfectly for the 59 days from Jyestha Amavasya day (Udyoga Parva 141:18) when the war preparations were being started. There is indeed a full Moon occurring just before the start of the pilgrimage. This timeline methodology occurred to me a few years back but I only solved it perfectly before the 2nd Mahabharata workshop in Birmingham in response to my own question on deconstruction and reconstructing timelines of the Mahabharata war.

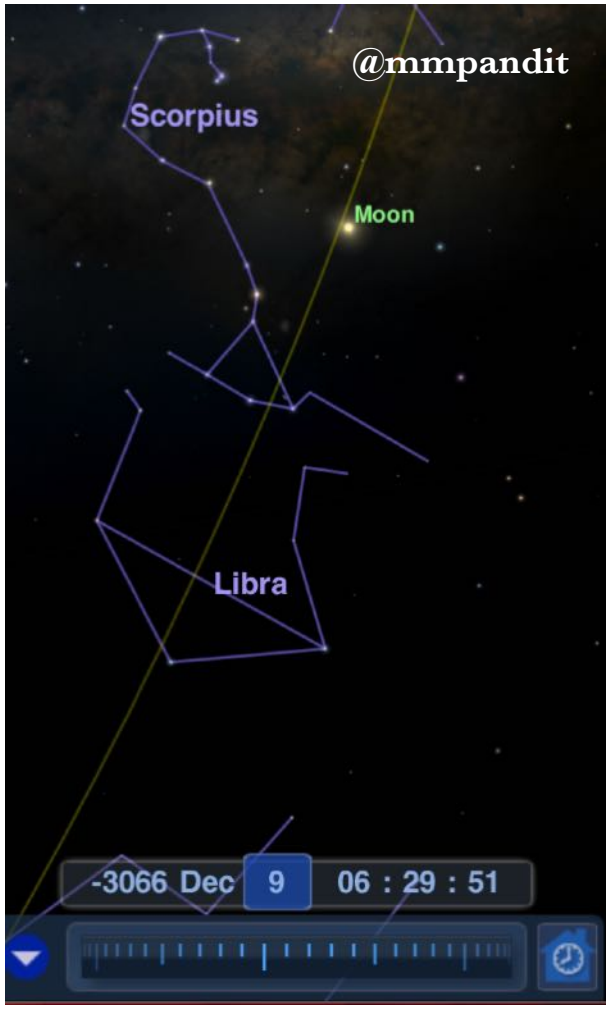
Skymaps of the last 5 days of the war timeline to end on the 12th of December 3067BCE with Amavasya Tithi to coincide with Shravana nakshatra are as follows:



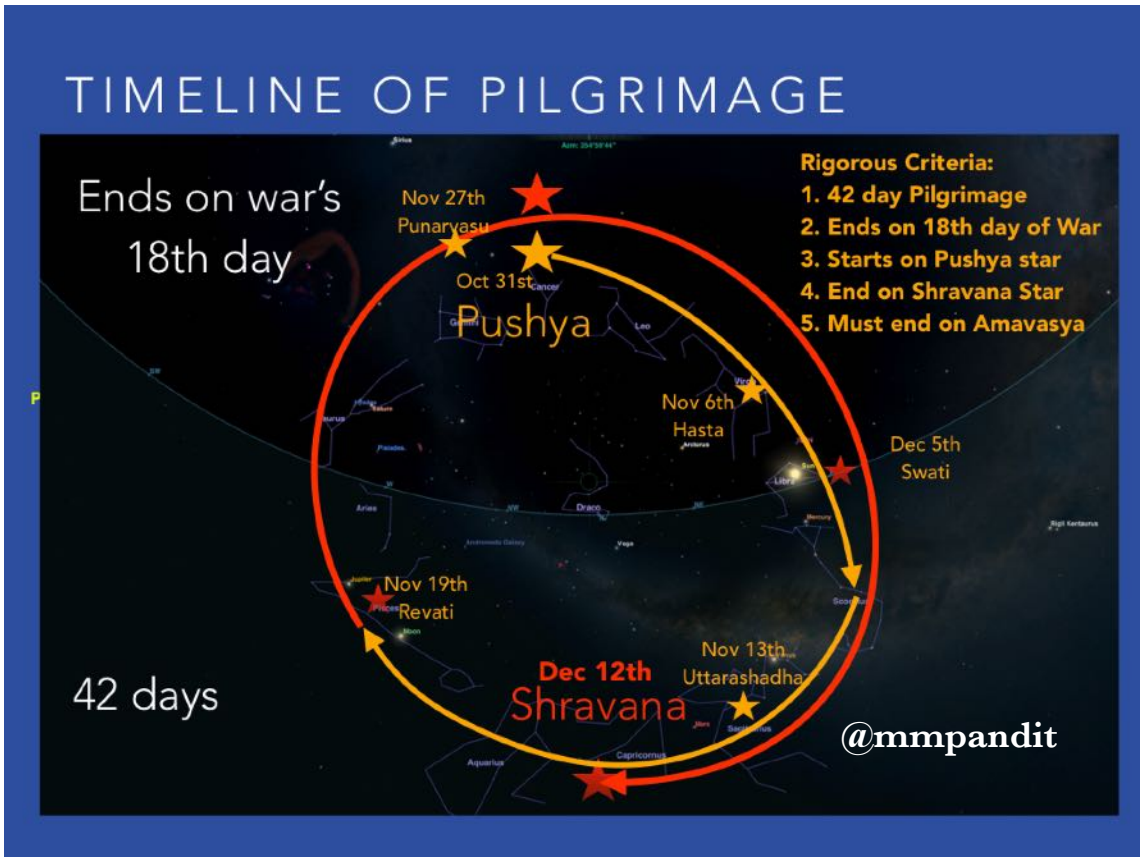
December 6th and 7th 3067BCE which are the 12th and 13th days of the war respectively. Note how the Moon advances through the sky through various nakshatras. It crossed through Hasta, Chitra and is then crossing Swati. Rashis or signs are only provided in the Skymaps for understanding. A Rashi based system of Jyotisha did not exist at the time of the Mahabharata as it does not have Rashi/ sign based Jyotisha (neither was there Rashi based peeda/affliction in the Mahabharata)

December 8th, 9th 3067BCE which are the 14th, 15th days of the war respectively. Note how the Moon advances through the sky through various nakshatras. It crossed through Vishakha to Anuradha and then nears Jyestha.





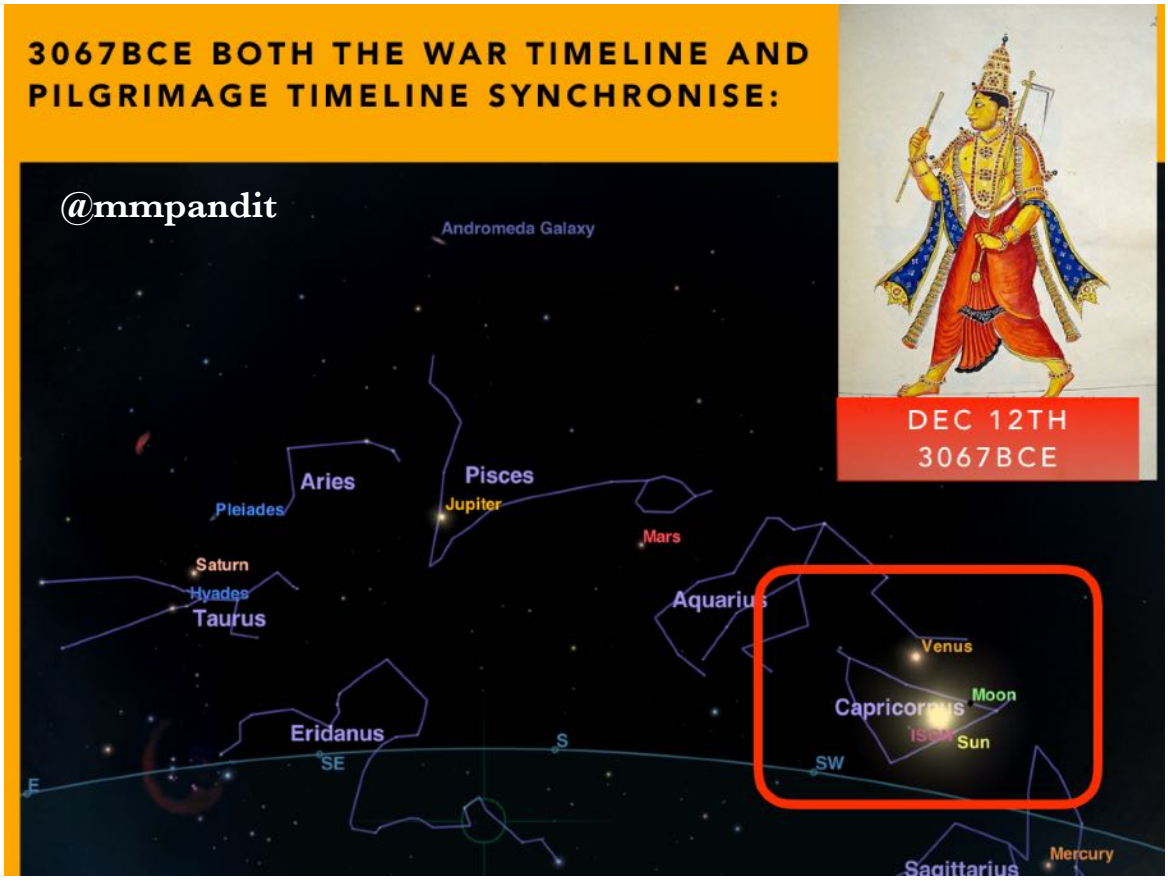
December 10th and 11th 3067BCE which are the 16th and 17th days of the war respectively. Note how the Moon advances through the sky through Sagittarius and and then into Capricorn.



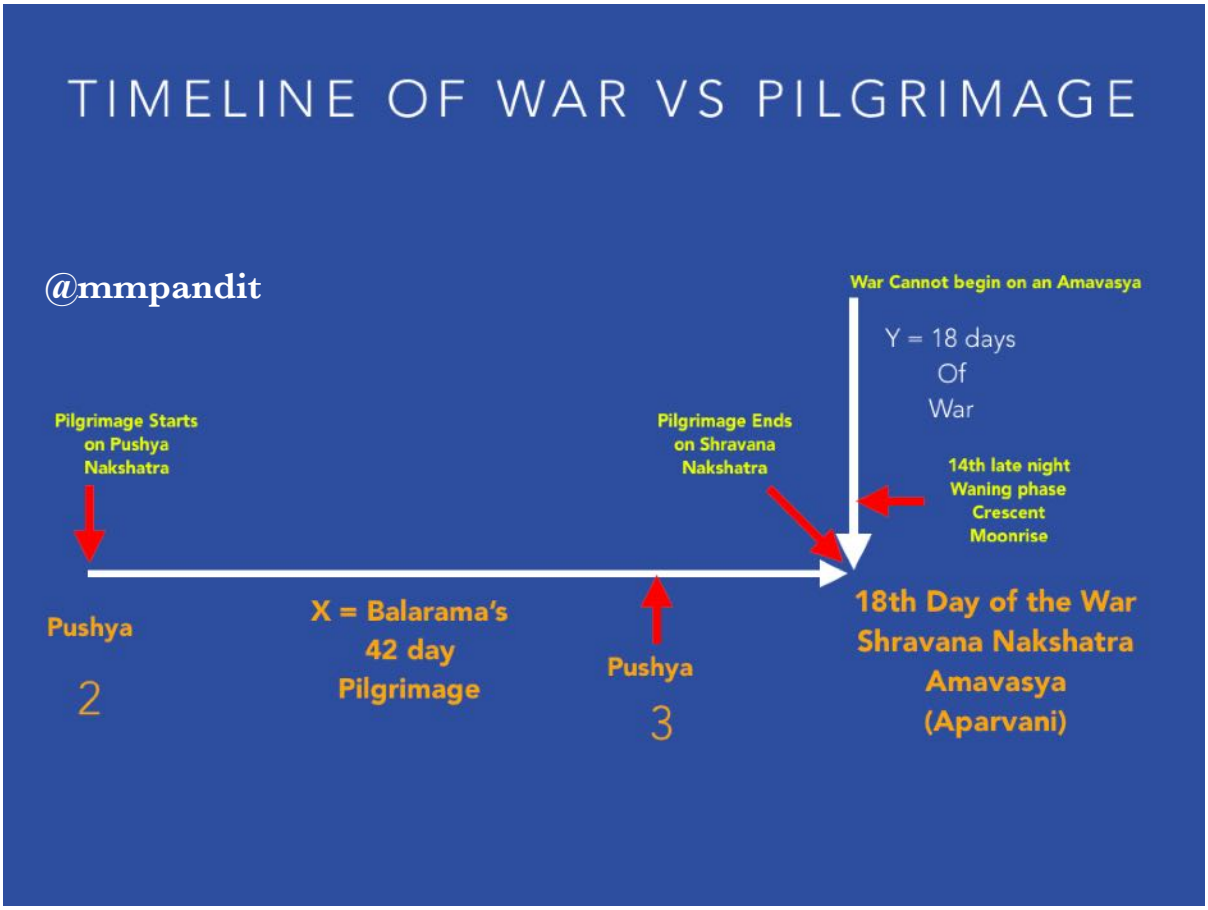
Debunking other proposals for dates of the war using Balarama's pilgrimage:

Rigorous criteria used for Balarama's Pilgrimage in my war proposal:

1. **Start day of the pilgrimage must be a Pushya Nakshatra.**
2. **Ending day of the pilgrimage must be a Shravana Nakshatra.**
3. **This last ie. 18th day of the war must be an Amavasya or very close to it.**
4. **For the purposes of this entire discussion, I have given the benefit of doubt to the researcher if Shravana nakshatra arrives on either the 42nd or the 43rd day from day one of the pilgrimage.**
5. **The 18th day of the war must be either an Amavasya or very close to it, because of the exact description of the Moonrise occurring late on the 14th war night, post the killing of Ghatotkacha and the Gada Yuddha Parva reference described earlier in this chapter and elsewhere within this book.**



1. **3139BCE:** In 3139BCE, the most credible Pushya nakshatra candidate for the start of Balarama's pilgrimage must be the Pushya nakshatra on September 22nd, the pilgrimage must therefore end on November 2nd, 42 days later. This day is indeed a Shravana Nakshatra day, unfortunately, though, it is noted that the 2nd of November 3139BCE is a Shukla Chaturthi. Therefore assuming a start to the war timeline which must end at or near the preceding Amavasya, in 3139BCE, Balarama arrives at least 4 days too late and after the war has ended to be able to witness the duel/ Gada Yuddha.



However, if one assumes that tradition were supremely important in the proposal for 3139BCE, then a Shukla Ekadashi start to the war timeline must be proposed. If that were to be the case, with that more traditional start to the war timeline, then Balarama must arrive even later, because the 18 days from Shukla Ekadashi onwards would end on a Krishna Trayodashi or so. (Oct 31st) That means that Balarama would be a whopping 6 days too late to witness the duel with maces as that would have ended a couple of days before the Amavasya preceding it.

Mundane | Miscellany

Body	Longitude	Nakshatra
Lagna	17 Cp 51' 46.35"	Srav
Sun - AmK	21 Li 37' 43.51"	Visa
Moon - MK	7 Cn 18' 49.82"	Push
Mars - BK	19 Li 50' 09.60"	Swat
Mercury - PiK	6 Sc 15' 45.35"	Anu
Jupiter (R) - DK	0 Pi 59' 12.12"	PBha
Venus - PK	6 Sg 08' 23.23"	Mool
Saturn - AK	27 Sc 41' 34.88"	Jye
Rahu - GK	28 Vi 26' 45.63"	Chit
Ketu	28 Pi 26' 45.63"	Reva
Maandi	8 Pi 05' 31.39"	UBha
Gulika	26 Aq 04' 19.27"	PBha
Bhava Lagna	1 Aq 58' 18.45"	Dhan
Hora Lagna	12 Ta 35' 53.33"	Rohi
Ghati Lagna	14 Pi 28' 37.95"	UBha
Vighati Lagna	23 Ta 52' 21.07"	Mrig
Varnada Lagna	17 Aq 51' 46.35"	Sata
Sree Lagna	5 Ta 20' 11.54"	Krit
Pranapada Lagna	24 Ta 09' 21.00"	Mrig
Indu Lagna	7 Sg 18' 49.82"	Mool

Natal Chart:

Date:	September 22, -3138
Time:	12:43:45
Time Zone:	5:30:00 (East of GMT)
Place:	76 E 49' 00", 29 N 59' 00"
	Thanesar, India
Lunar Yr-Mo:	Shubha-krit - Sravana
Tithi:	Krishna Sapthami (Sa) [Siva Do
	(69.29% left)
Vedic Weekday:	Sunday (Su)
Nakshatra:	Pushyami (Sa)
	(70.15% left)
Yoga:	Subha (Su) (57.93% left)
Karana:	Vishti (Sa) (38.58% left)
Hora Lord:	Mars (5 min sign: Cn)
Mahakala Hora:	Mars (5 min sign: Pi)
Kaala Lord:	Venus (Mahakala: Venus)
Gouri Panchanga:	Kaala (Choghadiya)

Mundane | Miscellany

Body	Longitude	Nakshatra
Lagna	23 Aq 17' 24.33"	PBha
Sun - PK	3 Sg 26' 42.14"	Mool
Moon - MK	19 Cp 31' 02.11"	Srav
Mars - BK	20 Sc 03' 54.49"	Jye
Mercury (R) - AK	25 Sc 42' 22.30"	Jye
Jupiter - DK	2 Pi 07' 18.47"	PBha
Venus - AmK	20 Cp 41' 47.33"	Srav
Saturn - GK	2 Sg 16' 24.75"	Mool
Rahu - PiK	26 Vi 16' 23.37"	Chit
Ketu	26 Pi 16' 23.37"	Reva
Maandi	12 Sg 29' 22.45"	Mool
Gulika	3 Sg 10' 47.56"	Mool
Bhava Lagna	5 Pi 59' 59.43"	UBha
Hora Lagna	8 Ge 49' 06.48"	Ardr
Ghati Lagna	17 Pi 16' 27.60"	Reva
Vighati Lagna	29 Cp 33' 13.21"	Dhan
Varnada Lagna	23 Ta 17' 24.33"	Rohi
Sree Lagna	10 Sc 15' 21.35"	Anu
Pranapada Lagna	29 Ta 49' 02.96"	Mrig
Indu Lagna	19 Le 31' 02.11"	PPha

Natal Chart:

Date:	November 2, -3138
Time:	12:43:45
Time Zone:	5:30:00 (East of GMT)
Place:	76 E 49' 00", 29 N 59' 00"
	Thanesar, India
Lunar Yr-Mo:	Shubha-krit - Aswayuja
Tithi:	Sukla Chaturthi (Me) [Bherunda
	(16.06% left)
Vedic Weekday:	Saturday (Sa)
Nakshatra:	Sravanam (Mo)
	(28.62% left)
Yoga:	Vyaghata (Ve) (2.78% left)
Karana:	Vishti (Sa) (32.13% left)
Hora Lord:	Moon (5 min sign: Li)
Mahakala Hora:	Moon (5 min sign: Sg)
Kaala Lord:	Mars (Mahakala: Mars)
Gouri Panchanga:	Chala (Choghadiya)

The same problem seizes the next candidate for Balarama's pilgrimage in 3139BCE: ie. the Pushya nakshatra which follows the one already talked about above, at an interval of around 27 days. Lets check the data available from JHora.

Mundane | Miscellany

Body	Longitude	Nakshatra
Lagna	10 Aq 41' 11.94"	Sata
Sun - AK	19 Sc 07' 34.76"	Jye
Moon - PiK	4 Cn 04' 27.33"	Push
Mars - AmK	9 Sc 36' 03.20"	Anu
Mercury - BK	7 Sg 39' 03.16"	Mool
Jupiter - GK	1 Pi 06' 19.23"	PBha
Venus - MK	6 Cp 18' 12.44"	USha
Saturn - DK	0 Sg 38' 48.14"	Mool
Rahu - PK	27 Vi 00' 54.38"	Chit
Ketu	27 Pi 00' 54.38"	Reva
Maandi	28 Sc 36' 47.24"	Jye
Gulika	18 Sc 51' 15.20"	Jye
Bhava Lagna	24 Aq 21' 27.89"	PBha
Hora Lagna	29 Ta 51' 36.65"	Mrig
Ghati Lagna	16 Pi 22' 02.94"	UBha
Vighati Lagna	8 Pi 54' 14.35"	UBha
Varnada Lagna	10 Pi 41' 11.94"	UBha
Sree Lagna	0 Pi 41' 29.76"	PBha
Pranapada Lagna	9 Sc 10' 29.98"	Anu
Indu Lagna	4 Ar 04' 27.33"	Aswi

Natal Chart:

Date:	October 19, -3138
Time:	12:43:45
Time Zone:	5:30:00 (East of GMT)
Place:	76 E 49' 00", 29 N 59' 00" Thanesar, India
Lunar Yr-Mo:	Shubha-krit - Bhadrapada
Tithi:	Krishna Chaturthi (Me) [Bherun (25.43% left)
Vedic Weekday:	Saturday (Sa)
Nakshatra:	Pushyami (Sa) (94.44% left)
Yoga:	Brahma (Ma) (76.00% left)
Karana:	Balava (Mo) (50.87% left)
Hora Lord:	Moon (5 min sign: Sg)
Mahakala Hora:	Moon (5 min sign: Sg)
Kaala Lord:	Mars (Mahakala: Mars)
Gouri Panchanga:	Chala (Choghadiya)

a | Mundane | Miscellany

Body	Longitude	Nakshatra
Lagna	23 Pi 08' 20.83"	Reva
Sun - DK	3 Cp 03' 34.82"	USha
Moon - BK	11 Aq 46' 09.19"	Sata
Mars - AmK	12 Sg 07' 28.74"	Mool
Mercury - MK	11 Sg 38' 32.49"	Mool
Jupiter - PiK	5 Pi 57' 21.71"	UBha
Venus - AK	14 Aq 01' 37.89"	Sata
Saturn - PK	5 Sg 34' 08.67"	Mool
Rahu - GK	24 Vi 44' 10.55"	Chit
Ketu	24 Pi 44' 10.55"	Reva
Maandi	21 Ta 59' 43.32"	Rohi
Gulika	7 Ta 16' 31.55"	Krit
Bhava Lagna	29 Pi 29' 46.79"	Reva
Hora Lagna	26 Ge 10' 41.42"	Puna
Ghati Lagna	16 Pi 13' 25.32"	UBha
Vighati Lagna	26 Li 27' 04.82"	Visa
Varnada Lagna	23 Aq 08' 20.83"	PBha
Sree Lagna	10 Le 54' 29.06"	Magh
Pranapada Lagna	26 Li 41' 47.48"	Visa
Indu Lagna	11 Cn 46' 09.19"	Push

Natal Chart:

Date:	December 1, -3138
Time:	12:43:45
Time Zone:	5:30:00 (East of GMT)
Place:	76 E 49' 00", 29 N 59' 00" Thanesar, India
Lunar Yr-Mo:	Shubha-krit - Karthika
Tithi:	Sukla Chaturthi (Me) [Bherunda (77.42% left)
Vedic Weekday:	Sunday (Su)
Nakshatra:	Satabhishak (Ra) (61.73% left)
Yoga:	Vyatipata (Ra) (13.78% left)
Karana:	Vanija (Ve) (54.84% left)
Hora Lord:	Jupiter (5 min sign: Sg)
Mahakala Hora:	Mars (5 min sign: Pi)
Kaala Lord:	Venus (Mahakala: Venus)
Gouri Panchanga:	Kaala (Choghadiya)

This pilgrimage date 42 days later also ends on a Shukla Chaturthi and the ending nakshatra is a problem this time around as it is no longer Shravana nakshatra as required by the epic. Instead this ending nakshatra is now Satabhisha which is two nakshatras out. Hence 3139BCE cannot be the year of the war based on this factor alone.

The same problem seizes the most unlikely Pushya nakshatra candidate for Balarama's pilgrimage in 3139BCE: ie. the Pushya nakshatra which precedes the one occurring on the 22nd of September 3139BCE, at an interval of around 27 days. Lets check the data available from JHora. This must be the Pushya nakshatra on August 26th 3139BCE, the pilgrimage must therefore end on

October 6th, 42 days later. This day is not a Shravana Nakshatra day, instead it is a Dhanistha nakshatra day. Even more unfortunately, though, it is noted that the 6th of October 3139BCE is a Shukla Saptami. Because the war must end on an Amavasya or very close to it, this means that Balarama would be a whopping 7 days too late to witness the duel with maces.

Mundane | Miscellany

Body	Longitude	Nakshatra	P
Lagna	25 Sg 29' 03.78"	PSha	4
Sun - AmK	24 Vi 26' 21.66"	Chit	1
Moon - MK	11 Cn 23' 57.23"	Push	3
Mars - GK	0 Li 40' 04.21"	Chit	3
Mercury - BK	23 Vi 30' 49.80"	Chit	1
Jupiter (R) - PK	3 Pi 12' 24.47"	PBha	4
Venus - PiK	4 Sc 25' 14.04"	Anu	1
Saturn - AK	25 Sc 17' 15.47"	Jye	3
Rahu - DK	29 Vi 52' 36.87"	Chit	2
Ketu	29 Pi 52' 36.87"	Reva	4
Maandi	23 Cp 34' 28.00"	Dhan	1
Gulika	12 Cp 52' 45.16"	Srav	1
Bhava Lagna	10 Cp 16' 49.09"	Srav	1
Hora Lagna	26 Ar 24' 57.44"	Bhar	4
Ghati Lagna	14 Pi 49' 22.51"	UBha	4
Vighati Lagna	16 Le 51' 27.84"	PPha	2
Varnada Lagna	25 Cp 29' 03.78"	Dhan	1
Sree Lagna	3 Le 15' 48.89"	Magh	1
Pranapada Lagna	17 Sg 09' 08.76"	PSha	2
Indu Lagna	11 Li 23' 57.23"	Swat	2

Natal Chart:

Date:	August 26, -3138
Time:	12:43:45
Time Zone:	5:30:00 (East of GMT)
Place:	76 E 49' 00", 29 N 59' 00" Thanesar, India
Lunar Yr-Mo:	Shubha-krit - Ashadha
Tithi:	Krishna Navami (Su) [Kula Sun (8.67% left)
Vedic Weekday:	Monday (Mo)
Nakshatra:	Pushyami (Sa) (39.51% left)
Yoga:	Siddha (Ke) (31.21% left)
Karana:	Garija (Ju) (17.34% left)
Hora Lord:	Moon (5 min sign: Le)
Mahakala Hora:	Mercury (5 min sign: Cp)
Kaala Lord:	Jupiter (Mahakala: Jupiter)
Gouri Panchanga:	Udyoga (Choghadiya)

Mundane | Miscellany

Body	Longitude	Nakshatra
Lagna	29 Cp 32' 47.47"	Dhan
Sun - PiK	5 Sc 51' 45.60"	Anu
Moon - BK	24 Cp 38' 32.31"	Dhan
Mars - DK	0 Sc 00' 51.98"	Visa
Mercury - AmK	26 Sc 03' 48.07"	Jye
Jupiter - GK	0 Pi 44' 05.05"	PBha
Venus - MK	22 Sg 03' 56.50"	PSha
Saturn - AK	29 Sc 10' 44.46"	Jye
Rahu - PK	27 Vi 42' 14.61"	Chit
Ketu	27 Pi 42' 14.61"	Reva
Maandi	20 Pi 17' 41.53"	Reva
Gulika	7 Pi 38' 46.28"	UBha
Bhava Lagna	13 Aq 31' 14.89"	Sata
Hora Lagna	21 Ta 27' 22.08"	Rohi
Ghati Lagna	15 Pi 15' 43.68"	UBha
Vighati Lagna	14 Ar 17' 31.67"	Bhar
Varnada Lagna	29 Aq 32' 47.47"	PBha
Sree Lagna	4 Pi 53' 19.80"	UBha
Pranapada Lagna	14 Sg 34' 09.58"	PSha
Indu Lagna	24 Ar 38' 32.31"	Bhar

Natal Chart:

Date:	October 6, -3138
Time:	12:43:45
Time Zone:	5:30:00 (East of GMT)
Place:	76 E 49' 00", 29 N 59' 00" Thanesar, India
Lunar Yr-Mo:	Shubha-krit - Bhadrapada
Tithi:	Sukla Sapthami (Sa) [Siva Doot (43.50% left)
Vedic Weekday:	Sunday (Su)
Nakshatra:	Dhanishtha (Ma) (90.18% left)
Yoga:	Dhruva (Ke) (71.21% left)
Karana:	Vanija (Ve) (87.01% left)
Hora Lord:	Mars (5 min sign: Ta)
Mahakala Hora:	Mars (5 min sign: Pi)
Kaala Lord:	Venus (Mahakala: Venus)
Gouri Panchanga:	Kaala (Choghadiya)

2. **3143BCE:** In 3143BCE, the start of Balarama's pilgrimage must be Pushya nakshatra on November 28th, the pilgrimage must therefore end on January 8th the following year. Unfortunately, it is noted that this day of January 8th 3142BCE is a Krishna Dwadasi. But this day is an Uttrashadha star day.

Hence the pilgrimage can only end the next day on January the 9th which is a Krishna Tryodashi. Therefore assuming a start to the war timeline which must end at or near the next Amavasya, for 3143BCE, Balarama arrives at least 2 days too early and before the war has ended which is not what the epic says. Unfortunately to compound the worries of 3143BCE, the Winter solstice arrives in just 5 days on January the 14th. This means that Bhisma Moksha ends in just 10 days, which is really too short a time for the timeline of Bhisma Moksha, unless one conjectures that the Jyestha Amavasya required took place at least a month earlier which would disrupt the eclipse, Balarama's and the war timeline too. If one overlooks all this and looks at November 1st 3143BCE as the start of Balarama's pilgrimage on the previous Pushya nakshatra, then one runs into peculiar problems. Dec 12th, the last day of the pilgrimage is still Uttarashadha nakshatra at sunset, which is an Amavasya. Unfortunately, one cannot take this date as the end point for the war as the Solar eclipse the previous month has occurred on November 13th. One can see the peculiar problems researchers run into in every other year other than 3067BCE. In any case, assuming Bhisma moksha is needed on the Shukla Astami, on a Rohini nakshatra, that doesn't occur either on the 18th of January nor on the 19th of January at noon. On the 18th of January, it is still a Shukla Saptami at midday, although Rohini nakshatra is present, whereas on the 19th of January, it is Shukla Astami at midday but the nakshatra has long changed to Mrigasira. Thus either the Tithi or the Nakshatra is not correct post Winter Solstice for Bhisma Moksha. Thus 3143BCE is debunked.

3. **3138BCE:** In 3138BCE, the solar eclipse of August 21 and the Amavasya do not occur at Jyestha, instead they have occurred at Hasta/Chitra near Virgo. Balarama's pilgrimage must be Pushya nakshatra on September 12nd, the pilgrimage must therefore end on October 24th. Unfortunately, the Amavasya required as the end of the war occurs on October 19th. Thus October 24th is 5 days too late after the end of the war for the return of Balarama to witness the Gada Yuddha. It is noted that October 24th is Shukla Panchami. Therefore assuming a start to the war timeline which must end at the preceding Amavasya, in 3138BCE, Balarama arrives at least 5 days

too late and after the war has ended to be able to witness the duel/ Gada Yuddha.

4. 5561BCE: In 5561BCE, a unique set of problems assails the research because of a reversal of the entire war timeline. The proposed war timeline in 5561BCE starts on an Amavasya.

Thus none of the conditions given above in 1-5 (Rigorous criteria) above are fulfilled

1. **The start day of the pilgrimage is NOT a Pushya Nakshatra.**
2. **The ending day of the pilgrimage is NOT a Shravana Nakshatra.**
3. **This last ie. 18th day of the war is NOT an Amavasya or very close to it because of a reversal of the entire war timeline which starts on an Amavasya.**
4. **The14th war night Moonrise which is one of the three real references of astronomy from the Mahabharata for the war timeline is completely ignored including the Gada Yuddha Parva reference alluded to elsewhere in this book.**

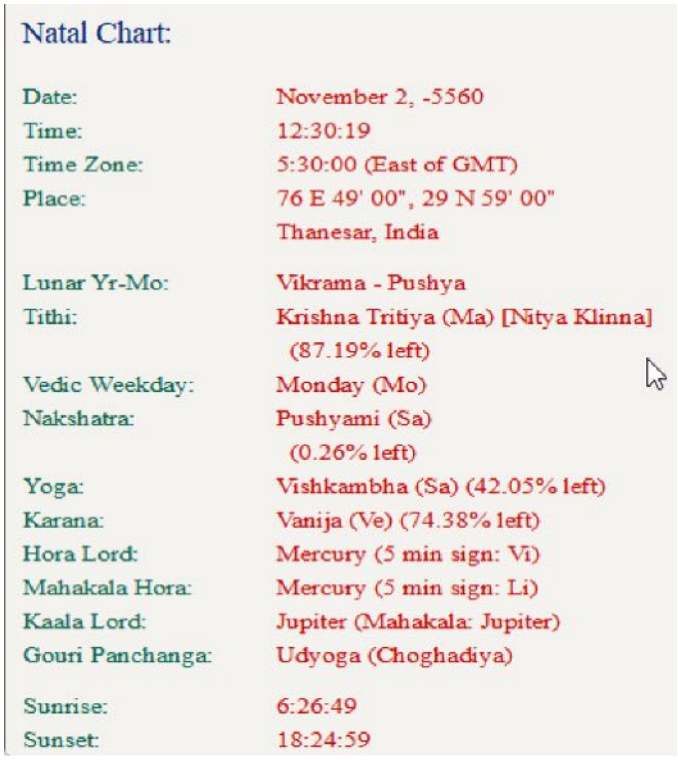
But there are many more grave problems which arise in the research of 5561BCE.

The published book (Mystery of Arundhati) on 5561BCE, (pp 88, pp97, pp98, pp101, pp102) and error elimination experiments 29, 30, 31, 32 and 33 together and separately talk about 16th Oct 5561BCE being the first day of the Mahabharata war. A solar eclipse is taken to mark that first day of the war as certain Sanskrit shlokas are taken to interpret this phenomenon.

The next problem which arises in 5561BCE is that the solar eclipse which is taken to occur at midday on the 16th of Oct 5561BCE does not actually occur on that day, but at Kurukshetra, it occurs on the next day ie. 17th of October at around 6:00 am according to the reliable Swiss Ephemeris online.

This miscalculation is unfortunate. It inflicts a double blow to the 5561BCE research.

The first blow is that the war observations on all the days of the war become doubtful as the war day count is changed. Thus day two of the war becomes day one, day three of the war becomes day two, day four of the war becomes day three, day five of the war becomes day four and so on.



Natal Chart:

Date:	November 2, -5560
Time:	12:30:19
Time Zone:	5:30:00 (East of GMT)
Place:	76 E 49' 00", 29 N 59' 00"
	Thanesar, India
Lunar Yr-Mo:	Vikrama - Pushya
Tithi:	Krishna Tritiya (Ma) [Nitya Klinna] (87.19% left)
Vedic Weekday:	Monday (Mo)
Nakshatra:	Pushyami (Sa) (0.26% left)
Yoga:	Vishkambha (Sa) (42.05% left)
Karana:	Vanija (Ve) (74.38% left)
Hora Lord:	Mercury (5 min sign: Vi)
Mahakala Hora:	Mercury (5 min sign: Li)
Kaala Lord:	Jupiter (Mahakala: Jupiter)
Gouri Panchanga:	Udyoga (Choghadiya)
Sunrise:	6:26:49
Sunset:	18:24:59

The second blow is that the 18th day of the war is now the 17th day. The choice for the 5561BCE researchers is cruel. Either the war timeline must end in 17 days if the published ending date for the war is to be preserved or an additional day must be added to the war timeline to make up the 18th war day. Unfortunately for the 5561BCE research, the published war start date of 16th October was useful because in that case, that 18th war day ended on a Pushya nakshatra which was however over by 1230 pm (near noon) on that same day.

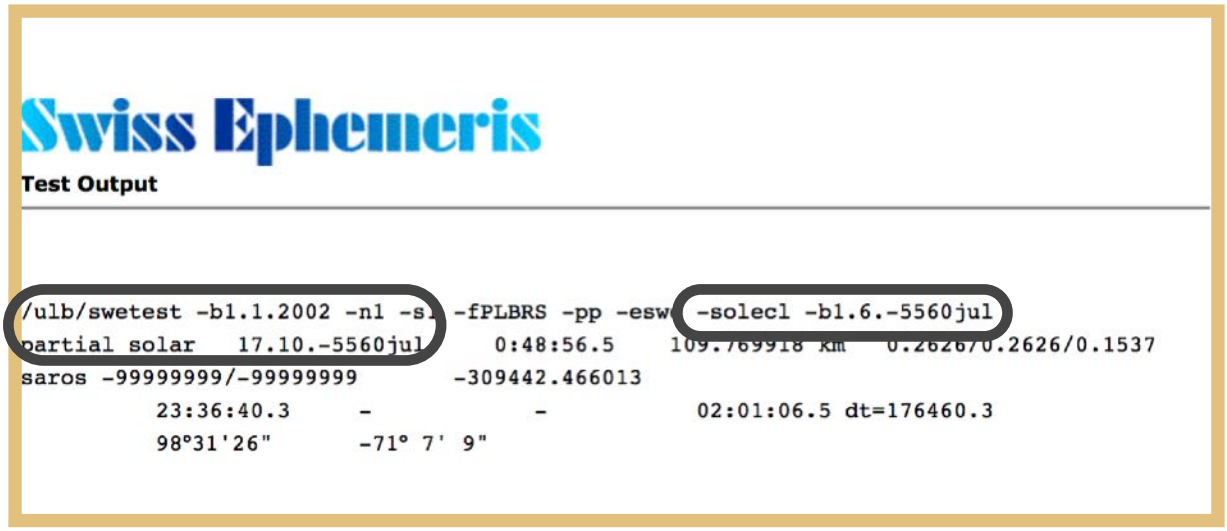
This second blow is what kills Balarama's pilgrimage hypothesis completely in the published war proposal of 5561BCE as shown in the JHora screenshot above. The issue is that even assuming that there is a fresh 18th day to the war, then that day must be November 3rd. Unfortunately, Ashlesha nakshatra is already running from around 1230 pm on the previous day AND it rises the next day at sunrise to continue for a significant portion of the day as shown below. This means that, in 5561BCE, Balarama does not arrive on the 18th day of the war anymore. He arrives on the 17th war day before 1230 pm and not on the 18th war day. This is yet one more problem in the ever growing list of problems which do not allow the proposal of 5561BCE to be considered seriously as a possible candidate for the year of the Mahabharata war.

JHora Output for Solar eclipse of -5560 (5561BCE)

Swiss Ephemeris Output for Solar Eclipse of -5560 (5561BCE)

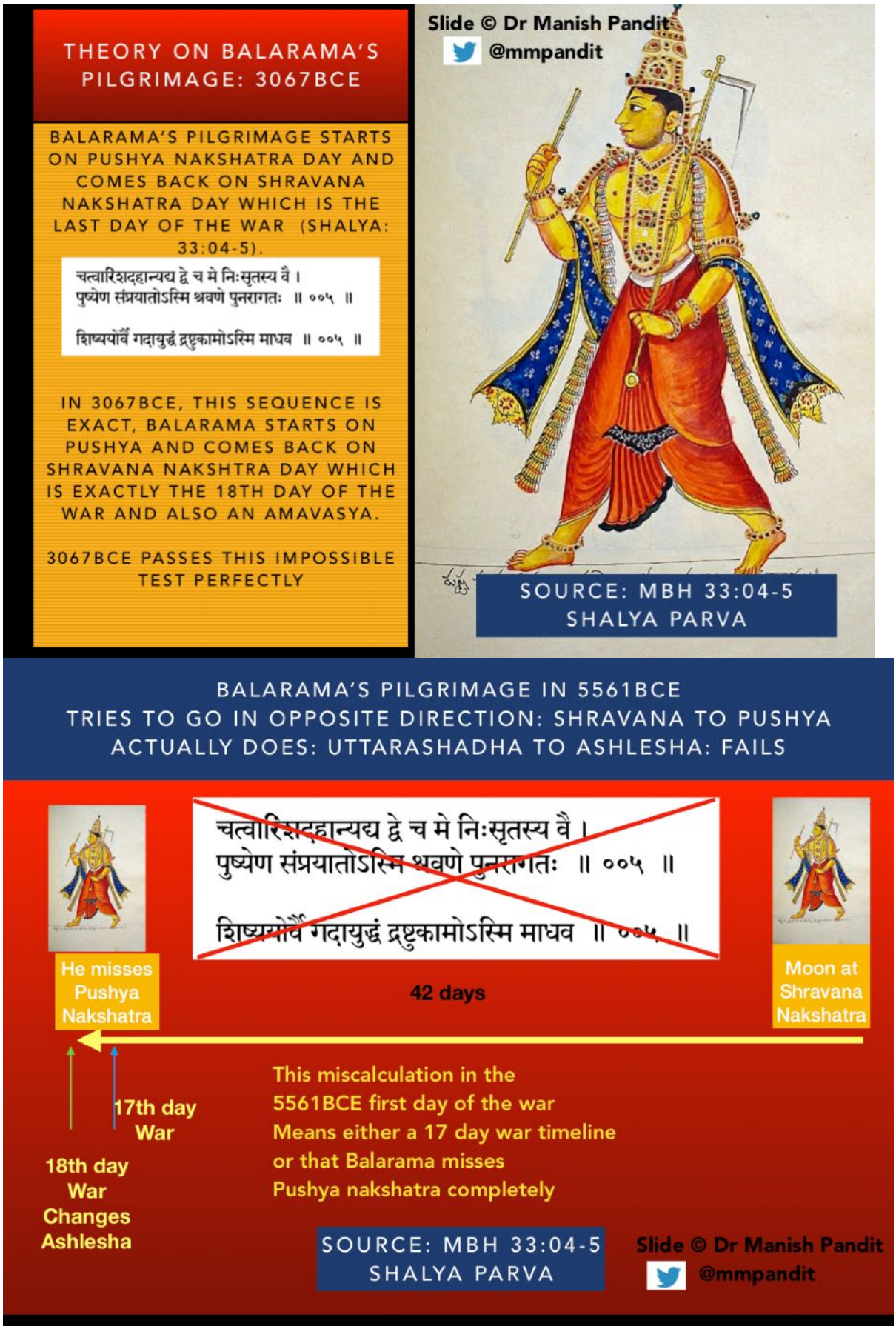
Part Solar Ecli:		Natal Chart:	
Date:	October 17, -5560	Date:	October 17, -5560
Time:	6:00:54	Time:	6:00:19
Time Zone:	5:30:00 (East of GMT)	Time Zone:	5:30:00 (East of GMT)
Place:	76 E 49' 00", 29 N 59' 00" Thanesar, India	Place:	76 E 49' 00", 29 N 59' 00" Thanesar, India
Lunar Yr-Mo:	Vikrama - Margasira	Lunar Yr-Mo:	Vikrama - Margasira
Tithi:	Amavasya (Ra) [Chitra] (4.22% left)	Tithi:	Amavasya (Ra) [Chitra] (4.26% left)
Vedic Weekday:	Friday (Ve)	Vedic Weekday:	Friday (Ve)
Nakshatra:	Moola (Ke) (70.34% left)	Nakshatra:	Moola (Ke) (70.38% left)
Yoga:	Ganda (Sa) (36.88% left)	Yoga:	Ganda (Sa) (36.93% left)
Karana:	Naga (Me) (8.44% left)	Karana:	Naga (Me) (8.53% left)
Hora Lord:	Moon (5 min sign: Ar)	Hora Lord:	Moon (5 min sign: Ar)
Mahakala Hora:	Moon (5 min sign: Aq)	Mahakala Hora:	Moon (5 min sign: Aq)
Kaala Lord:	Rahu (Mahakala: Moon)	Kaala Lord:	Rahu (Mahakala: Moon)
Gouri Panchanga:	Roga (Choghadiya)	Gouri Panchanga:	Roga (Choghadiya)
Sunrise:	6:13:48 (October 16)	Sunrise:	6:13:48 (October 16)
Sunset:	18:44:40 (October 16)	Sunset:	18:44:40 (October 16)

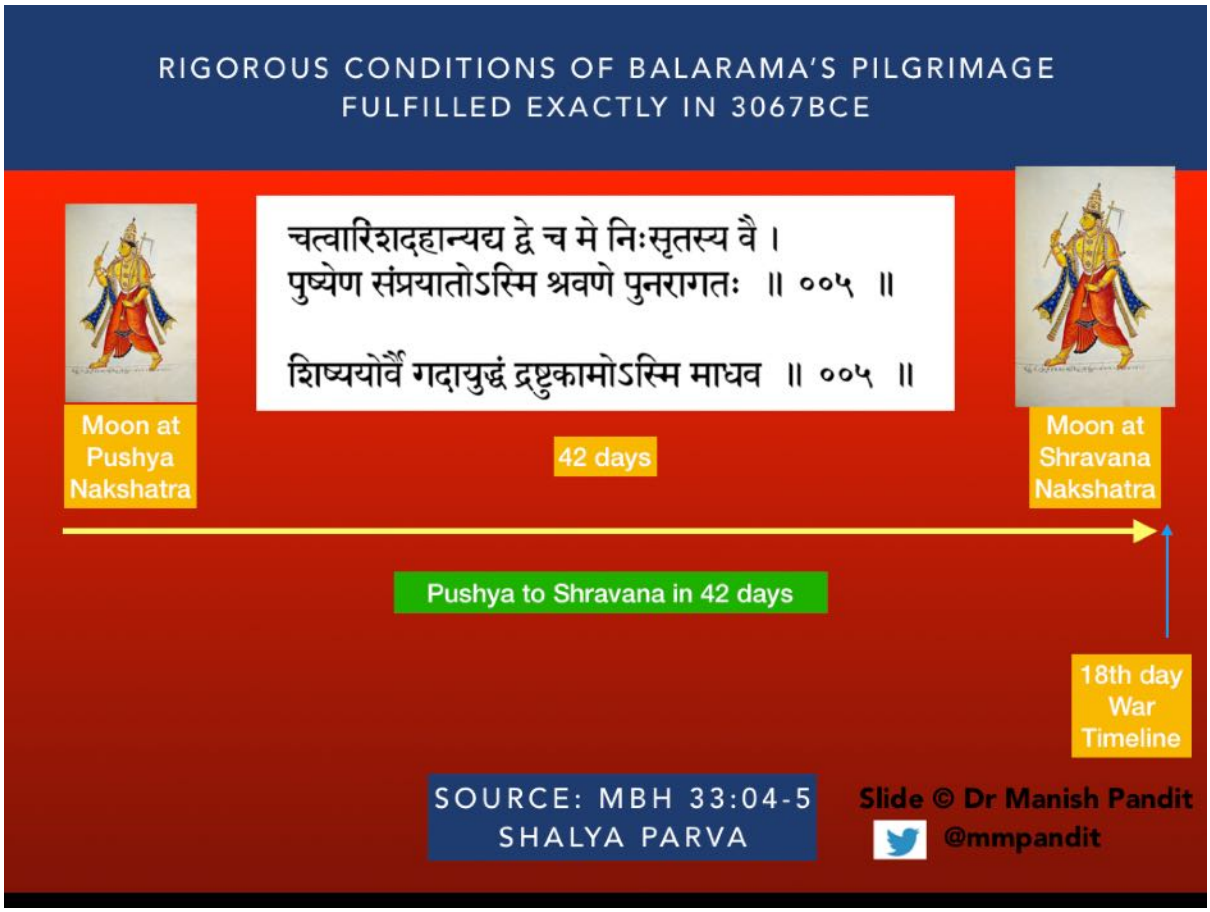
The Solar eclipse can be clearly shown to occur at 6 am (local time or around 1 am UTC) on Oct 17th 5561BCE. Thus the first day of the war is a definite miscalculation. The Swiss Ephemeris test output also shows exactly this.



Some of the above rigorous criteria for Balarama's pilgrimage and objections to the date of 5561BCE have been presented here in a short film format:

https://youtu.be/mLceUJnXydg





https://youtu.be/mLceUJnXydg

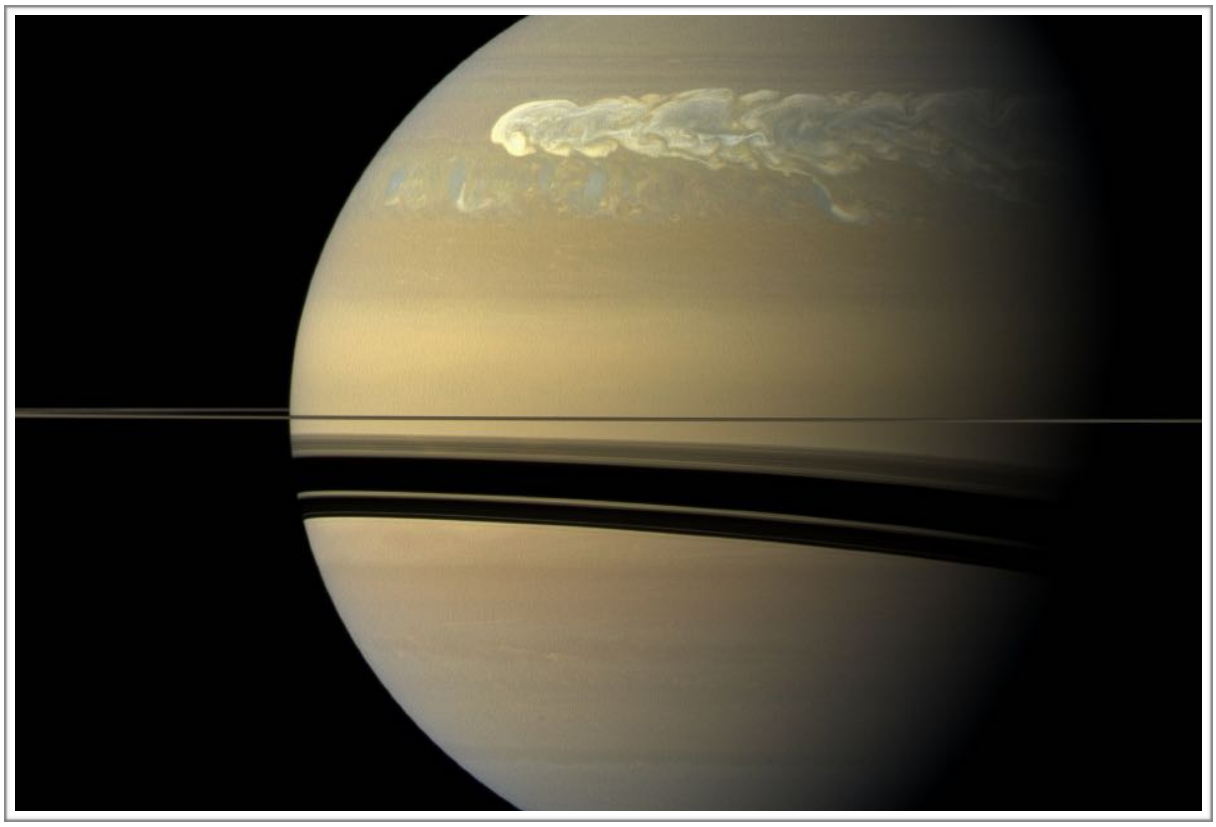
Pgurus Episode 3: Textual points of Amavasya, Purnima, Tithis and Nakshatras in the war, Mission of Peace and Balarama's Pilgrimage timelines:

https://youtu.be/wwQaW4EhtVk

Link to Free Downloadable Criteria for the Mahabharata War (book 2)

https://www.academia.edu/51214389/Criteria_Governing_The_Astronomy_of_the_Mahabharata_War

Fixing the Position of Saturn during the Mahabharata War



Chapter 4

Om Shanaischaraye Namah

Published by

Dr Manish Pandit

November 4 2019

Fixing the Position of Saturn during the Mahabharata War:

Om Shanaischaraye Namah

Aim: To fix the position of Saturn during the Mahabharata War beyond reasonable doubt.

Methodology:

1. To show the various positions of Saturn alluded to in verses in the Mahabharata war critical edition document. (BORI)
2. To find commonality and ranking of positions of Saturn.
3. To reject those verses indicating conflicting positions of Saturn if sufficient evidence can be found to the otherwise.
4. To ascertain if Saturn in certain positions of the zodiac pertaining to fixed stars of the zodiac was and is indicative of severe harm and to present this evidence.

Introduction:

Can Saturn be in two separate positions in the same year of the Mahabharata war within the space of 10-15 verses in the same third chapter of Bhisma Parvan? (Vishakha and Uttaraphalguni) and at the same time be at Rohini nakshatra too which is 150+ degrees away in the sky, all in the space of a Parva?
It is to be noted that no other researcher of the Mahabharata actually tries to solve the puzzle of the three conflicting and contradictory positions of Saturn (and also the three contradictory positions of Jupiter and two positions of Mars, essays for which can be found elsewhere in this book).
Being the slowest of all planets in terms of its movement, fixing the position of Saturn during the war becomes very important.

Importance of Saturn in calculations for the Mahabharata war:
Saturn is a slow moving planet and it takes approximately 29.5 years to move around the zodiac. Because of its slow movement, it lends itself to being very useful for acceptance and rejection of a date for the Mahabharata war especially if a ranking system can be found for an observation. Because of its slow movement and because it stays for long terms of time in a fixed star of the zodiac (modern day calculations fix it at 2.25 years approximately in every Rashi/sign of the zodiac) it is very important to fix the position of Saturn in the Mahabharata war, as if this position is not fixed correctly then the entire effort of calculation of the date of the Mahabharata war is a big failure.

Four Key verses:

Thus on examination of the critical edition BORI we find that four key verses exist:

A: Three of the four verses pertaining to Saturn refer to him explicitly as "***Shanaischarah***" AND giving its position in terms of a named fixed star:

प्राजापत्यं हि नक्षत्रं ग्रहस्तीक्ष्णो महाद्युतिः ।
शनैश्चरः पीडयति पीडयन्प्राणिनोऽधिकम् ॥ ००७ ॥

1. This is "***Prajapatyam hi Nakshatram"*** verse from Udyoga Parvan 141:07 which fixes Saturn at Rohini (Aldebaran) in the sky. The verse comes from the dialogue between Krishna and Karna, two important characters of the Mahabharata.
2. ***Rohinim Pidayannesha Sthitho Rajaan Shanaischarah*** from Bhisma Parvan Chapter 2.32 which again fixes Saturn at Rohini nakshatra (Aldebaran). This verse is related by Ved Vyasa in chapter 2 of Bhisma Parva to Dhritarastra.

रोहिणीं पीडयन्नेष स्थितो राजञ्शनैश्चरः ।
व्यावृत्तं लक्ष्म सोमस्य भविष्यति महद्भयम् ॥ ०३२ ॥

3. ***Samvatsara Stahiyonou cha Grahau Prajvaliata Vubhau, Vishakayou Sameepasthou Brahaspati Shanaischarou***, which refers to two "grahas" Jupiter and Saturn which are staying very close to Vishakha a nakshatra for a year. This verse is related by Ved Vyasa in chapter 3 of Bhisma Parva to Dhritarastra.

संवत्सरस्थायिनौ च ग्रहौ प्रज्वलितावुभौ ।
विशाखयोः समीपस्थौ बृहस्पतिशनैश्चरौ ॥ ०२५ ॥

B: The fourth verse whose first part does not refer to the name Shanaischarah explicitly but gives a possible fixed star/ nakshatra position.

भाग्यं नक्षत्रमाक्रम्य सूर्यपुत्रेण पीड्यते ।
शुक्रः प्रोष्ठपदे पूर्वे समारुह्य विशां पते ॥ ०१४ ॥

The first part of the verse appears in the Bhisma Parvan chapter 3 verse 14.This verse is related by Veda Vyasa to Dhritarastra.

Making sense of the verses, deriving commonality and ranking:

As we see above, there are two verses pertaining to Saturn and calling Saturn by his Sanskrit name Shanaischarah itself which also position Saturn at exactly the same place in the zodiac during the Mahabharata war. These verses have the further peculiarity in that they occur in two separate parts of the Mahabharata critical edition in two separate books, the Udyoga Parvan and Bhsima Parvan YET give absolutely the same position THAT TOO at Rohini.

Who are the characters delivering these verses?: If we look closely Karna delivers one of these verses to Krishna and Vyasa delivers the other verse to Dhritarastra.

Detecting absurdities:

The question now arises, what about the verse fixing Saturn at Vishakha, that too with Jupiter and that too for a full year (as pertaining to the positions in the same verse for both of them)? The question becomes important because at least three other authors have tried to fix Saturn at Vishakha. (PV Vartak, RN Iyengar and NN Oak)

In a previous paper I alluded to the etymological significance of the verses of Bhisma Parvan chapter three which is where this verse occurs. Leaving aside that paper of mine for a moment let us examine this verse and the other verse mentioned above in B.

Questions which must be answered:

1. Is it possible for Saturn to stay at or very near a nakshatra for a full year?

A: It is at least somewhat plausible for Saturn to be at a Nakshatra for a full year.

2. Is it possible for Jupiter to also be at a Nakshatra for a full year?

A: This is an absurdity as Jupiter crosses 30 degrees of a sign in 13 months (zodiac in 13 years) whereas a Nakshatra/ fixed star only numbers 13 deg 20 mins. Therefore this idea that Jupiter can be at a Nakshatra for a full year is quite clearly wrong.

However, what if we ask the question that as follows:

However we also need to ask, what about the Sanskrit word "***Vishakha Sameepasthou***" which can only mean "near or in proximity to Vishaka nakshatra/star"?

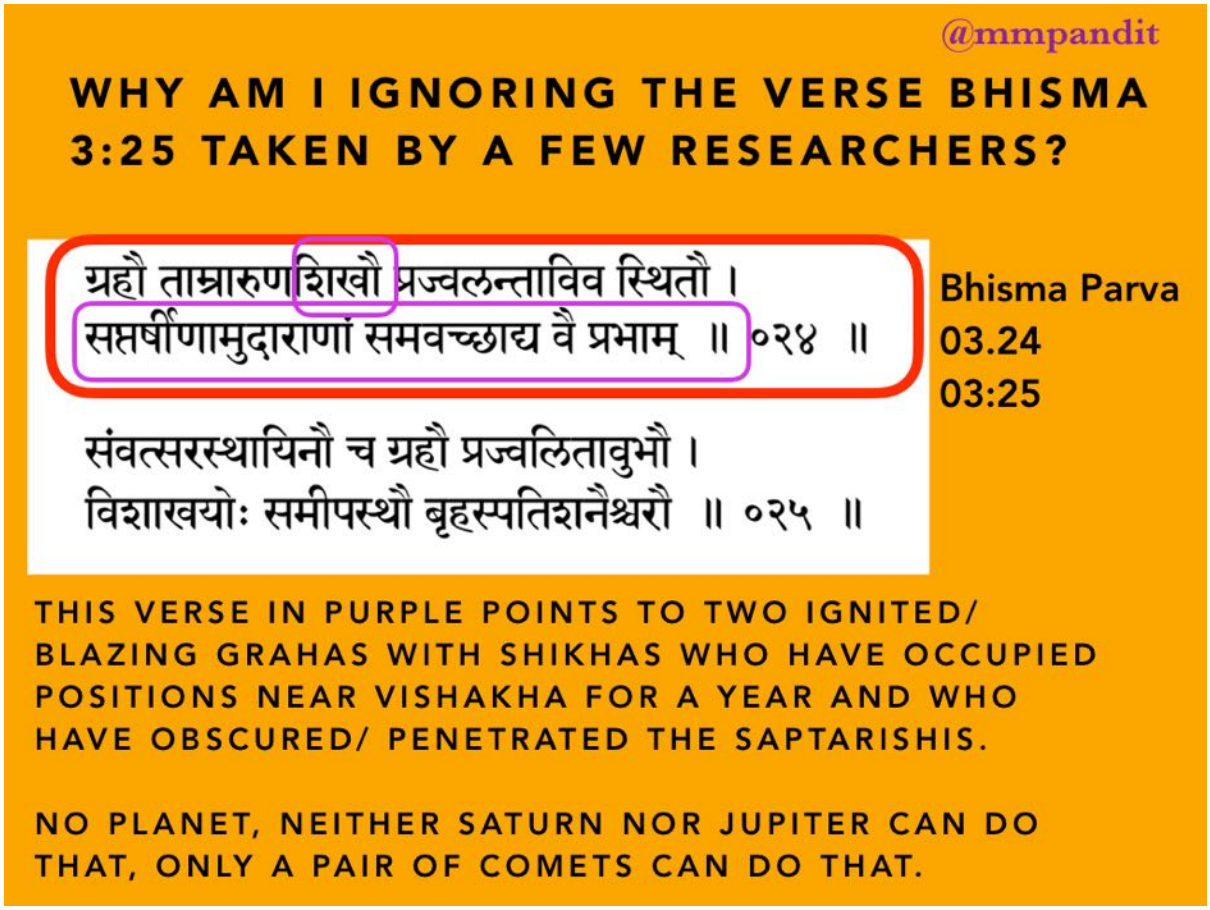
The answer to this follow up question is pretty straight forward: Why would Vyasa mention Vishakha nakshatra, if the actual planet, assuming that graha is to be translated as planet here, was actually at another nakshatra/ fixed star other than Vishakha? Hence this statement of Jupiter near Vishakha along with Saturn for a full year is actually completely illogical and therefore represents an absurdity.

It follows that since this description of the position of Jupiter and Saturn at Vishakha is now proven to be an absurdity, therefore the verse (Bhisma 3.25 referring to Saturn and Jupiter at Vishakha) must have an alternative explanation.

3. Hence the question follows that, is there an alternative explanation for the apparent so called Saturn and Jupiter's positions together at Vishakha?
A: As alluded to in the chapters on comets (8, 12 and 13) elsewhere within this book, the verse prior to the verse 3:25. ie Verse 3:24 provides a very good explanation for the apparent conflicting position of Saturn. It is also important to mention that as pointed out in that paper, that verse Bhishma Parva 03.24 is very similar to the first part of the verse under consideration and quite clearly mentions the word "***prajavalita***" in commonality to our verse along with the word "***shikha***". No planet has a "***shikha***", only comets do have "***shikhas***" or tails and therefore the overwhelming likelihood is that the two verses refer to comets with tails. The verse also clearly says that the two grahas were obscuring / penetrating the Saptarishis and therefore must be comets because Saturn and Jupiter can never obscure the Saptarishi mandala no matter how bright they were. Another meaning of this verse could also be that the two grahas are penetrating the Saptarishi mandala. This is explained further in the chapter "Planets or Comets" elsewhere in this book in greater detail.

In light of the above thoughts, it follows that this verse could refer to two grahas with coppery/ red tails and which are blazing in their appearance. The verse under consideration (Bhisma Parvan 03:25) therefore definitely refers to two comets. Now the question arises: does any simulation show two comets staying near Vishakha for 3067 BCE?
A: Yes, various simulations show in fact that were are two comets at that position in Vishakha in 3067 BCE. We show these in chapters 12 and 13. This gives rise to an acceptable alternative explanation for the apparent position of Saturn and Jupiter at Vishakha. Therefore we must reject the position of Saturn (and Jupiter near Vishakha in the year of the war) and accept the alternative explanation of comets near Vishakha without bias.

4: Can Jupiter and Saturn be in two separate positions in the same year of the Mahabharata war within the space of 10-15 verses in the same third chapter of Bhisma Parvan? (Vishakha and Uttaraphalguni) and at the same time be at a third position at Rohini nakshatra too, which is 150+ degrees away in the sky?
A: This would be an absurdity, so some acceptable solution has to be found using the methods above and the use of ranking using a marking system below.



It is to be noted that no other researcher actually tries to solve the mystery of the three conflicting and contradictory positions of Saturn (and Jupiter which can be found elsewhere in this book).

If we apply a marking system with a maximum mark of 40 and a minimum of zero for positions of Saturn at various points of the zodiac using commonality, same nakshatra position between the four verses and importance in terms of the number of characters of the Mahabharata text involved, then we are able to give a rank to each position of Saturn as follows:

A:

1. 10 marks for every verse of Saturn which occurs in a different Parvan/book of the Mahabharata CE (BORI) but gives the same position at the exact same fixed star (Rohini or Vishakha or Uttaraphalguni)

3. 10 marks for more than two principal characters delivering the verses at that position.

Mark deductions employed:

And then if we were to deduct marks for a position of Saturn if it is absurd as follows:

Reason 1: 10 marks deducted for every verse of Saturn which occurs in the same book but gives a completely conflicting position.

Reason 2: 10 marks deducted if any other absurdity can be found in the same verse as explained above.

Saturn position	Saturn at Rohini	Saturn at Vishaka	Saturn at U. Phalguni
Marks given for different verses mentioning the same fixed star position	10 + 10	10	10
Marks given for more than two principal characters mentioning it	10 + 10	10	10
Marks deducted for absurdity due to reason 1	0	-10	-10
Marks deducted for absurdity due to reason 2	0	-10	0
Total	40	0	10

Thus we see that verses pertaining to Saturn at Rohini completely outstrip any other position of Saturn based on a fair marking system which takes into account the above factors. If we take this ranking system as fair during the Mahabharata war, then Saturn can now be fixed at Rohini during the year of the Mahabharata war.

Conclusion:

1. Saturn's position at Rohini during the Mahabharata war is the overwhelming favourite using a non biased marking system to obtain ranking as above by employing scientific thinking, looking at all the alternative possibilities in a fair manner and eliminating researcher bias which can lead to errors.
2. We can eliminate the verse pointing to the possibility of Saturn at Vishakha during the Mahabharata war completely owing to absurdities in Jupiter's

position in the same verse and because an alternative explanation in the form of a simulation showing two comets at Vishakha can be found easily. An etymological explanation also is provided by me in a previous paper on academia and is an additional reason to reject Saturn at Vishakha.

3. The verse pointing to the possibility of Saturn at Uttaraphalguni has a low mark as shown above in the ranking system. In addition Saturn is not referred to by the name in the other three verses (Shanaischarah) but instead as a "putra" of the Sun and that raises the distinct possibility of this verse being a reference to a cometary position where comets have been explained by Parashara and Varahmihira as "putras" of various grahas.

4. We therefore feel that when researchers of the Mahabharata take Saturn, a slow moving planet of the zodiac at any other position other than Rohini during the year of the Mahabharata war, it throws their entire body of work into considerable doubt because the external and internal absurdities of any other position of Saturn in the CE (critical edition) of the Mahabharata text have already been pointed out as above.

5. In light of the clarity of the above findings, we recommend that one of the basic requirements of any unbiased dating effort for the Mahabharata war should always try to fix the date of the Mahabharata war on one of the 210+ dates (considering a search between 6000 BCE and 500 CE) when Saturn was at Rohini nakshatra (Aldebaran).

6. In 3067 BCE, Saturn is at Rohini quite clearly and as per the dictum of Varahmihira which would have been operational at that time would clearly have been causing "***pida/peeda***" to Rohini whose lord is Prajapati. Thus Saturn at Rohini quite clearly is a huge point in favour of 3067 BCE as the date of the Mahabharata war. In addition, 5561 BCE and other dates when Saturn is not at Rohini or alternative dates for the war when Saturn is at Vishakha or Uttaraphalguni should be rejected outright as they fail this basic test of non biased ranking of Saturn as demonstrated above.

7. Finally, I would like to present evidence of existence of the ***Sarvatobhadra*** chakra during the time of the Mahabaharta war. This chakra is extensively used in Jyotisha even today and is the only prominent existing system where ***"peeda***"

or affliction to a nakshatra is mentioned. The evidence is to be found on the 9th day of the war. During the war, various Vyuhas or battle formations were used such as ***Krouncha*** (heron) or ***Shuchi*** (needle) or ***Padma*** (lotus) formation or the by now infamous :***Chakravyuha*** formation. Sarvatobhadra is a similar formation and is similarly used in Jyotisha. I present the first verse from the Gita Press edition of chapter 99 of Bhisma Parva below:

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संजय उवाच

ततः शान्तनवो भीष्मो निर्ययौ सह सेनया।
व्यूहं चाव्यूहत महत् सर्वतोभद्रमात्मनः ॥ १ ॥

संजय कहते हैं—महाराज ! तदनन्तर शान्तनुनन्दन भीष्म सेनाके साथ शिबिरसे बाहर निकले। उन्होंने अपनी सेनाको सर्वतोभद्रनामक महान् व्यूहके रूपमें संगठित किया॥

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SATURN MUST BE AT ROHINI

प्राजापत्यं हि नक्षत्रं ग्रहस्तीक्ष्णो महाद्युतिः। शनैश्चरः पीडयति पीडयन्प्राणिनोऽधिकम् ॥ ००७ ॥	Udyoga 141.7
रोहिणीं पीडयन्नेष स्थितो राजञ्शनैश्चरः। व्यावृत्तं लक्ष्म सोमस्य भविष्यति महद्भयम् ॥ ०३२ ॥	Bhisma 02.32
~~भाग्यं नक्षत्रमाक्रम्य सूर्यपुत्रेण पीड्यते। शुक्रः प्रोष्ठपदे पूर्वे समारुह्य विशां पते ॥ ०१४ ॥~~	Comet: Grahaputra?
~~संवत्सरस्थायिनौ च ग्रहौ प्रज्वलितावुभौ। विशाखयोः समीपस्थौ बृहस्पतिशनैश्चरौ ॥ ०२५ ॥~~	Comets because of previous verse 03:24

Notes:

Critical Examination of the position of planets other than

Saturn during the Mahabharata War

Chapter 5

Om Shanaischaraye cha Navagrahaye Namah

Published by

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Critical Examination of the position of planets other than Saturn during the Mahabharata War

Om Shanaischaraye cha Navagrahaye Namah (picture courtesy: Wikipedia)

Aim: To critically examine the positions of planets other than Saturn during the Mahabharata war.

Methodology:

A:

1. To show the various positions of Jupiter, Mars, Venus and Mercury alluded to in verses in the Mahabharata war critical edition document. (BORI)
2. To find commonality/ contradictions and ranking of positions of these planets.
3. To assign a speculative ranking index to planetary positions with verses indicating conflicting positions of planets if sufficient evidence can be found to do so.
4. To check if grahas with names not suggestive of planets (mainly in Chapter 3 of Bhisma Parva) can be found to have a name in Varahmihira's list of comets.

Speculative index for Planetary positions other than Saturn: 10 = credible, 100= speculative

1.Parva: Chapter: Verse number : Graha/Planet name @mmpandit	2. Meaning of verse	3. Varah-mihira comet name?	4. Described as Prajvalita/ Jvalan/ Dhumaketu	5. Position after applying column 3 and 4	6. Speculative Index after applying column 4 and column 5
Bhisma.3. 11: Shweta graha	Shweta graha:	Yes name of comet	No	Comet	10
Bhisma.3. 11: Dhumaketu	Very Terrible Dhumaketu graha at Pushya	Yes name of comet	Yes	Comet	-80
Bhisma.3. 13: Magha Mars	2 possible positions of Mars: Here Mars retrograde at Magha	Absurdity/ Comet	No	Comet	?Comet Retrograde
Bhisma.3. 13: Shravana Jupiter	Jupiter at Shravana	Absurdity/ Comet	No	Comet	?Comet Retrograde
Bhisma.3. 14: Shukra	1 position of Shukra at Purva/ Uttara bhadra	Could be	NA	?Planet	10
Bhisma.3. 15: Shyama graha	Shyama graha:	No	Yes	Comet	-80
Bhisma.3. 15: Dhuma graha	Dhuma graha:	Yes name of comet	Yes	Comet	-80
Bhisma.3. 15: Pavakaha graha	Pavaka graha:	No	Yes	Comet	-80
Bhisma.3. 16: Dhruva graha	Dhruva graha:	Yes name of comet	Yes	Comet	-80
Bhisma.3. 16: Parusha graha	Parusha graha: Only speculation	No	No	No	100
Bhisma.3. 17: Pavakahaprabha graha	Pavakaprabha graha:	No	No	No	100
Bhisma.3. 17: Lohitango graha	Lohitango graha:	No	No	No	100
Bhisma.3. 25: Jupiter	Jupiter and Saturn at Vishaka: Penetrates/ Obscures Saptarishis	No	Yes	Solved as Comet	-80
Bhisma.3. 26: Tivra graha	Tivra graha:	Yes using verse meaning	Yes	Solved as Comet	-80
Bhisma.3. 27: Mercury	Mercury no position (all naksatras)	NA	NA	Planet/ Comet	NA
Karna. 68.47-49 : Jupiter	Jupiter causing peeda to Rohini	NA	NA	Planet	-80
Karna 68:47-49 Yamasya Putra	Yamasya Putra	No	Blazing	2P Encke Comet	-80
Udyoga: 141:08 Mars	Mars retrograde before reaching Jyestha	No	NA	Planet	10

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Methodology of Speculative index
B:

1. Meaning of Values calculated for the Speculative Index:
Values assigned are based on credibility.
A value of 10 calculated for the speculative index means that the position/ description has maximum credibility: as a planetary position.

A value of 100 calculated for the speculative index means that the position/ description as a planet is Highly Speculative and we cannot take it too seriously.

A value of -80 can be arrived at for a graha which has a non Planetary name (which is ambiguous) if it finds two things in favour allowing -90 to be deducted twice as follows:
a: Its name is in Varahmihira's comet list and
b: It is also described by one of the three words Prajvalita/ Jvalan or Dhumaketu as described in one of our previous papers. [6] [10] [3]

Each position of a planet contributes 10 marks. The greater the number of positions, the lesser the credibility of any position for that planet.

Veto position or Caveat for the above ranking index:
The above does not hold true if more than one verse, especially if they are in separate books of the Mahabharata, points to exactly the same position for any planet in terms of its position at a fixed star in which case that position becomes very strong.
No planet other than Saturn finds itself in this enviable position, that too in two separate verses, in two separate books of the Mahabharata, which is why I have discounted it from this chapter and written a separate paper on it.

2. How to calculate Values for the Speculative Index for grahas called by planetary names:
Each position of a planet contributes 10. The lesser the number of positions of a planet, the better it's position's credibility and the lower its Speculative index.

a: **Venus:**
Venus has only one position in the zodiac according to verse 14 of Chapter 3 of Bhisma Parva. The speculative index is therefore calculated as only 10 and it has very little speculativeness and high credibility to be at Purva/ Uttara Bhadrapada. However, its actual position holds very little bearing because the verse does not describe a retrogression in explicit terms and because Venus is a fast moving planet and therefore would land up at this position in virtually any year.

b: **Mars:** Bhisma.03.13 and Udyoga.141.08
Mars has two possible positions:

i. Retrograde at Magha: Unfortunately Mars is described in the same verse as being retrograde at Magha at the same time as Jupiter retrograde at Shravana which is impossible from the astronomy point of view as it requires the Sun at two opposite positions nearly 180 degrees apart near Pushya and Satataraka OR
ii. Retrograde before arriving before Jyestha and near Anuradha

Mars therefore could have a Speculative index value calculated at 10 + 10 = 20. Both positions describe retrogression however, so a year in which Mars is not retrograde must be excluded and cannot be a date for the Mahabharata war. **Retrogression/ Vakri** motion is well known in astronomy (and in Vedic astrology) and can be calculated and shown using basic textbook astronomy. We have shown an alternative explanation/hypothesis for verse 03:13 elsewhere in this book in the three chapters on Comets hence we can take both positions: one on Mars and the other (Magha Vakra 03:13) as two named comets in retrogression as having a Speculative index value calculated at 10 each.

c: **Jupiter:** Judging from verses Bhisma.03.13 and Bhisma.03.25 and Karna. 68.46-49, Jupiter on the other hand has three possible positions (at Shravana, near Vishakha and causing peeda to Rohini according to verses 03:13 and 03:25 of Bhisma Parva and verse 49 of chapter 68 of Karna Parva respectively).

Two of those above positions are effectively problematic (ie. 3:25 near Vishakha owing to the fact that Jupiter stays in a sign for 13 months and therefore cannot stay at a fixed star for one year as the verse Bhisma 03:25 states and also because

the previous verse confirms this to be two comets at Vishakha who are hiding/ penetrating the Saptarishis and have Shikhas/tails and therefore an alternative explanation must be searched for) AND verse 03:13 of Jupiter retrograde at Shravana at the same time as Mars is retrograde at Magha (which is impossible from the astronomy point of view as it requires the Sun at two opposite positions nearly 180 degrees apart near Pushya and Satataraka) leaving just the position of Jupiter causing peeda to Rohini to be solved. It took me a long time to solve this, although the answer was in front of me all the while, using the Sarvatobhadra chakra, details of which can be found in the chapter on "Astronomy around Karna's death." I have also presented an alternative but satisfactory hypothesis for the verse 03:13 (Shravana Brishaspati) from Chapter 3 Bhisma in the chapter "Comets or Planets". So Guru can have a speculative index of 30 if we believe all of its 3 contradictory positions OR we can use my hypothesis and explain all three verses (which I have shown elsewhere at Karna's Death and chapters on comets)

d: **Mercury:**
Mercury has no real position as it is described in its motion through all the nakshatras/ fixed stars as per the verse Bhisma.03.27 and is assigned as no position, so that its Speculative index is 10 BUT this is of little use to us in dating the Mahabharata.

3. The Calculation of Values for the Speculative Index for grahas called by Ambiguous and Non Planetary names in verses (the vast majority of these are in the 3rd chapter of Bhisma Parva):

a: If a graha is called by an ambiguous ie non planetary name then assign a value of 100 to it initially. Most of these names are in verses derived from chapter 3 of Bhisma Parva.

b. Look for the ambiguous name as given in chapter 3 of Bhisma Parva for the graha and cross check if that same name exists in the list of comets given by Varahmihira in his list of comets. If it does, then the possibility of that graha being a comet is high and hence a value of 90 is now deducted from the speculative index.
c: Now cross check if that graha is described by the words in the verse as Prajvalita/ Jvalan or Dhumaketu as we have said in our previous paper.
Deduct an additional 90 marks if it is described by the words as above.

Four following possibilities exist in this case for non planetary names:
1. Possibility that a graha is given a name by Varahmihira AND is described by the words in the verse as Prajvalita/ Jvalan or Dhumaketu.
A value of 90 is now deducted from the speculative index for being in the list of comets. Deducting an additional 90 if it is described by the words Prajvalita/ Jvalan or Dhumaketu as above. In this case, the graha must be a comet and the Speculative index will be negative:
ie 100 -90 -90 = -80

2. Possibility that a graha name is NOT FOUND in Varahmihira's list of comets AND is NOT described by the words in the verse as Prajvalita/ Jvalan or Dhumaketu. In this case, the graha may or may not definitely be a comet but the Speculative index will be high ie 100 (no deductions)

3. Possibility that a graha name is FOUND in Varahmihira's list of comets BUT is NOT described by the words in the verse as Prajvalita/ Jvalan or Dhumaketu. In this case, the graha has a good likelihood that it could be a comet but the Speculative index will be low but not as low as -80: ie
100 - 90 = 10.

4. Possibility that a graha's name is NOT FOUND in Varahmihira's list of comets BUT is described by the words in the verse as Prajvalita/ Jvalan or Dhumaketu. In this case, the graha has a good likelihood that it could be a comet but the Speculative index will be low but not as low as -80: ie
100 - 90 = 10.
This is described above in a tabular format.

Conclusions:

A: Planetary positions:

1. The position of Shukra/ Venus at Purvabhadrapada and Uttarabhadrapada can be fixed as its position is credible with a speculative index of just 10 owing to a single verse describing its position.
2. Mangal/ Mars can be in one of two positions, both however in retrogression,ie Vakri at Magha and before arriving at Jyestha, its position is somewhat credible owing to just two positions, the speculative index is 20. On further reflection though, Mars can only be in one position during the Mahabharata war as the position of Mars as retrograde at Magha at the same time as Jupiter is retrograde at Shravana is impossible from the astronomy point of view as it requires the Sun at two opposite positions nearly 180 degrees apart near Pushya and Satataraka. Thus Mars can only be retrograde near Jyestha and Anuradha as described before the Mahabharata war.
3. The position of Mercury is credible with a speculative index of just 10 owing to a single verse BUT its position is not described in the text.
4. There are three possible positions of Jupiter. I believe that I have a possible solution. Verse Bhisma 03:24/25 is resolved as two comets near Vishakha which have obscured/ penetrated the Saptarishis with their tails. Verse 03:13 is resolved as being speculative leaving just the position of Jupiter causing peeda to Rohini to be solved. It took me a long time to solve this using the Sarvatobhadra chakra, my search finally paid rich dividends and it is really with verse 68:47-50 of Karna Parva that I strike gold with Comet 2P Encke and Jupiter afflicting Rohini details of which can be found in the chapter on "Astronomy around Karna's death."

B: Non: Planetary positions:

1. The lowest speculative index of just -80 and therefore the highest credibility are to be found for the grahas given names of "Shyama graha", "Dhruva" "Dhuma", "Dhumaketu", "Pavaka" and "Tivra" grahas who are all most certainly comets as they find their way into the list of cometary names

described by Varahmihira AND are described by the Sanskrit names Prajvalita/ Jvalan or Dhumaketu. [6] [10] [3]

2. In addition, a low speculative index of just 10 and good credibility is to be found for the graha given the name of "Shweta graha", which is most likely a comet as it finds its way into the list of cometary names described by Varahmihira even though it is not described by the Sanskrit names Prajvalita/ Jvalan or Dhumaketu. [6] [10] [3]
3. Unfortunately, a high speculative index of 100 is to be found for the three grahas given the name of "Parusha", "Pavakaprabha" and "Lohitango" graha, while these could certainly be comets as they find their way into chapter 3 of Bhisma Parva, they do not find their way into the the list of cometary names described by Varahmihira and are not explicitly described by the Sanskrit names Prajvalita/ Jvalan or Dhumaketu. Thus, even though these may indeed be comets, I cannot be as certain about these three names in two verses as I am about the other names occurring in other verses as above in 1 and 2. [6] [10] [3]
4. Researchers have previously taken Parusha graha to be Rahu and Lohitango to be Mars but as we have shown you, not only is there no evidence for this, this introduces an additional error by giving us one more conflicting position for Mars in the space of just 12 verses (in addition to Mars at Magha) which actually makes all these positions weak.

Discussion:

1. Many researchers over the past many decades have taken planetary positions willy nilly to fit their dates based on what appears to be assumptions and a researcher bias. [5,10] A large number of researchers have commented on how Saturn's most credible position is a Rohini (Aldebaran) before proceeding to take a position of Saturn 150 degrees away from Saturn at Rohini. (as in 1478 BCE research and in other researches as pointed out in conclusion 9 below)

2. As talked about in my previous paper [7] , we can now appreciate that Saturn at Rohini is the most credible amongst ALL the planetary positions owing to it being the only planet finding its position at Rohini being echoed by two separate

verses, in two separate books of the Mahabharata and its conflicting verses are riddled with inconsistencies, a situation NO other planet or non planetary entity enjoys anywhere in the Mahabharata barring the eclipses. Hence Saturn at Rohini must be the starting point in any dating exercise. [7] Mars should be retrograde in that year when the Mahabharata war date is set owing to Mars being clearly being described as retrograde in both positions. Retrogression/ Vakri motion of Mars should be scientifically decided by textbook astronomy methods which would shows the shape of the loop much as it would appear to an observer. (Mind you even Panchanga Jyotisha authors can do this very well) These are the accepted methods of deciding Vakri motion. Mars should be taken as being in Vakri motion in that year of the Mahabharata war either before reaching Jyestha or when Mars is at Magha.

3. The position of Jupiter can be fixed only using my theory of Jyotisha BECAUSE Vyasa says that it causes peeda to Rohini. We show this to be the case from Ashwini nakashatra using the Sarvatobhadra chakra used during the Mahabharata war. Triangulation is possible using Saturn at Rohini and the eclipses.

However the position of Mercury with reference to a star/ nakshatra cannot be fixed for certain during the 18 days of the Mahabharata war or just before it according to the text. A Gita Press verse describes it in the Western part of the sky and we have shown it to be in the Western part of the sky with Venus and Mars. (see chapter on Karna's Death)

4. "Shyama graha", "Dhruva" "Dhuma", "Dhumaketu", "Pavaka" and "Tivra" grahas are all most certainly comets as they find their way into the list of cometary names described by Varahmihira AND are described by the Sanskrit names Prajvalita/ Jvalan or Dhumaketu in chapter 3 Bhisma Parva. [6]

5. "Parusha", "Pavakaprabha" and "Lohitango" graha, could certainly be comets as they find their way into chapter 3 of Bhisma Parva, but they do not find their way into the the list of cometary names described by Varahmihira and are not explicitly described by the Sanskrit names Prajvalita/ Jvalan or Dhumaketu. Speculation about their being planets is ill advised and would be an exercise in futility where various researchers could spend hours in speculative debate with no conclusions. [6]

6. Hence we do not recommend that Parusha graha be taken to be Rahu and Lohitango to be Mars, as this would be mere speculation and introduce unnecessary errors as many researchers of the past have succumbed to.

7. We do not recommend that Tivra graha be taken to be Pluto as it is effectively invisible to the naked eye and therefore cannot hide the Plaiedes group of stars and is described by the Sanskrit names Jvalan and like a Dhumaketu (comet) in chapter 3 of Bhisma Parva. [6]

8. We will comment separately on Neptune, Uranus and Pluto.

9. It is shocking to note that of all the researchers looking into the date of the Mahabharata war, (researchers in favour of theories proposing 955BCE, 1311BCE, 2449BCE, 2559BCE, 1478BCE, 3022BCE, 1793BCE, 1198BCE, 5561BCE, 5560BCE, 3162BCE, 3178BCE, 3143BCE, 3140BCE, 3139BCE, 3138BCE or 3137BCE) not a single date barring 3067 BCE (dating research done by Raghavan in 1969, then Achar in the year 2000, DK Hari and now myself) uses the most credible position of Saturn at Rohini as described in our previous paper. [10]
At least two researchers comment on how Saturn is most credible at Rohini before proceeding to use Saturn at Vishakha. In one of those dates (5561BCE), Saturn is actually found at the beginning of Chitra/ end of Hasta and 25 degrees away from the start of Vishakha, and not near Vishakha as claimed. [7] Of course, we have previously shown that Saturn near Vishakha has very little credibility due to the internal absurdity claimed in that verse of Jupiter too being near Vishakha for a full year, which is impossible in astronomy. The verse claiming Saturn near Vishakha also has a verse prior to it saying that the two grahas were blazing/ ignited, had coppery colour, tails and were hiding/ penetrating the Saptarishis. Jupiter and Saturn, or any other planet, no matter how bright they may be cannot hide/ penetrate the Saptarishis from near Vishakha, this is an impossibility. However comets can indeed do this and therefore the verse must refer to two comets near Vishakha. We deal with this in the chapter “Comets or Planets” elsewhere in this book.

This being the case, comets which have stayed visible for longer durations are candidates for this verse and include the great comet of 1811 which appeared at Madrid. However the great comet of 1811 was not likely to be present in 3067BCE. That leaves a few possibilities including Hale-Bopp comet among the longer seen comets and scores of other comets which can be seen for a shorter period of time. [7]
In addition, comets which are not seen with the naked eye but are present at the site described (near Vishakha) are candidates owing to the presence of telescopes using mirrors during the Mahabharata. A further paper will emerge on any planetary positions/ combinations not covered by this paper including one by a researcher from Europe who kept taking verses describing analogies to planetary combinations as real observations of the sky when actually there is absolutely no evidence to support such absurdity.

10. In 3067 BCE, all the above conditions are satisfied, including the key position being Saturn at Rohini. In that year, it is the case that Mars became Vakri/ retrograde before stopping before Jyestha and turns back at Anuradha as described by Karna in Udyoga Parva 141: 008 in the period before Jyestha Amavasya when Krishna's diplomatic mission of peace ended before the Mahabharata war started. It can be shown using basic textbook astronomy that Mars indeed was Vakri or retrograde earlier that year and that crucially, the timing was indeed at a time in exact synchrony and would be seen months before Krishna's Diplomatic Mission of Peace.
In addition it can be shown that Halley's comet with a period of 75.32 years was exactly at Pushya in 3074BCE and also likely to be in 3067BCE before the war. We have proposed naming Halley's comet as Vyasa's comet in his honour. In addition, another comet was also present near Pushya in 3067BCE: This was 123P- West-Hartley. Its path is shown elsewhere.

11. In 5561 BCE, Saturn is at neither of the key positions described in the Mahabharata text. Instead it is 20 degrees away from Vishakha, 110+ degrees away from Rohini at the beginning of Chitra nakshatra. [7] Venus is too fast moving and therefore will be at Purva and Uttarabhadrapada in virtually every year and hence its position is not of that much use as is Mercury. Halley' comet did not make an appearance in 5561 BCE despite all protests to the contrary (as

it would have made an appearance at a gap of 15 years with its period of 75.32 years).
Mars is retrograde much earlier in the year before the war. That researcher's definition of Vakri motion/ retrogression of Mars and other planets has been conclusively refuted elsewhere in this book in the chapter on Vakra motion.

12. All the above observations and conclusions are important to show that amongst all the planets, it is Saturn's position at Rohini which is the most credible and hugely important in efforts engaged in dating the Mahabharata war and it cannot and should not be ignored in dating the Mahabharata.
Missing Saturn's position while dating the Mahabharata war means that the only credible AND important planetary data in the CE (critical edition) of the Mahabharata text has been ignored. [7]

13. Many previous authors including Srinivas Raghavan (3067BCE) and Vartak et al (5561BCE) have speculated that Shweta graha was some or the other planet and Tivra graha was another planet, Shyama graha yet another planet while Lohitango and Parusha grahas are completely different planets and so on. We have shown you that these inferences are just highly speculative and are not based on factual knowledge. Such speculation is futile and harmful to Indian astronomy.

Summary:
Saturn at Rohini is the most credible of ALL the planetary positions in the Mahabharata Text owing to it being the only planet finding its position at Rohini being echoed by two separate verses, in two separate books of the Mahabharata and its conflicting verses are riddled with inconsistencies, a situation NO other planet or non planetary entity enjoys anywhere in the Mahabharata barring the eclipses. Hence Saturn at Rohini must be the starting point in any dating exercise. [7] Mars should be retrograde in that year and near Jyestha and Anuradha when the Mahabharata war date is set. These are are the two most important takeaways from this critical exercise. Jupiter showing "peeda" to Roshini on the 17th day of the war can only be through a Jyotisha explanation (because that is what Vyasa says). We explain this comprehensively in the chapter on Karna's death.

There are other reasons for taking Saturn at Rohini which are out of scope of this book but which are primarily astrological in nature. We deal with these elsewhere.

References:

[1] The Mahabharata, Text as constituted in its Critical Edition, Bhandarkar Oriental Research Institute (Poona, 1972) and Chapter on Mahabharata References

[2] Sathe, S., Deshmukh, V., and Joshi, P., Bharatiyayuddha: Astronomical References, Shri Babasaheb Apte Smaraka Samiti (Pune, 1985)

[3] Achar BN : On Astronomical References in Vyasa-Dhrtarastra-Samvada in the Bhismaparvan of Mahabharata,

[4] BrihatSamhita by Varahamihira

[5] Oak NN : When did the Mahabharata war happen? The Mystery of Arundhati 2011

[6]Pandit MM, Achar BNN: The Mystery of Bhisma Parvan Chapter 3: What does it Mean? 2019

[7]Pandit MM Fixing the Position of Saturn during the Mahabharata War Part 1

[8]Pandit MM Why the Mahabharata war cannot start on an Amavasya: Part 1 A critical examination of Moon Phase Data during the Mahabharata War Moon Phase Data during the Mahabharata War

[9] Pandit MM Why The Mahabharata War Cannot Start On An Amavasya: Part 2 Actual MoonRise Data from the 14th night of the war

[10] Achar BN Sri Krishna's Diplomatic Mission and the Date of the Mahabharata War 2018

Karna's death during the Mahabharata war

Astronomy Chapter 6

Dr Manish Pandit

Dec 2019

Karna's death during the Mahabharata war

Introduction:

The verses describing Karna's death in the Mahabharata during the evening of the 17th day of the war are described in the verses 47 - 50 of chapter 68 of Karna Parva of the Mahabharata. To my mind not one researcher has truly corroborated these observations.

Observation 1:

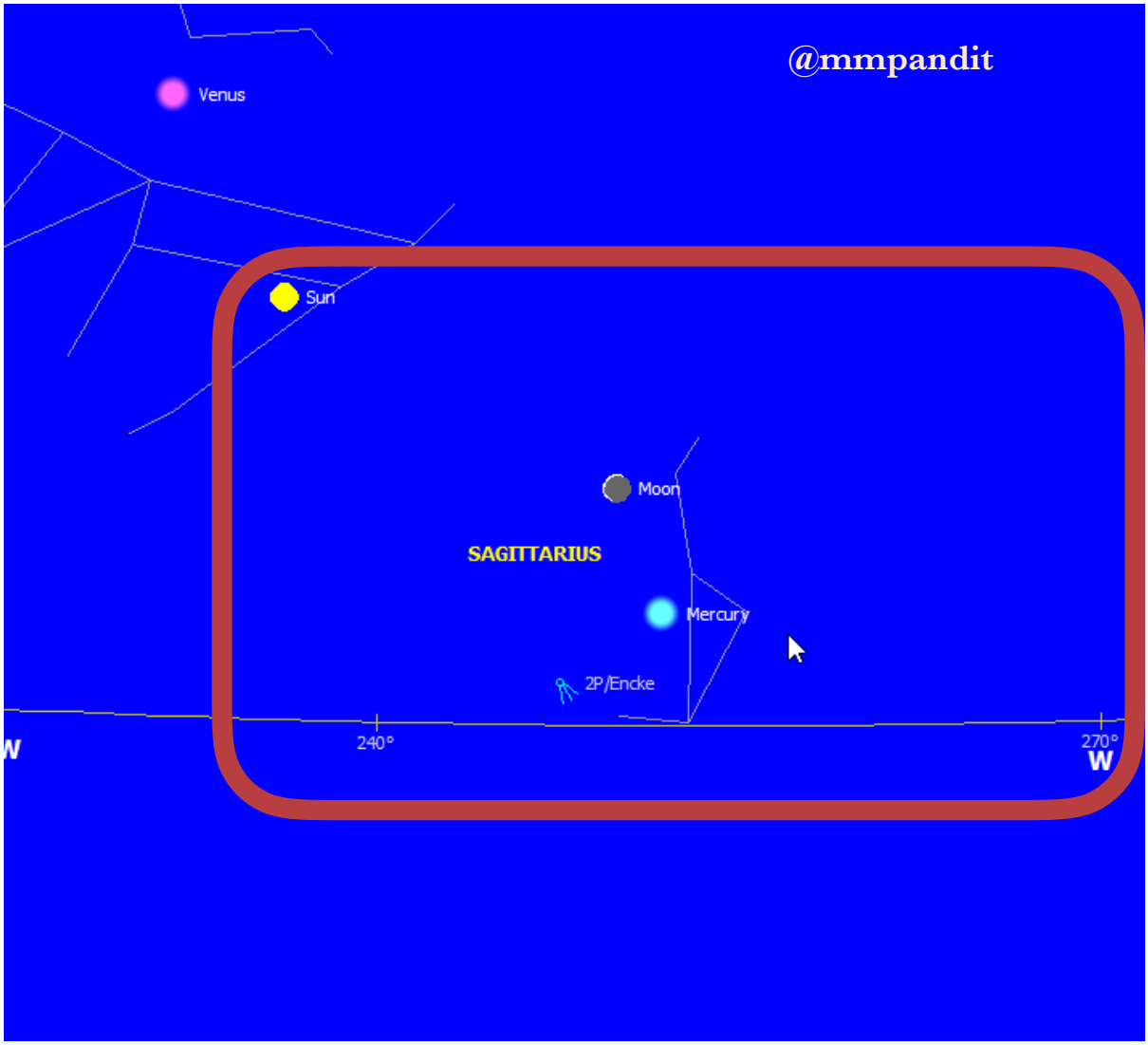
Verse 68:47

हते स्म कर्णे सरितो न स्रवन्ति ; जगाम चास्तं कलुषो दिवाकरः ।
ग्रहश्च तिर्यग्ज्वलितार्कवर्णो यमस्य पुत्रोऽभ्युदियाय राजन् ॥ ०४७ ॥

The verse says that:

" When Karna was struck down, the rivers ceased to flow, the Sun became devoid of lustre and disappeared and the graha "son of Yama" going obliquely appeared on the horizon, blazing bright red like the Sun." The verse above is from the critical edition of the Mahabharata and says "***Yamasya Putro***" quite clearly as seen in the second part of the verse: ie. ***"Son of Yama"***

Some authors have used this verse but have rendered it wrongly as "***Somasya Putro***" ie. Mercury. While we are able to prove that Mercury is actually just above the horizon in the Western sky as shown below and is bright with a magnitude of -0.2 which is bright enough that it may be seen, it does not make sense to show ***"SomaPutra" Mercury who is described as Saumya and soft*** at



the death of such a prominent warrior of the Mahabharata and that too in the middle of terrible omens of disaster as described in verse 47 such as "the rivers ceased to flow, the Sun became devoid of lustre and disappeared". The original verse as copied from the Critical edition of the Mahabharata available online shows "***Yamasya Putro***" or the "son of Death or Yama" and that is far more apt.

Let us try and make sense of this verse. It describes a terrible graha at what may either be sunset since the Sun disappears or that the Sun itself has become lustreless by the presence of another graha close to it. Since this episode has occurred in the evening, we take the place in the horizon where this mysterious graha has appeared to be the Western horizon. The verse therefore very much appears to describe another comet. Let us look at the simulations of the sky at the time of the 17th war evening of the Mahabharata in 3067BCE.

The above figure shows quite clearly the Western horizon, before sunset on 11th December 3067BCE and the presence of a comet 2P Encke just above the horizon with the Sun just a small distance away. The Moon is barely visible as it approaches Amavasya. Interestingly although Mercury and Venus are also noted in the Western sky, it is this comet 2P Encke which would have made a spectacular presence in that Western horizon just at or after the death of Karna which appears to be blazing red and going obliquely as the "son of Yama" ie "The Son of Death" . 2P Encke is a rather famous comet and the second comet to be named after Halley's comet.

Comets are known to generate a large coma and tail which can make them much more visible. This is a small comet as such but its known to be quite bright especially during its perihelion.

Comet Encke also gives rise to the Northern and Southern Taurid meteor showers seen in November and these are mentioned at several places during the Mahabharata war.

The word ***"Tiryak gati"***of the "Son of Death" graha blazing on the Western horizon is due to the unusual apparent movement of the comet 2P Encke at the horizon with its tail pointed away from an observer stood in the East.

The next observation is that of Jupiter's affliction of Rohini nakshatra at the death of Karna.

Observation 2: Karna Parva: Chapter 68: verse 49

Brihaspati which causes "peeda" to Rohini became lustrous like the Sun and the Moon.

सकाननाः साद्रिचयाश्चकम्पुः ; प्रविव्यथुर्भूतगणाश्च मारिष ।
बृहस्पती रोहिणीं संप्रपीड्य ; बभूव चन्द्रार्कसमानवर्णः ॥ ०४९ ॥

There are two specific findings in this verse which any Mahabharata researcher must try and corroborate:

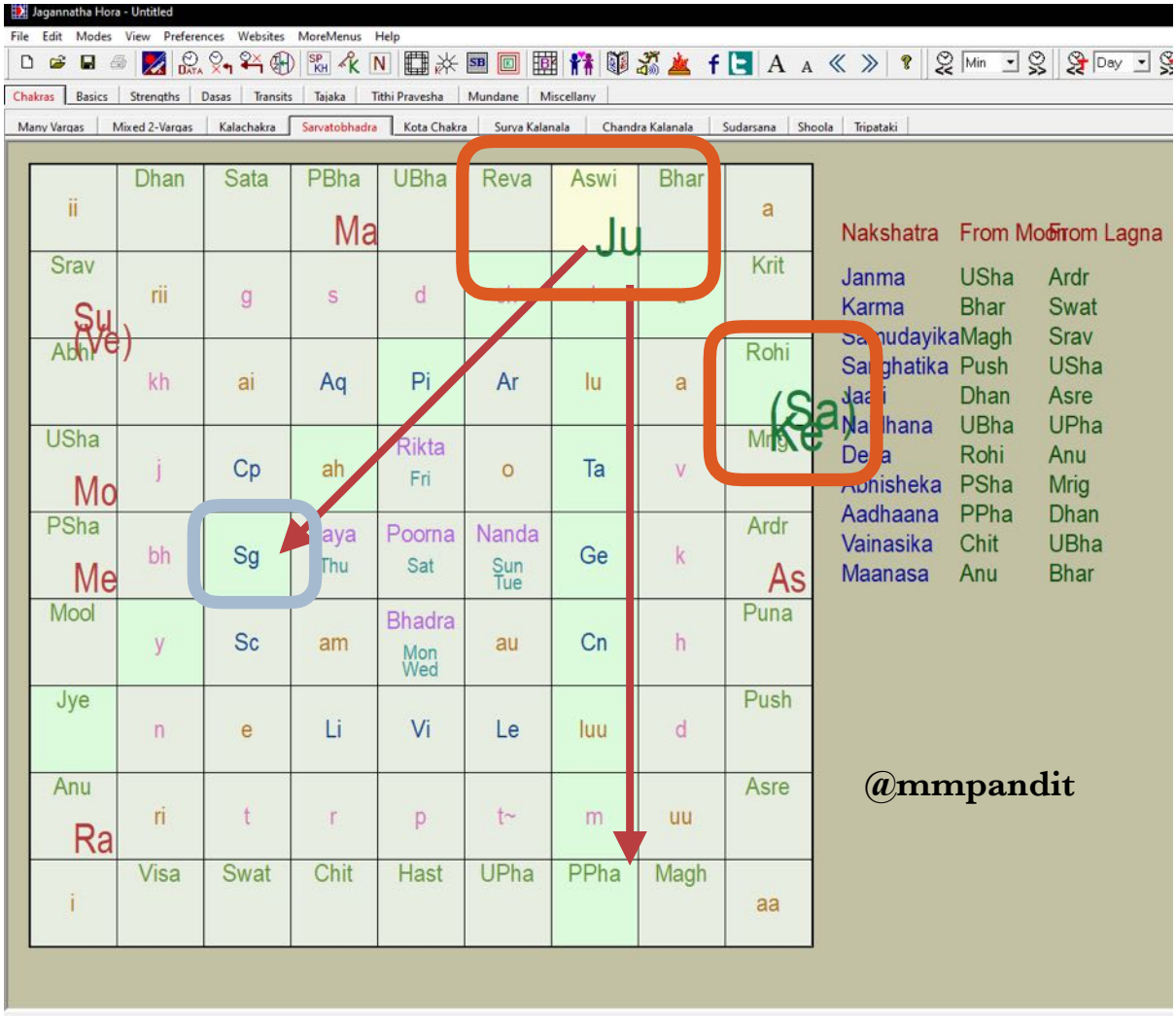
A. Jupiter causing "peeda" or "vedha" to a nakshatra called Rohini/Aldebaran.
B. Jupiter becomes really bright in the sky. Its magnitude needs to be in negative numbers.

Lets tackle point A above first:

To my mind this verse (Karna :68:49) is somewhat of an oddity because the verse does not mention the the "peeda" or affliction is being caused to any Rashi (sign) but instead talks about the "peeda" being caused to a nakshatra (fixed star) only. This sort of Nakshatra based "peeda" finds specific mention in only two places in Jyotish. One of them is the Brihat Samhita of Varahamihira. However here the verses state quite clearly that Saturn or the Sun (or Mars or a comet) must occupy a nakshatra to afflict it (cause peeda). Thus if we take Varahamihira's Brihat Samhita to be the pramana, then we must take an alternative meaning for "Brihaspati" which seems improbable in this context (The Guru of Karna had cursed him)

Hence the only option here is the second one which is the definition of peeda used in the Sarvatobhadra chakra. (which was well known and is described during the Mahabharata war as a formation in some detail).

Here we find exact corroboration of this verse: Jupiter or Brishaspati is in Meena (Pisces) gandanta and moves into Ashwini nakshatra thereby causing peeda to Rohini nakshatra. Brishaspati is also shining with magnitude -2.6 which is very bright. Thus we have corroborated both key observations related to Karna's



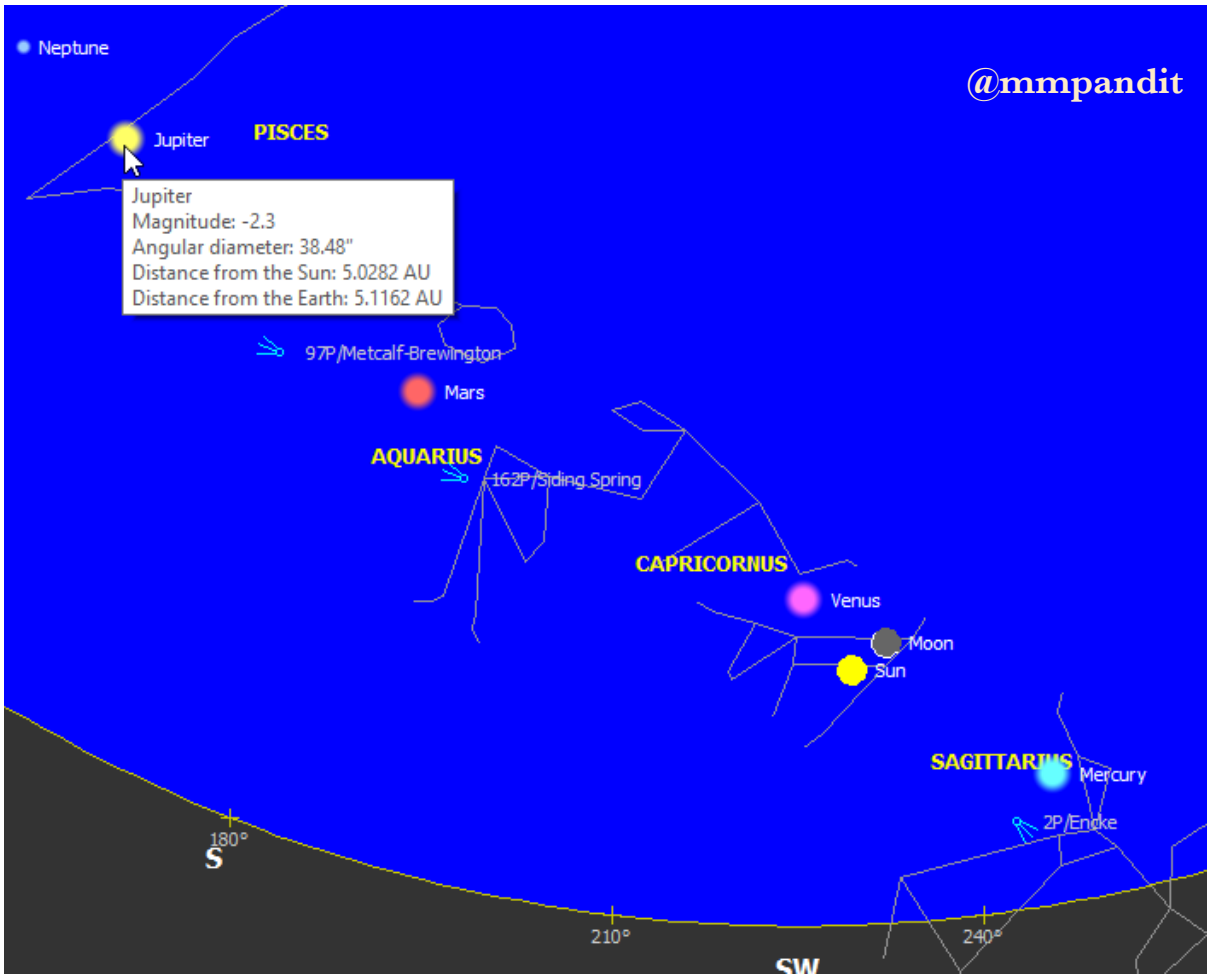
death. To my mind no other researcher has been able to corroborate both the findings in such a precise manner.

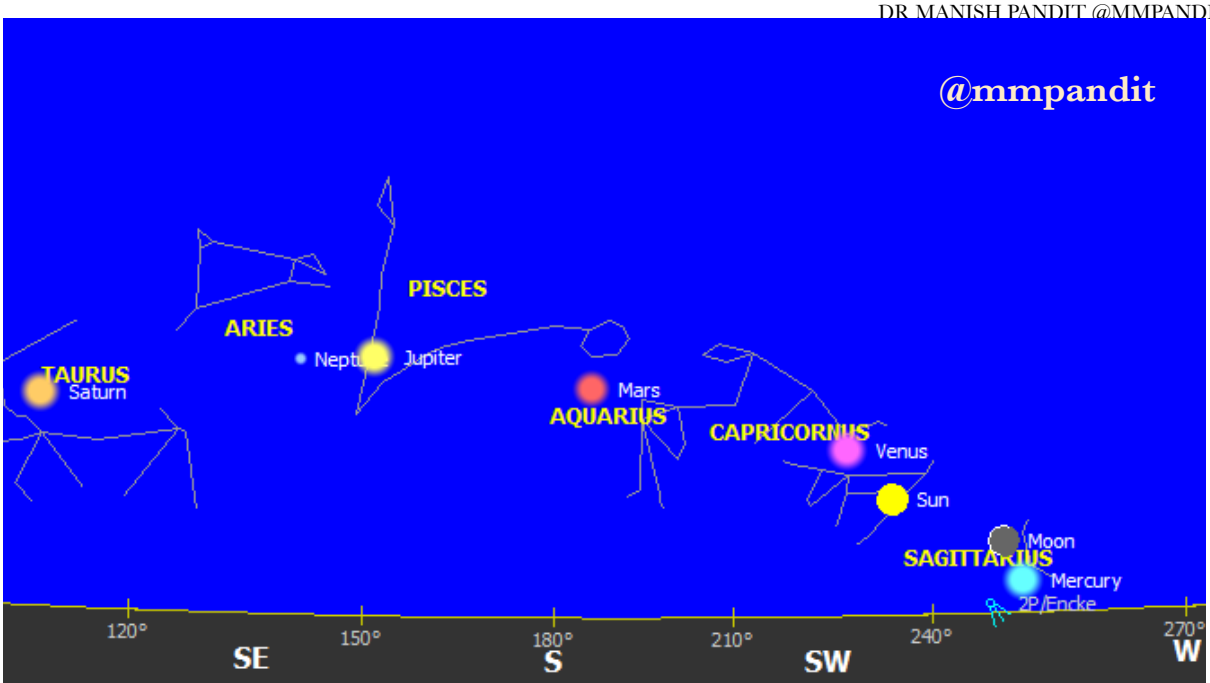
The Sarvatobhadra (SBC) chart for 3067BCE for the 17th day of the war ie. 11th Dec 3067BCE is shown above. The highlighted boxes show Jupiter at Ashwini nakshatra. The green path clearly shows that Jupiter is causing Peeda to Rohini nakshatra. Do also note that Jupiter causes specific Peeda to the sign Sagittarius which is the sign of the archer seen along the left of the page above. It is well known that Karna was a great archer. Thus we can see that this is a very specific finding during the 17th day of the Mahabharata war. One Moore point in favour of this explanation being the correct point is that Jupiter is only actually just out of Pisces (Meena) Gandanta on the 17th day of the war. Hence as it approaches the 3 degree 20 mins mark in Ashwini nakshatra in Aries (Mesha) rashi, its power to cause Vedha of Rohini nakshatra actually starts to occur. Thus we have

corroborated point A above of Jupiter causing "peeda" or "vedha" to Rohini/ Aldebaran. This point is very difficult to replicate in other war year proposals.

Now we need to prove point B: "On the 17th day of the war, Jupiter needs to become really bright in the sky. Its magnitude needs to be in negative numbers."

The skymap below proves beyond all doubt that the magnitude of Jupiter is -2.3 on the 17th war day in 3067BCE. This would mean that Jupiter was shining really brightly in the sky on the 17th war day in the evening. This corroborates point B above.





A view of the sky in the evening at the time of Karna's death showing "The Son of Death" graha: Comet 2P Encke at the horizon in "Tiryak" mode and Jupiter shining bright.

Summary:

3067BCE corroborates one of the most difficult criteria of the Mahabharata war, namely the astronomy observations prevalent at the death of Karna on the 17th day of the war. By comparison, other war proposals including 5561BCE cannot corroborate these findings as above.

A brief critique of the 5561BCE war proposal in relation to Karna's death:

Lets reiterate my findings first:

The verse as per Karna Parva 68:47 says clearly that:

" When Karna was struck down, the rivers ceased to flow, the Sun became devoid of lustre and disappeared and the graha "son of Yama" going obliquely appeared on the horizon, blazing bright red like the Sun." The verse above is from the critical edition of the Mahabharata and says "***Yamasya Putro***" quite clearly as seen in the second part of the verse: ie. ***"Son of Yama"***

Some authors have used this verse but have rendered it wrongly as "***Somasya Putro***" ie. Mercury. While we are able to prove that Mercury is actually just above the horizon in the Western sky as shown below and is bright with a magnitude of -0.2 which is bright enough that it will be seen brightly, the critical edition does not support this false change in words of the verse from "***Yamasya Putra*** to "***Somasya Putra***". Furthermore, it does not make sense to describe this graha as***"SomaPutra"*** who is in other words, none other than the planet ***Mercury who is described as Saumya and soft*** at the death of such a prominent warrior of the Mahabharata and that too in the middle of terrible omens of disaster as described in verse 47 such as "the rivers ceased to flow, the Sun became devoid of lustre and disappeared".

The original verse as copied from the Critical edition of the Mahabharata also available online shows "***Yamasya Putro***" or the "son of Death or Yama" and that is far more apt.

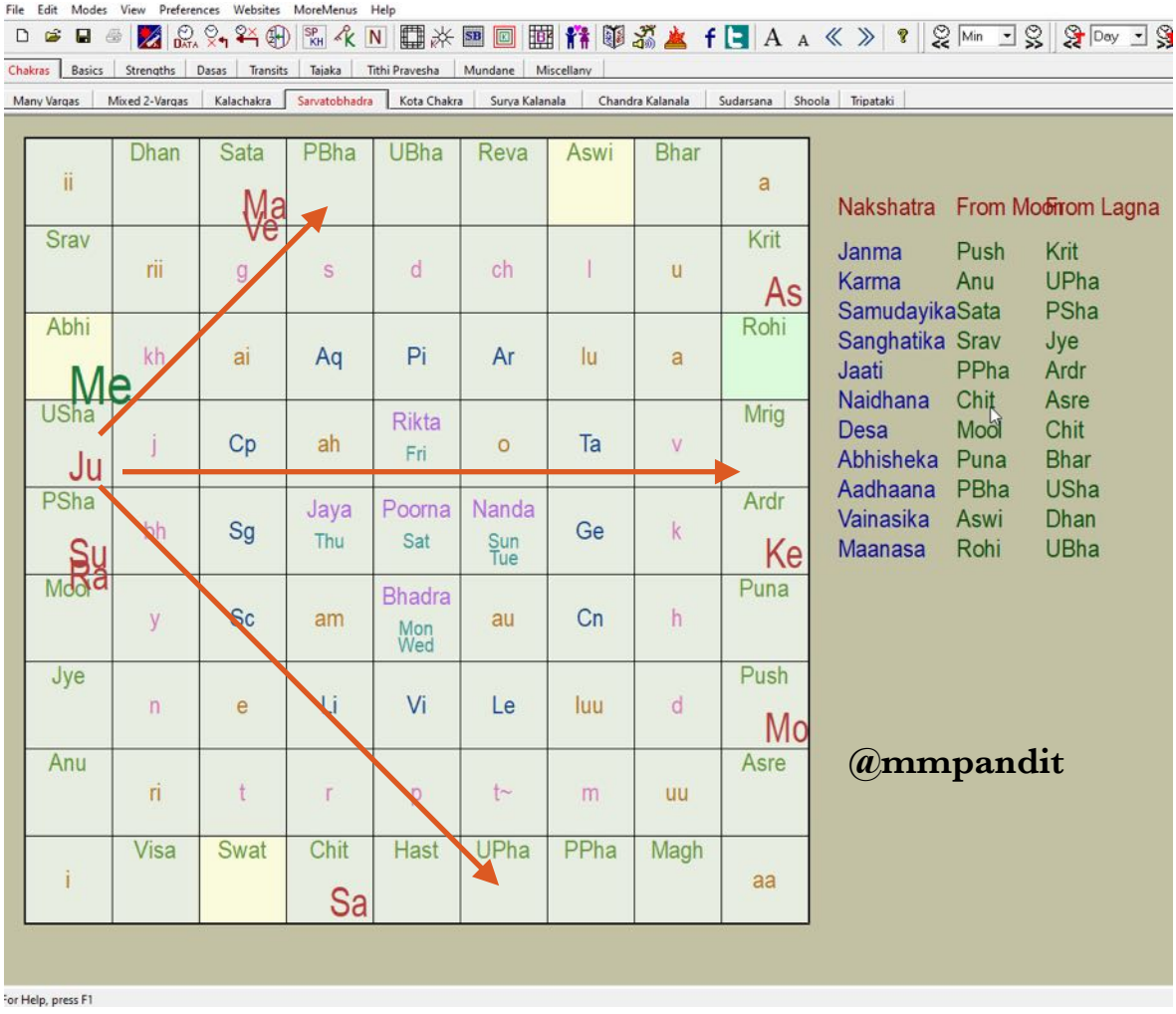
हते स्म कर्णे सरितो न स्रवन्ति ; जगाम चास्तं कलुषो दिवाकरः ।
ग्रहश्च तिर्यग्ज्वलितार्कवर्णो ; यमस्य पुत्रोऽभ्युदियाय राजन् ॥ ०४७ ॥

In addition, Mercury sets in the Western sky and cannot show some sort of "unusual rising" movement or "Tiryak gati". That graha, described as "***Yamasya Putra***" or the "***Son of Death***" can only be a comet as we prove in 3067BCE which is 2P/Encke.

In addition, Jupiter cannot cause "peeda" to Rohini, in 5561BCE because, in that year, Jupiter is at Uttarashadha and can cause peeda only to Mrigashira, Poorvabhadrapada and Uttaraphalguni. In addition, there is no peeda to Saggitarius. (the archer)

The Sarvatobhadra (SBC) chart for 5561BCE for the 17th day of the war ie. is shown on the next page. We reiterate that Jupiter cannot cause peeda to Rohini in 5561BCE and neither is a graha "Yamasya Putra" seen on the Western horizon. In other words, 5561BCE fails to fulfil both the criteria as shown above.

The Sarvatobhadra (SBC) chart for 5561BCE for the 17th day of the war: The three arrows point out the direction of the Vedha from Jupiter and the ends of the arrows point out that Jupiter does not cause peeda to Rohini nakshatra/ Aldebaran in early November 5561BCE. Thus 5561BCE does not satisfy the conditions of astronomy (and Jyotisha) given in the text of the critical edition at the time of Karna's death.



Post Script: Saturn of course can be shown to cause Peeda to Rohini using the Sarvatobhadra Chakra and Brihat Samhita both if that is what Vyasa meant.

Notes:

Further Reading and Learning:

1: **Book 3: Criteria Governing the Astronomy of the Mahabharata War:**

https://www.academia.edu/51214389/Criteria_Governing_The_Astronomy_of_the_Mahabharata_War

2. **PGURUS Episode 1:** 3 ways of computing the date of the Mahabharata war: https://youtu.be/POHHsMlutfU

3. **PGURUS Episode 2:** Finding the date of the Mahabharata war: https://youtu.be/MH6MFZM3Lhg

4. **PGURUS Episode 3:** Textual points of Amavasya, Purnima, Tithis and Nakshatras in the war, Mission of Peace and Balarama's Pilgrimage timelines:

https://youtu.be/wwQaW4EhtVk

5. **Short film: Position of Jupiter during the Mahabharata War**

https://youtu.be/icrE36Wodq4

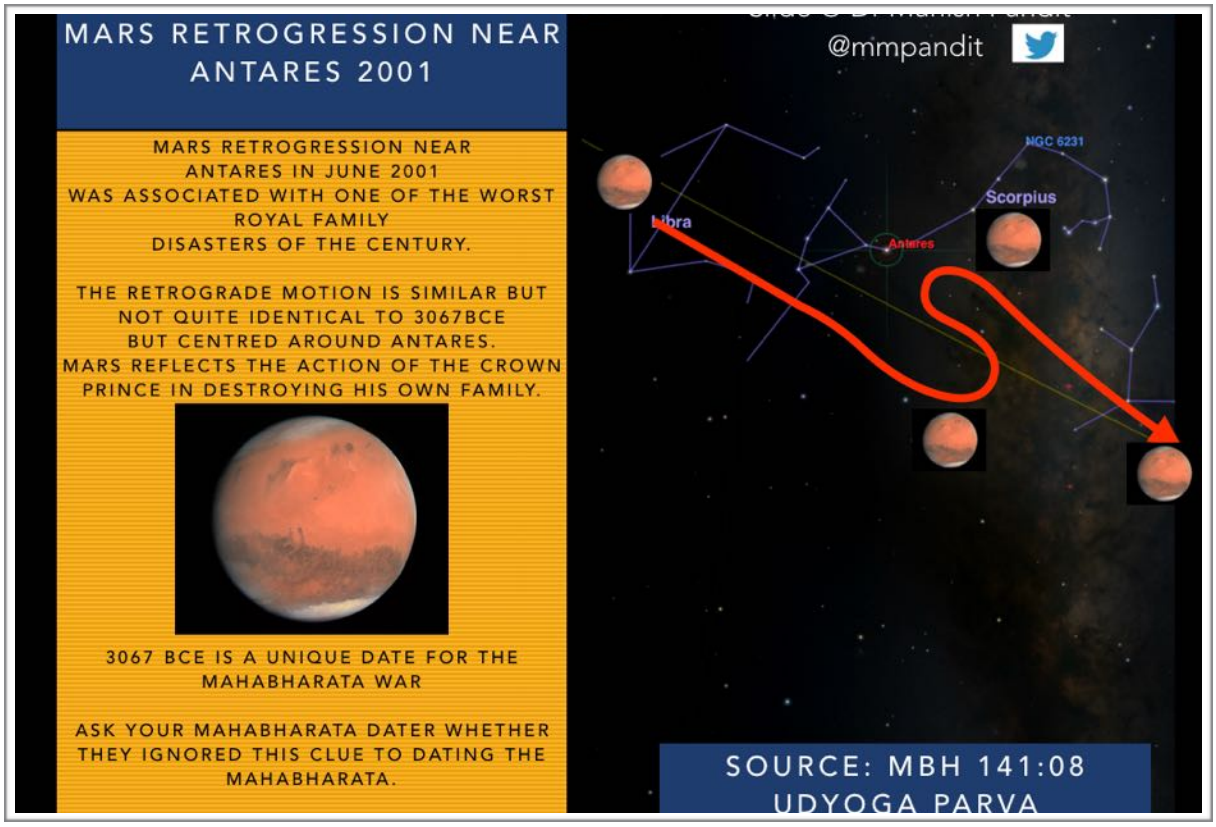
6. **Short Film: Saturn's Position during the Mahabharata War**

https://youtu.be/g9-RmVeNCRk

7. **Book 2: Dissection of Theories of the Mahabharata War**

https://www.academia.edu/44792423/3067BCE_Dissection_of_Theories_on_The_Mahabharata

Why the condition of Mars retrogression invalidates



many proposals for the year of the Mahabharata war Chapter 7

Dr Manish Pandit

Dec 2019

Why the condition of Mars Retrogression invalidates many years for the date of the Mahabharata war

Purvapaksha:

I have previously described Mars as being in one of two positions in the sky during the Mahabharata war, either in Magha or near Jyestha and retrogressing towards Anuradha. Some authors have proposed that Mars cannot be retrograde at Jyestha because an Amavasya occurs at Jyestha at the end of Krishna's peace mission. We will show you why the retrogression of Mars can be used to form a crucial major criterion for the year in which the Mahabharata war took place.

Mars Positions during the year of the war:

These two positions of Mars are based on verses as below:

1: ***Udyoga Parva: Chapter 141: 08***

कृत्वा चाङ्गारको वक्रं ज्येष्ठायां मधुसूदन ।
अनुराधां प्रार्थयते मैत्रं संशमयन्निव ॥ ००८ ॥

This verse appears in Krishna Karna Samvada and is said by Karna to Krishna after the mission of peace has failed.

Mars is described as having performed a retrograde motion near Jyestha and retrogressing near Anuradha.

2: ***Bhishma Parva: Chapter 3 Verse***

सेनयोरशिवं घोरं करिष्यति महाग्रहः ।
मघास्वङ्गारको वक्रः श्रवणे च बृहस्पतिः ॥ ०१३ ॥

In the second part of the

verse, Mars is described as retrograde at Magha and Jupiter at Shravana. We discuss this a little later in this chapter as one of the impossibilities from the view point of astronomy as it requires the Sun to simultaneously be near Satabhisha and near Pushya. I also provide an alternative explanation for this verse in the chapter "Comets or Planets".

In another chapter, we have seen that, at the end of the conversation given in verse 1 between Krishna and Karna, a new Moon ie . an Amavasya was due to occur at the Nakshatra ruled by the Devata called Shakra or Indra. This Nakshatra is called Jyestha or Antares. (Mahabharata: Udyoga: chapter 140:18) This verse is responsible for the situation where a variety of authors propose that the war must either start either on this Amavasya which was approaching at the end of 7 days or on the Amavasya after that. Of course, the war cannot ever have occurred on a Jyestha (Antares) Amavasya as seven days is too short a period of time to arrange for the war according to what is described in the text of the Mahabharata war document in Udyoga Parva itself, we have in addition proved that the war could never have started on any Amavasya using the Moonrise detail in the Eastern sky of the 14th war night given in chapter 159 of Drona Parva. This indicates a waning phase Moon which is present 4 or 5 days from an Amavasya which must therefore occur at or around the 18th day of the war.

सप्तमाच्चापि दिवसादमावास्या भविष्यति ।
सङ्ग्रामं योजयेत्तत्र तां ह्याहुः शक्रदेवताम् ॥ ०१८ ॥

As a corollary, it follows that Sun and the Moon are both present near Jyestha at the end of the failure of Krishna's mission of peace. If the Sun is present near Jyestha, then Mars can scarcely be there as well because it is described as retrogressing from before Jyestha to Anuradha by Karna.

There are a few types of situations which arise as a result of this first verse (Udyoga.141.08) when combined with the information given in Udyoga. 140.18 on the position of the Sun as Mars needs to be a least 140 degrees away from the Sun for it to be in retrogression.

1. First Possibility: Either Mars is not present near Jyestha at all, in which case maybe it was retrogressing near Magha. But the problem is that the verse which alludes to the alternative of Mars retrogression near Magha (Regulus) also says that Jupiter is in retrogression near Shravana (Altair) in the same verse, which is an impossibility from the astronomy point of view as it would require the Sun to be near Satabhisha and near Pushya respectively, both of which are nearly 150+ degrees apart, at exactly the same time. This idea has been adopted by a few researchers but none of them use the exact positions given by the verse for both Mars and Jupiter. Some take Mars retrogression at Magha and then employ an astrological possibility of "peeda" for Jupiter which is not correct. In fact the possibility of "peeda" or affliction also would require "peeda" to be explicitly mentioned in the verse which is not the case and both planets to be retrograde at Magha and Shravana respectively according to the definition prevailing in Brihat Samhita at the time. Hence this alternative of Magha for Mars retrogression is not a credible answer and we would prefer to reject this verse position of Mars and Jupiter categorically as it gives rise to an absurdity. There is an alternative satisfactory explanation which we give with skymaps in chapter 13 "Comet theory 3067BCE"

2. Second Possibility: Mars was near Jyestha and not in retrogression but close to a conjunction with the Sun and the Moon. This idea has been adopted by a few Mahabharata researchers but again it doesn't seem quite true as the term Vakra is used explicitly here by Maharishi Veda Vyasa.
3. Third Possibility: Therefore I present to you a third situation which has not been thought of by too many researchers but explains both the retrogression of Mars just before Jyestha and the Amavasya at Jyestha.

   This situation envisages that Karna had already seen the retrogression of Mars just before Jyestha BUT this did not occur contemporaneously with the mission of peace, but instead a few months before the peace mission itself, ie. Not at the time when the Amavasya at Jyestha was 7 days away but instead a few months before this.

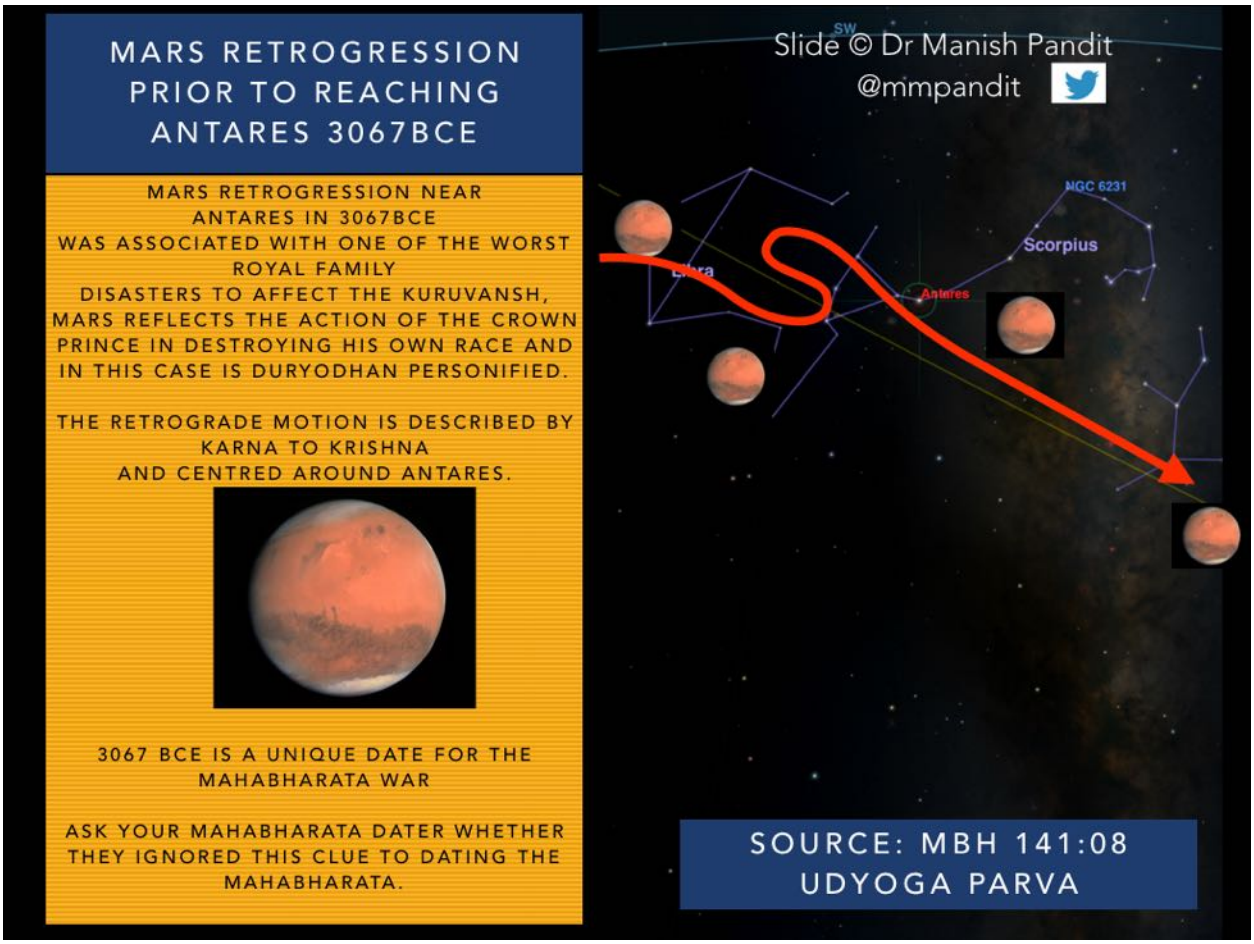
Should we reject the position of Mars in retrogression at Magha (and Jupiter) in the second part of this verse?

सेनयोरशिवं घोरं करिष्यति महाग्रहः ।
मघास्वङ्गारको वक्रः श्रवणे च बृहस्पतिः ॥ ०१३ ॥

The situation is an astronomical impossibility if both Mars and Jupiter are to be retrograde at Magha and Shravana at the same time which is the logical inference since they are in the same verse. However, in the situation that these are considered to occur one after the other, then it is obvious that Mars cannot be retrograde twice a year or in fact even twice in two years. Therefore one of the positions of Mars is going to have to be rejected. The question is which position of Mars should be rejected? It is obvious after the discussion above that Mars retrograde in Magha will have to be rejected as being far less likely than its other position. Hence, Mars retrogression before reaching Jyestha or at Anuradha is the one which needs to be accepted. Since both Jyestha and Anuradha nakshatra are mentioned clearly in the verse given in Karna - Krishna samvada the other corollary is that we have to accept that the verse explicitly means that Mars must transit backward or in retrogression before Jyestha/at Anuradha nakshatra. An alternative explanation is given for the position of Mars in the previous verse (03:13 Bhisma) in the chapter "Comets or Planets"

Conclusion: Mars retrogression fits well with the theory of 3067 BCE as the year of the war. This point about the retrogression of Mars before Jyestha, touching Anuradha as explicitly given in the text, along with Saturn's position at Rohini, is very useful as a tool for triangulation if any third criterion is used. The fact that both possible positions of Mars clearly describe retrogression, gives us a clear signal that Mars retrogression should be a pre condition for any year in which the Mahabharata war is proposed to have taken place. This in turn invalidates all those years for the war in which Mars has not gone retrograde at or near Jyestha. There are many years where Mars does not show any retrogression anywhere near Jyestha/Anuradha even upto a year before the war month and year. Those years cannot be accepted as the years of the war.

Hence 1198 BCE, 3139BCE cannot be accepted as the year of the war based on this single major criterion not being fulfilled.



Criticisms of Mahabharata year proposals other than 3067BCE:

I have not bothered with 1K and 2K date proposals for the Mahabharata war as these are untenable for the war proposal even using the intersecting data of Saturn and Mars which we show in chapter 1.

In 3139BCE, Mars is not retrograde. In fact, Mars only goes retrograde in 3140BCE , a full year earlier and that too near Rohini. This cannot be accepted as the verse in question does not mention "peeda" but mentions positions of Mars at Jyestha/Anuradha or near Magha. Hence 3139BCE fails this criterion as well.

In 3140BCE, Mars goes retrograde but only near Rohini. This cannot be accepted.

The reason is as follows: even if the verse Udyoga Parva 141:08 in question had mentioned a specific astrological position for Mars, it would still in fact have to adopt the Brihat Samhita or SBC ie Sarvatobhadra chakra (mentioned in the Mahabharata as a Vyuha) position of Mars which would still have to be at Anuradha/Jyestha. Hence 3140BCE fails this criterion as it used Rashi based aspects which is not mentioned in the Mahabharata.

In 3138BCE, Mars is retrograde in the latter part of the year but near Mrigasira, Ardra and Punarvasu. This again cannot be accepted.

In 3137BCE, Mars is stationary in the early part of the year but at the above positions and cannot be accepted.

In 3136BCE, Mars is retrograde near Magha but obviously Jupiter cannot be retrograde in Shravana and so this cannot be accepted. This is an astronomical impossibility and because both the situations occur in the same verse, the same connotation of retrogression and position must apply to both of the planets, Mars and Jupiter in exactly the same way as referred to elsewhere in this chapter.

In 3143BCE, Mars is retrograde the year before, but it is in Sagittarius and cannot be accepted.

For a detailed rebuttal for 5561BCE, please see the chapter on rebuttal of 5561BCE and “Shri Oak’s theory of Vakra motion”

The Mystery of Chapter 3

Bhisma Parva
Chapter 8

What does it mean?

By Dr Manish Pandit (2019)

Introduction:

A vast body of Mahabharata researchers have looked into Chapter 3 of the Bhisma Parvan of the Mahabharata and given their thoughts , some have drawn inferences too. (1, 2, 4) The current author wishes to look at the verses from a somewhat more fresh point of view.

Chapter 3 of the Bhisma Parvan has 11 verses which appear to pertain to positions of grahas in the sky. While some researchers have thought these grahas to be planets (Oak), others have taken them to be comets (Achar) and yet others have dismissed them completely as being totally contradictory in position and therefore of little use.

I originally looked at these verses in 2007 when making the film "Krishna History or Myth". While the comparison with Atharvaveda Parishistha and its four sections did make some impression, the explanation was not included in the film. The explanation however did bring about the view that perhaps this chapter could indeed refer to cometary positions during the Mahabharata war. It was while reading these verses in October 2019 that the thought took root in my mind to take a fresh look at these verses and classify them in two different ways. The first way is based on certain key words which appear throughout this chapter, the second is based on the actual meaning of the verses. Both these have an effect of elucidating the meaning of verses in chapter 3 of Bhisma Parva.

An Etymological Classification

The initial classification of these verses is based on the following words:

These words are:

1: Dhumaketu: Comet

2: Prajvalita : Ignited/ flaming/ blazing/ burning

3. Shikha: tail

All three words have unambiguous meanings as no planet can be described as a "Dhumaketu" ie Comet, can said to have been "prajvalita" or ignited/ be inflamed or literally set alight, or having a "shikha" or tail.

Thus the verses which emerge from Chapter 3 of the Bhishma Parva once this first classification is put into force number no less than six out of the eleven which by the above definition become very likely to being described as cometary in nature.

These are: (ref: 1,2,4)

(i) ***dhumaketur mahaghorahpusya maakramya tistati*** **MB(VI. 3. 12)**
Words: Dhumaketu (marks 10/10)
"A deadly dhumaketu has overcome pusya"

(ii)***syamo grahah prajvalitah sadhumah sahapavakah***
aindram tejasvi naksatram jyestamakramya tistati MB(VI. 3.15)
Words: Prajvalita (marks 8/10)

"syama graha is prajvalita/ blazing and together with dhooma and pavaka has crossed over to Jyesta, the bright asterism ruled by Indra ."

(iii) ***dhruvah prajvalito ghoram apasavyam pravartate***
citrasvatyantare caiva dhistitahparuso grahah MB(VI. 3.16)
Words: Prajvalita (marka 8/10)
"The prajvalita/ blazing dhruva has moved to the right of ghora. The parusa graha has established itself between citra and svati ."

(iv) ***"grahau tamrarunasikhauprajvalitavubhau***
Saptarishi udaranaam, samavchadya vai prabhaam"" MB (VI. 3. 24)
Words: Prajavalita and Shikha (marks 10/10)
'The two grahas blazing with coppery and red hair.
These have concealed the Saptarishi stars. (concealed the big dipper)'

(v) ***samvatsara sthayinau ca grahau prajvalitdvubhau***

visakhayoh samipasthau brhaspati sanaiscarau MB(VI. 3. 25)
Words: Prajvalita (marks 8/10)
"Jupiter and Saturn, which stay around for a year, are both Prajvalita/blazing/ ignited and are near the two Visakha stars."

(vi) ***krttikasu grahastivro naksatre prathame jvalan/***
vapumsyapaharan bhasa dhumaketur iva sthitah MB(VI. 3. 26)
Words: Dhumaketu and Jvalan (marks 10/10)
"The graha tivra jvalan/blazing in the first constellation krttika, and concealing their forms with lustre/ robbing them of their lustre resembles a comet/ dhumaketu."

Thus a large number of verses numbering more than half of the 11 verses are now designated as clearly referring to comets. On a ranking possibility of 1 to 10 where 1 holds a very low possibility and 10 the highest, we assigned 10 marks wherever the Dhumaketu appeared, or where an additional word from the classification appeared along with a primary word. Where only one word among (ii) or (iii) appeared, we gave only 8/10 marks or 80% probability, but still quite high because the words chosen have that confidence.

Thus we assert that six of the verses as shown above (3: 12, 3:15, 3:16 and 3:24, 3:25 and 3:26) referring to astronomy in Bhishma Parva definitely indicate cometary positions and not to planetary positions at all.

We then looked to see if any additional verses definitely refer to Tithis or to the Moon and the Sun. We found the following two verses bringing the total number of verses under observation to 13. These are as follows.

(vii) caturdasim pancadasim bhutapurvam ca sodasim/
imantu nabhijanami amavasyam trayodasim// MB(VI. 3. 28) (ref: 1,2,3)

"I know New Moon coinciding with fourteenth, fifteenth and also on the sixteenth day, but I have never known it coinciding with the thirteenth

day.

(viii) ***candrasuryavubhau grastavekamase trayodasim /***
aparvani grahavetau prajah samksapayisyatah// MB(VI. 3. 29) (ref: 1,2,4)

"In one and the same month, both the Sun and the Moon are eclipsed on the thirteenth. These ill-timed eclipses indicate destruction of the people."

These are verses 3: 28 and 3: 29 of chapter 3 of Bhisma Parvan. Thus we have now successfully clarified eight of the verses which most of the previous authors have found to either refer to planetary positions or indeed being very unreliable.

Next, we take those verses which can be completely omitted from classification as even if they were to actually refer to planetary positions, they would still be useless for dating the Mahabharata from our perspective because they offer no real information: Thus verse 3:27 is now dealt with.

(ix) ***trisu purvesu sarvesu naksatresu visampate/***
budhah sampatate bhiksnam janayan sumahadbhayam// (ref: 1,2,4)

MB(VI. 3.27)

" Mercury is falling/ transiting through all the earlier constellations and causing a great terror."
Mercury, a very fast moving planet, transits through all the constellations every 88 days and so this verse is no real surprise.

Thus we have now dealt with 9 of the verses from chapter 3 of the Bhisma Parvan successfully. The question now arises, which are the verses which defy classification in the manner already specified?

(A) ***senayo rasivam ghoram karisyati mahagrahah/***
maghasvahgarako vakrah sravaneca brhaspatih MB(VI. 3. 13) (ref: 1,2,3)

"The **Mahagraha** appears to bring about an awful destruction in both armies. Mars is retrograde in Magha and Jupiter in Sravana ." The latter part of this verse is an impossibility from the view point of astronomy and is elucidated later.

(B) ***bhagyam naksatra makramya suryaputrena pidyate***
sukrah prostapade purve samaruhya visampate
uttaretu parikramya sahitahpratyudiksate MB(VI. 3. 14) (ref: 1,2,3)

"The **son of Surya** has crossed the asterism Uttara-phalguni, and is vexing.
Oh King, Sukra has entered Purva-prostapada, going around Uttara-Prostapada and is rising in both."

(C) ***vakranuvakram krtvaca sravanepavaka prabhah***
brahmarasim samavrtya lohitango vyavasthitah MB(VI. 3.17) (ref: 1,2, 3)

"Pavakaprabha has gone circumventing Sravana, and **Lohitanga** has
become steady after enclosing brahmarasi ."

Achar says in his seminal paper (3) that "Vyasa names specifically twelve comets, sveta, dhumaketu, mahagraha, parusa, pavaka, dhuma, lohitanga, tivra, pavakaprabha, syama, ghora, and dhruvaketu. All these names can be found in the list given by Varahamihira" [ref 4]
However , I rechecked this list and found that only the following names were definitely present. Perhaps the original list referred to by Achar did have the above names, but all subsequent editions I have found include definitively only the following three names, these are as follows :
Sweta, Dhumaketu/ Dhuma and Dhruvaketu.

Additional Inferences:

In addition, two other conclusions can be down which do not require the etymological classification as above although that may indeed be useful. Tivra graha mentioned in verse (vi) above must also be a comet as follows because of what the verse says:

krttikasu grahastivro naksatre prathame jvalan/
vapumsyapaharan bhasa dhumaketur iva sthitah MB(VI. 3. 26)

"The graha Tivra jvalan/blazing in the first constellation Krttika, has concealed the Krittikas lustre/ robbed the Krittika stars of their lustre and resembles a Dhumaketu."

No planet howsoever blazing can ever conceal the fixed stars of Plaeides (Krittika) which are in the background sky. The only logical answer therefore is that the Tivra graha in the verse above must in fact be a comet. Pluto is invisible to the naked eye and hence the question of it robbing the Krittika stars of their lustre is impossible as suggested by at least two researchers (who try and justify 5561BCE). This is illogical and an impossibility.

The next set of verses which can really become easy to interpret is the following verses:
(iv) ***"grahau tamrarunasikhauprajvalitavubhau***
Saptarishi udaranaam, samavchadya vai prabhaam"" MB (VI. 3. 24)
Words: Prajavalita and Shikha

'The two grahas blazing with coppery and red hair,
these have concealed the Saptarishi stars.'(concealed the big dipper)

(v) ***samvatsara sthayinau ca grahau prajvalitdvubhau***
visakhayoh samipasthau brhaspati sanaiscarau MB(VI. 3. 25)
Words: Prajvalita
"Jupiter and Saturn, which stay around for a year, are both
Prajvalita/blazing/ ignited and are near the two Visakha stars."
These two planets called "Jupiter and Saturn" are described as ignited and burning with coppery red/ orange tails or shikhas and are concealing the Saptarishis. But it is to be noted that Jupiter and Saturn, howsoever luminous that they may be, can never conceal the fixed stars especially the Saptarishi mandala (the big dipper) which are in the background.

उल्काशनिधूमाद्यैर्हता विवर्णा विरश्मयो ह्रस्वाः ।
हन्युः स्वं स्वं वर्गं विपुलाः स्निग्धाश्च तद्वृद्ध्यै ॥७॥

Sloka 7.—When these stars are pale, devoid of beams, vexed by meteors, thunderbolts, smoke and the like, or tiny, they will destroy severally their own dependencies (as stated below), while they tend to make the same prosper if they appear large and bright.

तथा च वृद्धगर्गः ।
उल्कया केतुना वापि धूमेन रजसापि वा ।
हता विवर्णाः स्वल्पा वा किरणैः परिवर्जिताः ॥
स्वं स्वं वर्गं तदा हन्युर्मुनयः सर्व एव ते ।
विपुलाः स्निग्धवर्णाश्च स्ववर्गपरिपोषकाः

Varahamihira also gives a similar explanation for hiding of the Saptarishis which appears in Brihat Samhita as above in chapter 13 verse 7.
Most researchers have got this set of verses completely wrong.

Ambigous Graha Names

Thus the names of grahas which are not definitely certain remain are as follows: ***mahagraha, parusa, pavaka, dhuma, lohitanga, pavakaprabha, syama and ghora***. Of these dhuma and mahagraha may also be comets given the verse connotations.

It is to be noted that while Dr Achar actually points out that the verses in that section of chapter 3 from the Bhisma Parvan indicate comets because of an existence of a classification of comets by Varahmihira or because of calling grahas as "sons of fathers", the entire list is not required any more for confirmation as an alternative way to confirm that these grahas are comets are now seen.

This then leaves only verse 3:14 open to interpretation. It is only here that I am applying the logic of calling a comet as a son or ***"putra"*** of a star or a planet. Brihat Samhita clearly classifies comets as sons of grahas and this includes the Sun (Ref 4)

Hence chapter 3 of Bhishma Parva has been satisfactorily resolved using for the most part, a different method to that given by Dr Achar at least 10 years ago(Ref 3). The conclusion however is very similar and researchers are referred to the original paper for further education on the key astronomy of the Mahabharata war.

References:

[1] The Mahabharata, Text as constituted in its Critical Edition, Bhandarkar Oriental Research Institute (Poona, 1972) and Mahabharata references chapter in this book.

[2] Sathe, S., Deshmukh, V., and Joshi, P., Bharatiyayuddha: Astronomical References, Shri Babasaheb Apte Smaraka Samiti (Pune, 1985)

[3] Achar BN : On Astronomical References in Vyasa-Dhrtarastra-Samvada in the Bhismaparvan of Mahabharata,

[4] BrihatSamhita, ibid, in 'ketucara' ,Ch. XI

Notes:

Why the Mahabharata war

cannot start on an Amavasya: Chapter 9

A critical examination of Moon Phase Data during the Mahabharata War

Dr Manish Pandit

Nov 2019

Moon Phase Data during the Mahabharata War

True Observations of the Moon vs Mere Analogies

Dr Manish Pandit

Purvapaksha:

Many researchers have listed references from the Critical Edition of the Mahabharata as being observations of the night sky during the 18 days of the war and have used these observations to put forward a hypothesis that the first day of the Mahabharata war was an Amavasya (New Moon day). The ancients were much more connected with the celestial events especially those involving the various phases of the Moon as can be seen even today across many parts of India. For example, even today, the fourth lunar tithi of the waning half of the Moon is a day for fasting and veneration of Ganesha in most of Maharashtra and in parts of South India, whereas the 11th lunar tithies of both the waxing and the waning halves of the Moon are days of fasting in honour of Vishnu and celebrated as Ekadashi across India. The exact determination of these Tithies is therefore considered a matter of importance and are marked in Panchang type calendars such as Kalanirnaya.

We are also well aware of the tradition all across India which celebrates the deliverance of the Bhagawad Gita before the start of the Mahabharata war on a Shukla Ekadashi (waxing 11th day).

Aim: Since Gita Jayanti in the Shukla Paksha of Margashirsha holds so much importance across India that the celebrations are ear marked well in advance by many millions, hence it becomes important to try and ascertain the accuracy of the hypothesis and find out whether the first day of the Mahabharata war was

indeed an Amavasya as held by certain researchers or whether in fact the Moon phase data actually shows that the first day of the Mahabharata war was in fact in accordance with tradition and took place on a Shukla paksha day.

Methodology:

1. Examination of the Moon phase data from the Critical Edition (CE) of the Mahabharata war including the data which has been taken into account by other scholars as Moon phase data in their thesis.

2. Separation of the wheat from the chaff: Critically examining each reference to see whether it actually represents an observation of the sky during that day or night of the war.

3. Collating the data which can be proven to be an observation of the sky at day or at night and then checking it to see if any definite conclusion can be derived from the same as to the start of the war.

4. Identification of Moon Rise data from the Mahabharata war will be made of to identify phases of the Moon as below.

4. Use will be made of a well known and easy calculation of the Moon rise time as follows from New Moon day (Amavasya) to Purnima (full Moon day).

The Moon rises progressively later by 48 minutes every day from Amavasya to Purnima.

At Amavasya assuming a sunrise at 6am, the Moon rise will be at that time, so that at the 6th day of war, if the war had indeed started on the Amavasya, the Moon rise would be at:
6 x 48 = 4 hours 48 mins later ie. Moon rise on the 6th day of the war would occur at 10:48 am in the day time and well before noon.

At Amavasya assuming a sunrise at 6am, the Moon rise will be at that time, so that at the 14th day of war, if the war had indeed started on the Amavasya, the Moon rise would be at:
14 x 48 = 11 hours 12 mins later ie. Moon rise on the 14th day of the war would occur at 17:12 pm but still in the day time.
If we accept the theory that the war starts on an Amavasya then on the 14th night of the war, the Moon would be in the waxing phase or near Purnima and not in the waning phase.

5. Does the data during the 18 days of the war show that the Moon is in the waxing phase and if so when during the war is that true? Or is it instead the case that the data shows that the Moon is in the waning phase and if so when during the 18 days of the war is this true?

6. Identification and definition of errors in methodology by other researchers either in inclusion of erroneous data or in reaching incorrect inferences derived to that data.

Key references pertaining to the 18 days of the Mahabharata war:
I have divided the data into
A: Moon phase data taken by any author dating the war,
B: Moon Rise data by any author and
C: Eclipse data if any during the war to dissect out whether the war could have indeed occurred on an Amavasya as argued by numerous researchers including NN Oak and PV Vartak. (Ref 5). Moon rise data and eclipse data is examined in a separate category from the Moon phase data as it holds a much higher ranking on account of the data only occurring on certain Tithies in the case of the latter (near Amavasya - Solar eclipse, near Purnima - Lunar Eclipse)

A: Moon phase data in the Critical Edition taken by any author to be pertaining to observations include the following:

Reference 1: Drona Parva CE 15:52 (1)

मसारगल्वर्कसुवर्णरूप्यै ;र्वज्रप्रवालस्फटिकैश्च मुख्यैः ।
चित्रे रथे पाण्डुसुतो बभासे ; नक्षत्रचित्रे वियतीव चन्द्रः ॥ ०५२ ॥

Critically examining this reference shows that this is actually an analogy where Arjun in his chariot surrounded by various gemstones, is compared with the full moon at Chitra surrounded by nakshatras.

However there is no actual observation of the sky at all but only a poetic analogy of Arjun in the chariot to a full Moon. In fact what seems to have escaped the notice of the researchers in question (Ref 5) is that the full Moon at Chitra would signify Chaitra masa, approximately 6 months away

from any researchers estimated time of the year for the Mahabharata war. This is therefore an absurdity and must be discarded as it cannot be an observation. While the Gita press translation for this verse does not mention Chitra nakshatra, this, in our opinion, is a mistranslation.

Reference 2: Drona Parva CE 48:16 and Drona Parva CE 48:17 (Ref 1)

विमृद्य तरुशृङ्गाणि संनिवृत्तमिवानिलम् ।
अस्तं गतमिवादित्यं तस्त्वा भारतवाहिनीम् ॥ ०१६ ॥

उपप्लुतं यथा सोमं संशुष्कमिव सागरम् ।
पूर्णचन्द्राभवदनं काकपक्षवृताक्षकम् ॥ ०१७ ॥

The verse above actually makes the analogy of the fallen Abhimanyu to an eclipsed Moon. One researcher (ref 5) then goes on to do a simulation using software and finds a lunar eclipse although it is noted that contrary to the reference in question, this eclipse in 5561 BCE actually occurs TWO days AFTER Abhimanyu's death and NOT on the day of his death as this reference describes even if one were to believe this verse as an actual observation and not an analogy. It must be noted that assuming the hypothesis taken in the war proposal of 5561BCE, the Moon would be approximately 25 to 27 degrees away from an eclipse at the time of Abhimanyu's death. In that case, it is impossible that a comparison to a lunar eclipse could have been made a full two days earlier by the composer of the epic, considering that eclipses last only a few hours. This is therefore an absurdity and must be discarded as it cannot be an observation.

Reference 3: Drona Parva CE 48:22 (Ref 1)

The battlefield is compared with the sky studded with stars and the fallen Abhimanyu is compared to the full Moon. Again there is no actual observation of the sky at all but only a poetic analogy of the face of the dead warrior to a full Moon and a sky studded with stars.

तस्मिंस्तु निहते वीरे बह्वशोभत मेदिनी ।
द्यौर्यथा पूर्णचन्द्रेण नक्षत्रगणमालिनी ॥ ०२२ ॥

This reference also therefore must be discarded as it cannot be an observation. It is to be noted that the comparison of a fallen warrior to a Full Moon or the Sun is a recurring theme throughout the text of the Mahabharata epic as seen above and below.

Reference 4: Karna Parva CE 08:03 (Ref 1)

पूर्णचन्द्रार्कपद्मानां कान्तित्विङ्निन्धतः समैः ।
उत्तमाङ्गैर्नृसिंहानां नृसिंहास्तस्तरुर्महीम् ॥ ००३ ॥

अर्धचन्द्रैस्तथा भल्लैः क्षुरप्रैरसिपट्टिशैः ।
परश्वधैश्चाप्यकृन्तन्नुत्तमाङ्गानि युध्यताम् ॥ ००४ ॥

The verse Karna 08:03 again makes the analogy of the faces of the fallen veera (heroes) to a full Moon on the 16th day of the war. One researcher (Ref 5) takes this too to be an actual observation of the full Moon, however if this were to be an actual observation then how could the very next verse Karna 08:04 say that there is only half a Moon ie Asthami Chandra? This is another absurdity and this reference also therefore must be discarded as it cannot be an observation.

Reference 4: Karna Parva CE 14:50 (Ref 1)

चन्द्रनक्षत्रभासैश्च वदनैश्चारुकुण्डलैः ।
क्लृप्तश्मश्रुभिरत्यर्थं वीराणां समलङ्कृतैः ॥ ०५० ॥

वदनैः पश्य संछन्नां महीं शोणितकर्दमाम् ॥ ०५० ॥

The verse Karna 14:50 again makes the analogy of the faces of the fallen kings on a battlefield to a full Moon.
This is also not qualifying as an observation of the sky but only an analogy and also therefore must be discarded.

Reference 4: Karna Parva CE 17:86 (Ref 1)

अथास्य तं रथं तूर्णं तिलशो व्यधमच्छरैः ।
पताकां चक्ररक्षौ च ध्वजं खड्गं च मारिष ॥ ०८६ ॥

शतचन्द्रं ततश्चर्म सर्वोपकरणानि च ॥ ०८६ ॥

The verse Karna 17:86 is included here to make a specific point. The second part of the above verse makes the analogy of the instruments of war shining like one hundred Moons in the sky. The specific point I want to make here is that these sort of analogies do not qualify as an observation of the sky but only an analogy and therefore must be discarded. The sky does not have a hundred Moons. Rejected.

Reference 5: Karna Parva CE 35.11 (Ref 1)

The face of the fallen Vivitsu compared to the full Moon on the 17th day of the war. However there is no actual observation of the sky at all but only a poetic analogy of the face of the fallen warrior to a full Moon. Rejected.

विवित्सोस्तु ततः क्रुद्धो भल्लेनापाहरच्छिरः ।
सकुण्डलशिरस्त्राणं पूर्णचन्द्रोपमं तदा ॥ ०११ ॥

Reference 6: Karna Parva CE 43.39 (Ref 1)

पूर्णचन्द्रनिकाशेन मूर्ध्नि छत्रेण भारत ।
ध्रियमाणेन समरे तथा शतशलाकिना ॥ ०३९ ॥

एष त्वां प्रेक्षते कर्णः सकटाक्षो विशां पते ।
उत्तमं यत्नमास्थाय ध्रुवमेष्यति संयुगे ॥ ०४० ॥

Critically examining this reference shows that this is actually an analogy where the face of Karna who is killed by Arjuna on the 17th day of War, is compared with the full moon. However there is no actual observation of the sky at all but only a poetic analogy of the face of the fallen warrior to a full Moon. In fact what seems to have escaped the notice of the researcher in question (Ref 5) is that the verse before the above ie Karna Parva 43.38 compares Karna to the Sun. So two verses follow each other, one comparing the fallen warrior's face to the Sun and the next one to the full Moon BUT not only does the researcher (Ref 5) make the wrong observation ignoring that there is no actual observation of the sky at all but only a poetic analogy, he also cherry picks the data selectively. Rejected.

पश्य कर्णं रणे पार्थ श्वेतच्छविविराजितम् ।
उदयं पर्वतं यद्वच्छोभयन्वै दिवाकरः ॥ ०३८ ॥

Reference 7: Karna Parva CE 67.24 (Ref 1)

तदुद्यतादित्यसमानवर्चसं ; शरन्नभोमध्यगभास्करोपमम् ।
वराङ्गमुर्व्यामपतच्चमूपते ;र्दिवाकरोऽस्तादिव रक्तमण्डलः ॥ ०२४ ॥

Critically examining this reference shows that this is actually an analogy where Karna whose "Varchas/prowess" is compared with the shining midday Sun in the first part of the verse and the same prowess is compared with the setting Sun when he has fallen in the second part. However there is no actual observation of the sky at all but only a poetic analogy of the the fallen warrior's prowess to the Sun. The Moon is not mentioned in the critical edition let alone the full Moon. The Gita Press edition Karna. 94.37 makes an analogy of the face of Karna, killed by Arjuna on the 17th day of War, with the full moon. However there is no actual observation of the sky at all but only a poetic analogy of the face of the fallen warrior to a full Moon. However verse Gita Press edition Karna. 94.34 two verses above this verse, compares his face with the shining Sun where observers cannot believe that he has died. These are only analogies and compare the Karna to the midday Sun, setting Sun, the full Moon and the shining Sun. These must be rejected. The real astronomy observations surrounding Karna's death is presented in chapter 6 on Karna's death.

Reference 8: Karna Parva CE 12.04 (Ref 1)

शिरांस्युन्मथ्य वीराणां शितैर्भल्लैर्धनञ्जयः ।
पूर्णचन्द्राभवक्त्राणि स्वक्षिभ्रूदशनानि च ॥ ००४ ॥

संतस्तार क्षितिं क्षिप्रं विनालैर्नलिनैरिव ॥ ००४ ॥

Arjuna killed many Kaurava warriors and made a pile of their faces on the ground which appeared like the Full Moon. However there is no actual observation of the sky at all but only a poetic analogy of the faces of the fallen heroes to a full Moon. Rejected.

Reference 9: Karna Parva CE 19.28 (Ref 1)

सकुण्डलानि स्वक्षीणि पूर्णचन्द्रनिभानि च ।
शिरांस्युर्व्यामदृश्यन्त तारागण इवाम्बरे ॥ ०२८ ॥

Again Arjuna killed many Kaurava warriors and made a pile of their faces on the ground which appeared like the Full Moon. However there is no actual observation of the sky at all but only a poetic analogy of the faces of the fallen warriors to a full Moon and their earrings to the stars in the sky. Rejected.

Reference 10: Shalya Parva CE 23.04 (Ref 1)

यत्रैतत्सुमहच्छत्रं पूर्णचन्द्रसमप्रभम् ।
यत्रैते सतलत्राणा रथास्तिष्ठन्ति दंशिताः ॥ ००४ ॥

Studying the context, the word Kauravya, here refers to Duryodhana, with many other powerful warriors in his chariot, the canopy of which is compared to a full Moon. However there is no actual observation of the sky at all but only a poetic analogy of the canopy of his chariot to a full Moon. Rejected.

Reference 11: Shalya Parva CE 64.06 (Ref 1)

भूमौ विवेष्टमानं तं रुधिरेण समुक्षितम् ।
महागजमिवारण्ये व्याधेन विनिपातितम् ॥ ००४ ॥

विवर्तमानं बहुशो रुधिरौघपरिप्लुतम् ।
यदृच्छया निपतितं चक्रमादित्यगोचरम् ॥ ००५ ॥

महावातसमुत्थेन संशुष्कमिव सागरम् ।
पूर्णचन्द्रमिव व्योम्नि तुषारावृतमण्डलम् ॥ ००६ ॥

Studying the context, these verses refer to Duryodhana, fallen on the ground after the gada-yuddha, surrounded by blood, initially compared in verse 4 to an elephant, in verse 5 to the Sun, and in verse 6 compared to a full Moon. A researcher (Ref 5) has cherry picked the full Moon analogy in verse 6, ignoring

the other analogies above. We note that in any case, there is no actual observation of the sky again but only poetic analogies. Rejected.

Reference 12: Strii Parva CE 23.04 (Ref 1)

अहो धिक्पश्य शल्यस्य पूर्णचन्द्रसुदर्शनम् ।
मुखं पद्मपलाशाक्षं वडैरादष्टमव्रणम् ॥ ००४ ॥

एषा चामीकराभस्य तप्तकाञ्चनसप्रभा ।
आस्याद्विनिःसृता जिह्वा भक्ष्यते कृष्ण पक्षिभिः ॥ ००५ ॥

Gandhari visits the battlefield, a day after the 18th day of the war and compares the face of a fallen hero, in verse 4, here the Shalya Raja to the Full Moon. We note that there is no actual observation of the sky again but only poetic analogies. This analogy is erroneously described by a researcher as a description of the full Moon just after the war. However the same researcher omits the fact that the following verse ie. Verse 5 compares the face of the same fallen hero to molten gold. These are analogies only. Rejected.

Reference 13: CE Strii Parva 22.06 (Ref 1)

अतीव मुखवर्णोऽस्य निहतस्यापि शोभते ।
सोमस्येवाभिपूर्णस्य पौर्णमास्यां समुद्यतः ॥ ००६ ॥

There is a similar comparison by Gandhari (Gandhari uvacha) of the face of a fallen hero Balhik Raja to the Full Moon. We note that there is no actual observation of the sky again but only poetic analogies. Rejected.

Reference 14: Bhisma Parva CE93.30-31 (Ref 1)

प्रदीपैः काञ्चनैस्तत्र गन्धतैलावसेचनैः ।
परिवव्रुर्महात्मानं प्रज्वलद्भिः समन्ततः ॥ ०३० ॥

स तैः परिवृतो राजा प्रदीपैः काञ्चनैः शुभैः ।
शुशुभे चन्द्रमा युक्तो दीप्तैरिव महाग्रहैः ॥ ०३१ ॥

On the 8th day of War , Duryodhana, surrounded by his servants with lamps in their hands, on his way to meet Bhishma, is compared with the Moon surrounded by planets. This analogy is erroneously described by a researcher (Ref 5) as the first description of the Moon during the 18 days of the war. We note that there is no actual observation of the sky or the Moon again but only poetic analogies. Rejected.

Reference 15: Bhisma Parva CE106.35 (Ref 1)

दुःशासनं ततः क्रुद्धः पीडयामास पाण्डवः ।
पर्वणीव सुसङ्क्रुद्धो राहुरुग्रो निशाकरम् ॥ ०३५ ॥

This reference is described as the "first mention of the full Moon on the 10th day of War" by a researcher (Ref 5) and deserves special mention.

The verse refers to an angry Arjuna troubling Dushasana and is compared with an angry *Rahu* troubling the full Moon. There is of course no lunar eclipse observed at the 10th day of the war to corroborate this observation either in 3067BCE or 5561 BCE.

Our point is that if indeed this were to be held as an actual observation as the researcher who refers to this verse as the actual first description of the full Moon on the 10th day of the war in 5561 BCE, then an eclipse should ALSO occur on the 10th day of the war in 5561 BCE as the verse also talks about Rahu troubling the Moon and we can see clearly see that there is no lunar eclipse on that 10th day in 5561 BCE. Hence rejected.

It is also to be noted that the same researcher (Ref 5) takes a similar analogy to triumphantly proclaim an eclipse as noted in reference 2 above in our thesis at Abhimanyu's death. We reiterate that there is no lunar eclipse on that 13th day in 5561 BCE and there wouldn't be because the verse is only an analogy and does not represent an actual description of the sky. We note that there is no actual observation of the sky or the Moon again but only poetic analogies. Rejected.

Reference 16: Drona Parva: CE30:26

The verse above actually makes the analogy of the face of the fallen king Neel who was quite tall and was killed by Ashwatthama to the full Moon.

However there is no actual observation of the sky at all but only a poetic analogy of the fallen face of King Neel to a full Moon. This therefore must be discarded as it cannot be a true observation.

Reference 17: Drona Parva: CE19:18

माल्यदामवता राजा श्वेतच्छत्रेण धार्यता ।
कृत्तिकायोगयुक्तेन पौर्णमास्यामिवेन्दुना ॥ ०१८ ॥

Critically examining this reference shows that this is actually an analogy where the canopy of King Bhagadatta's chariot with Mukta (pearl) necklaces, is compared with the full moon at Krittika on the 12th day of the war.

However there is no actual observation of the sky at all but only a poetic analogy of King Bhagadatta in his chariot with the full moon at Krittika on the 12th day of the war.

In fact what seems to have escaped the notice of the researchers in question (Ref 5) is that the full Moon at Krittika is a Krittika Purnima on the 12th day of the war This is therefore an absurdity and must also be discarded as it cannot be an observation.

Reference 18: Karna Parva (CE 15:42)

शिरश्च तत्पूर्णशशिप्रभाननं ; सरोषताम्रायतनेत्रमुन्नसम् ।
क्षितौ विबभ्राज पतत्सकुण्डलं ; विशाखयोर्मध्यगतः शशी यथा ॥ ०४२ ॥

Pandyaraj, falls on the 16th day of the war and his face is compared to the Full Moon. It also says that the face of the fallen Pandyaraj looks like the "Moon between Two Vishakhas". In fact what seems to have escaped the notice of the researchers in question (Ref 5) is that the full Moon at Vishakha is a Vaishakha Purnima on the 16th day of the war. If we believe this to be a reference, as also the above verses to be true astronomy observations, then this Vaishakha Purnima follows the Kartika Purnima on the 12th day mentioned in the verse before. All this is therefore an absurdity and must also be discarded.

Reference 19: Karna Parva (CE 33:16)

शिरश्च तत्पूर्णशशिप्रभाननं ; सरोषताम्रायतनेत्रमुन्नसम् ।
क्षितौ विबभ्राज पतत्सकुण्डलं ; विशाखयोर्मध्यगतः शशी यथा ॥ ०४२ ॥

On the17th day of the war, two Panchal warriors are behind King Yudhisthira and are compared to two Punarvasus protecting the full Moon. In fact what seems to have escaped the notice of the researchers in question (Ref 5) is that the full Moon at Punarvasu is a Punarvasu Purnima on the 17th day of the war.

If we believe this to be a reference, as also the above verses to be true astronomy observations, then this Punarvasu Purnima on day 17 follows the Vaishakha Purnima on day 16 which in turn follows the Kartika Purnima on the 12th day (and a Chaitra masa Purnima) mentioned in the reference above the previous mentioned verse. These Full Moons are separated in real life by months, they cannot occur in the last seven days of the war. This is therefore an absurdity and must also be discarded.

Finally we present a small sample of genuine Moon Rise Data:

Reference 20: Bhisma Parva CE 108.12 (Ref 1)

This set of verses is taken to show that there is a description clearly pointing to

a) A shower of meteorites from comets in verse 9 and

b) Verse 10 showing a ***Parivesha*** referring to a halo around both the Sun and the Moon.

Verse 11 points to a Moon rise at night and is therefore in support of 3067BCE where the 10th day of the war would be in the waning half of the Moon with a moonrise around 9 pm. This Moonrise data negates the claim for 5561BCE further. We could not meaningfully interpret the counterclockwise movement of planets around either the Sun (Gorakhpur edition GP) or the Moon (CE Critical Edition).

The verses above this verse, especially verse 9 and 10 are very important as they further corroborate our interpretation of Bhisma Parvan chapter 3 as a host of cometary phenomena in 3067 BCE.

पपात महती चोल्का मध्येनादित्यमण्डलात् ।
सकबन्धश्च परिघो भानुमावृत्य तिष्ठति ॥ ००९ ॥

परिवेषस्तथा घोरश्चन्द्रभास्करयोरभूत् ।
वेदयानो भयं घोरं राज्ञां देहावकर्तनम् ॥ ०१० ॥

देवतायतनस्थाश्च कौरवेन्द्रस्य देवताः ।
कम्पन्ते च हसन्ते च नृत्यन्ति च रुदन्ति च ॥ ०११ ॥

अपसव्यं ग्रहाश्चक्रुरलक्ष्माणं निशाकरम् ।
अवाक्शिराश्च भगवानुदतिष्ठत चन्द्रमाः ॥ ०१२ ॥

वपूंषि च नरेन्द्राणां विगतानीव लक्षये ।
धार्तराष्ट्रस्य सैन्येषु न च भ्राजन्ति दंशिताः ॥ ०१३ ॥

सेनयोरुभयोश्चैव समन्ताच्छ्रूयते महान् ।
पाञ्चजन्यस्य निर्घोषो गाण्डीवस्य च निस्वनः ॥ ०१४ ॥

Conclusions:

1. If we accept the Full Moon analogies in the last seven days of the war and even afterwards to reflect true observations pertaining to astronomy, then the problem is that a full Moon must exist for approximately 9 days including the last seven days of the war. (If we believe this to true ie. the observers of the Mahabharata cannot differentiate between a full Moon and a Moon which is a minimum of at least 5 days away, then that would be completely absurd. In fact, we might as well take every day as a full Moon from here on) In fact even today, many people who live in closer communication with nature are easily able to decide the difference between a full Moon and a Moon which is difference in phase by a day. This is a false assumption and cannot be accepted.

2. As noted in all the references discussed above from the Mahabharata war, only one so far can be termed as a true observation (Reference 16: Bhisma Parva 108.12), all the rest are actually analogies AND DO NOT represent any actual astronomical observations. In addition, as pointed out, many if not most of these analogies can be easily seen as internally contradictory if one takes the context of the verse and the verses above and below into consideration. Hence so far, not a single reference pertaining to Moon phase data can be identified in the references above mentioned by other researchers barring the Reference 16: Bhisma Parva 108.12 which was incorrectly identified as a full Moon data set by a researcher (Ref 5).

3. In addition, my research shows that when critically examined, not a single reference can be shown to be pertaining to the full Moon or an eclipse in the entire data set of the 18 days of the war but instead these are mere analogies of warrior's faces to full Moons.

4. In addition, many absurdities can be found in the data above if one believes them to be real including a date for the Mahabharata war in Chaitra masa and a Punarvasu Purnima on day 17 which must the follows the Vaishakha Purnima on day 16 which in turn follows the Kartika Purnima on the 12th day all of which is completely impossible. These are quite clearly not actual Moon phase data sets referring to Full Moon observations (using sky observations) during the Mahabharata war but instead are mere analogies.

5. All these barring Reference 16: Bhisma Parva 108.12 must be rejected. This in turn completely destroys the hypothesis for 5561 BCE as the date of the

war where nearly all the before mentioned verses from 1 -15 are falsely taken as objective proof for the Full Moon observations during the war.

6. In the next chapter I show the actual observations of the Moon during the 18 days of the war and show how these make the date of 5561 BCE for the war completely untenable and bolster the claim for 3067 BCE. The real Moon rise data will also be presented. Why Moon phase data even as defined by a researcher in support of a claim for 5561 BCE in the first 8 days of the war is absent will also be shown.

7. Examination of the verses above in Reference 16: Bhisma Parva 108.12, especially verse 9 and 10 are very important as they further corroborate our interpretation of Bhisma Parvan chapter 3 as a host of cometary phenomena in 3067 BCE. (ref 6)

Resources:

This set of Youtube short films shows why the war cannot start on an Amavasya:

1: We illustrate the problem of why the Mahabharata war cannot start on an Amavasya in a short film which can be seen free here:

https://www.youtube.com/watch?v=fIG86YqfK-E

2: A short film on the rigorous conditions of Balarama's pilgrimage (fulfilled exactly in 3067BCE) and how they are failed in 5561BCE.

https://www.youtube.com/watch?v=mLceUJnXydg

3: Short film: Krishna's Mission of Peace and 3067BCE vs 5561BCE

https://www.youtube.com/watch?v=uSf3yFp-v6g&t=2s

References:

[1] The Mahabharata, Text as constituted in its Critical Edition, Bhandarkar Oriental Research Institute (Poona, 1972) and Chapter on Mahabharata References

[2] Sathe, S., Deshmukh, V., and Joshi, P., Bharatiyayuddha: Astronomical References, Shri Babasaheb Apte Smaraka Samiti (Pune, 1985)

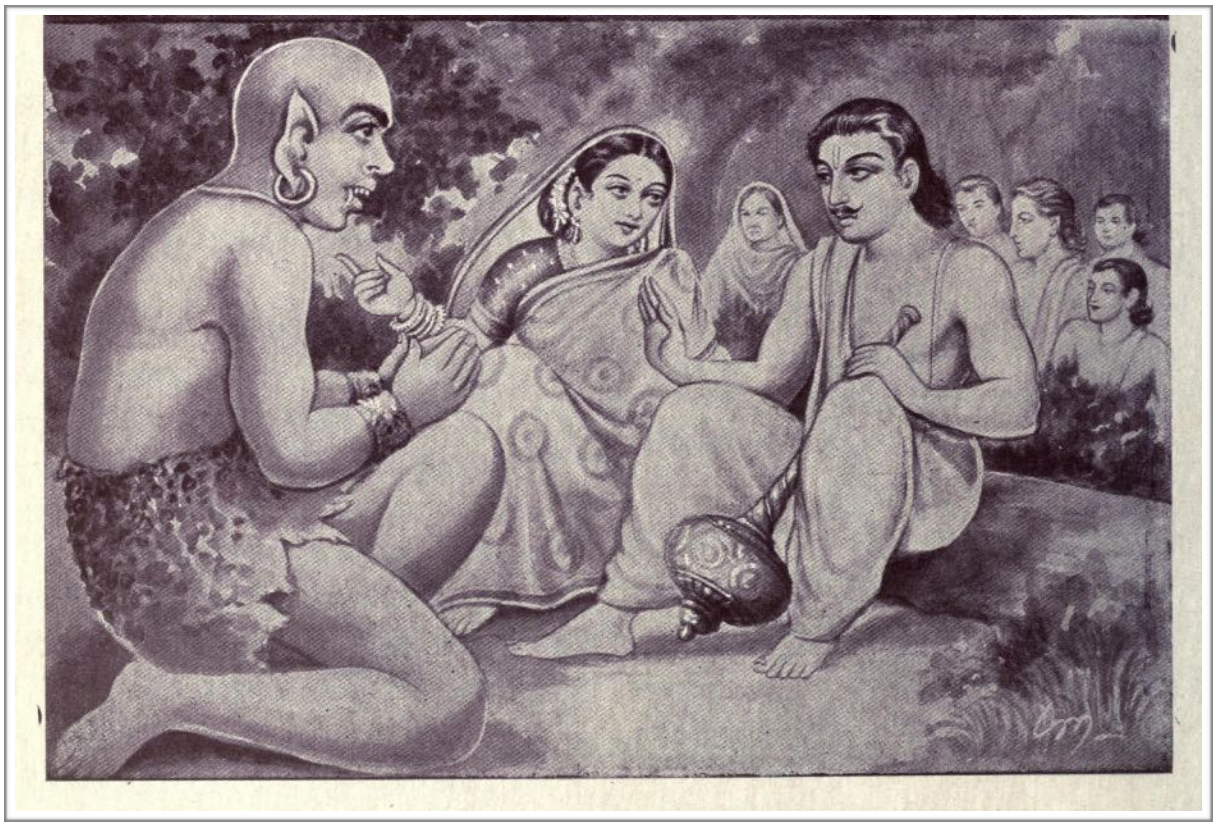
[3] Achar BN : On Astronomical References in Vyasa-Dhrtarastra-Samvada in the Bhismaparvan of Mahabharata,

[4] BrihatSamhita, ibid, in 'ketucara' ,Ch. XI

[5] Oak NN : When did the Mahabharata war happen? The Mystery of Arundhati 2011

[6]Pandit MM, Achar BNN: The Mystery of Bhisma Parvan Chapter 3: What does it Mean? 2019

Actual MoonRise Data from



the 14th night of the war: Chapter10

Dr Manish Pandit

Nov 14th 2019

Moon Rise Data from the Mahabharata war

Actual Observations (Image credit: Wikipedia)

Introduction:

We have previously shown how at least 15 verses from the 18 days of the Mahabharata war presented elsewhere by other researchers as full Moon data in support of their theories were not actual astronomy observations of the Moon or the sky but mere analogies.

However, real Moonrise data is available from the night which followed the 14th day of the war (the 14th night) in verses from the Drona Parva. If we accept the theory that the war starts on an Amavasya then on the 14th night of the war, the Moon would be in the waxing phase or near Purnima and not in the waning phase.

On the other hand, if the Moon can be proven to be in the waning phase on the night (of) which followed the 14th day of the war, then an Amavasya start to the war is effectively disproven.

If additional data on this Moonrise is available, such that it be unambiguously clear that the 14th night was during the waning phase of the Moon, then we can rule out an Amavasya start to the war. This in turn means that 5561BCE would have to be rejected as a date for the war, as the war starts on an Amavasya during this year. On the other hand, if it can be proved that the war unambiguously started on an Amavasya, then a host of possible dates including 3067 BCE would have to be rejected outright. Hence the Moonrise data on the 14th night has high significance.

Aim:

To critically examine the references pertaining to the Moonrise data of the 14th night and other data to decide the following points:

1. Is this effectively the main decisive Moon phase data from the war, ie. the smoking gun which helps us in deciding when the war started?
2. Is there explicit evidence to show that there was just one Moonrise as most researchers infer or were there two Moonrises on the 14th night where one Moonrise was "hidden" as decided arbitrarily by some researchers?
3. Does any reference from the Mahabharata on the 14th night describe a crescent Moon thereby proving that this was not a full Moon or anywhere close to it?
4. Is there any reference within the Mahabharata text which can make this sort of a possibility of an earlier Moonrise useless?
5. How important is the position of this Moonrise data from the 14th night in deciding objectively, without bias, about an Amavasya start for the war as alleged by certain researchers?
6. Is it possible to fix the Moonrise of the 14th night from the references and is it possible to show that this data fits any war year conclusively?

First set of 10 observations: These are based on 10 references from Drona Parva chapter 159 in the aftermath of the killing of Ghatotkach by Karna. The references clearly describe a Moonrise on the 14th night of the war.

1. Reference 1: Drona Parva 159.25

ततो विनिद्रा विश्रान्ताश्चन्द्रमस्युदिते पुनः ।
संसाधयिष्यथान्योन्यं स्वर्गाय कुरुपाण्डवाः ॥ ०२५ ॥

This reference clearly describes a Moonrise. Now let us examine this reference above critically to decide whether:

1: Did this Moonrise occur during the night? If so, what was its approximate time?

2: Was there any Moonrise described on the 14th night prior to this reference?

3: Is there any description given around these and other references below which show why the fight was stopped in the night for a Muhurta as per the Mahabharata text CE (Critical edition)?

4: Is the Moon described as a Crescent anywhere in the text around the 14th night?

To answer all these questions logically and in an unbiased fashion, let us reconstruct the war events on the 14th night.

Event 1: Ghatotkacha is killed: The events start from chapter 122 of

घटोत्कचवधपर्व

अध्याय १२२

Drona Parva, which is aptly titled ***Ghatotkach Vadh Parva.*** The actual killing of Ghatotkach is described in Drona Parva 158:19

हते घटोत्कचे राजन्कर्णेन निशि राक्षसे ।

Drona.159.15

ते तथा पारयन्तश्च ह्रीमन्तश्च विशेषतः ।
स्वधर्ममनुपश्यन्तो न जहुः स्वामनीकिनीम् ॥ ०१५ ॥

The warriors could not leave the battlefield/army owing to Swa-Dharma and hence as in the following verse, it is described that they become overcome with sleep and start to sleep wherever they can on the battlefield, including on their

elephants, chariots and on their horses. This situation is described in Drona. 159.16 too.

Drona.159.16:

शस्त्राण्यन्ये समुत्सृज्य निद्रान्धाः शेरते जनाः ।
गजेष्वन्ये रथेष्वन्ये हयेष्वन्ये च भारत ॥ ०१६ ॥

The words "***Nidrandha***" occur frequently in the following verses, describing the state of the warriors, who are described as killing others indiscriminately without knowing perhaps who they were killing, as the following verse depicts below:

निद्रान्धा नो बुबुधिरे काश्चिच्चेष्टां नराधिपाः ।
तेऽन्योन्यं समरे योधाः प्रेषयन्त यमक्षयम् ॥ ०१७ ॥

Drona.159.18

स्वप्नायमानास्त्वपरे परानिति विचेतसः ।

आत्मानं समरे जघ्नुः स्वानेव च परानपि ॥ ०१८ ॥

This verse describes that the warriors were overcome with sleep, such that they were in their dreams and unable to recognise whether they were killing friends or enemies.

Drona.159.19:

This verse again contains the word "***Nidrandha***" which describes the state of the warriors on the battlefield.

नानावाचो विमुञ्चन्तो निद्रान्धास्ते महारणे ।
योद्धव्यमिति तिष्ठन्तो निद्रासंसक्तलोचनाः ॥ ०१९ ॥

Drona.159.20:

This verse again contains the word "***Nidrandha***" which describes the state of the warriors on the battlefield, where they are unable to realise whether they are killing friend or foe.

संमर्द्यान्ये रणे केचिन्निद्रान्धाश्च परस्परम् ।
जघ्नुः शूरा रणे राजंस्तस्मिंस्तमसि दारुणे ॥ ०२० ॥

Drona.159.21: This verse again contains the word "***Nidra Mohita***" which describes the state of the warriors on the battlefield, where they are overcome by sleep.

हन्यमानं तथात्मानं परेभ्यो बहवो जनाः ।
नाभ्यजानन्त समरे निद्रया मोहिता भृशम् ॥ ०२१ ॥

Event 2: It is in this context of the soldiers of both the armies being overcome by extreme sleep and exhaustion that the next shloka arrives with Arjun making a suggestion to both armies in verse 22-24 of this 159th chapter of Drona Parva that they should rest for a muhurta.

The additional context of Dharma and implied Sattwa during the Mahabharata war:

We must also remember that Arjun is being guided by Sri Krishna within the Mahabharata itself, but especially since the first day of the war where he was delivered the Bhagawad Gita. Therefore Arjun is always mindful of Sattwa being his prime ruling principle and hence he realised that the warriors were straying from Dharma especially because of the "***tamas***" of extreme sleep and "***rajas***" of

wanting to fight, being now guided totally by these two principles and not by any ***sattwa*** which should guide Dharma.This is described in verse 159:23 below.

Drona.159.23

श्रान्ता भवन्तो निद्रान्धाः सर्व एव सवाहनाः ।
तमसा चावृते सैन्ये रजसा बहुलेन च ॥ ०२३ ॥

This exact context of Dharma during the course of this war is further clarified in verse 26 which follows the above verses where Arjun is referred to as "***Dharmika***" and his words are accepted by the armies of both sides who are also described as "***Sarvadharmadnya***" or the ones who know Dharma. These words are not a random act by the composers of the Mahabharata, but can be seen as a clear course correction to be followed from the verses above where the actions of the armies were being guided for a period of time by ***Tamoguna*** and ***Rajoguna*** alone, with no input of ***Sattwa***, and ***Dharma*** which, as everybody knows, was the entire purpose of the Mahabharata war.

तद्वचः सर्वधर्मज्ञा धार्मिकस्य निशम्य ते ।
अरोचयन्त सैन्यानि तथा चान्योन्यमब्रुवन् ॥ ०२६ ॥

This Rajoguna can be seen in verse 19 of the same chapter as well as being described by the word "Yodhavyam". It is in this context that Arjun suggests that the warriors would do well to rest for a Muhurta as in verse 24 of chapter 159 below.

ते यूयं यदि मन्यध्वमुपारमत सैनिकाः ।
निमीलयत चात्रैव रणभूमौ मुहूर्तकम् ॥ ०२४ ॥

It is in this context of protecting Dharma by making the warriors rest for some time in the battlefield so that they could later clearly follow their Dharma correctly and not under the delusionary forces of Tamoguna and Rajoguna which accompany sleep that the verse of the Mahabharata in Drona Parva: 159:29 arrives as below:

तामस्य वाचं देवाश्च ऋषयश्च महात्मनः ।
सर्वसैन्यानि चाक्षुद्राः प्रहृष्टाः प्रत्यपूजयन् ॥ ०२९ ॥

This verse of Drona Parva: 159:29 as above is again no coincidence. It describes the Gods and the Rishis praising Arjun for his insight into Dharma and therefore in his suggestion of resting for a Muhurta was Sattwa and Dharma served best which follows in the next few verses till verse 42 of chapter 159 of Drona Parva.

Now the question arises, what the word "Punah" in Drona Parva, 159, verse 25 actually refers to? Here is the verse again:

ततो विनिद्रा विश्रान्ताश्चन्द्रमस्युदिते पुनः ।
संसाधयिष्यथान्योन्यं स्वर्गाय कुरुपाण्डवाः ॥ ०२५ ॥

This verse is saying "Rest now (for a Muhurta) and then resume the fight "Punah"/again when the Moon rises. The "Punah" in the text actually refers to the word "Samsadhayisyatha" which follows in the same verse which means "to resume the fight **AGAIN**". This word "punah" is mistakenly portrayed by some researchers as evidence in favour of an earlier Moonrise, evidence for which cannot be found in the text.

The verses above have previously been portrayed as describing dust in the air and darkness enveloping the battlefield., however I have shown how these verses are not translated accurately in the context of this being a ***Dharma Yuddha***.

Event 3: Resumption of the fight after Moonrise at a point when three of the fifteen Muhurtas for the night had remained. Assuming sunrise at 6:30 am, Moonrise therefore was at around 2 am. (adding some time for preparations post Moonrise)

Event 4: This fight then continues until sunrise when the warriors stopped to worship the Sun.

This sequence of events now gives the exact context of the resting interval of one Muhurta (48 minutes) which is followed directly by the Moonrise which is described in detail in verses 159:42 to 50. This further answers many of the questions I have posed at the beginning of the research paper.

The Exact detail of the Moonrise:

Let us look at the fascinating detail provided in Verse Drona Parva: 159:42 to completely answer all our questions objectively.

ततः कुमुदनाथेन कामिनीगण्डपाण्डुना ।
नेत्रानन्देन चन्द्रेण माहेन्द्री दिगलङ्कृता ॥ ०४२ ॥

There are two words in verse 42 above which have been completely overlooked by all researchers. These words are amazing in their power to unveil the exact nature of this Moonrise. These words are "***Mahendri Dig-alankrta***". As we know "***Mahendri***" unambiguously points to the direction of Indra which is East and "***Dig-alankrta***" points to the direction in which the Moonrise occurred. This verse therefore says that "The Moonrise adorned the direction of the East (on the 14th night.)" As we know well, this direction of Moonrise as described on the 14th night, ie. towards the East can only occur in the waning phase and definitely not in the waxing phase. This gives further irrefutable evidence that this 14th night of the war CANNOT be in the waxing phase of the Moon, otherwise the Moon would have definitely been seen in the West (apart from the fact as mentioned earlier in the text that the Moonrise would then have occurred prior to sunset and not in the early hours of the morning as described in the text).

There is one more piece of invaluable data which is got from verse 42 above. The verse describes the rising Moon as "***Kumudanathena***" which in later verses is described as a "Kamadeva's bow" and therefore unambiguously it is a crescent Moon which is rising in the East late on the 14th night of the war. This and the next set of verses (esp in other rescensions) therefore says that "The Moonrise

which is of the shape of a crescent bow like Kamadeva's (pleasing to the eyes) has adorned the direction of the East (on the 14th night.)"

Conclusions:

1. Determining Moon phase from the Moonrise on the 14th night:

Use will be made of a well known and easy calculation of the Moon rise time as follows from New Moon day (Amavasya) to Purnima (full Moon day).

The Moon rises progressively later by 48 minutes every day from Amavasya to Purnima. A waning phase Moon rises in the night and the later the Moonrise, the later is the phase of the Moon. This Moonrise being risen so late at night proves that it cannot be anything other than a K11 Tithi.

At Amavasya assuming a sunrise at 6am, the Moon rise will be at that time and the Moon will rise progressively later by 48 minutes every day, so that that at the 14th day of war, if the war had indeed started on the Amavasya, the Moon rise would be at:
14 x 48 = 11 hours 12 mins later ie. Moon rise on the 14th day of the war would occur at 17:12 pm but still in the day time and before sunset.
However, as we can see from Drona.159.25 and Drona 159.42 the Moonrise is unequivocally during the late night and hence, an Amavasya start to the war is impossible. (Ref 1,2, 7 below)

2. The conjecture of certain researchers that the word "Punah" in Drona Parva, 159: verse 25 refers to a second Moonrise is completely demolished. In any case this (mis) translation now means very little because of point 3 below. (Ref 1,2, 5, 7 below)

3. As we know well, the direction of Moonrise as described on the 14th night, ie. towards the East from Drona Parva Chapter 159. Verse 42 ("***Mahendri Dig-alankrta***") can only occur so late at night in the waning phase. The waxing phase Moon rises during the day and not during the night. A full Moon rises in the evening around sunset. This gives further irrefutable evidence that this 14th night of the war CANNOT be in the waxing phase of the Moon, otherwise the Moon would have definitely been seen in the sky towards the West. To my mind, this is the first and only time that this finding has been presented. (Ref 1,2, 5, 7 below.

4. Based on the dual fact of there being no explicit evidence for a dust storm during the 14th night obscuring Moonrise and based on point 3 above, the "conjecture/possibility" proposed by a researcher that there was a dust storm obscuring an earlier Moonrise is unfounded and not based on explicit evidence but is also now of little consequence, the Moonrise in "***Mahendra Digalankrta***" having resolved the situation beyond all doubt. In addition, no previous Moonrise was explicitly described on this day, the above observation of Moonrise as described above was the only factual observation of Moonrise late in the night following the 14th day.(Ref 1,2, 5, 7 below)

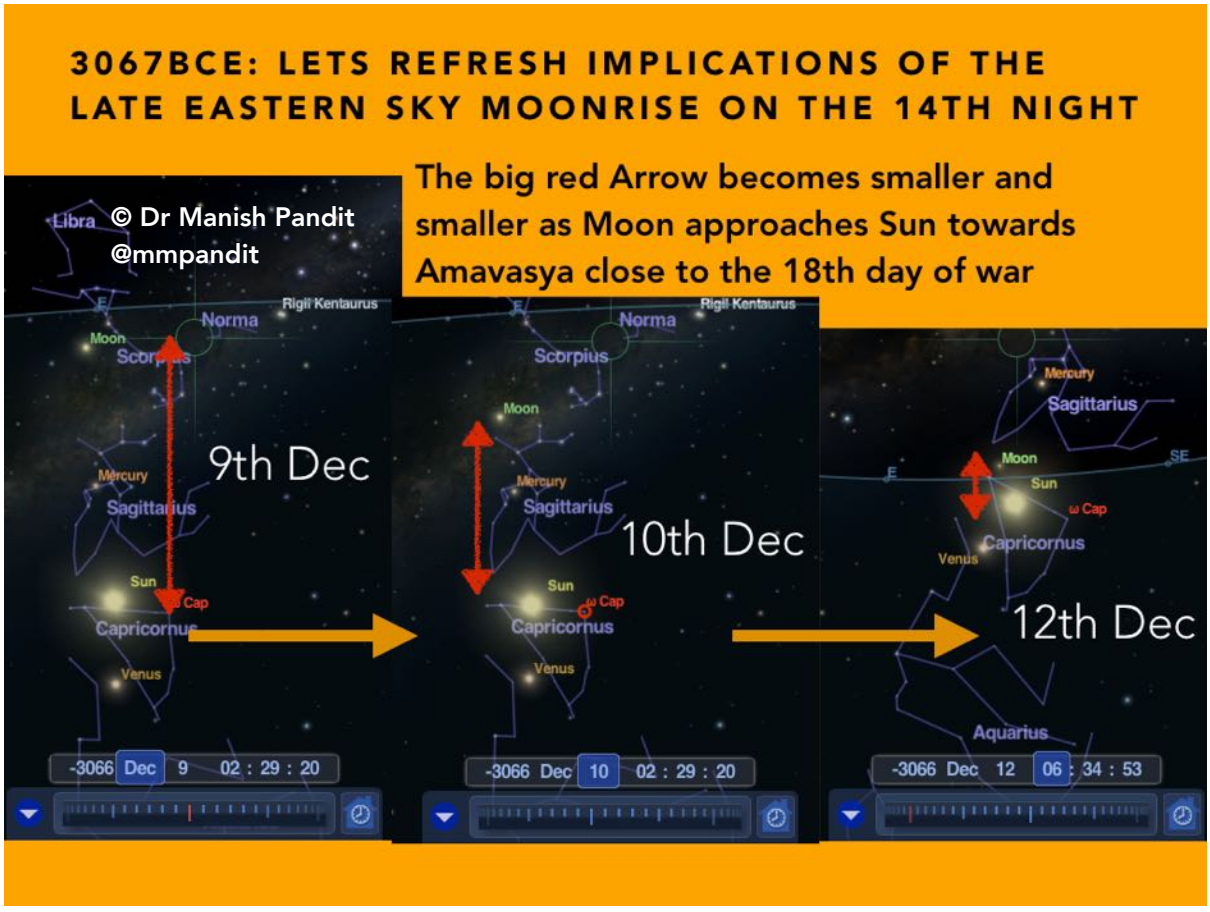
5. The verse describes the rising Moon as "***Kumudanathena***" and in later verses as "Kamadeva's bow" and therefore unambiguously it is a crescent Moon which is rising in the East on the 14th night of the war. Clearly it is the late waning phase and an Amavasya start to the war is quite clearly demolished. This would mean that the year 5561BCE in which an Amavasya start to the war is absolutely necessary now stands rejected as a viable option for the war. On the other hand, this data clearly bolsters the claim for 3067 BCE. The moon is around 5 days away from Amavasya, conditions for which are explicitly described which is described in at least two other places within the Mahabharata text. (Ref 1,2,5,7 below)

6. We would like to formulate the Pandit and Achar's "Tithi based theory" for the Mahabharata war based on Drona Parva 159:42 as follows:
"Any theory which proposes a date for the Mahabharata war as starting on an Amavasya should be summarily rejected as an absurdity on the basis that this doesn't fit the most basic astronomy data on (Kamadeva's bow like Crescent) Moonrise **in** the **East** on the 14th night of the war during the early hours of the morning at around 2 am. (Ref 1,2, 5, 7 below) A Waning phase Moon rises at Night, a waxing phase Moon rises in the day, later the Moonphase, later the Moonrise.

7. A corollary to the above conclusions, especially because because we have proven beyond all reasonable doubt that the war cannot start on an Amavasya as described above, we can now confidently assert that no Solar eclipse can ever occur on the first day of the war.
7. 5561 BCE is summarily rejected as a date for the war, as an Amavasya start to the war is now proven to be a complete absurdity on the basis of chapter 159 and especially on account of verse 42 of this chapter. (and ref 1,2,5, 7 below)

8. By proving as above that the 14th night of the war definitely occurred during the waning phase of the Moon, and by previously finding that absolutely no actual full Moon/ near full Moon phase data could be found during the 18 days of the war I confidently assert that the war cannot start on an Amavasya and that 5561 BCE and other dates depending on this finding for their Mahabharata hypothesis should be summarily rejected as absurd. (Ref 7 below)

9. The next corollary to the above conclusion, especially because we have proven beyond all reasonable doubt that the war cannot start on an Amavasya and and by previously finding (Ref 7 below) that absolutely no actual full Moon/ near full Moon phase data could be found during the last 7 days of the war, we can confidently assert that no Lunar eclipse could have occurred on the 15th day of the war.



9. The Mahabharata war is a Dharma Yuddha and this should be kept in mind when verses are interpreted.

I would like to thank Dr BN Narahari Achar without whose inspiration I would never have started researching the references of the Mahabharata war in this detail.

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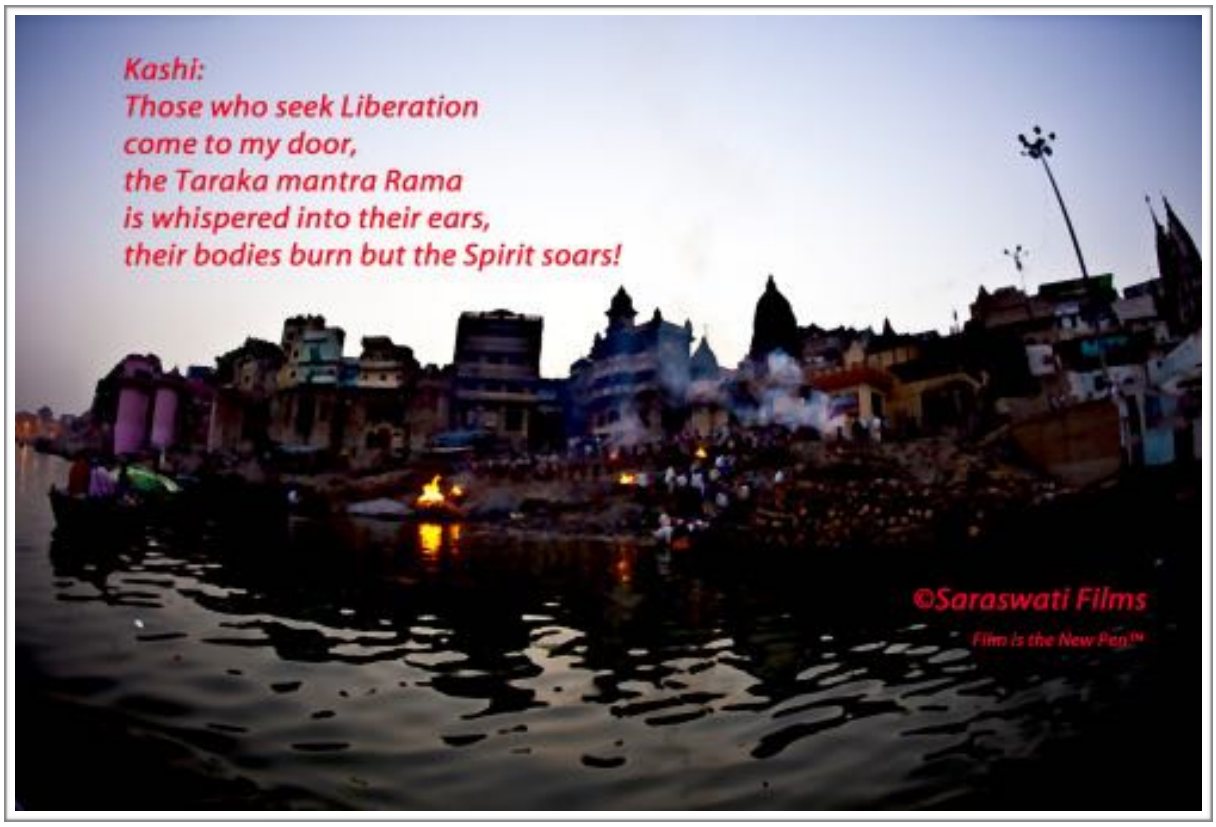
Critical Examination of the Bhisma Moksha data from



the Mahabharata Chapter 11

Om Shanaischaraye cha Navagrahaye Namah

Published by

Dr Manish Pandit

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Critical Examination of the Bhisma Moksha data from the Mahabharata

Om Shanaischaraye cha Navagrahaye Namah (picture courtesy: Wikipedia)

Aim: To critically examine the Bhisma Moksha data from the Mahabharata.

Methodology:

1. To show the sequence to Bhisma Moksha as deduced from the internal evidence of the verses in the Mahabharata critical edition document. (BORI)
2. To find commonality and evaluate the contradictions if any within these verses.
3. To establish the nakshatra and Tithi of Bhisma's Moksha from the literature.
4. To establish the exact number of days post Winter Solstice when Bhisma received Moksha.
5. To establish a maximum number of sleepless nights spent by Bhisma on the battlefield till Moksha.
6. Was Uttarayan observed in the sky as ancient cultures have done for thousands of years and which can only occur 4th day post winter Solstice?

What is the sequence of events within the Mahabharata Critical edition which can give us a clue as to the date of Bhisma Moksha?

The first points to consider are the verses of importance in deciding the time line to follow: There are 23 observations distributed in the following verses.

Chapter CE 153 Anushasan Parva: verses 1-6, 7-28

Yudhisthira asks for their permission for them to go home.-1

He pleases them with all kinds of daan (gifts)-2

He installs/appoints people according to their abilities-3

He talks to dwijas, strongmen, naigamebhas (nigam) he received blessings from them all -4

Key verse- 5: "***Sasm-aara***"Sanskrit word in the second part of the sentence is actually past tense for remembered and so is ***Usitva*** is past participle for having dwelt/spent (already). The correct translation is: Having spent 50 nights already in the best/famous city, the blessed monarch who was ***purusha Vrishabha*** or the bull amongst men, remembered the time of the "eldest of the Kauravas"~ ie Bhisma.

उषित्वा शर्वरीः श्रीमान्पञ्चाशन्नगरोत्तमे ।
समयं कौरवाग्र्यस्य सस्मार पुरुषर्षभः ॥ ००५ ॥

The above verse has been misinterpreted by a host of researchers who think that this verse gives them a license to add 50 extra nights.

The Importance of Key Verse 6:

One of the most important verses is the Key verse - 6 of this chapter of Anushasan Parvan: This verse helps us in establishing the number of days post Winter Solstice that Bhisma must spend prior to receiving Moksha. The verse is as follows

Nirvayou- he left, ***Gajapura***-Hastinapura, ***Yajakaiha Parivarikah***: with all the purohitas,

Drshtwa: He observed, ***Nivrutta AAdityam***; the Sun left Dakshinayana and ***Pravruttam Uttarayanam***: Sun joined Uttarayana

Meaning is clear:
Yudhisthira leaves Hastinapur after observing that the Sun (Aaditya) was released (Nivrutta) and after he saw that the Sun joined Uttarayana.

Most of the Mahabharata researchers have ignored this verse completely. Not one of the researchers has considered the import of the second part of this verse. The second part of the verse mentions two things:

1. The Sun was released. The question arises, released from what? If the Sun was released from Dakshinayana, then there would be no sense in saying that Yudhisthira observed this phenomenon. I could not fathom the import of this verse until early this year when it came to me like a flash.
2. The Sun was "seen" to move/ join the Northwards course. Till then I too had not considered the enormous import of the two observations hidden in this verse. The verse is as follows:

स निर्ययौ गजपुराद्याजकैः परिवारितः ।
दृष्ट्वा निवृत्तमादित्यं प्रवृत्तं चोत्तरायणम् ॥ ००६ ॥

It was like a sudden flash out of nowhere which arrived as I sat thinking about this verse, ie verse 6 of Anushasan Parva, when the relevant question to ask struck me. I suddenly realised that Winter Solstice is just a point when the Earth's axis is tilted to the farthest from the Sun. I suddenly wondered "How long does this state last? Is it immediately after Winter Solstice that the Sun turns North again?" I investigated the etymology of the word "Solstice", it turned out that the word is derived from Latin "Sol Sistere" and means quite simply that "The Sun stands still".

The meaning electrified me. I stood still for a moment as if a bolt of electricity had entered me too. Then I wondered, "How long does the Sun stand still like that after Winter Solstice"?

Turns out that a good many astronomers/researchers had looked at precisely this same question. I realised that the Sun stood still for exactly 3 days post Winter Solstice. Now I realised what the verse was saying. The word ***"Nivrutta"*** applied here to the release from the 3 days of standing still post Winter Solstice. This verse can therefore only have been an observation on the 4th day post winter

Solstice. It is on the day after this that the Sun is "released" from the momentary Stambhana and only then turns Northward and is actually seen to do so by a degree on that 4th day. It suddenly became clear that the vast majority of researchers who had conjectured that Bhisma must have left either on or a a day after Winter Solstice knew nothing at all. Bhisma Moksha MUST necessarily take place on the 4th or 5th day after Winter Solstice. Not later and not earlier. This imposed more restrictions on the various possibilities for the Mahabharata war and Bhisma Moksha. In addition, I wanted to know, as a researcher, whether, I could possibly fix the phase of the Moon post Winter Solstice when Bhisma Moksha occured.

I will jump to a most difficult verse in the same chapter:
chapter 153 of Anushasan Parva, verse 28: Magha masa has arrived, of great punya. ***Tribhagashesha*** of the masa 3/4 of the masa is still left, ***Pakshoyam Shuklo*** verily is happening ***(Bhavityh marhatih)***, therefore it must be Asthami tithi when Bhisma expires.

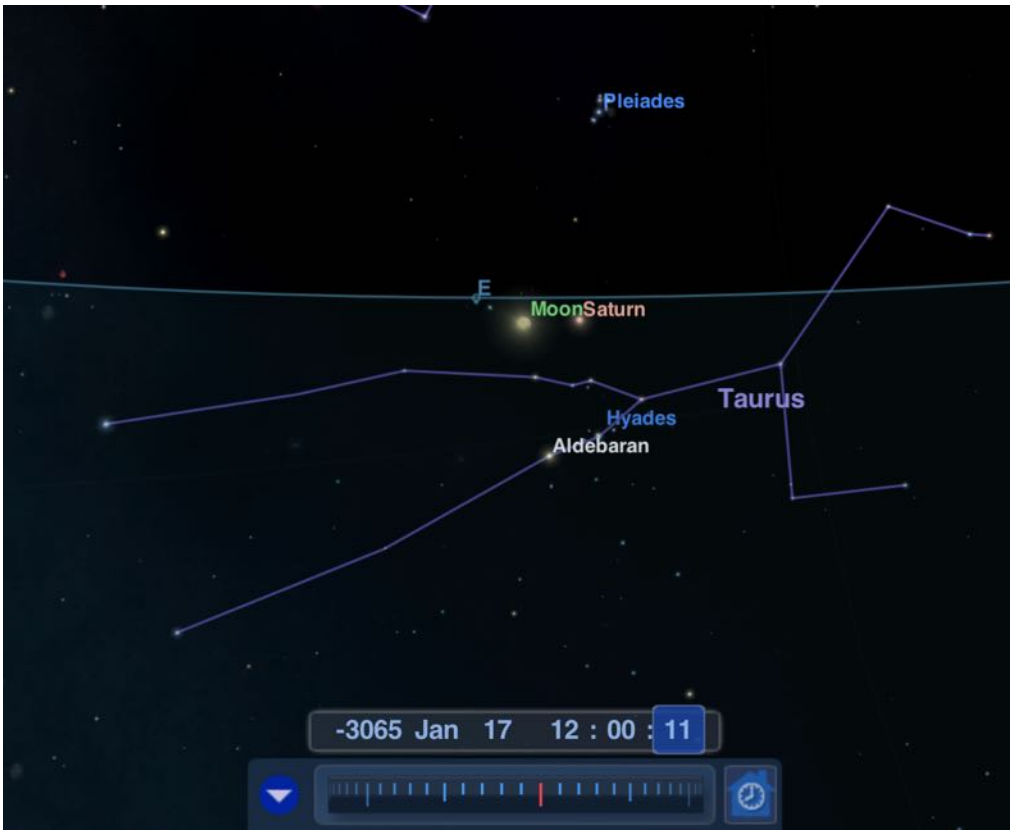
माघोऽयं समनुप्राप्तो मासः पुण्यो युधिष्ठिर ।
त्रिभागशेषः पक्षोऽयं शुक्लो भवितुमर्हति ॥ ०२८ ॥

However, some researchers have opined that this cannot be the case, making a point that the word "Tribgashesha" can mean 3/4th of a Paksha and not necessarily of a month (or Masa) which would introduce other possibilities which however seem quite unlikely. Nevertheless, it seems unlikely that Bhisma would leave the world in a Krishna Paksha having waited a considerable period of time for the Sun to turn Northwards. Hence I wanted to see if there was any other verse which clarified the matter. The verse seemed to opine that it must be the Shukla Paksha and the Asthami Tithi (8th Tithi) thereof, but it would be nice to have another verse which completely resolves the situation. Enter the famous Gita Press verse as follows:

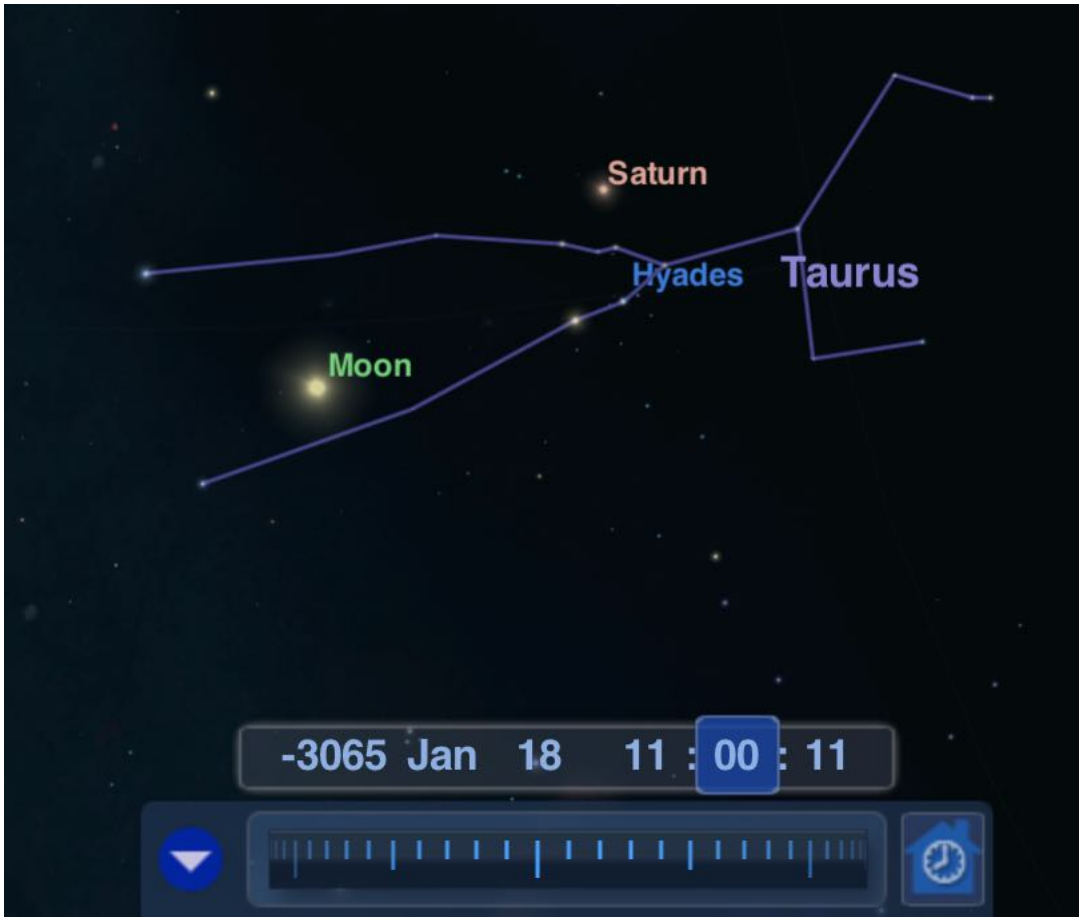
(शुक्लपक्षस्य चाष्टम्यां माघमासस्य पार्थिव ।
प्राजापत्ये च नक्षत्रे मध्यं प्राप्ते दिवाकरे ॥)
निवृत्तमात्रे त्वयन उत्तरे वै दिवाकरे ।
समावेशयदात्मानमात्मन्येव समाहितः ॥ ३ ॥

This verse above is from the Gita Press version: Chapter 47 verse 3 which clarifies the situation completely and confirms my suspicion that the word "Tribhagashesha" in verse 28 of chapter 153 from Anushasan Parva must apply to the month(masa) and not the Paksha. This verse also says that it is Rohini nakshatra of that Astami Tithi and the Shukla Paksha when Bhisma must leave. This imposes rather significant rigorous restrictions on any dating effort of the Mahabharata war. It implies clearly that a Purnima cannot precede the Winter Solstice or Uttarayana for at least 10-12 days, as that would cause the Moon post winter Solstice to be that of the waning phase on the 4th and 5th day post Winter Solstice. Rohini star (Aldebaran) must be prevailing on that 4th or 5th day post Winter Solstice. I realised with a thrill that this was the acid test for 3067BCE. Either this strict and highly scientific criteria would fit that date or it wouldn't. If it wouldn't, I would have to go back to the drawing board and look for any other date which fitted this strict criterion.

On the other hand, if this fitted the date of 3066 BCE (which comes after the year 3067BCE as the date of the war), then I would be vindicated. My search would be over. Unlike many other Mahabharata researchers, I wasn't ready to accept far fetched alternative explanations for these criteria. The skymap for 17th January 3066BCE at noon, the 4th day post Uttarayan is presented below:



The skymap for the 18th January 3066BCE near noon, the 5th day post Winter Solstice/ Uttarayan is presented below:



The above skymaps electrified me. I began to realise that the stringent criteria which were present in the verses of the Mahabharata were very important. Most researchers have ignored all these criteria as these would be very difficult for their theories and would completely invalidate their data. If you look at these visually, then they both fit the criteria for Bhisma Moksha. **However, if we consider that the 4th day past Winter Solstice is very important as that is the first day that Yudhisthira could actually see the Sun move northwards** (***The term Solstice comes from the Latin Sol Sistere: meaning "The sun stands still at solstice" a phenomenon which has been observed every year for thousands of years and by multiple cultures)*** and only then did he depart for Kurukshetra,

then it becomes very clear that 17th of Jan 3066BCE would most likely be the day of Bhisma Moksha. This is Magha Masa and it was Shukla Paksha and it is also an Asthmi, it is Rohini nakshatra at midday.

Limitations of the Study as presented above:
The Moon when extrapolated back so many thousands of years may be off by at least three hours depending on various softwares used, so may also the Tithis which may be slightly off. Hence, it is also possible that the date of Bhisma Moksha is the 5th day after Winter Solstice instead of the 4th.

Let us carry on interpreting the verses which have followed to check the timeline to Bhisma Moksha:

Verse translations for Anushasan Parva chapter 153.
Verse 7: Yudhisthira takes all the materials including ghee, flowers, gandha, kalagaru: ceiling wax used to burn corpses.

Verse 8: Yudhisthira leaves Hastinapura to meet with (***sansaadhan)*** Bhisma and takes with him garlands ***(malyani)*** and ***Maharhaani*** and ***ratnaani*** (gems) of various kinds.

Verse 9: The ***Vrishabha*** amongst men, takes Dhritarastra, Gaandhari and others (***Prtaam maataram)*** , brothers with him.
Verse 10: Janardan (Krishna), Yuyutsu, Yuyudhaan and Vidura are with him.

Jump to Verse 15: ***Shayaan***: he sees Bhisma lies on the bed of arrows. He got down from the chariot (second part: rather ***avaroh***)

Verse 19: Yudhisthira prostates and asks “Let me know what we have to do?”

Verse 20: ***Praaptosmi Samaye Rajan Agninadaya tey Vibho,***
The time has arrived to do Agni samskaras

Aacharyas, Bhramanas, Ritvikas, and brothers are all here.

Verse 21: Putras, etc Krishna are all here.
Verse 22: second part of verse: open your eyes and look at them. ***Taanpashya Kurushardula, Sam unmeelya lochaney.***

Jump to Verse 26: Bhisma confirms that Uttarayana has already taken place. ***Pari vritto Bhagawan Sahastranshu Diwakarrah*** This verse 153:26 of Anushasan Parva is another piece of evidence that Vyasa means Uttarayan to be an observable phenomenon which as we say earlier, can only take place on the 4th day post Winter Solstice.

Then he says: Verse 27:
Asta panchastam Ratryah: This verse alludes to 58 sleepless nights spent on the battlefield. We will discuss this further after the brief explanation of verses occurring in Chapter 154.

अष्टपञ्चाशतं रात्र्यः शयानस्याद्य मे गताः ।
शरेषु निशिताग्रेषु यथा वर्षशतं तथा ॥ ०२७ ॥

The verses continue into chapter 154, when ***Bhisma Swarga Gamanam*** occurs as follows:
ie: ***verse 1***
Vaisampayana says: "Having said all this, finally Bhisma at that moment became silent"
verse 8 where the funeral pyre is set up and
then ***verse 12*** of this chapter: the word ***"Pitra Medha"*** is clearly mentioned and finally ***verse 14***: The fire is ***Prajwalya Hutashanam***. The ***Janeu*** is now ***Apasapvya***, during the Samskaraas .

Discussion on Verse 27 of chapter 153 of Anushasan Parva (CE)

अष्टपञ्चाशतं रात्र्यः शयानस्याद्य मे गताः ।
शरेषु निशिताग्रेषु यथा वर्षशतं तथा ॥ ०२७ ॥

Asta Panchastam Ratryah: This verse alludes to a maximum of 58 sleepless nights spent on the battlefield.

Nearly every researcher has opined that Bhisma has spent 58 nights on a bed of arrows. (I also initially believed this) But is there an alternative explanation to the 58 nights? Can the first part of the verse be considered exactly as the second part of the verse, or is there a different explanation possible?

In our opinion, the boon given by Krishna has expired at Uttarayana.

That's the reason for the second part of the verse where Bhisma now feels the arrows piercing his body and each moment from the expiry of the boon is like a century. It is also our opinion going by how battlefield commanders have always behaved right upto the last century that Bhisma would have actually spent at least a few sleepless nights on the battlefield beyond the first day of the war as the commander in chief of the Kauravas, it would not be unthinkable that he actually spent a few nights on the battlefield before the start of the war.

There is another conflicting verse on 56 nights remaining for Bhisma according to Krishna and this verse has been taken by some researchers to bolster their timeline. In our opinion, day counting may not be the best way to resolve the conflicting situations. Some others have given explanations about how the two conflicting timelines may be resolved but those are at best only attempts and not conclusive.

Thus there exist at least two conflicting timelines to count days from the start of the war to Bhisma Moksha which cannot be really avoided. In fact the presence of verse 28 of chapter 153 of Anushasan Parva (CE) adds even more confusion and more timelines. I deal with these later in the chapter. **Since this is the case, we have to fix the Tithi and nakshatra for Bhisma Moksha rather than try and fix all conflicting timelines or worse still add many more days than necessary to this timeline to Winter Solstice and beyond.**

Even though many conflicting timelines to Bhisma Moksha can be found, only a few points can be taken as important in this narrative: What are these?

Point 1: A maximum of 58 nights can be spent by Bhisma from the start of the war to Bhisma Astami. (Verse 27 of chapter 153 of Anushasana Parva (CE))

Point 2: The 4/5th day after Winter Solstice is the day of Bhisma's Moksha, not earlier and not later. (verse 6 of chapter 153 of Anushasana Parva and verse 26 of chapter 153 of Anushasana Parva (CE))
To this we can add our other absolute necessities:

Point 3: The Month of Magha (a Lunar estimation)

Point 4: The Moon at Rohini nakshatra near midday on the day of departure which must coincide with

Point 5: Shuddha Shukla Astami (the 8th day of the bright half of the month ie. 3/4th of the month is remaining)

Most researchers have got point 2 above completely wrong because they have never considered verse 6 or verse 26 of chapter 153 which actually deals with the condition of *an observed Uttarayana which can only occur on the 4th day post Winter Solstice.*

Only two of the 110+ researchers get all 5 above correctly/ nearly correctly and of those, everybody, except the researchers involved in dating the war to 3067BCE get Saturn's position during the Mahabharata war completely wrong.

Now the question is that when the timeline is so clearly pointing to an impossibility of more than 58 nights spent till just after Uttarayana, how have researchers come up with their own timelines of 98 (92 + X) days?

To explain this is critical because otherwise people wont believe the timeline at all which we are proposing.
The Key verses verse - 5: "***Sasm-aara***"Sanskrit word in the second part of the sentence is actually past tense for remembered and so is ***Usitva*** is past participle for having dwelt/spent (already).

The correct translation is: Having spent 50 nights already in the best/famous city ie. Hastinapur, the blessed monarch who was ***Purusha Vrishabha*** or the bull amongst men, remembered the time of the "eldest of the Kauravas"~ ie Bhisma.

This verse 5 from chapter 153 of the Critical edition is erroneously taken by a researcher in favour of 5561BCE to justify his timeline of 50 extra nights spent by Yudhisthira in the Nagara of Hastinapur. This verse actually includes the 30 (some researchers take 27) nights spent at the bank of the Ganges.

The points here are:

1. The fact that no time interval exists between verse 5 and above described verse 6 of chapter 153, is a big minus for a hypothesis of an extra 50 nights. If the extra 50 nights are being spent, then why is there absolutely no description of them? Instead, there a clear indicator of the impending event in the next ie. verse 6 of chapter 153, that Yudhisthira left Hastinapur with the purohits, followed by verse 7 showing Yudhisthira takes all the materials including flowers, gandha, and indeed ghee and kalagaru: black ceiling wax used to burn corpses. In verses 8,9 and 10 which follow, it becomes clear that Yudhisthira actually leaves to meet Bhisma with various others including Krishna as described above. By verse 15 of that chapter, Yudhisthira has reached Bhisma and by verse 20, we are made to known in no uncertain terms that the "Daaha Samskara" is about take place "***Praaptosmi Samaye Rajan Agninadaya tey Vibho,***"
2. The actual verse in question describing the 50 nights in question ie. verse 5, is clearly stating that those 50 nights have already been spent and includes the 27 or 30 nights spent on the banks of a river, the tense is clearly past tense and the various events just prior to verse 5 and 6 are a clear indication that the 50 nights referred to are in the capital and have already passed. Uttarayana has been visually observed to have happened (which can only happen at a time interval of after 3 days post Winter Solstice) as clearly stated in verse 6 and verse 26 as below: Key verse - 6: ***Nirvayou***- he left, ***Gajapura***-Hastinapura, ***Yajakaiha Parivarikah***: with all the purohitas, ***Drshtwa***: He observed, ***Nivratta AAdityam***; the Sun was relieved from the momentary Stambhana and ***Pravruttam Uttarayanam***: Sun joined Uttarayana. Key verse - 26: Bhisma confirms that Uttarayana has already taken place. ***Pari vritto Bhagawan Sahastranshu Diwakarrah***

3. Now, lets check the previous reference from the preceding chapter of the Mahabharata: this is from Ref 129 and it refers to chapter 152 : verses 10-13 of the critical edition: this chapter 152, only consists of 13 verses, the key verse of which which are easily translated as follows:
    3.1.1. Verse 10 points to the previous meeting of Bhishma asking King Yudhisthira to come back at Uttarayana. As I said earlier, the point to be noted is that this chapter ends at just 13 verses and then starts at the next chapter (this chapter is chapter number 153 already discussed at length above) where the 50 nights are mentioned in the past tense as having already been spent in verse 5. This 50 nights must therefore include the maximum of 30 days already supposedly spent on the bank of the Ganges.

So the following timeline of the war is clearly established:

1. Bhisma fell on day 10 of the war timeline after spending those nights on the battlefield, Bhisma did not die on the 10th day of the Mahabharata war.
2. The war did not stop there. It continued for a period of 8 days from then.
3. King Neela, fell on the 12th day and Abhimanyu fell on the 13th day.
4. Jayadratha was killed before sunset on the 14th day. Ghatotkach was killed late on the 14th night and the hostilities stopped for a period of time. The Moonrise description at this time confirms that this time was in the waning phase of the Moon therefore demolishing an Amavasya start to the war.
5. Shortly before Sunrise on the 15th morning, Drupada was killed. The warriors took a customary break for Sandhyavandana at Sunrise.
6. Karna died on the 17th day.
7. Duryodhana fell on the evening of the 18 day.
8. Ashwatthama then killed Dristadyumna, Sikhandi and Draupadi putras in the night following the 18th day of the war.
9. Bhima and Arjun completely brought Ashwatthama to his knees on the following 19th day.
10. Sudharma and Dhaumya, Vidura, Indrasen then made massive funeral pyres for the dead.
11. Yudhisthira and others then went to the banks of a river and could have spent a month there within Hastinapur.

12. At Uttarayana as per evidence, Yudhisthira has already spent 50 nights in the capital after the Mahabharata war has ended. This includes the 30 days spent above on the banks of a river which are not in his palace within the city explicitly giving ***Udaka*** for the dead, as per custom.
13. **"*Asta Panchastam Ratryah*"** a maximum of 58 sleepless nights are spent by Bhisma on the battlefield according to the first line of the verse 27 of chapter 153. This first line is misunderstood by many researchers to mean that Bhisma spent 58 nights on the bed of arrows. This is not necessarily so. It refers to the 58 sleepless nights from just before the start (first day) of the war. The second part of this verse is also misunderstood by most researchers. It refers to Bhisma feeling each moment ***AFTER Uttarayana as being equal to a hundred years*** according to the boon given to him by Krishna that he would not feel the pain from the arrows till Uttarayana.
14. The boon given by Krishna has expired at Uttarayana. Thats the reason for the second part of the verse quoted above in verse 27, chapter 153 of Anushasana Parva (CE), where Bhisma now feels the arrows piercing his body and that each moment from the expiry of the boon is like a century.

15. **Because of the condition of an observed winter solstice and not just a calculated day, Bhisma dies a minimum of 4 days after Uttarayana but not on the day of Uttarayana according to chapter 153 of Anushasan Parva, Verse 6 (CE)**
16. Verse 153: 28 of the Anushasana Parva (CE) clarifies that Magha masa has arrived, of great ***punya***. ***Tribhagashesha*** of the masa 3/4 of the masa is still left, ***Pakshoyam Shukla*** verily is happening (***Bhavituh marhatih***), therefore it must be Asthami tithi when Bhisma expires.

An alternative reading for this verse is that 3/4th of the Paksha is remaining. If that is the case and one counts this as the Shukla Paksha which is remaining then that makes it Shukla Chaturthi Tithi which is the day of Bhisma Moksha.

Of course, another alternative reading is if the verse were to be translated as 3/4th of the Paksha had elapsed while the Shukla Paksha was running. This would place the Tithi of Bhisma Moksha as Shukla Ekadashi.

Other Alternative meanings:

Some researchers have remarked that if the meaning of this verse is that 3/4th of the Masa has elapsed and only 1/4th of the Masa remains in which case, the verse could indicate a Krishna Astami, alternatively if 3/4th of the Krishna Paksha has elapsed, then that would indicate a Krishna Ekadashi, if 3/4th of the Krishna Paksha remains then that could indicate a Krishna Chaturthi and so on.
In my opinion, these alternative opinions are not accurate translations of the verse. In my opinion, the only possibilities that I am willing to accept as Tithies of Bhisma Moksha are Shukla Paksha Astami which would be the case if the verse was translated as 3/4th of the masa is remaining and the Shukla Paksha was running at Bhisma's Moksha. The second most probable alternative reading that I would be willing to consider is if the verse were to be literally translated as 3/4th of the Paksha had elapsed while the Shukla Paksha was running. This would place the Tithi of Bhisma Moksha as Shukla Ekadashi.

17. Verse 153: 28 of Anushasana Parva which I have translated above is somewhat ambiguous and it follows therefore that we will need to look at some way to resolve the 4 or 5 different timelines that this verse entails. In addition, there are at least two further varying timelines of 56 days (Krishna's verse) and 58 nights (Bhisma's own words) to Bhisma's Moksha. If we take all the possibilities that are entailed in these three verses, multiple different timelines to Bhisma Moskha can be thought of, most of them completely contradictory to each other.

18: **The inference drawn from two certain assumptions (58 night timeline and Magha Shukla Asthmi for Bhisma Moksha) taken into consideration together can be an Amavasya start to the war which is in total contradiction to the timeline derived from the 14th night late Moonrise post killing of Ghatotkacha:**

Most Mahabharata researchers conveniently take the 14th war night (and 10th war night Moonrise) to be a conflicting observation or treat the Magha Shukla Astami verse and the 58 night timeline for Bhisma Moksha as an impossibility by using some excuse or conjecture. How do I resolve this conundrum satisfactorily? Can I give a satisfactory explanation or not? Please read on :

If we are to believe two assumptions that there is a 58 day count to Bhisma Moksha and that the day of Bhisma Moksha is a Magha Shukla Astami, then some problems arise. As we know, Bhisma fell on the 10th day of the war and hence an extra 10 days can be added to the count of 58 nights, giving around 68 days to Bhisma Astami from the start of the war. If both these assumptions are taken to be absolutely true, then it follows that in that situation, the 8th day before the Magha masa, Shukla Astami Tithi must be an Amavasya. In that case, the 30th day before that will be another Amavasya, the 60th day prior (ie the first day of the war) will also be an Amavasya.

This leads to the problem that the first day of the war must be an Amavasya or the day following it.

This raises an absurdity from the astronomy point of view, in that, the late night Moonrise is in the Eastern part of the sky according to the verse 42 of Chapter 159 of Drona Parva (CE) which states that:

ततः कुमुदनाथेन कामिनीगण्डपाण्डुना ।
नेत्रानन्देन चन्द्रेण माहेन्द्री दिगलङ्कृता ॥ ०४२ ॥

The above verse is unambiguous and states that a crescent Moon pleasing to the eyes like the vision of Manmatha's bow, rose and adorned the Eastern sky. We already know that this was pretty late at night after at least a muhurta (48 minutes) of rest after the killing of Ghatotkacha. Thus, this is a Moonrise in the Eastern sky and the Sun will rise from the same direction in a few hours. This is because the Mahabharata states that the resumption of hostilities occurred only at some point after that Eastern sky Moonrise when around 3 and 3/4ths out of 15 Muhurtas of the night remained which would be approximately slightly more than 3.2 hours from Sunrise as per verse 1 and 2 of Chapter 161 of Drona Parva. (CE)

त्रिभागमात्रशेषायां रात्र्यां युद्धमवर्तत ।
कुरूणां पाण्डवानां च संहृष्टानां विशां पते ॥ ००१ ॥

Thus, for an observer on earth, this Moon is approaching the Sun and will be conjunct the Sun in a few days. The Moon approaching the Sun in the Eastern sky can only happen a few days from an Amavasya or New Moon day. This Moonrise occurs on the 14th war night and therefore it means that the 18th war day must be an Amavasya or close to it. Thus the Eastern sky Moonrise can be derived even from first principles as a waning phase Moonrise. This derivation is actually unnecessary from the astronomy point of view as it is well known in those circles that an Eastern sky Moonrise is that in the waning phase. In addition, the observations from Drona Parva chapter 159 (CE) and the first two verses of Drona Parva chapter 161 (CE) point out that no Amavasya start to the war is possible. The verse 159:25 (CE) is rendered almost unimportant from an astronomy point of view in terms of whether the word "Punah" refers to the resumption of hostilities (its well known meaning in most books) or not.

This set of observations of Drona Parva from Ghatotkacha vadha to the sunrise when the warriors stopped fighting to worship the Sun is therefore completely in contradiction to the inference of an Amavasya start to the war or any start to the war timeline near an Amavasya. (This Amavasya start to the war is sometimes the inference drawn from the two assumptions made by many researchers who try to prove their war timeline starting from an Amavasya (the two assumptions being a 58 day count to Bhisma Moksha implying 68 days from the start of the war and that the day of Bhisma Moksha is a Magha Shukla Astami). Thus these two timelines lead to an absurdity from an astronomy point of view as pointed out above and cannot be taken together and therefore an alternative explanation must be found.

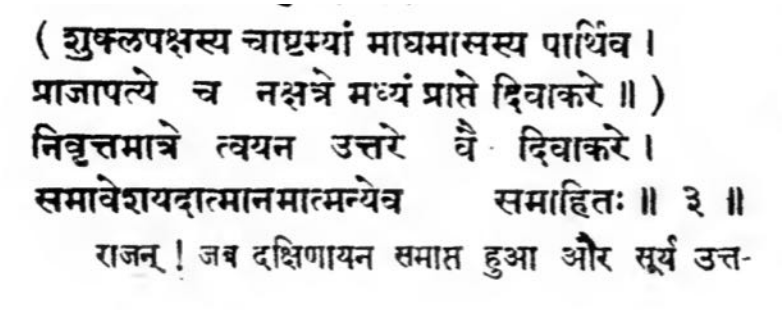
Explaining our 58 nights timeline: The explanation which we offer is that the count of 58 sleepless nights is to be taken from the start of the war or just before it. Even in the traditional wars in medieval times, war generals would spend their nights in tents on the battlefield from before the start of hostilities.

Thus we have dealt with our interpretation of 58 nights (Anushasan Parva 153:27) verse from the critical edition. The above explanation which is contained

in paragraphs 13 to 18 give an adequate explanation as to why we feel that the Tithi and Nakshatra for Bhisma Moksha should be fixed rather than reliance on Bhisma Mosksha timelines of which there can be several as elucidated above.

19: **Fixing the Tithi and Nakshatra of Bhisma Moksha:**

Given the multiple possible timelines to Bhisma Moksha, we need to clarify the matter. This is where it would be wise to take the help of a singular verse from the Gita Press edition of the Mahabharata. This is from Chapter 47 and it is verse number 3. It states that Bhisma Moksha arrived on a Rohini nakshatra on Magha Shuddha Shukla Astami at midday after Uttarayan was observed in the sky.


(शुक्लपक्षस्य चाष्टम्यां माघमासस्य पार्थिव ।
प्राजापत्ये च नक्षत्रे मध्यं प्राप्ते दिवाकरे ॥)
निवृत्तमात्रे त्वयन उत्तरे वै दिवाकरे ।
समावेशयदात्मानमात्मन्येव समाहितः ॥ ३ ॥
राजन् ! जब दक्षिणायन समाप्त हुआ और सूर्य उत्त-

This verse is usually ignored by most researchers because it introduces a very stringent condition. But if it is taken into consideration, then it becomes clear that the Gita press verse strengthens one of the meanings of verse 28 of Chapter 153 of Anushasan Parva shown above. Many researchers have avoided taking this verse into consideration as it brings their timelines to Bhisma Moksha into severe problems.

Some conclusions from the text and above observations and discussions for the timing of Bhisma Moksha are given below:

1. Seven days after the conversation between Krishna and Karna in Udyoga Parvan comes an Amavasya at Jyestha. (nakshatra ruled by the Devata Indra)
2. The War does not start on that Amavasya, it cannot even start on the next Amavasya because the detail on the Moonrise of the 14th night of the war completely disproves an Amavasya (or near Amavasya) start to the war.

3. The detail on the Moonrise on the 14th night means that most likely there is a Shukla Dwadashi to Chaturdashi start to the war.
4. The war ends close to an Amavasya. Thus the 18th day is close to an Amavasya or an Amavasya.
5. Bhisma falls on the 10th day of the war and the war continues for 8 more days.
6. Bhisma according to his own words has spent 58 sleepless nights either at Uttarayana or just after. Thus a maximum of 58 or 59 nights is spent by Bhisma on the battlefield. We have resolved the question about where this counting is to be commenced from. We have shown that this 58 nights period is to be counted from just before the 1st day of the war by showing that the only other option of counting this period from the 10th day of the war introduces an absurdity from an astronomy point of view and contradicts all three observations of the war timeline. We also show that the 14th night Moonrise is unambiguously a waning phase Moonrise in the Eastern part of the sky occurring late at night and that the 18th war day would in actual fact be close to an Amavasya.
7. We have explained why each moment feels like a century to Bhisma in the second part of the verse chapter 153 Verse 27 of Anushasan Parva. This is because Krishna's boon for Bhisma has expired at Uttarayana, meaning that he can feel the pain from the arrows very badly all over again. This involves a small consideration that the first and second part of the Anushasan Parva verse 153:27 have to be understood separately to mean that "Bhisma has spent 58 sleepless nights on the battlefield" as separate from the second part of the verse that "each moment on the bed of arrows seems like a century. The verse actually reminds us that Bhisma is clearly conveying that he spent a maximum of 58 sleepless nights on the battlefield and that includes the first nine nights he spent fighting before falling on the 10th day.
8. Yudhisthira meets Bhisma the last time prior to Uttarayana and says to Bhisma that only a few days are left for him to ascend to heaven.
9. When the third verse from chapter 47 of Anushasana Parva is applied and Chapter 153, Verse 28 from the critical edition is also taken into condition, it is quite clearly visible that the lunar month of Magha is on and that Bhisma has passed on while 3/4ths of that month are still left. The word ***Tribhagashesha*** is then seen to be applied to the Masa or the Lunar month.

Thus Bhisma passes on in the Shukla paksha of the Moon on Astami Tithi while Rohini Nakshatra is on and it is near midday.

10. Points 6, 7, 8, 9 mean that there is no way that Yudhisthira spends an extra 50 nights in the capital after his second last meeting with Bhisma and before starting out to meet Bhisma at Uttarayana. This timeline of 50 extra nights proposed by a researcher is simply not true, its an impossibility according to the text. This is additional proof that the 50 day count described in Chapter 153 and verse 5 of Anushasana Parva cannot be added from this last meeting prior to Uttarayana (Winter Solstice).

Further Conclusions:

1. Bhisma Moksha arrived on a Rohini nakshatra on Magha Shuddha Shukla Astami at midday as per verse 3 of Chapter 47 of Gita Press edition and verse 27 and chapter 153 of Anushasan Parva of the Critical edition (CE)

2. Verse 6 of Chapter 153 of Anushasan Parva means that Bhisma Moksha MUST necessarily take place on the 4th or 5th day after Winter Solstice.
Bhisma Moksha must take place not later and not earlier than the 5th day post Winter Sosltice. This imposes severe restrictions on the various possibilities for the Mahabharata war and Bhisma Moksha. This means that the Rohini nakshatra must arrive on the 4th or the 5th day after Winter Solstice and not earlier and not later. It must in addition be an Astami Tithi on either that 4th or 5th day and both conditions (Moon transiting in Rohini nakshtra and Astami Tithi) need to occur around midday on the day of Bhisma Moksha.
Many researchers have taken Bhisma Moksha to mean that this day must occur at or one day after the day of Winter Solstice. This is wrong and we have shown you exactly why this cannot be the case.

We know that the War preparations started on a Jyestha Amavasya, and that at least a month went by in preparations after this Jyestha Amavasya. However, the

various detailed attributes of the Moonrise on the 14th day of the war means that the war could not have begun on an Amavasya.

We have shown by a process of elimination that the conditions of a maximum of 58 nights to Bhisma Astami, along with the 14th war night waning phase Moonrise, the non Amavasya start to the war and Bhisma Nirvana on the Magha Shuddha Astami requires the 58 sleepless nights to be counted from the start of the war or in fact just before it.

Further Reading and Watching:

1: **Book 3: Criteria Governing the Astronomy of the Mahabharata War:**

https://www.academia.edu/51214389/Criteria_Governing_The_Astronomy_of_the_Mahabharata_War

2. **PGURUS Episode 1:** 3 ways of computing the date of the Mahabharata war: https://youtu.be/POHHsMlutfU

3. **PGURUS Episode 2:** Finding the date of the Mahabharata war: https://youtu.be/MH6MFZM3Lhg

4. **PGURUS Episode 3:** Textual points of Amavasya, Purnima, Tithis and Nakshatras in the war, Mission of Peace and Balarama's Pilgrimage timelines:
https://youtu.be/wwQaW4EhtVk

5. **Short film: Position of Jupiter during the Mahabharata War**
https://youtu.be/icrE36Wodq4

6. **Short Film: Saturn's Position during the Mahabharata War**
https://youtu.be/g9-RmVeNCRk

7. **Book 2: Dissection of Theories of the Mahabharata War**
https://www.academia.edu/44792423/3067BCE_Dissection_of_Theories_on_The_Mahabharata

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[1] The Mahabharata, Text as constituted in its Critical Edition, Bhandarkar Oriental Research Institute (Poona, 1972) and Chapter on Mahabharata references

[2] Sathe, S., Deshmukh, V., and Joshi, P., Bharatiyayuddha: Astronomical References, Shri Babasaheb Apte Smaraka Samiti (Pune, 1985)

[3] Achar BN : On Astronomical References in Vyasa-Dhrtarastra-Samvada in the Bhismaparvan of Mahabharata,

[4] BrihatSamhita, ibid, in 'ketucara' ,Ch. XI

[5] Oak NN : When did the Mahabharata war happen? The Mystery of Arundhati 2011

[6]Pandit MM, Achar BNN: The Mystery of Bhisma Parvan Chapter 3: What does it Mean? 2019

[7]Pandit MM Fixing the Position of Saturn during the Mahabharata War Part 1

[8]Pandit MM Why the Mahabharata war cannot start on an Amavasya: Part 1 A critical examination of Moon Phase Data during the Mahabharata War Moon Phase Data during the Mahabharata War

[9] Pandit MM Why The Mahabharata War Cannot Start On An Amavasya: Part 2 Actual MoonRise Data from the 14th night of the war.

[10] Achar BN Sri Krishna's Diplomatic Mission and the Date of the Mahabharata War 2018

Comets or Planets and Why?

Chapter 12

Special discussion on Verses 24, 25 of Chapter 3 Bhisma Parva

By Dr Manish Pandit (2019)

Discussion:

As mentioned in the previous chapter, we have the following verse as verse 24 of Chapter 3 of Bhisma Parva.

1.***"grahau tamrarunasikhauprajvalitavubhau***
Saptarishi udaranaam, samavchadya vai prabhaam" MB (VI. 3. 24)

'The two grahas blazing with coppery and red hair,
these have concealed the Saptarishi stars.'(concealed the big dipper)
An alternative translation would be that
"The two grahas blazing with coppery and red hair,
these have penetrated the Saptarishi stars mandala."

2. "***samvatsara sthayinau ca grahau prajvalitdvubhau***
visakhayoh samipasthau brhaspati sanaiscarau" MB(VI. 3. 25)

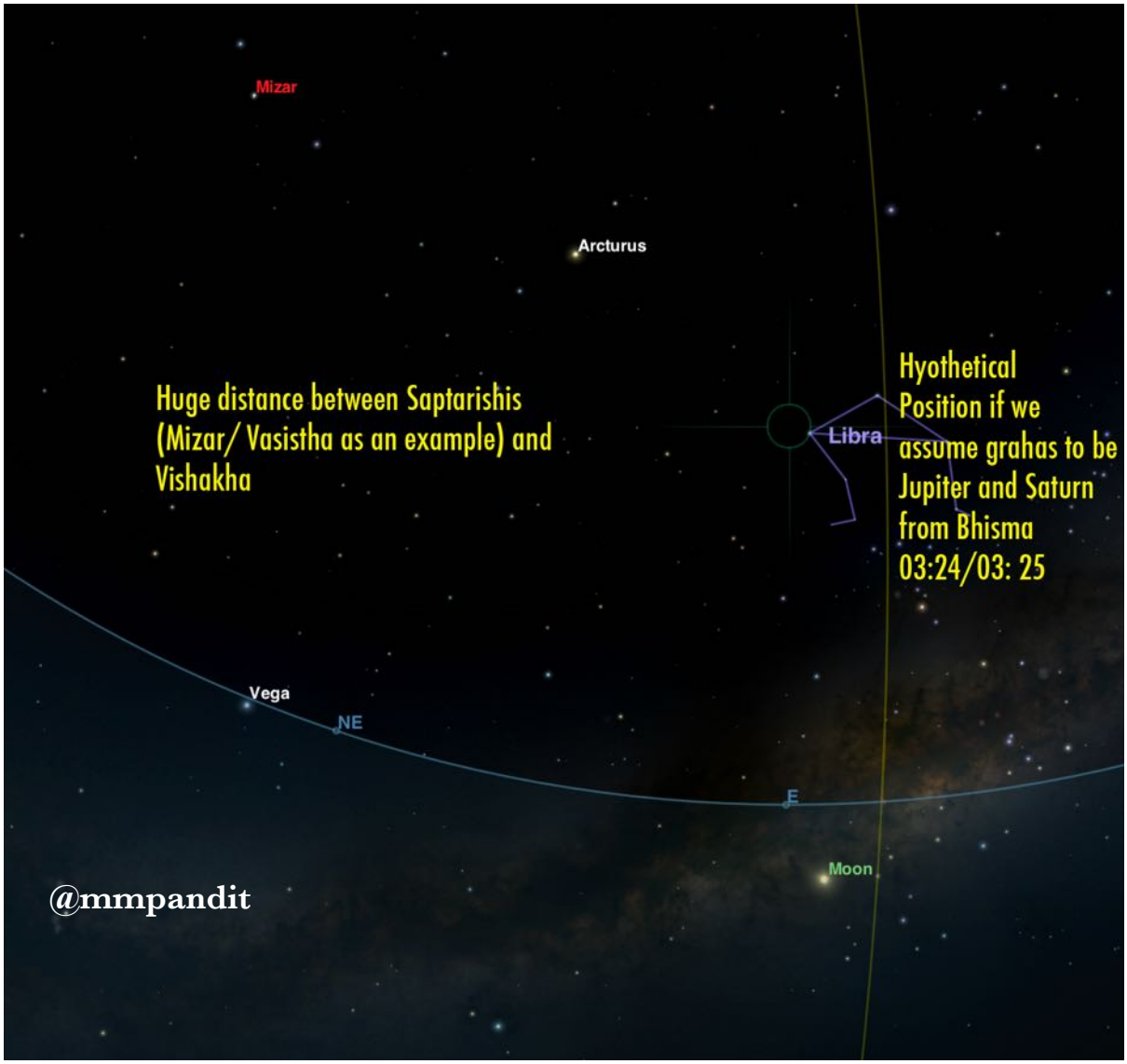
"Jupiter and Saturn, which stay around for a year, are both
Prajvalita/blazing/ ignited and are near the two Visakha stars."
These two planets called "Jupiter and Saturn" are described as ignited and burning with coppery red/ orange tails or shikhas and are concealing the Saptarishis/ penetrating the region of the Saptarishi mandala. But it is to be noted that Jupiter and Saturn, howsoever luminous that they may be, can never conceal or penetrate the fixed stars or the Saptarishi mandala from Vishakha nakshatra which is very far away from the Saptarishi (the big dipper) mandala.

The bigger problem if we were to Hypothetically consider "the two grahas" mentioned in the previous verses as Jupiter/Brishaspati and Saturn/ Shanaischarah:

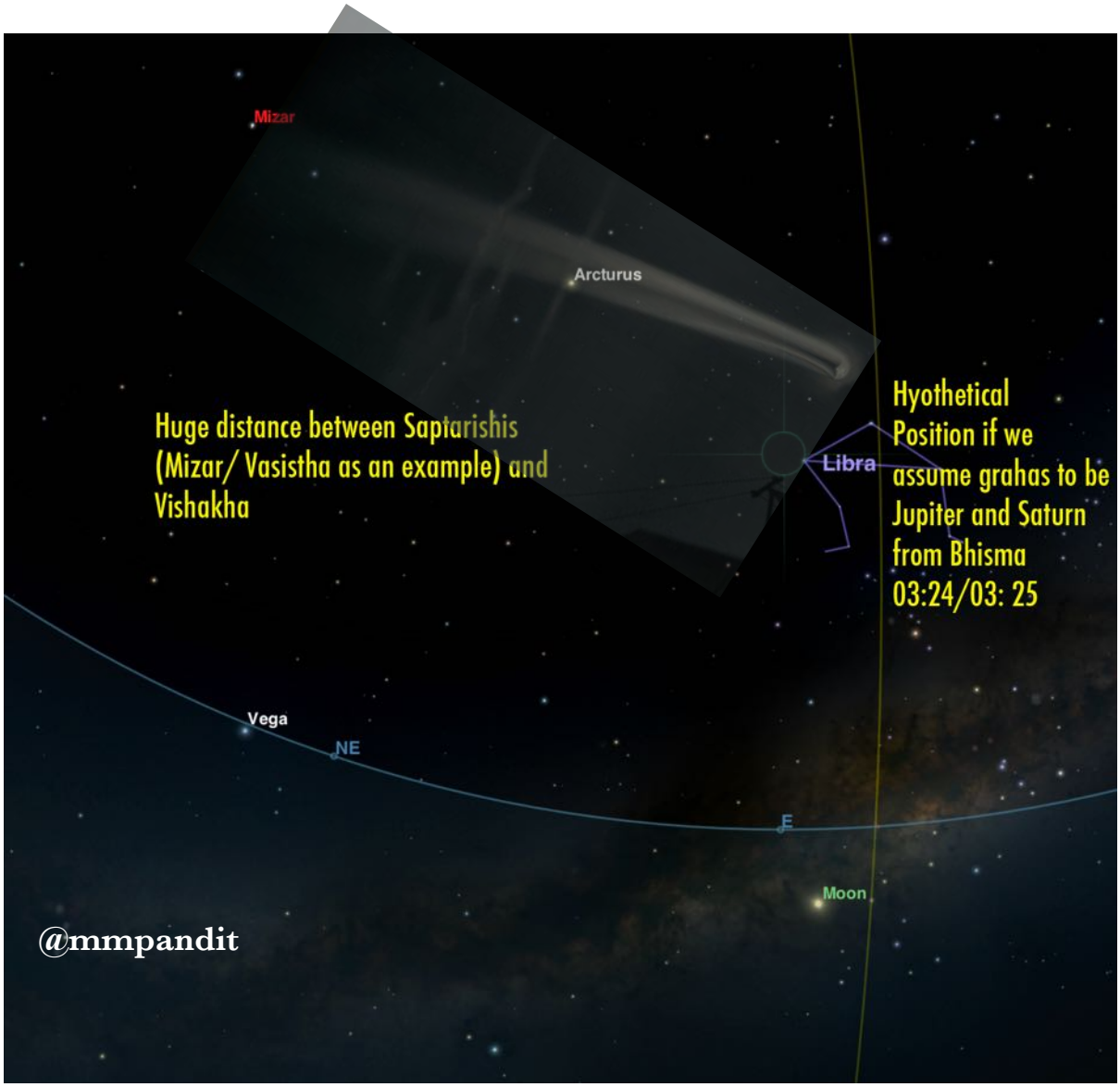
1. There is an important point which needs to be made in this situation. Let us consider for one moment that the two grahas mentioned in the previous verses as Jupiter/Brishaspati and Saturn/Shanaischarah. The ecliptic near Vishakha would be where Jupiter and Saturn would travel. The distance

between the ecliptic near Vishakha where Jupiter and Saturn would be present in this hypothetical situation and Ursa Major or the Saptarishis is so huge that there is no chance at all of Jupiter and Saturn obscuring or penetrating the Saptarishis, no matter what the brightness of the two planets. Let us look at the distance visually.

2. Because the distance between the Saptarishis and Vishakha is so huge, its



important to consider an acceptable alternative solution. Let us consider if a comet could either obscure or penetrate the Saptarishis from near Vishakha? Lets look at this visually again.



Superimposing a thermo-lithograph of the great comet of 1881 on the skymap from Redshift above, we get an interesting picture of the tail of the comet which could be a single comet or two comets with two tails which are clearly capable of penetrating the mandala with the Saptarishis.

Alcor, one of the Saptarishis could also easily be obscured temporarily by a comet's tail. This hypothesis can be appreciated visually quite easily. Further this hypothesis agrees with the word ***shikha*** given in the previous verse 03:24 of Bhisma Parva.

Another picture from the comet of 1680 is given below which shows clearly that the huge distance across the zodiac between Vishakha and the Saptarishis can only be bridged by a comet. This is now quite clear. Assuming there were two comets in the vicinity of Vishakha, two scenarios become possible.

First scenario:

The two comets are not visible to the naked eye (Magnitude beyond +6/7) and are only visible with some sort of telescopes available to Veda Vyasa. In this case the two comets would still be penetrating the Saptarishi mandala as per the verse.

In this case, we need to explain the existence of possible telescopes in 3067BCE. This is an interesting subject and a lot of material is available pointing to the existence of crystal lenses discovered in excavations from ancient Egypt from at least 3500 BCE. This would mean that telescopes would definitely become a

possibility to be considered. If one were to believe that in any case, Vyasa is considered to be omniscient as a Rishi then the ability to see the comets is not a particular problem. However, given the evidence in the ancient texts of telescopic devices, this need not be an assumption which we need to consider.

Second scenario:

The two comets are visible to the naked eye (Magnitude below +6/7) in which case their tails would be visibly penetrating or indeed obscuring the Saptarishis.

Third Scenario:

The two comets are invisible to the naked eye (Magnitude above +6/7) and penetrate the Saptarishi mandala with their tails (satisfying the meaning of the verse) but they also obscure the Saptarishis and that is not due to the tails of the

comets but because of meteor showers, some of which have hit the earth and caused icicle formation in the atmosphere thereby causing the certain parts of the sky to be obscured.
Did any such situation happen at any time in the past? Does the Mahabharata text describe any such situation where a meteor has actually hit the earth? Are there any additional real life descriptions where meteors have hit the earth in the past which are mentioned in the Mahabharata text?
These three questions must be answered for this last hypothesis of mine to be entertained.

Lets try and answer them:
Q1: Did any such situation happen at any time in the past?
A: For months after the Tunguska event in 1908, where a meteorite hit the ground, three separate phenomena were described:
i.) ***"Over the next few days, night skies in Asia and Europe were aglow, with contemporaneous reports of photographs being successfully taken at midnight in Sweden and Scotland. It has been theorised that this effect was due to light passing through high-altitude ice particles that had formed at extremely low temperatures, a phenomenon that many years later was reproduced by space shuttles."***

Vyasa describes exactly such a phenomenon in Chapter 2 verse 30 of Bhisma parva below where the twilights are aglow.

उभे संध्ये प्रकाशेते दिशां दाहसमन्विते ।
आसीद्रुधिरवर्षं च अस्थिवर्षं च भारत ॥ ०३० ॥

This points to a meteorite hitting the earth during the Mahabharata war.
Q2: The next question is: Is there evidence of such an occurrence in the text?
Exactly such a verse can be found in the text corroborating a meteor strike to the earth. It appeared as if there were two Suns at sunrise says the text.

द्विधाभूत इवादित्य उदये प्रत्यदृश्यत ।
ज्वलन्त्या शिखया भूयो भानुमानुदितो दिवि ॥ ००३ ॥

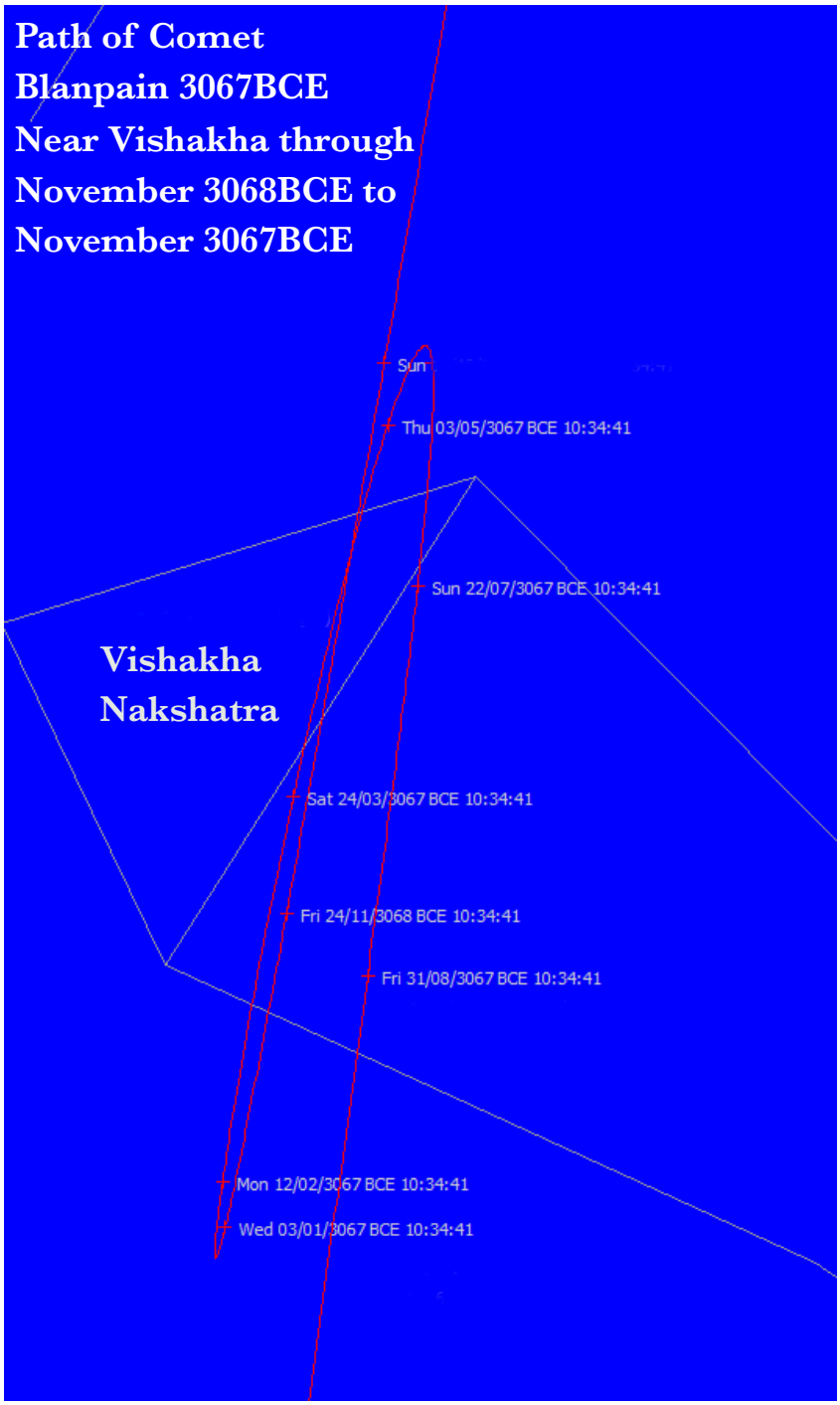
Q3: Are there any additional real life descriptions where meteors have hit the earth in the past which are mentioned in the Mahabharata text?
A very similar observation was described in the Tunguska event. I quote an eyewitness statement from Chuchan of Shanyagir tribe, as recorded by I. M. Suslov in 1926 ***"how can I say this, (it appeared) as if there was a second sun,"***

Thus I have now answered all three questions which are required by my hypothesis to be corroborated. This means that the appearance of the two suns on the first day of the war is quite clearly not due to the solar eclipse as claimed by researchers from 5561BCE nor is it due to the normal sunrise. (In any case, as I explain in the chapter on Krishna's Mission of Peace" elsewhere within this book, both eclipses need to occur much before the start of the war and hence an eclipse on the first day of the war is an impossibility) It can therefore be theorised that a meteor hitting the earth caused the appearance of two Suns and the text actually states it.
There are numerous meteor showers hitting the earth in 3067 BCE from the various comets which are present in the sky.

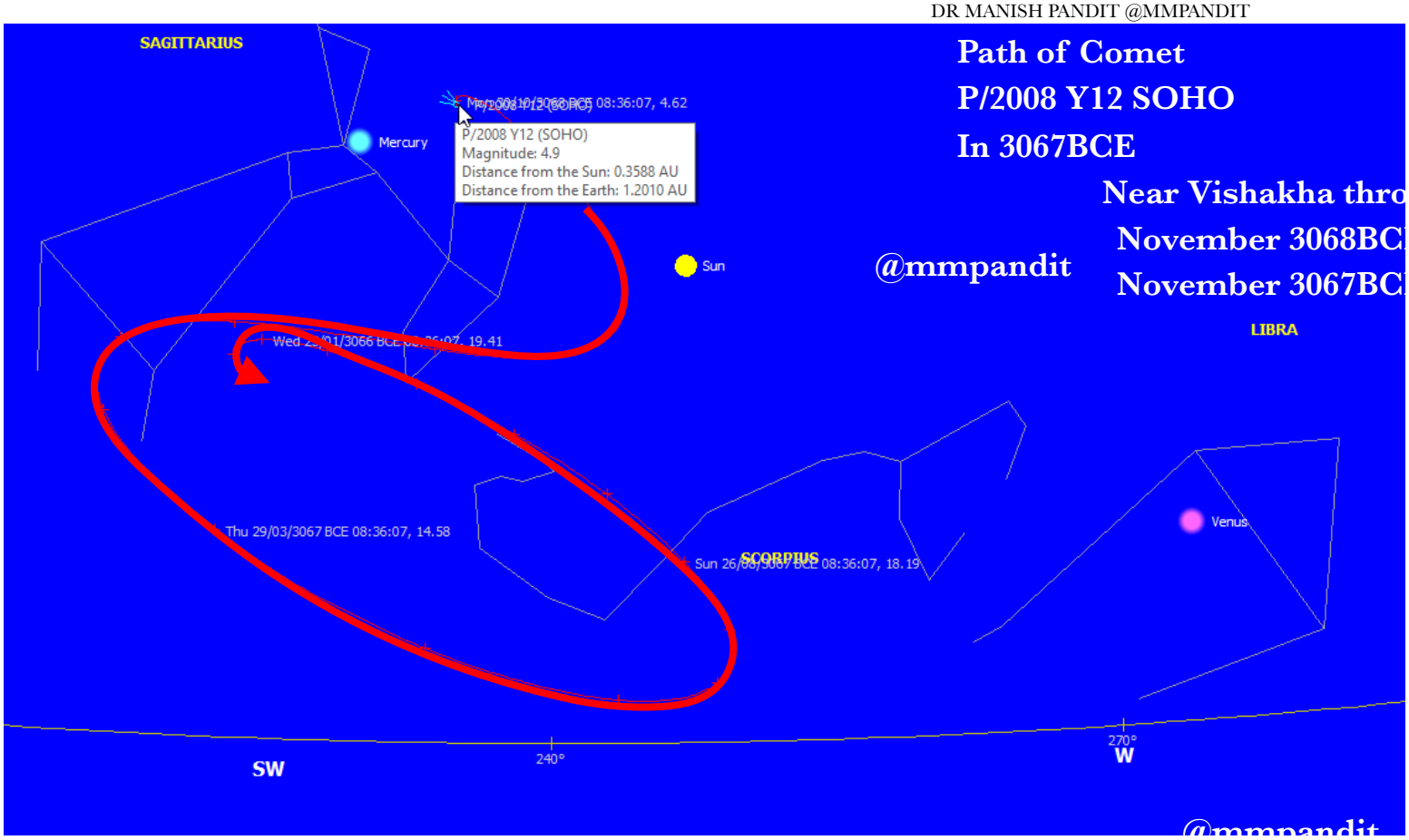
Which Two Comets?

We can see from the above discussion that the two grahas near Vishakha which have ***shikhas*** and are described as "***Brihaspati*** and ***Shanaischarah***" and penetrating the region of the Saptarishi mandala, a huge distance away, are actually two comets. Now the question is which two comets are these grahas?
Although there are plenty of comets in that area in 3067BCE, two particular comets stand out as being in the vicinity of Vishakha and whose tails would penetrate the Saptarishi mandala which is far away. The first comet is Comet 2008 Y12/ SOHO and the second comet is 289P/Blanpain. Both are in the region of Vishakha, 2008 Y12/ SOHO is present for nearly the entire year of 3067BCE and 289P/ Blanpain is also present for the greater part of that year. Although magnitudes are irrelevant as we have clearly described the two comets as being visible by telescopes, nevertheless, it must be noted that comet 2008 Y12 SOHO is bright enough to be seen by the naked eye for at least a significant portion of the simulation produced by various skymap softwares. It must however be

remembered that even prospective calculation of brightness of comets are not accurate and in the case of many a comet in the recent past, comets have turned out to be brighter at an order of 600 to 4000 times brighter than expected. Therefore, in our context, for comets seen in the remote past (5000 years BP), it may well be that they are very bright and easily visible to the naked eye. In any case they are much much brighter than Pluto described as being visualised by



other researchers without telescopes.



289P/ Blanplain in fact is said to be one of the comets which has produced a significant outburst in 2013. https://arxiv.org/pdf/1906.07137.pdf

Varahamihira's description of this very same phenomenon:

उल्काशनिधूमाद्यैर्हता विवर्णा विरश्मयो ह्रस्वाः ।
हन्युः खं स्वं वर्गं विपुलाः स्निग्धाश्च तद्वृद्ध्यै ॥७॥

Sloka 7.—When these stars are pale, devoid of beams, vexed by meteors, thunderbolts, smoke and the like, or tiny, they will destroy severally their own dependencies (as stated below), while they tend to make the same prosper if they appear large and bright.

तथा च वृद्धगर्गः ।
उल्कया केतुना वापि धूमेन रजसापि वा ।
हता विवर्णाः स्वल्पा वा किरणैः परिवर्जिताः ॥ @mmpandit
खं स्वं वर्गं तदा हन्युर्नृपाः सर्वे एव ते ।
विपुलाः स्निग्धवर्णाश्च स्ववर्गपरिपोषकाः

Varahamihira describes exactly such a phenomenon in his treatise Brihat Samhita in chapter 13 verse 7 which is reproduced below.

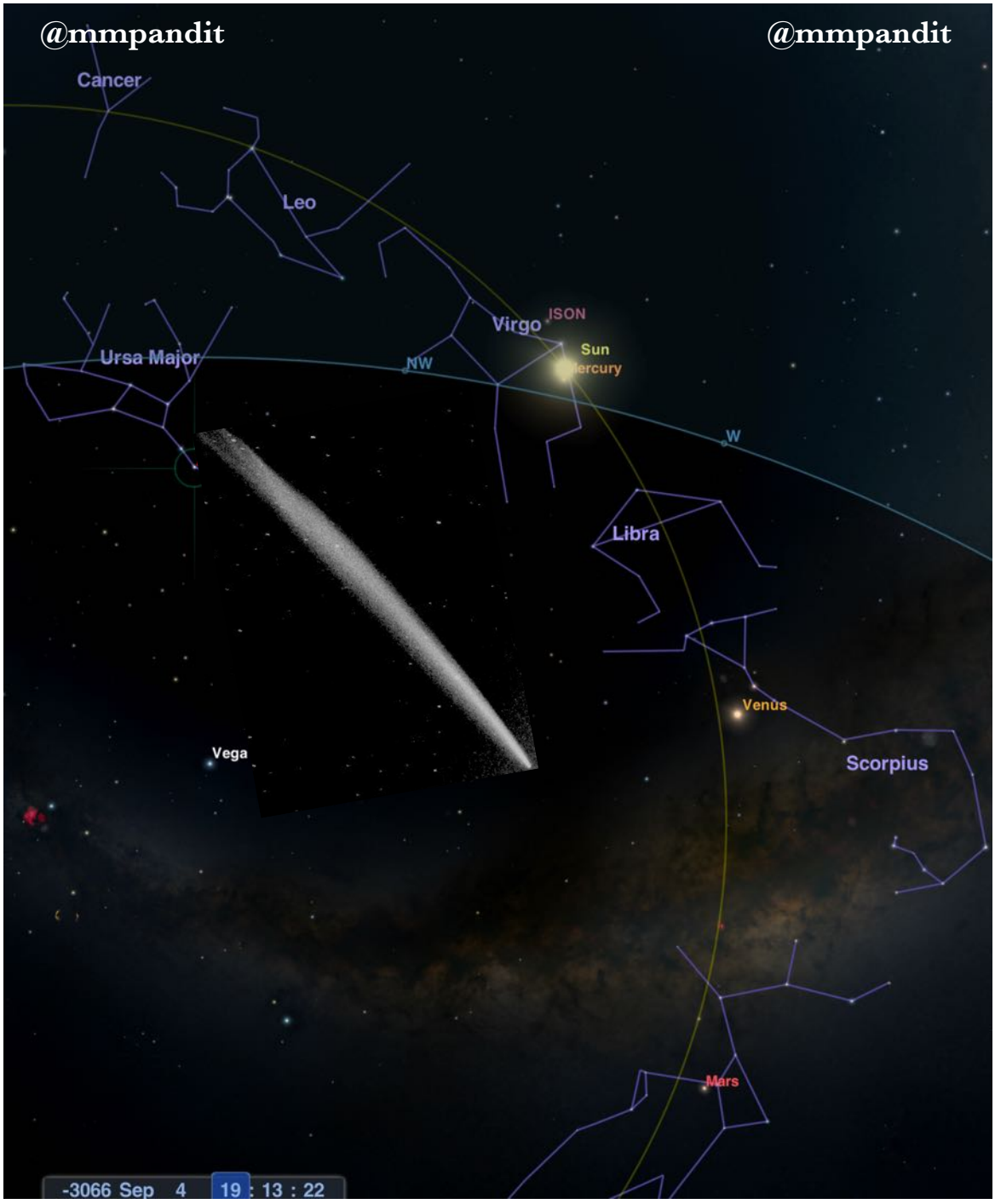
श्वेत इति जटाकारो रूक्षः श्यावो वियत्त्रिभागगतः ।
विनिवर्त्ततेऽपसव्यं त्रिभागशेषाः प्रजाः कुरुते ॥३९॥

Sloka 39.—The comet named Sweta Ketu is like matted hair, rough and black ; after travelling a third of the distance in the sky, he retrogrades in the anti-clockwise manner and destroys two-thirds of the population.

आधूम्रया तु शिखया दर्शनमायाति कृत्तिकासंस्थः ।
ज्ञेयः स रश्मिकेतुः श्वेतसमानं फलं धत्ते ॥४०॥

Sloka 40—There is a comet having his seat near the asterism Krittika, who makes himself visible by his ashy-coloured crest. He is known as Rasmi Ketu and gives effects similar to those of Sweta Ketu.

This proves that Vyasa must have meant something very similar in verse 03:24 and 25 of Chapter 3 of Bhisma Parva. In the chapter Ketucharah in Bright



Samhita, Varahamihira already describes the effect of various comets especially fixed and moving (Chalaketu) comets.

I originally hypothesised that one of the Vishakha grahas must have been a long period comet such as Hale-Bopp which was visible in 3067BCE and this is how that comet would have looked (image on next page). Note that the tail obscures and penetrates the Saptarishi mandala. Comet Hale-Bopp was very bright when

seen in 1995 and possessed two tails. (Brihat Samhita does classify a type of comet as possessing two tails). This is still a possibility as only around 6000 comets out of a trillion have so far been mapped and the path of Hale-Bopp may indeed have been near Vishakha in 3067BCE. (it can be hypothesised but not completely provable nor deniable using current knowledge)

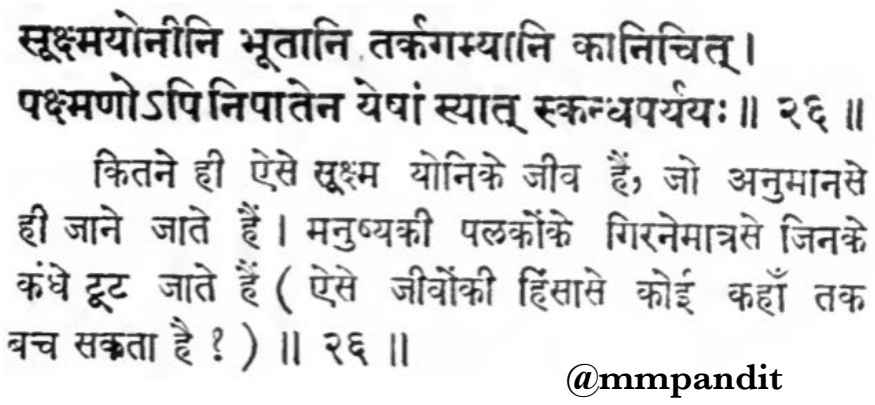
In any case, my points are that the grahas referred to in verses 03:24 and 03:25 can only be comets, they cannot be planets, the distance between Vishakha and Ursa Major is just too much for these grahas to be planets which could obscure or penetrate the Saptarishis. Of course, there are trillions of comets and only around 6000 of these have so far been discovered. For example, comet Atlas or C2019/Y4 which has just traversed and bisected the Saptarishi mandala in February and March (was it mere coincidence that it appeared at the time of the Covid virus pandemic on earth?) will go around Rohini nakshatra in May and June and then heads out into the solar system where it is not expected to be seen again for around 6000 years. It is to be noted that this comet fulfils the criteria of verse 7 in chapter 13 of Brihat Samhita given above.
The other point is that Comet Atlas traversed the same path taken by the "Great Comet of 1844" which could suggest that each of these comets (and there may be many more such comets) may have broken off of an ancient super-comet perhaps just after the war in 3067BCE. This is the other problem with all comets, that pieces of really large comets could have broken off already after the Mahabharata war making it very difficult to identify some of the cometary bodies mentioned in the verses given in Bhisma Parva and elsewhere within the critical edition.

Microscopic vision in the Mahabharata:

Most doctors from India from the time of my graduation know that the Mahabharata describes such living beings which may be only seen with a microscope. The proof for this is contained in two chapters of the Mahabharata in Shanti Parva (15 and 308).
Here is verse 26 from Shanti Parva:

सूक्ष्मयोनीनि भूतानि तर्कगम्यानि कानिचित् ।
पक्ष्मणोऽपि निपातेन येषां स्यात्स्कन्धपर्ययः ॥ ०२६ ॥

A rough Gita Press translation is provided below. The entire point is the Mahabharata next says that living beings of an extreme minute size like microbes not seen with the naked eyes exist and violence against them is unavoidable by even minute actions such as blinking of the eyes. (beings belonging to a Sookshma Yoni).


सूक्ष्मयोनीनि भूतानि तर्कगम्यानि कानिचित्।
पक्ष्मणोऽपि निपातेन येषां स्यात् स्कन्धपर्ययः॥ २६॥

कितने ही ऐसे सूक्ष्म योनिके जीव हैं, जो अनुमानसे ही जाने जाते हैं। मनुष्यकी पलकोंके गिरनेमात्रसे जिनके कंधे टूट जाते हैं (ऐसे जीवोंकी हिंसासे कोई कहाँ तक बच सकता है?)॥ २६॥

The point of bringing this up here is that if beings of extreme minute size which are invisible to the naked eye are being described at the time of the Mahabharata 5000 years ago, then there must exist some way of visualising them whatever that might be. This would mean that either some sort of magnifier was available to the ancients at the time of the Mahabharata. This would require the presence of lenses. Were lenses present? The definite answer is yes.

That leads us to the next question. If some magnification apparatus was present then could telescopes be present as well? This could consist of systems of mirrors (which we know to definitely exist at the time of the Mahabharata) or indeed it could be telescopes using lenses. Lets look at some of the evidence below:

Telescopes and their usage in ancient times:

1. The Chinese used a system of polished mirrors to visualise the skies as early as 2500BCE at least. Chinese history informs us that the Chinese Emperors, Chan was a great astronomer and reputedly used telescopes as long back as 2283BCE.

2. The Egyptians had already developed crystal lenses which were used as the eyes of their Gods around 4000BCE or even earlier. Lenses used to direct rays of the sun for burning objects have been noted in Egyptian excavations since 3500BCE at least. As already observed by ***Christopher Dunn in his 1998 book, "The Giza Power Plant: Technologies of Ancient Egypt"*** "the Egyptians could not have built their pyramids without some technology which was advanced enough to make the bases of their structures so flat that even an error of one 1/2 that of a human hair could be detected." As ***Robert Temple*** states in his excellent book from 2000, there is absolutely no way that the Egyptians could have constructed structures such as the pyramids without advanced optical technology such as theodolites which used optical quality lenses. A theodolite " is an optical instrument for making precise measurements of angles between designated visible points in the horizontal and vertical planes." Robert Temple goes on to theorise that since the statues of the Egyptian Gods possessed lenses of polished rock crystal with rather good optical properties, there is a good chance that these may actually have been used as lenses not just for precision building work on the pyramids but also to make observations of the sky for the purposes of astronomy. This would then explain how the Dogon tribe in Mali, have knowledge of the binary star system called Sirius including the exact orbital period of Sirius B around Sirius A and Saturn's rings, neither of which can be resolved without recourse to good telescopes. (***source: "Robert Temple: the Sirius mystery" and original testimony of Marcel Griaule and Dieterlen***)
3. What bearing do all these statements about telescopes being used in ancient Egypt (and likely also in China) prior to 3000BCE have on Indian astronomy? We know that ancient Indian texts detail many inventions which seem rather improbable. However, many researchers, old and new have hypothesised the existence of telescopes in the Mahabharata as systems of highly polished mirrors to view the sky based on evidence from the text as well as other supporting evidence.

Based on all of the above, it seems quite certain that Rishi Vyasa possessed the technology to view planets and comets with telescopes which must have existed at the time of the Mahabharata war. It may also well be the case that these could visualise planets and comets upto reasonable magnitudes. However, the skies of 5000 years before now are clear of all sorts of light pollution and other forms of

pollution and I am sure that the ancients would indeed be able to visualise objects in the sky which would likely have involved reasonable telescopes (especially if we accept the evidence that the Dogon tribe of Mali knew intimate details about Sirius and its binary star system and the rings of Saturn long before their more recent discovery) the knowledge of which has now been lost (? burning of Nalanda)

Critiques of other research on verse 03:24 and 03:25 of Chapter 3 of Bhisma Parva:

D Koch's hypothesis: Koch finds the initial theory of comets at Vishakha to be attractive initially and then tries to disprove the same hypothesis. The main crux of the argument used by Koch is that the Saptarishis do not represent Ursa Major and instead represent the seven planets.

My take on Koch's hypothesis:

The assumption by Koch that the word Saptarishis represents the seven planets is a huge assumption to make, considering that the visible planets are only 5 in number and that the word Saptarishis is mostly used to represent Ursa Major. Once we start going down this path, then there is no stopping and any word may mean anything at that stage. Besides, the seven planets are not really known as Sapatarishis in known literature. Having made the erroneous assumption that the Sapatarishis are the seven planets instead of Ursa Major, the research falls at the next hurdle because according to verse 03:24, then Jupiter and Saturn near Vishakha are said to obscure or penetrate the Sapatrishis which Koch assumes to be the seven planets (ie duplicating another Jupiter and Saturn in the sky as planet 6 and 7 along with the 5 other grahas which already included Jupiter and Saturn) producing a rather impossible situation from the astronomy point of view. Koch sort of acknowledges this as "irritating" when in actual fact this theory is a non starter and an impossibility.

Another assumption made by Koch is that the word Dhumaketu represents the "Sun at the end of an age'. This is yet another assumption and cannot be accepted. Dhumaketu is this context can only mean comet, comets themselves are well known harbingers of doom.

Unfortunately Koch's research also falls into a similar situation as the research of 5561BCE when he takes analogies of Bhisma to the Sun such as MBh 11.23.15 and MBh 6.114(120).6 to refer to astronomy observations when they are in fact not actual observations of the sky at all.

Summary:

The modified theory of 3067BCE is the only one which even bothers to explain the verses in terms of their actual meanings and identifies the presence of different comets in the correct places and provides their exact paths besides a rational explanation which gives us a satisfactory explanation for the means to see those comets which would be impossible to be otherwise noticed with the naked eye.

Author's Postscript:

A very old text on mundane astronomy called Brihat Samhita by Varahamihira has a chapter on comets and another on the Saptarishis.It states that when comets bisect the Saptarishi mandala,

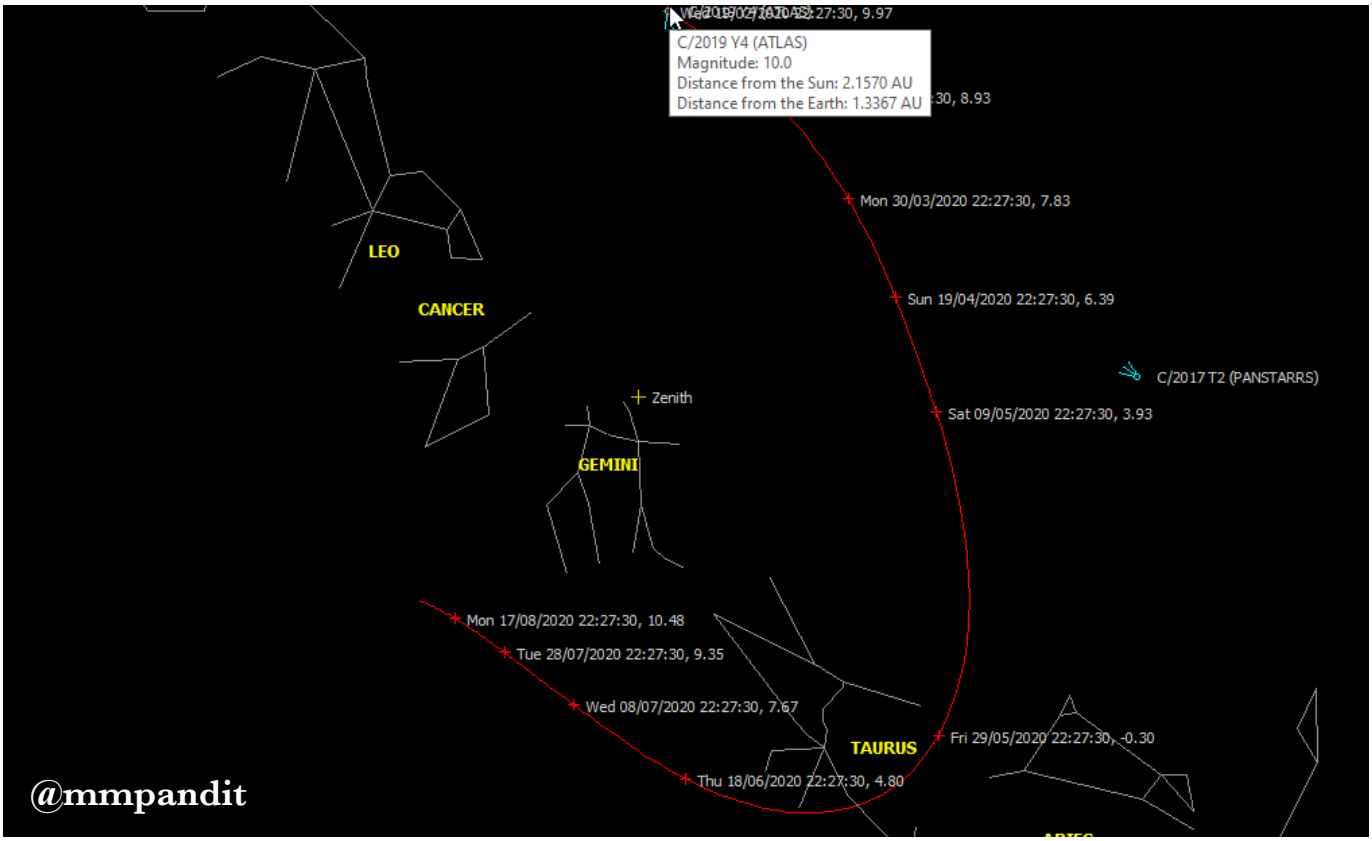
उल्काशनिधूमाद्यैर्हता विवर्णा विरश्मयो ह्रस्वाः ।
हन्युः स्वं स्वं वर्गं विपुलाः स्निग्धाश्च तद्वृद्ध्यै ॥७॥

Sloka 7.—When these stars are pale, devoid of beams, vexed by meteors, thunderbolts, smoke and the like, or tiny, they will destroy severally their own dependencies (as stated below), while they tend to make the same prosper if they appear large and bright.

तथा च वृद्धगर्गः ।
उल्कया केतुना वापि धूमेन रजसापि वा ।
हता विवर्णाः स्वल्पा वा किरणैः परिवर्जिताः ॥
स्वं स्वं वर्गं तदा हन्युर्मुनयः सर्व एव ते ।
विपुलाः स्निग्धवर्णाश्च स्ववर्गपरिपोषकाः

the association is that of affliction and doom to certain parts of the world (same is said about the 2 Vishakha comets obscuring the Saptarishis at the time of the Mahabharata war)
This has happened in Feb and March 2020.

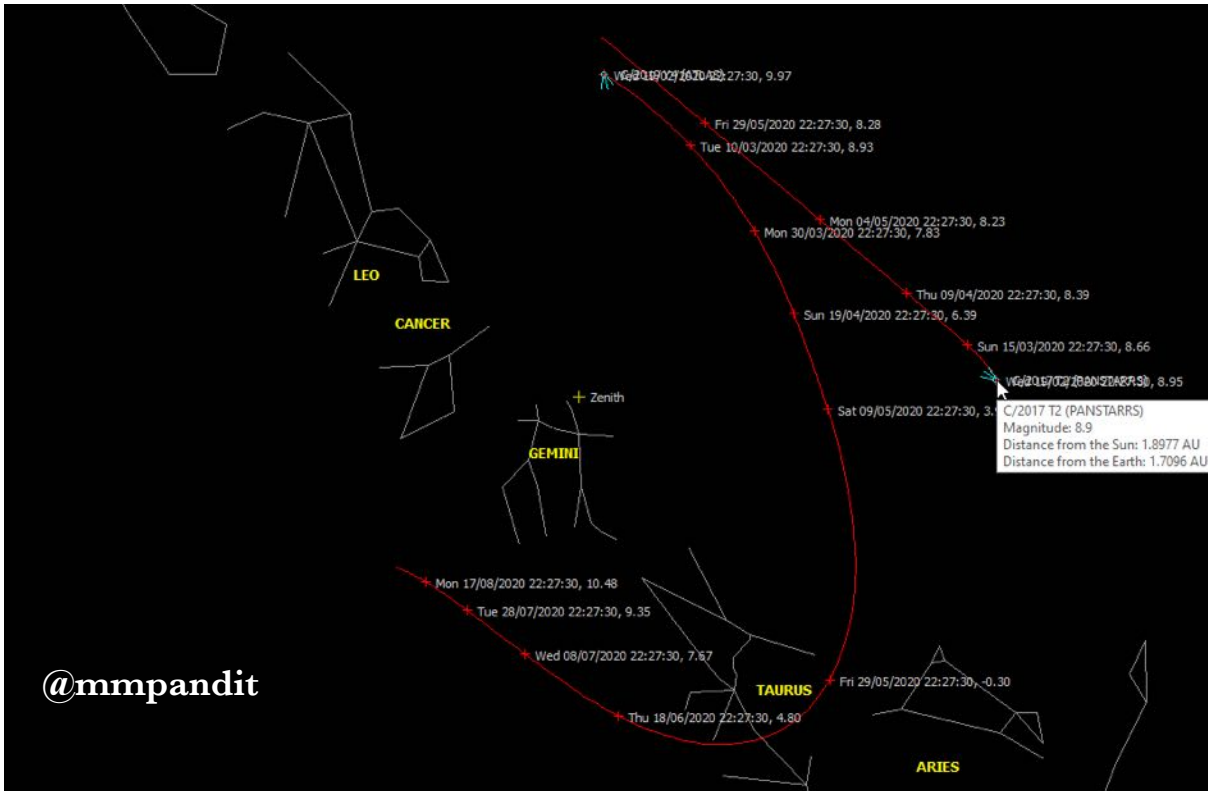
This comet called Atlas will further go on to cross Aldebaran in retrograde transit in May and June 2020. It finds mention in Brihat Samhita in the chapter



on Saptarishis in verse 7 shown elsewhere in this chapter

If we believe the Brihat Samhita then the effect peaked upto the time the comet bisected the Saptarishis (till around 31st March) and then the effects seemed to ease somewhat. You may recall the troubles which the world is going through from last December.

However the retrogression is yet to occur and Comet Panstarrs will also perhaps bisect the Saptarishis around May and June. However the associated events may



not quite be as bad as what as already happened so far.

Comet Atlas C2019 Y4 and Panstarrs are being shown here moving in opposite directions.

I have also presented a short film on this matter here:
https://astronomyofindia.wordpress.com/2020/03/30/comet-atlas-bisects-saptarishi-and-aldebaran-in-2020/

Another short blog on Comet 46P Wirtanen based on Chapter 11, verse 36 of Brihat Samhita is also shown here:
https://astronomyofindia.wordpress.com/2020/03/24/comet-46p-wirtanen-and-varahamihira/

References:

[1] Temple Robert, The Crystal Sun : Rediscovering a Lost Technology of the Ancient World (2000)

[2] Temple Robert, The Sirius Mystery (1976)

[3] Illardi Vincent, Renaissance Vision from Spectacles to Telescopes

[4] Brihat Samhita: Varahamihira

[5]Dunn Christopher, The Giza Power Plant: Technologies of Ancient Egypt

[6] The Mahabharata, Text as constituted in its Critical Edition, Bhandarkar Oriental Research Institute (Poona, 1972) and Mahabharata References

[7] Sathe, S., Deshmukh, V., and Joshi, P., Bharatiyayuddha: Astronomical References, Shri Babasaheb Apte Smaraka Samiti (Pune, 1985)

Comet theory 3067BCE

Chapter 13

By Dr Manish Pandit (2019)

Introduction:

Chapter 3 of the Bhisma Parvan has 11 verses which appear to pertain to positions of grahas in the sky. While some researchers have thought these grahas to be planets (Shri Oak), others have taken them to be comets (Shri Achar) and yet others have dismissed them completely as being totally contradictory in position and therefore of little use (Shri Sengupta).

Could these grahas be Comets? Why?

Out of the 11 verses, some are quite clearly not planets as below: Could they be comets and why?

These are: (ref: 1,2,4)

(i) ***dhumaketur mahaghorahpusya maakramya tistati*** **MB(VI. 3. 12)**

"A deadly Dhumaketu has overcome pusya"

(iv) ***"grahau tamrarunasikhauprajvalitavubhau***
Saptarishi udaranaam, samavchadya vai prabhaam"" MB (VI. 3. 24)

'The two grahas blazing with coppery and red hair.
These have concealed the Saptarishi stars. (concealed the big dipper)'
The Mahabharata text goes on to further clarify that the two grahas described with "shikhas" and obscuring/ penetrating the Saptarishis are positioned near Vishakha.

(v) ***samvatsara sthayinau ca grahau prajvalitdvubhau***
visakhayoh samipasthau brhaspati sanaiscarau MB(VI. 3. 25)

"Jupiter and Saturn, which stay around for a the first year called a Samvatsara ruled by Agni, are both Prajvalita/blazing/ ignited and are near the two Visakha stars."

'The two grahas blazing with coppery and red hair.

These have concealed/ penetrated the Saptarishi stars. (concealed/penetrated Ursa Major)

This verse is really interesting because the Mahabharata text goes on to further clarify that the two grahas described in the previous verse as possessing "shikhas" or tails and obscuring or penetrating the Saptarishis, appear to be positioned near Vishakha. They are then identified as "Saturn and Jupiter"

However, Saturn and Jupiter cannot obscure or penetrate the Saptarishis and so this mean an alternative explanation must be found.

What does a comet look like?

Lets take a look at what a comet looks like. Noting that the tail or shikha of a comet could definitely obscure or penetrate the Saptarishis (Ursa Major) and the fact the two grahas being positioned near Vishakha are said to possess tails/ shikhas, it becomes aptly clear that these could only be comets. This sort of tail could easily obscure or indeed penetrate the Saptarishis, whereas it must be emphasised that Saturn and Jupiter could never do this, no matter how bright

they were since the Sapatarishis (Ursa Major) are a good distance away from Vishakha nakshatra.

Another verse which we can be certain is attributable to a comet is as below.

(vi) ***krttikasu grahastivro naksatre prathame jvalan/***
vapumsyapaharan bhasa dhumaketur iva sthitah MB(VI. 3. 26)

"The graha tivra jvalan/blazing in the first constellation Krttika, and concealing their forms with lustre/ robbing them of their lustre resembles a comet/ dhumaketu."

Thus a large number of verses numbering more than half of the 11 verses are now designated as clearly referring to comets.

The Comet retrogressing at Magha:

In addition, we see the following verse which describes grahas which are stationary/ retrograde at both Regulus (Magha) and Shravana(Altair) as follows:

(A) ***senayo rasivam ghoram karisyati mahagrahah/***
maghasvahgarako vakrah sravaneca brhaspatih MB(VI. 3. 13) (ref: 1,2,3)

"The Mahagraha appears to bring about an awful destruction in both armies. Mars is retrograde in Magha and Jupiter in Sravana ." The second part of this verse is an impossibility from the view point of astronomy and requires the Sun to be in two separate positions nearly 150+ degrees apart in the same verse.
Therefore there are only two possibilities which must be considered.

1. These two grahas referred to in the sentence cannot be Mars and Jupiter.
2. An alternative explanation must be found: Could these be comets? In that case, first we need to check whether comets can go retrograde?

श्वेत इति जटाकारो रूक्षः श्यावो वियत्त्रिभागगतः ।
विनिवर्त्ततेऽपसव्यं त्रिभागशेषाः प्रजाः कुरुते ॥३९॥

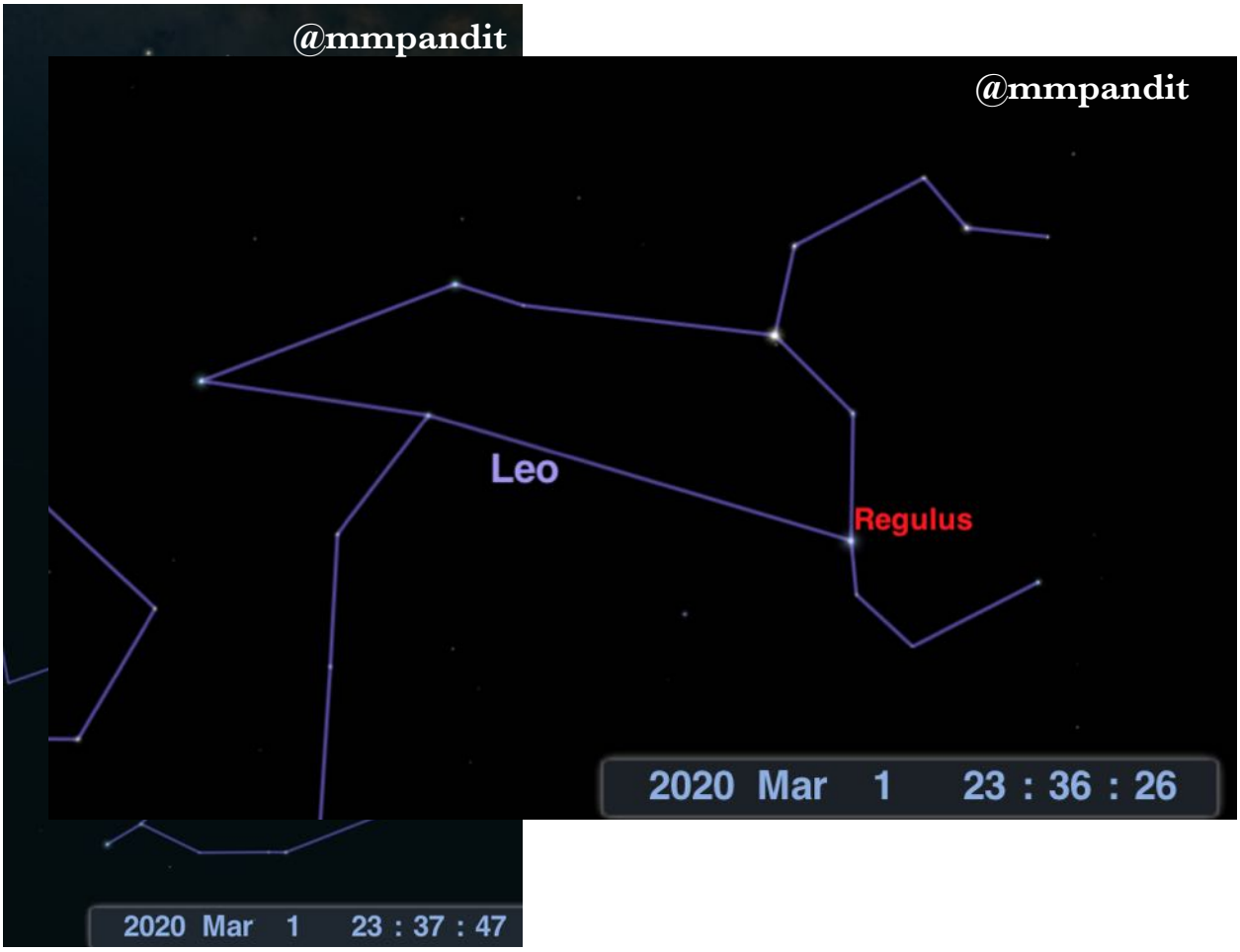
Sloka 39.—The comet named Sweta Ketu is like matted hair, rough and black ; after travelling a third of the distance in the sky, he retrogrades in the anti-clockwise manner and destroys two-thirds of the population.

I had not envisaged that a comet could ever go retrograde, so I started searching. I was astonished to find two verses in Brihat Samhita by Varahamihira, corroborating this hypothesis for certain groups of comets.
This looked promising, so I started looking to see if any modern evidence could be found which confirms this hypothesis.
After a few days of fruitless searching, I suddenly came across a few books. They seemed to mention that comets could indeed go retrograde. Then I found a gold source of information. Let me quote it:

"Another important difference in the dynamical groups is their orbital inclination distributions. Jupiter-family comets typically have orbits that are modestly inclined to the ecliptic (the plane of Earth's orbit), with inclinations up to about 35°. Halley-type comets can have much higher inclinations, including retrograde orbits that go around the Sun in the opposite direction, though not totally randomized. The long-period comets have totally random inclinations and can approach the planetary system from all directions."

These words are actually from the Encyclopaedia Brittanica. This allowed me to at least accept for a start, the hypothesis in my mind that there could be two more comets, which have shown retrograde motion and are positioned at Magha (Regulus) and at Shravana (Altair). Next started the search for comets of a magnitude enough to be visible by telescopes and to be near Magha (Regulus) and at Shravana (Altair).

For beginners in astronomy Magha starts at or near the beginning of Leo and Altair starts at around 10 degrees of Capricorn. These are fixed stars, this is how they look. (following page)



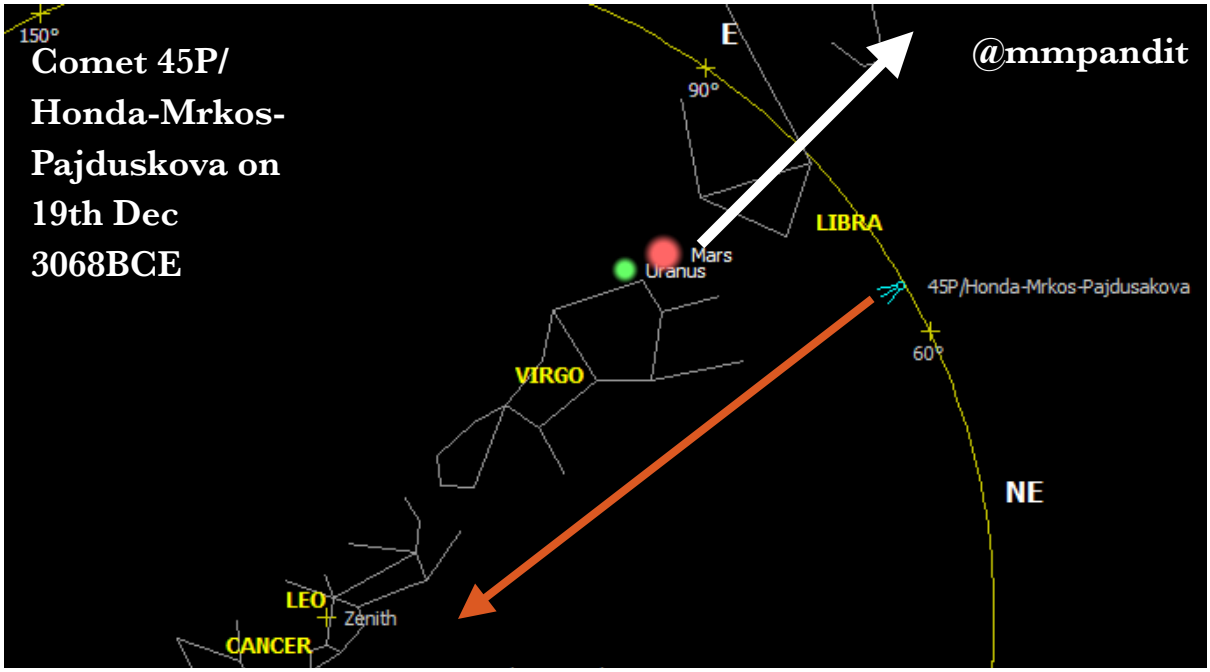
श्वेत इति जटाकारो रूक्षः श्यावो वियत्त्रिभागगतः ।
विनिवर्त्ततेऽपसव्यं त्रिभागशेषाः प्रजाः कुरुते ॥३९॥

Sloka 39.—The comet named Sweta Ketu is like matted hair, rough and black ; after travelling a third of the distance in the sky, he retrogrades in the anti-clockwise manner and destroys two-thirds of the population.

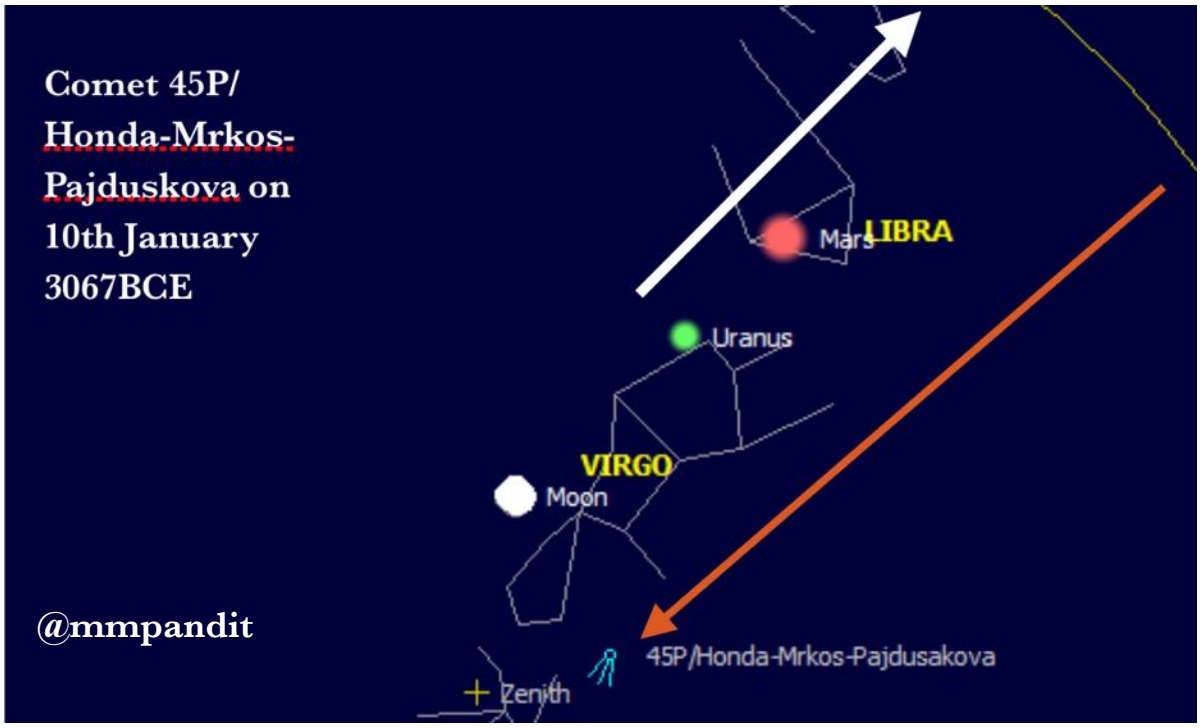
आधूम्रया तु शिखया दर्शनमायाति कृत्तिकासंस्थः ।
ज्ञेयः स रश्मिकेतुः श्वेतसमानं फलं धत्ते ॥४०॥

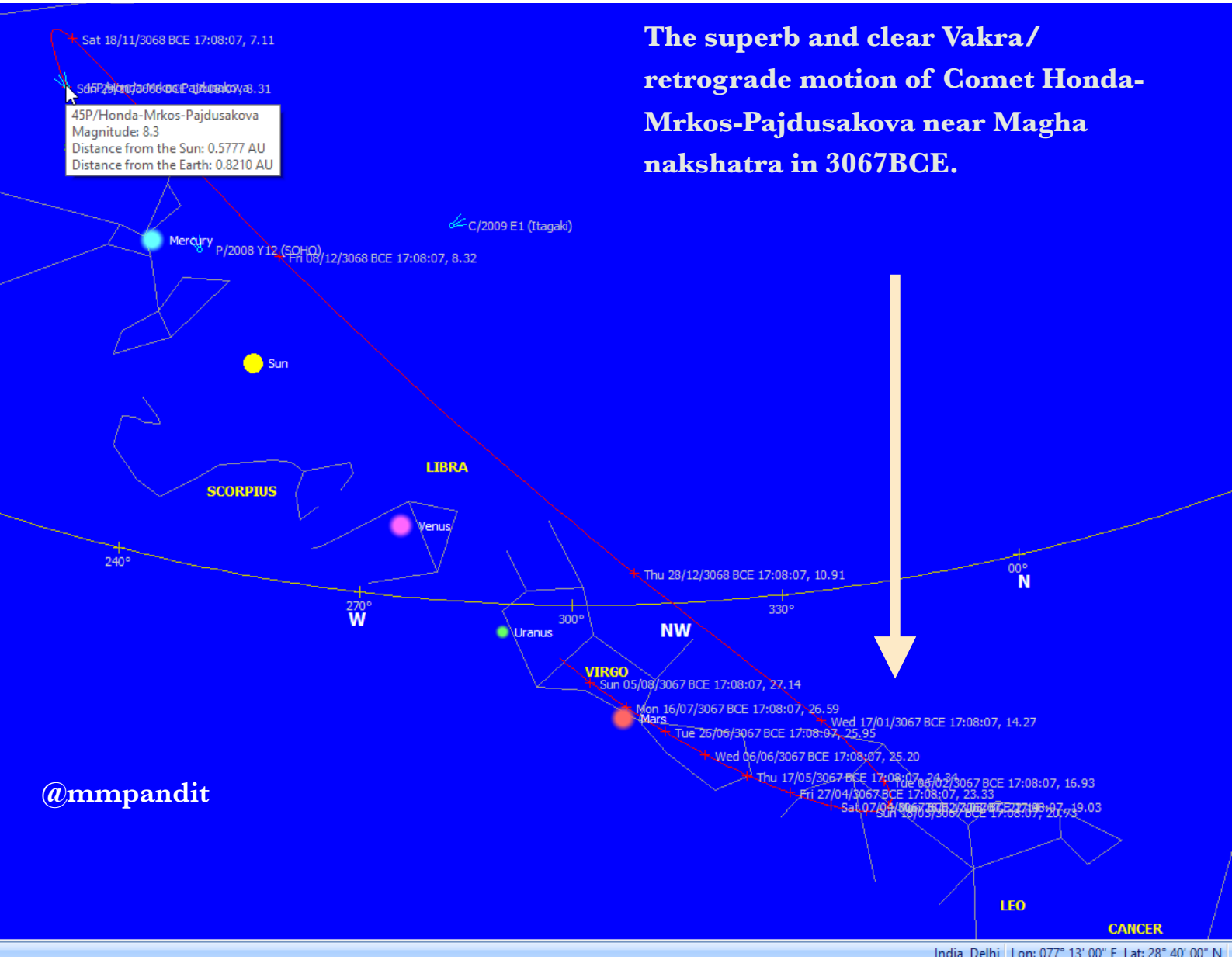
Sloka 40—There is a comet having his seat near the asterism Krittika, who makes himself visible by his ashy-coloured crest. He is known as Rasmi Ketu and gives effects similar to those of Sweta Ketu.

One more description from the chapter by Varahamihira on comets is especially brilliant and provided me with some more insight into the meaning of this verse 3:13 of Bhisma Parva (latter part of verse 03:13 which as we know is an absurdity from the astronomy point of view)

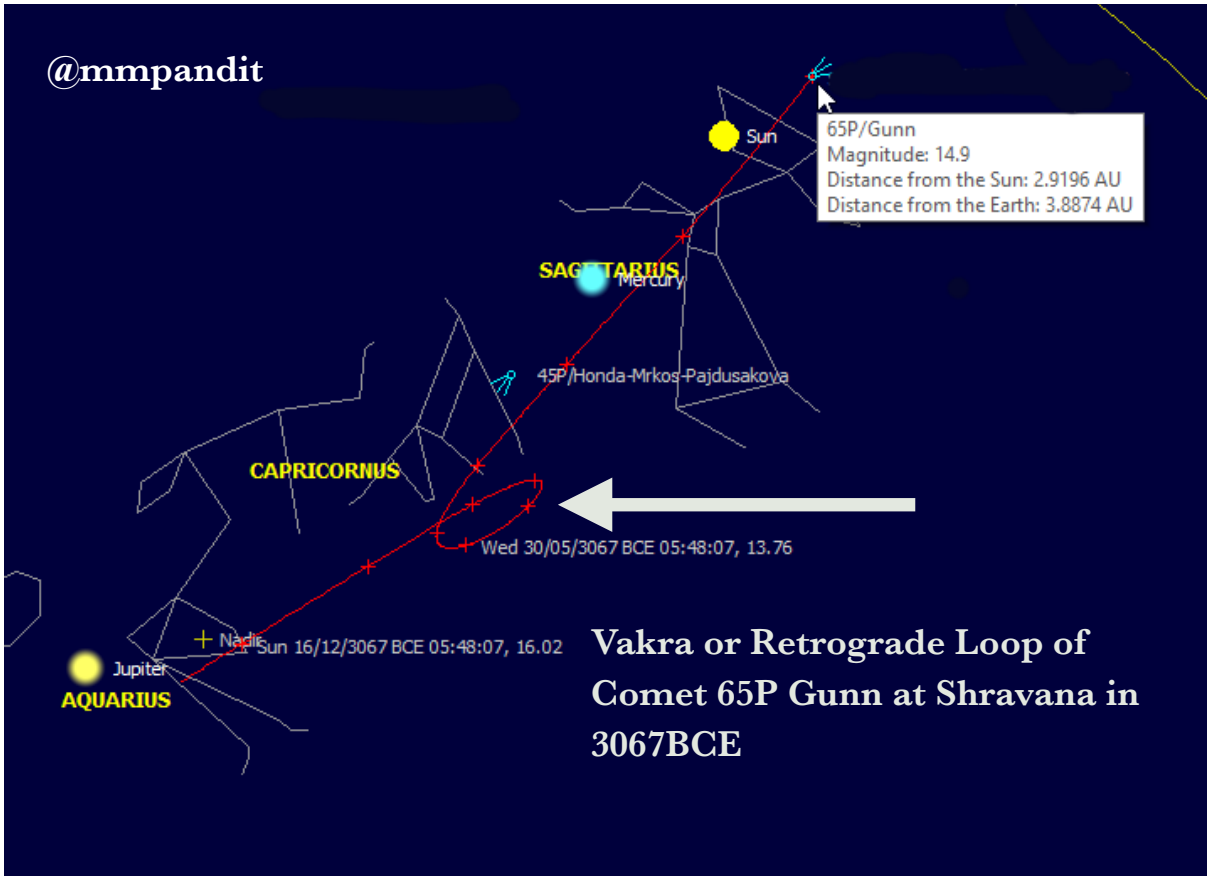


It was when I was reading verse 39 from Brihat Samhita as above that I realised that the ancients knew about retrograde motion of the comets and have described it. I started looking for a comet which would describe a retrograde motion and end near the nakshatra Magha. My search was rewarded by an extraordinary discovery. Let me show you the path of the comet 45P/ Honda-Mrkos-Pajdusakova in 3067BCE. (red line)
Not only is this comets motion clearly retrograde which fits perfectly with verse 03:13 of Bhisma Parva, it is extravagant and fast and the movement is in a direction opposite to the movement of the planets, the Sun and the Moon. (direction of the white arrow).


Comet 45P/
Honda-Mrkos-
Pajduskova on
10th January
3067BCE
Mars
LIBRA
Uranus
VIRGO
Moon
@mmpandit
45P/Honda-Mrkos-Pajdusakova
Zenith

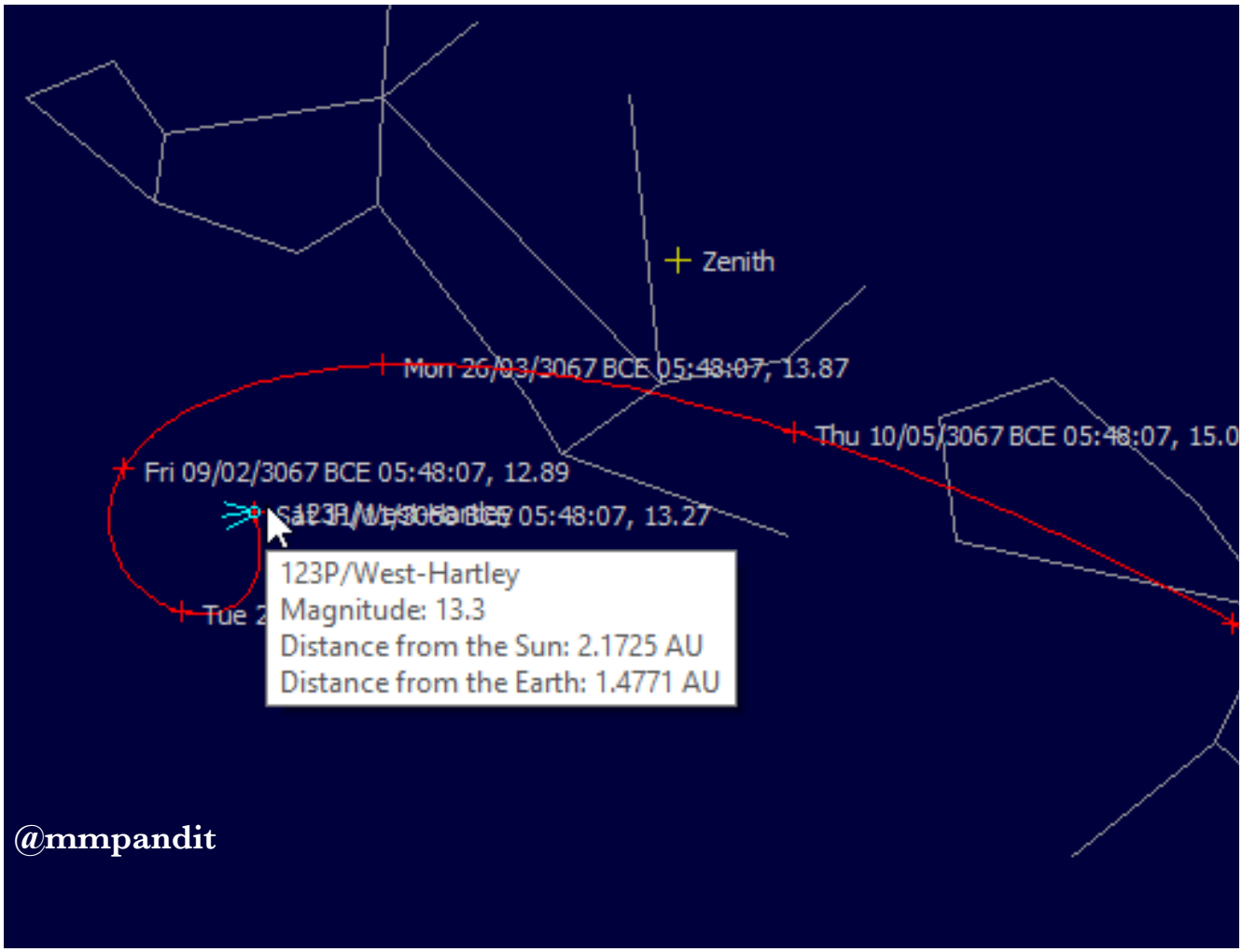

The superb and clear Vakra/ retrograde motion of Comet Honda-Mrkos-Pajdusakova near Magha nakshatra in 3067BCE.
Sat 18/11/3068 BCE 17:08:07, 7.11
45P/Honda-Mrkos-Pajdusakova
Magnitude: 8.3
Distance from the Sun: 0.5777 AU
Distance from the Earth: 0.8210 AU
Mercury
C/2009 E1 (Itagaki)
P/2008 Y12 (SOHO)
Fri 08/12/3068 BCE 17:08:07, 8.32
Sun
LIBRA
SCORPIUS
Venus
240°
270°
W
Thu 28/12/3068 BCE 17:08:07, 10.91
330°
00°
N
300°
Uranus
NW
VIRGO
Sun 05/08/3067 BCE 17:08:07, 27.14
Mon 16/07/3067 BCE 17:08:07, 26.59
Mars
Wed 17/01/3067 BCE 17:08:07, 14.27
Tue 26/06/3067 BCE 17:08:07, 25.95
Wed 06/06/3067 BCE 17:08:07, 25.20
Thu 17/05/3067 BCE 17:08:07, 24.34
Tue 06/02/3067 BCE 17:08:07, 16.93
Fri 27/04/3067 BCE 17:08:07, 23.33
Sat 07/04/3067 BCE 17:08:07, 19.03
@mmpandit
LEO
CANCER
India, Delhi | Lon: 077° 13' 00" E, Lat: 28° 40' 00" N

The next criteria is to demonstrate the graha which is in retrograde motion at Shravana. This is comet 65P/Gunn and the retrograde loop is very clearly seen at Shravana in 3067BCE.



Thus I am demonstrating the proof for an alternative acceptable explanation for verse 13 of chapter 3 of Bhisma Parva by demonstrating two comets, one each in the precise vicinity of Magha (Regulus) and Shravana (Altair) stars in 3067BCE. These are comets 45P/Honda-Mrkos-Pajdusakova retrograde at Magha and comet 65P Gunn retrograde at Shravana exactly as the verse 03:13 says.

Can I demonstrate the proof for other comets say the Dhumaketu near Pushya in verse 03:12?
We know that 1P Halley's comet is at Pushya in 3074BCE but there is another comet near Pushya in 3067BCE.



This is comet 123P West Hartley which I can clearly demonstrate at Pushya in 3067BCE.

Thus I can clearly demonstrate the proof for other comets like the Dhumaketu near Pushya in verse 03:12

Strengths of this comet theory:

1. The first strength of this theory is that all the grahas in this chapter and the chapter "Comets or Planets" are indeed comets which can clearly be charted by credible software simulations AND are in the places described by the text of the critical edition of the Mahabharata.
2. The next strength is that the magnitudes of at least some of the comets are in the visible range for at least some point of their charted path AND crucially, most of the comets are in the magnitude range that they may be seen with some sort of telescope (more details in chapter "Comets or Planets")
3. The third strength of my theory is that when the retrogression of a comet is mentioned in the critical edition verse, I am able to point out the exact Vakra

gati (retrograde motion) in their path which I have charted. The skies would be relatively untouched by light pollution like today and in any case most researchers regard Vyasa to be omniscient and so comet visibility is not a particular issue. (the main point is that the comet must be present in the general location noted in the text and it must be present for the period of time described in the text. If we apply these stringent conditions, then it becomes clear that these verses could only refer to comets.

4. Finally, according to Brihat Samhita of Varahamihira, comets are indeed associated with disasters throughout history and many a time, even when they cannot be seen with the naked eye, in the special case when they bisect certain star formations such as the Saptarishis or Rohini nakshatra. Comet Atlas for example was not seen with the naked eye at the time of its bisection of the Saptarishis, even though it was associated with catastrophe on earth (Jan to March end 2020). Thus the Mahabharata comets need not be absolutely visible to the naked eye as long as they actually fulfil the criteria of being in their respective places according to the critical edition of the text.
5. We also show how comets which may not have been seen with the naked eye were seen during the Mahabharata war in 3067BCE in the previous chapter "Comets or Planets".

References:

[1] The Mahabharata, Text as constituted in its Critical Edition, Bhandarkar Oriental Research Institute (Poona, 1972)

[2] Sathe, S., Deshmukh, V., and Joshi, P., Bharatiyayuddha: Astronomical References, Shri Babasaheb Apte Smaraka Samiti (Pune, 1985)

[3] Achar BN : On Astronomical References in Vyasa-Dhrtarastra-Samvada in the Bhismaparvan of Mahabharata,

[4] BrihatSamhita, ibid, in 'Ketucara' ,Ch. XI

Eclipses before the

Mahabharata war
Chapter 14

Dr Manish Pandit

November15 2019

Eclipses before the Mahabharata War?

Purvapaksha:

1. The eclipse data from the Mahabharata war occurs in mainly two books of the Mahabharata: The Udyoga and Bhsisma Parvas. Before we go into the details of the references pointing to these eclipses and the points in the sky at which they occur, it will be useful to understand that a solar eclipse can only occur very close to an Amavasya or on it, whereas a lunar eclipse can only occur on a full Moon day or around or on Purnima Tithi. This is important from the viewpoint that the vast majority of researchers have chosen either the later part of the Shukla Paksha as the start of their war or more rarely, an Amavasya as the first day of the war.

We have previously shown in an unambiguously clear manner that there was a waning phase Moon which rose in the Eastern direction late in the night following the 14th day of the war (the 14th war night) thereby conclusively proving that the war could not have started on an Amavasya.

2. We have also previously shown how around 25 verses from the last 7 days of the Mahabharata war presented elsewhere by other researchers as full Moon data in support of their theories regarding full Moon appearances around the 12th, 13th, 14th and 15th or 16th nights of the war were not actual astronomy observations of the Moon or the sky but mere analogies. Thus no Moonphase data can be found within the text of the Critical edition of the Mahabharata to support a full Moon on the 12th, 13th, 14th and 15th and 16th nights of the war.

3. The two chapters in this book, on Moonphases and Moonrise data have effectively established that an Amavasya start to the war can now be considered as an absurdity and should be completely rejected. This would invalidate a Solar eclipse on the first day of the war completely, so robust is the data against it.

It is also important to check when the eclipses actually occurred, something which hasn't been discussed in depth within the literature yet.

4. The next question which we wish to establish is whether it can be proven that the last day of the war is an Amavasya or close to it?

When did the eclipses described in the Mahabharata really occur and what was their sequence?

This question gains importance because some researchers have tried to mix up eclipses from a time interval 50 years before the war to match with eclipses from the time of the war.

Eclipse times in macroscopic terms during the Mahabharata:

A: Eclipse described in Sabha Parva.

B: At least two eclipses described in Udyoga and Bhisma Parva which must occur before the war.

C: Eclipses repeating 36 years after the Mahabharata war at the time of the destruction of the Yadavas.

References to Eclipses during the Mahabharata:

The first step again is to establish which of the verses are referring to clear astronomy data showing eclipses and which are referring to analogies. If a textual reference to a hazy Sun is seen to have another reason given immediately in the text preceding it then it must be rejected.

1. ***First part of the Verse Udyoga.141.10***

सोमस्य लक्ष्म व्यावृत्तं राहुरर्कमुपेष्यति ।
दिवश्चोल्काः पतन्त्येताः सनिर्घाताः सकम्पनाः ॥ ०१० ॥

This verse occurs in chapter 141 of Udyoga Parva and is situated at the point where Karna has been speaking to Krishna. Karna says that a lunar eclipse has already occurred and a solar eclipse will be happening soon in the future.

2. ***Two Verses Bhisma.03.29-30:***

चतुर्दशीं पञ्चदशीं भूतपूर्वां च षोडशीम् ।
इमां तु नाभिजानामि अमावास्यां त्रयोदशीम् ॥ ०२८ ॥

चन्द्रसूर्यावुभौ ग्रस्तावेकमासे त्रयोदशीम् ।
अपर्वणि ग्रहावेतौ प्रजाः सङ्क्षपयिष्यतः ॥ ०२९ ॥

The first verse ie. chapter 03 of Bhisma Parva, verse 29 points out that there was a short lunar fortnight of 13 days. The next verse in that chapter, ie. verse 30 says that two eclipses, a lunar and a solar have occurred within a month on the 13th Tithi.

3. ***Verse Bhisma.02.23:***

अलक्ष्यः प्रभया हीनः पौर्णमासीं च कार्त्तिकीम् ।
चन्द्रोऽभूदग्निवर्णश्च समवर्णे नभस्तले ॥ ०२३ ॥

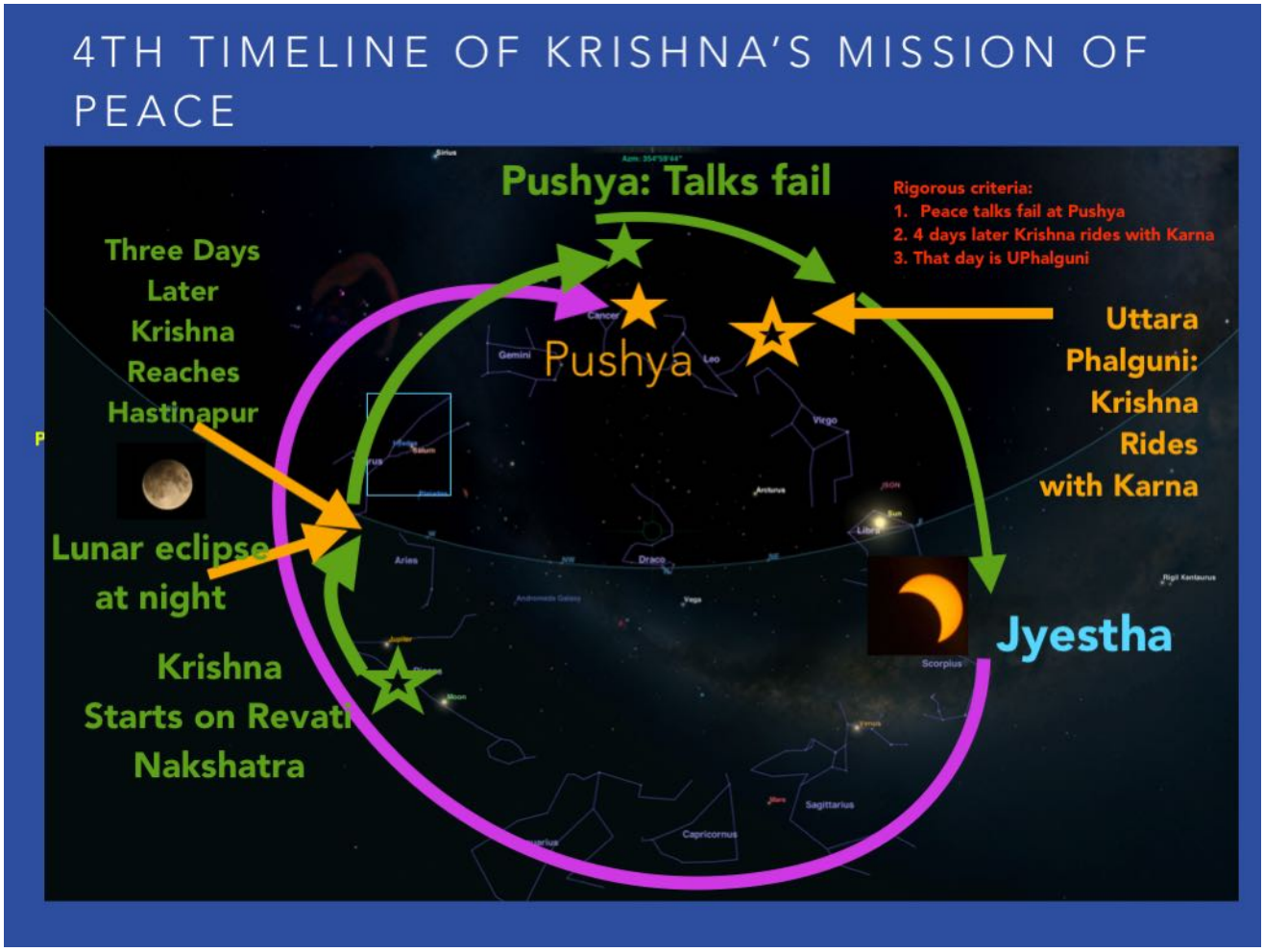
This verse is of particular importance because it describes a lunar eclipse occurring ***at Kartik Purnima*** in the context of the meeting between Vyas and Dhritarashtra.

4. ***Second part of the Verse Bhisma.02.32:***

रोहिणीं पीडयन्नेष स्थितो राजञ्शनैश्चरः ।
व्यावृत्तं लक्ष्म सोमस्य भविष्यति महद्भयम् ॥ ०३२ ॥

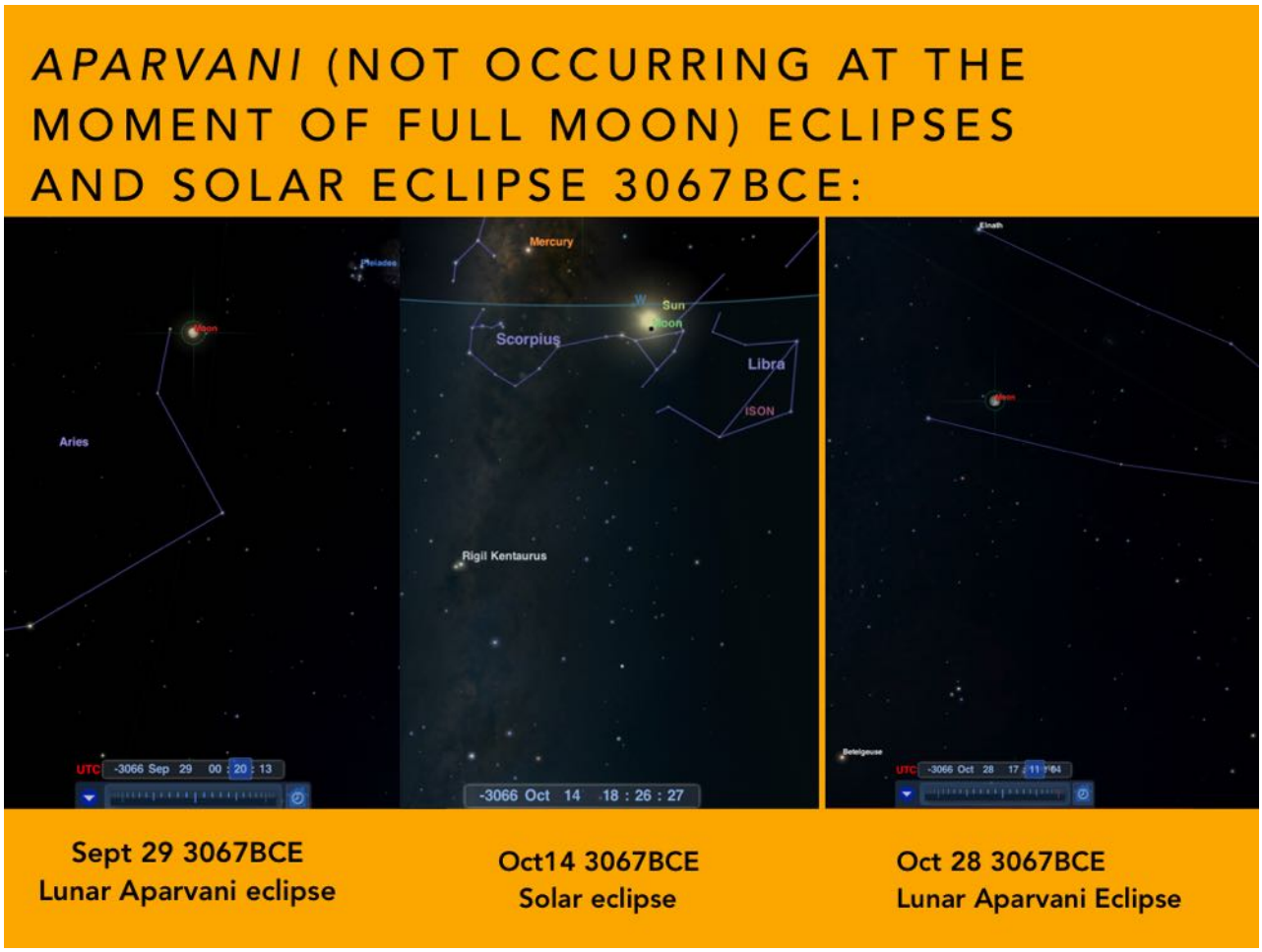
This second part of the verse is of particular importance because it describes a lunar eclipse again although its position is not given, this is again in the context of the meeting between Vyas and Dhritarashtra.

The timeline of Krishna's mission of peace is intertwined with the eclipses mentioned in the Mahabharata as above.



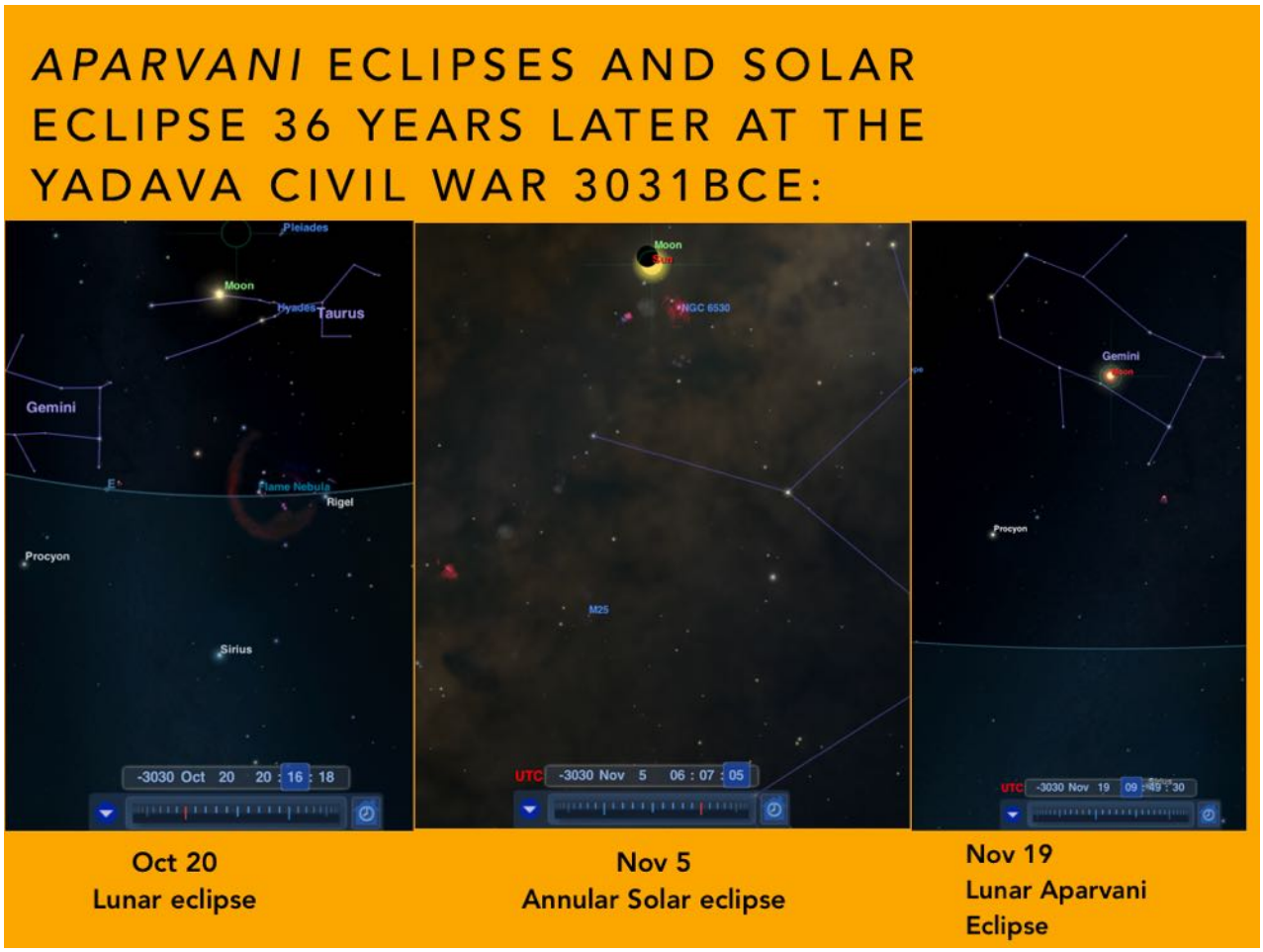
We confirm two sets of three eclipses each as follows:

First set in 3067BCE:



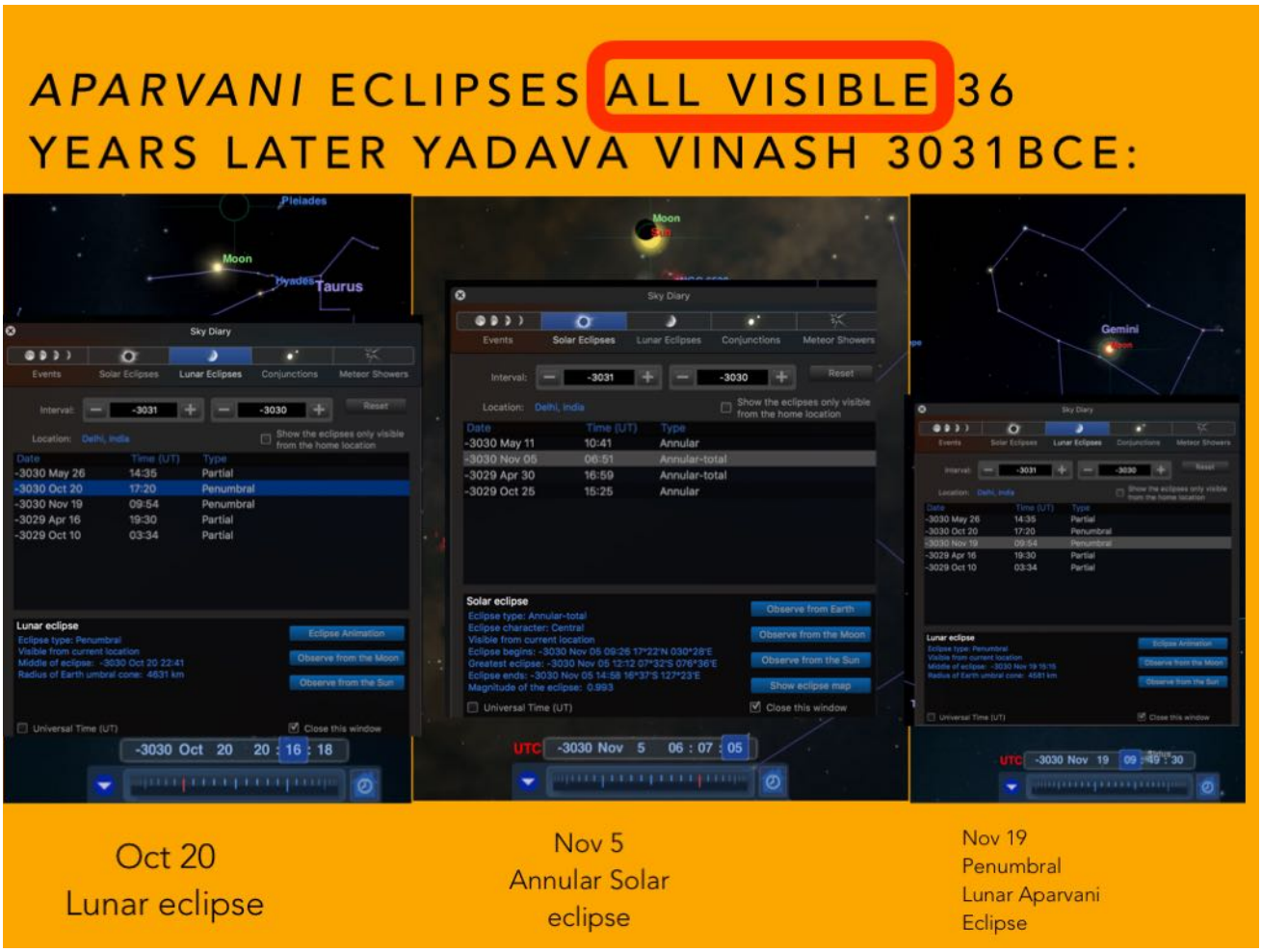
We corroborate the lunar eclipse of Sept 29th at Plaeides (Kartika Purnima) followed by the Solar eclipse of October 14th at Jyestha followed by the third eclipse at Mrigasira of Oct 28th 3067BC.

Second Set of three eclipses in 3031BCE during the Yadava Civil war are also corroborated in 3067BCE:



In the 3067BCE proposal for the Mahabharata war, we can corroborate the lunar eclipse of Oct 20th 3031BCE at Rohini/ Aldebaran followed by the solar eclipse of November 5th 3031BCE followed by the third eclipse of Nov 19th 3031BCE.

Are they all visible? The software informs us that all three eclipses are indeed visible. This is shown in the colour screenshots from Redshift on the next page.



The 13 day eclipse pair conondrum:

Many researchers have been fixated on having a 13 day eclipse pair as "quoted by the Mahabharata". In actual fact, nowhere does it state that there are exactly 13 day eclipse pairs. However, keeping that point aside for the moment, let us continue debating this further assuming hypothetically for a moment that this 13 day eclipse pair is indeed mentioned as that in the Mahabharata text.

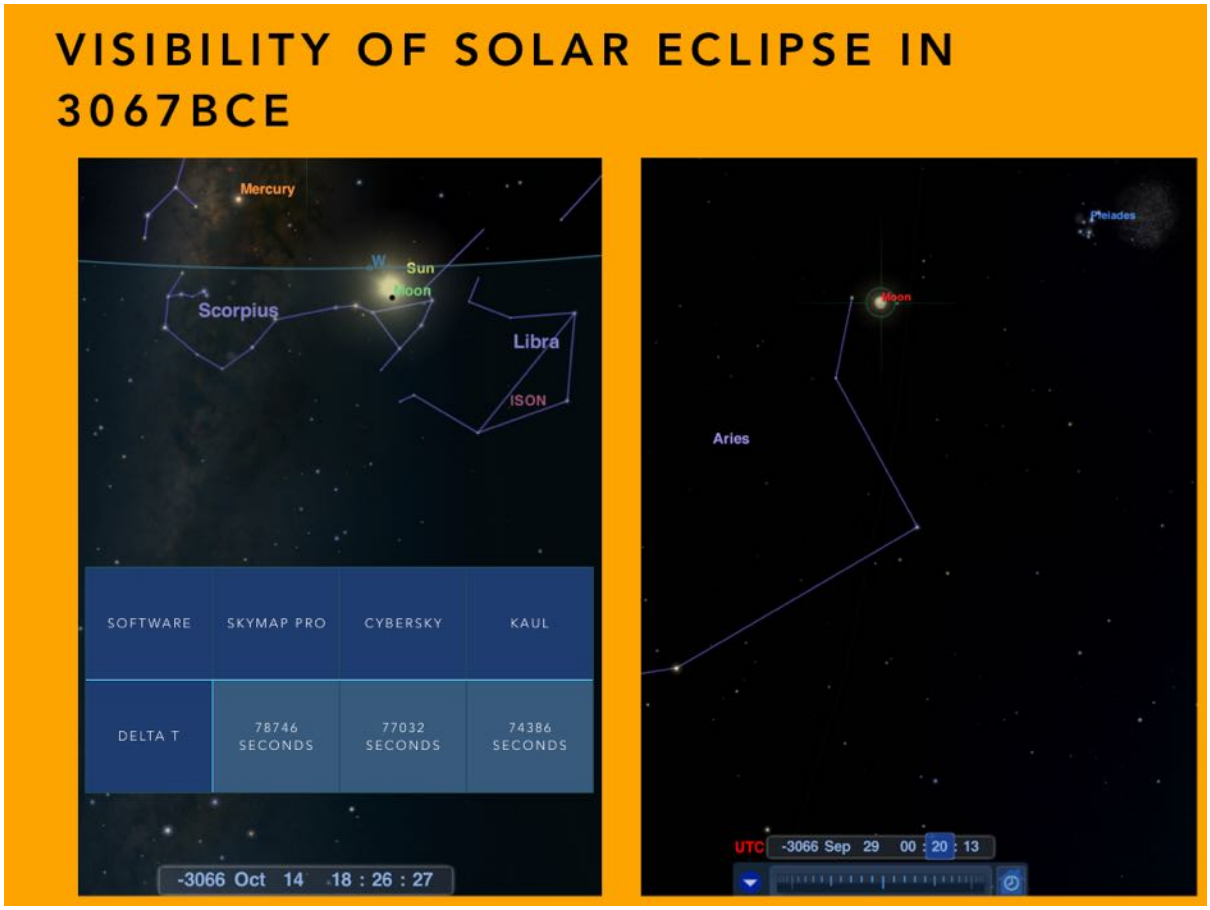
The 13 day eclipses cannot occur anyway as the distance between a full Moon and a New Moon in succession is a minimum of 13.8 days.

Therefore exact 13 day eclipses are an absurdity from an astronomy point of view because 13.8 days is nearer to 14 days than to 13 days. Because we can prove this point to be an absurdity, then all sorts of adjustments are needed and so the argument becomes subjective and my truth is as good or in fact much better than anybody else's.

If one looks at it objectively, then all one needs to do is ask the question whether 13.8 (as the distance between a full Moon and a New Moon in succession is a minimum of 13.8 days.) is nearer to 14 or nearer to 13?

The objective answer to this question is that 13.8 is far closer to 14 than to 13 and therefore 13 day eclipse pairs cannot occur in real life. The closest we can come to defining a 13 day eclipse pair is one which is less than 14 days. This we can prove in 3067BCE (eclipse pair one is a few hours less than 14 days thus fulfilling the criteria).

Visibility of Solar eclipse in 3067BCE:



SOFTWARE	SKYMAP PRO	CYBERSKY	KAUL
DELTA T	78746 SECONDS	77032 SECONDS	74386 SECONDS

Paraphrased from Achar 2019: Krishna's Diplomatic Mission of Peace and the Mahabharata war:

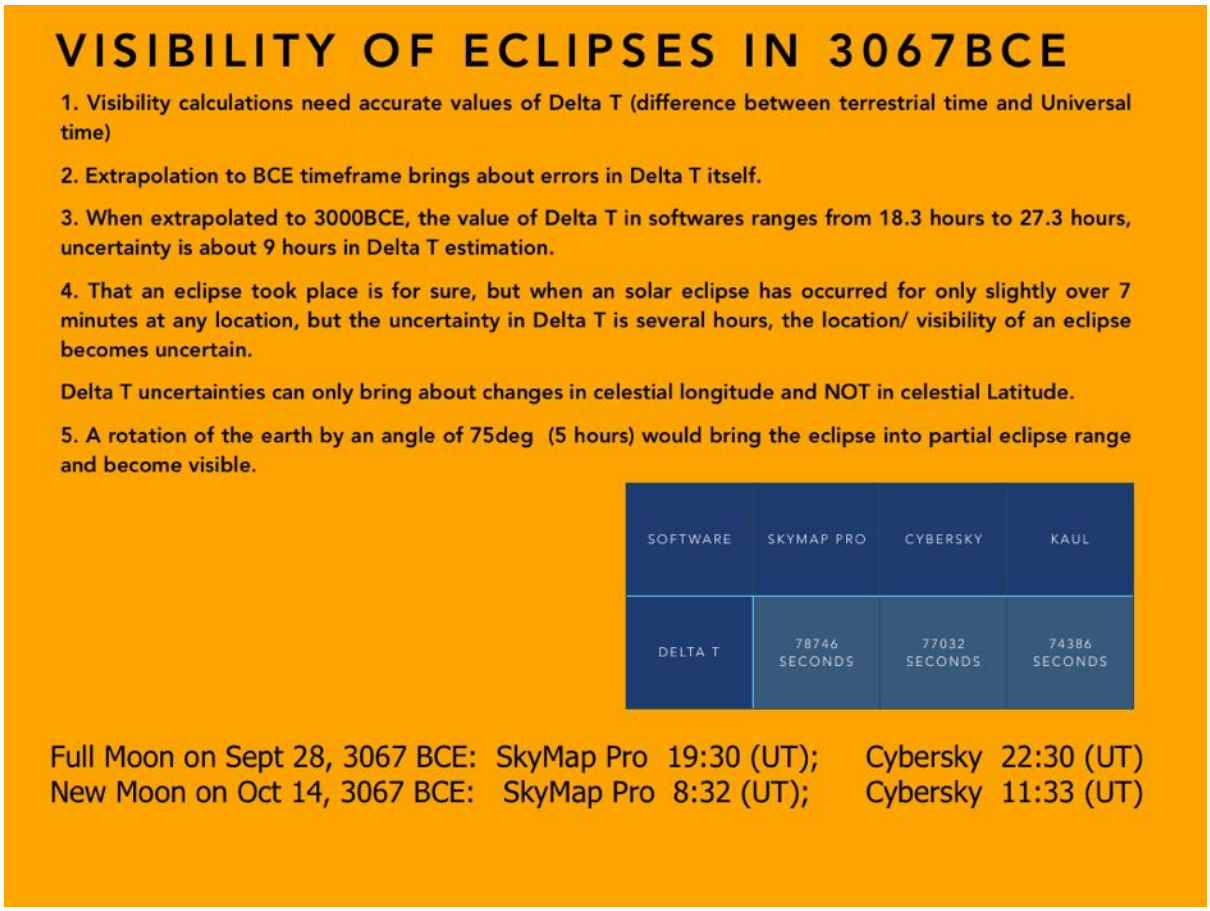
1. Visibility calculations need accurate values of Delta T (difference between terrestrial time and Universal time)

2. Extrapolation to BCE timeframe brings about errors in Delta T itself.

3. When extrapolated to 3000BCE, the value of Delta T in softwares ranges from 18.3 hours to 27.3 hours, uncertainty is about 9 hours in Delta T estimation.

4. That an eclipse took place is for sure, but when an solar eclipse has occurred for only slightly over 7 minutes at any location, but the uncertainty in Delta T is several hours, the location/ visibility of an eclipse becomes uncertain.

Delta T uncertainties can only bring about changes in celestial longitude and NOT in celestial Latitude. (for example, if a solar eclipse can only be seen in Antartica, then no power in the world including Delta T will make it visible in Kurukshetra. Luckily our eclipse does not suffer from this problem.



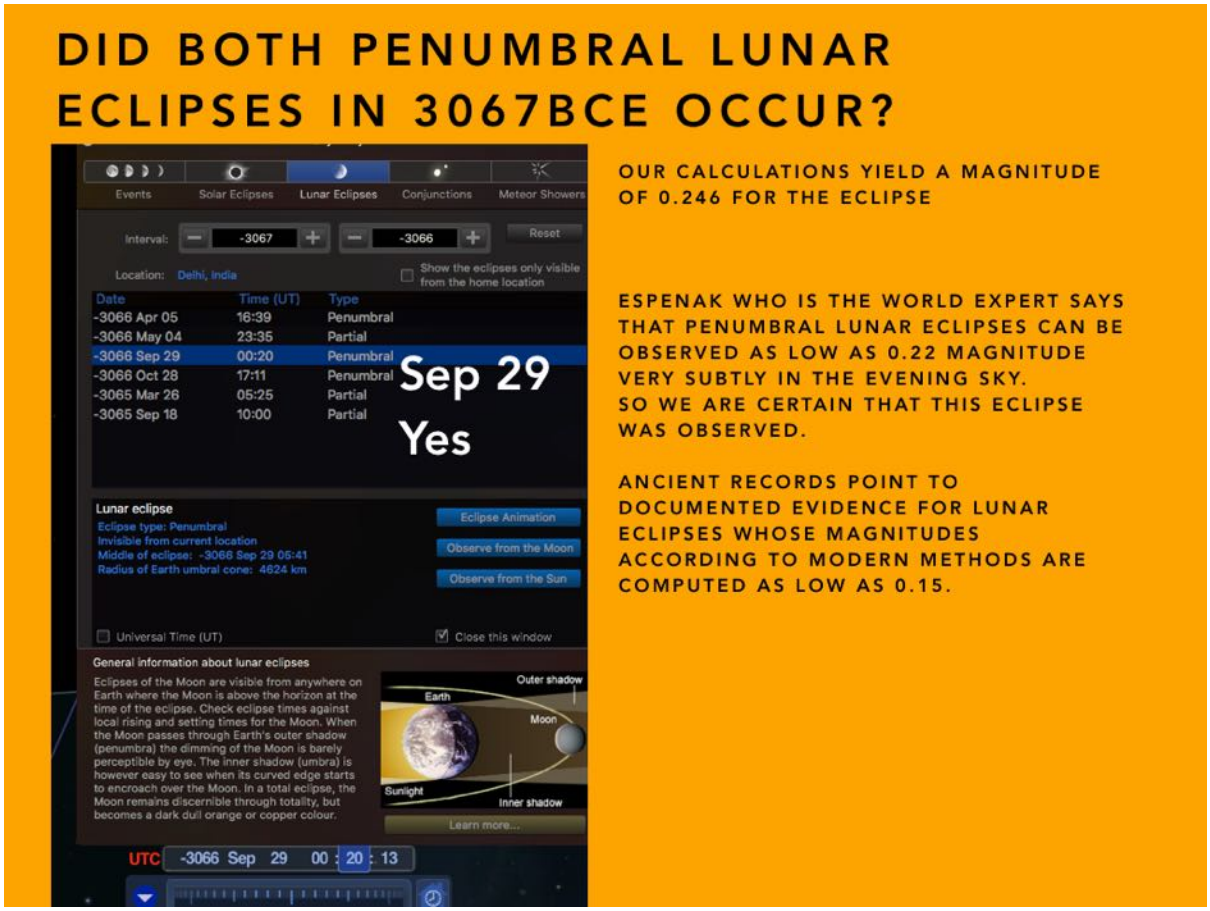
5. A rotation of the earth by an angle of 75deg (5 hours) would bring the eclipse into partial eclipse range and become visible.

Did the Two Penumbral Lunar Eclipses of 3067BCE occur and were they actually visible?

There are no definite documented evidences for penumbral lunar eclipses in ancient literature. Hence we use magnitudes as our baseline.

Our calculations yield a magnitude of 0.246 for the eclipse. Espenak who is the world expert says that Penumbral lunar eclipses can be observed as low as 0.22 magnitude very subtly in the evening sky.

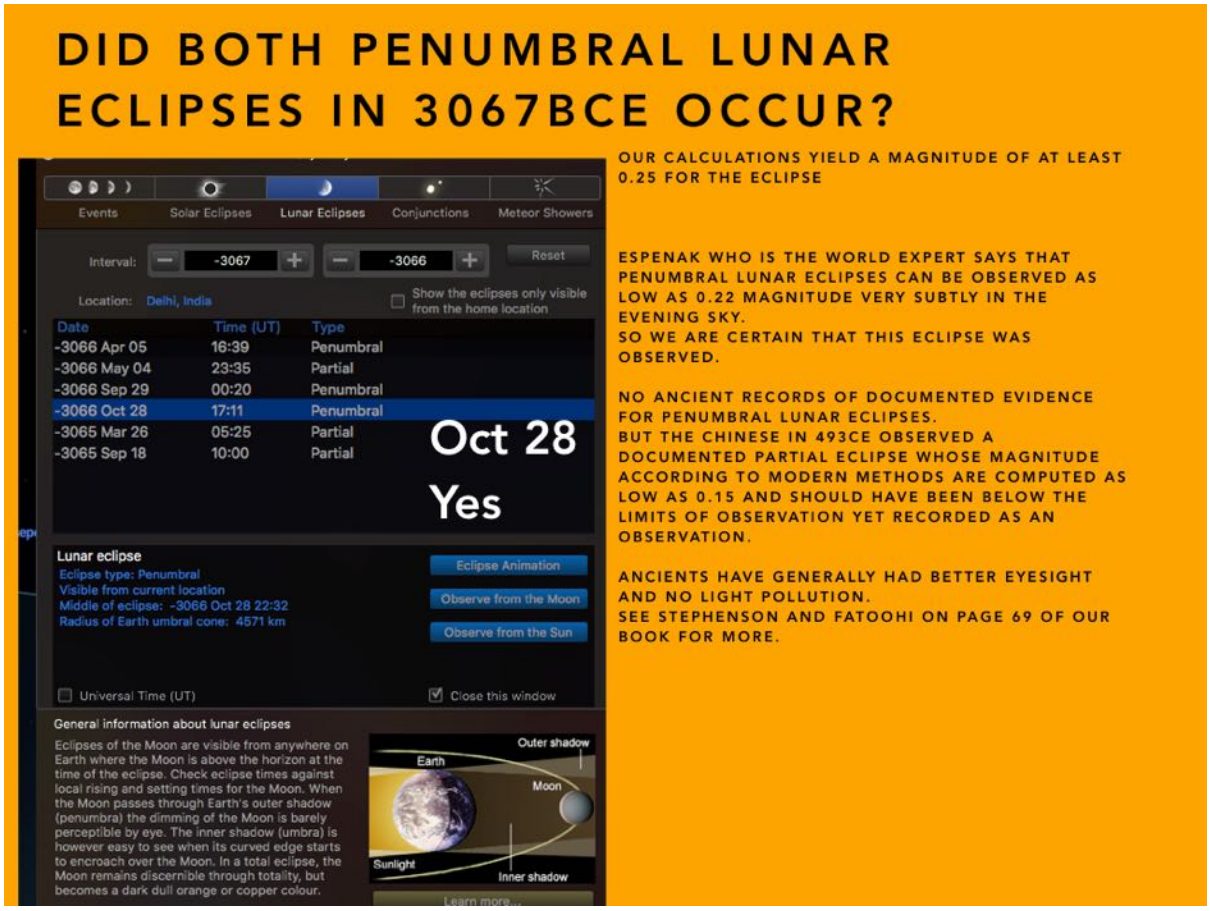
So we are certain that our eclipses were observed.



Ancient records point to documented evidence for lunar eclipses whose magnitudes according to modern methods are computed as low as 0.15.

Thus the penumbral lunar eclipse of September 29th 3067BCE was seen.
Was the penumbral lunar eclipse of October 28th also visible? Lets find out.

The penumbral lunar eclipse of October 28th was also visible if we apply the



same yardsticks fairly.

There are no ancient records of documented evidence for Penumbral lunar eclipses.

But the Chinese in 493CE observed a documented partial eclipse whose magnitude according to modern methods are computed as low as 0.15 and should have been below the limits of observation yet recorded as an observation.

Ancients have generally had better eyesight and no light pollution.

Summary:

In summary, we corroborate all six eclipses if one takes into account 3067bCE and 303BCE both. We also state that the first eclipse pair during the war must

have the lunar eclipse precede the solar eclipse and not the other way round as some researchers have done. All eclipses must occur before the war as Vyasa met with Dhritarashtra on the eve of the war to describe the omen containing verses and not during or after. In addition, in the chapters on comets, we have shown that the verses used by other researchers to describe a solar eclipse on the first day of the war have alternative and far more satisfactory explanations.

Nirvana of Gautam Buddha

Chapter 15

1807BCE

Dr Narahari Achar

July 2019

Nirvana Date of Bhagvan Buddha

Introduction:

It is an understatement to say that Buddha's date is an extremely important milestone in the chronology of India. It is also a truism that the historical dating of Buddha, a Western effort since its inception about 200 years ago, has been mired in controversy.

The historicity of Buddha has been accepted since a long time as has been evidenced by epigraphic records dating from the oldest times. It is generally agreed that Buddha was born in the village of Lumbini (Rummindei Pillar Inscription) now situated in Nepal and that he lived for eighty years. The problem of mapping the events in the life of Buddha on to the Western Julian Calendar is termed the problem of determining the date of Buddha. There has been no consensus on the date of Buddha.

In the 19th century, Western Orientalists came across a number of Buddhist texts from various countries such as Ceylon, China, Japan, Tibet and others and compiled for the date of birth of Buddha, a list of more than 35 dates ranging from 2422 BCE to 483 BCE. Soon scholarly opinion gravitated towards two particular dates, 544 BCE and 483 BCE, both based mainly on the records from Ceylon. A majority of scholars support the date of 483 BCE and there have been some attempts to push the date even later. The records from Indian sources such as Puranas have not been given the consideration they deserve.

It may be pointed out that this date is based on (a) the evidence of inscriptions of Priyadarshini Devanampriya, identified as Asoka Maurya, (b) the synchronization of the Greek Sandrocottus with Chandragupta Maurya, and (c) the testimony of the Ceylonese texts that coronation of Asoka took place 218 years after Buddha. These assumptions have been questioned by many scholars. A detailed discussion of the problems associated with the determination of the

date of Buddha can be found in the book edited by Bechert[1]. These assumptions and the veracity of the conclusions there of have been brought to question by a recent archaeological discovery. The great stir was caused in 2013 CE, by the announcement by Professor Coningham[2] of an archaeological discovery that Buddha's date may be several centuries earlier than the accepted date of 483 BCE.

Sengupta's Work

An investigation quite independent of the archaeological studies was carried out by Sengupta[3], based on astronomical information found in a Buddhist text, saṃyuttanikāya, which gives information about the last days of Buddha. For about three months before his death, Buddha was staying in śrāvasti. During this time, there occurred a winter solstice, a lunar eclipse , followed by a solar eclipse. Buddha attained nirvāṇa on the full moon day of viśākha. Based on these astronomical events, Sengupta sought to settle which of the accepted dates for Buddha, 483 BCE or 544 BCE would be in accordance with the astronomical data. He found a pair of eclipses described in saṃyuttanikāya would be possible in 560 BCE, but this date would be in conflict with both of the dates 483 BCE and 544 BCE. However, he felt that 560 BCE was close enough to 544 BCE that he recommended as 544 BCE as the date. The details from saṃyuttanikāya will be examined in more detail below.

Details from saṃyuttanikāya

We are concerned with only a part of the text, which deals with the time period that Buddha spent in śrāvasti. In saṃyuttanikāya, Part I sugātha vagga, Book II,

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[1] H. Bechert,(1995), *When Did the Buddha Live?* Sri Satguru Publications, Delhi.

[2] R. Coningham, Antiquity, Dec 2013

[3] P.C. Sengupta,(1947), *Ancient Indian Chronology,*University of Calcutta, Calcutta.

Chapter I, is entitled devaputta saṃyuttam and contains ten suttas (units) in all and refers to various devas who come to meet the Buddha. The first two suttas refer to kassapa (prajapati) and one each to māgha, māgadha, dāmani, kāmada, pañcālacaṇḍa, tayāna, candmā and sūriyo Sengupta regards the references to devas as corresponding to prajāpati and āditya-s The suttas 9 and 10 refer to candima and suriyo are discussed below. The original text in pāli quoted here is taken from Sengupta's work referred to above. The translation is from Rhys Davids[4]

Sutta 9 candimā

1. ***sāvatthyāṃ viharati***
tena kho pana samayena candimā devaputta rāhuṇā asurindena gahito hoti |
atha kho candimā devaputto bhagavantaṃ anussaramāno tāyaṃ velāyāṃ imaṃ gāthāṃ abhāsi ||

"The Exalted One was once staying in sāvatthi. Now at that time candimā, son of the devas, was seized by rāhu, lord of asuras. Then candimā, calling the Exalted One to mind invoked him by this verse:"

2. ***namo te buddha viratthu vippamutto si sabbadhi |***
sambādhapatippanno:'smi tassa me saraṇaṃ bhavāti ||

"O Buddha! Hero! Glory to Thee! Thou art wholly set at liberty!
Lo! I am befallen into dire distress! Be thou my refuge and my hiding place!"

3. ***atha kho bhagavā candimaṃ devaputtaṃ ārabha rāhuṃ asurindaṃ gāthāya ajjabhāsi |***
tathāgataṃ arhantaṃ candimā saraṇaṃ gato |
rāhu candaṃ pamuñcāssu budhā lokānukampāti ||

"Then the Exalted One addressed a verse to rāhu, lord of the asuras, on behalf of candima, son of the devas:
To the tathāgata, the arhant hath candima for help and refuge gone.
O rāhu, set the moon at liberty! The Buddhas take compassion on the world."

---

[4] Rhys Davids, *The Book of Kindred sayings (saṃyuttanikāya),* pages 71-73

Sutta 10. Suriyo

1. ***tena kho pana samayena sūriyo devaputto rāhuṇā asurindena gahito hoti |***
atha kho sūriyo devaputto bhagavantaṃ anussaramāno tāyaṃ velāyāṃ imaṃ gāthāṃ abhāsi||

"Now at this time sūriya, son of the devas, was seized by rāhu, lord of asuras. Then sūriya, calling the Exalted One to mind invoked him by this verse:"

2. ***namo te buddha viratthu vippamutto si sabbadhi |***
sambādhapatippanno:'smi tassa me saraṇaṃ bhavāti ||

"O Buddha! Hero! Glory to Thee! Thou art wholly set at liberty!
Lo! I am befallen into dire distress! Be thou my refuge and my hiding place!"

3. ***atha kho bhagavā sūriyaṃ devaputtaṃ ārabha rāhuṃ asurindaṃ gāthāya ajjabhāsi |***
tathāgataṃ arhantaṃ sūriyo saraṇaṃ gato |
rāhu pamuñca sūriyam budhā lokānukampāti ||

"Then the Exalted One addressed a verse to rāhu, lord of the asuras, on behalf of sūriya, son of the devas:
To the tathāgata, the arhant hath sūriya for help and refuge gone.
O rāhu, set the sun at liberty! The Buddhas take compassion on the world."

Clearly the reference is to a lunar eclipse followed by a solar eclipse.

Of the deva puttas who visit the Buddha, clearly kassapa refers to prajāpati. Sengupta identifies prajāpati with winter solstice. The allegory underlying these suttas, according to Sengupta, is the winter solstice day marking the advent of kassapa or prajāpati came first. Then came the other devaputtas, the ādityas, the sons of aditi. The first devaputta to visit after kassapa is to be taken as the lord of the month of the lunar eclipse. But Sengupta is not sure of how to identify these ādityas, as they may be gods of the Hindu or Buddhist tradition. However, the astronomical traditions of both Hindu and Buddhist practices are essentially the same.

We take a hint from a listing of the sons of aditi in the aruṇapraśna section of taittirīya araṇyaka:

"dhātācāryamāca aṃśaśca bhagaśca indraścavivasvāgścetyete.".

If we assume as Sengupta did, kassapa as "dhātā" or 'prajāpati', his visit would indicate the arrival of winter solstice. "āryamān" would be the first 'devaputta' to visit as the deity of the month, i.e., the presiding deity of the nakṣatra of the full moon, where the lunar eclipse occurs. Buddha arrives before the winter solstice and attains nirvāṇa on the full moon day of viśākha.

Simulations with planetarium software.

Now we are ready to undertake simulations using Planetarium software. According to Sengupta's astronomical interpretation, there occurs the following sequence of events: winter solstice, lunar eclipse, solar eclipse, followed by vaiśākha paurṇimā, the full moon day of buddha nirvāṇa. A search was made from 1900 BCE to 400 BCE for the year in which the following sequence of events, namely, winter solstice, lunar eclipse, solar eclipse, followed by vaiśākha paurṇimā occurs. There are only 14 dates possible:1807 BCE, 1694 BCE, 1659 BCE, 1510 BCE, 1250 BCE, 1192 BCE, 1138 BCE, 1119 BCE, 1062 BCE, 1007 BCE, 765 BCE, 690 BCE and 560 BCE.

If a time limit of about three months between winter solstice and vaiśākha paurṇimā is imposed, i.e., the time interval be about 90 days and that vaiśākha paurṇimā should occur before the vernal equinox, most of the dates do not qualify, leaving only two dates 1807 BCE and 1510 BCE. It is interesting to note that the 'traditionally' accepted dates, 544 BCE, or 483 BCE, or any of the recently revised dates do not fit the picture.

In 1510 BCE, as shown in Figure 1, the lunar eclipse occurs at Uttaraphālgunī, whose deity is Bhaga. In 1807 BCE, the lunar eclipse occurs at Pūrvaphālgunī, with āryamān as the deity.

Simulations show that the winter solstice occurred on January 5, 1807 BCE. There was a lunar eclipse on January 26, 1807 BCE, which was followed by a solar eclipse on February 10, 1807 BCE, as shown in Figures 2 and 3.

It can also be seen from Figure 2 that winter solstice occurred earlier when the Sun was near dhaniṣṭha (the position which corresponds to 270° along the ecliptic). buddha nirvāṇa occurs on vaiśākha paurṇimā, shown in Figure 4.This is exactly as recorded in saṃyuttanikāya, discussed above.

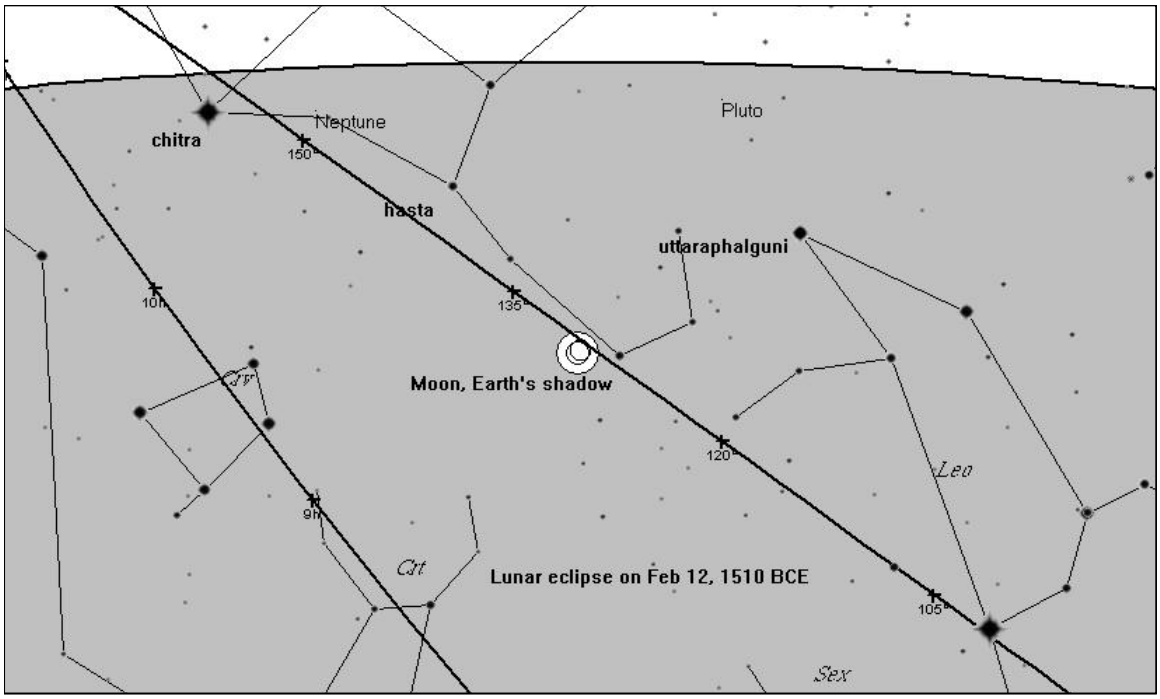


Figure 1 Lunar eclipse in 1510 BCE occurs at Uttaraphālgunī

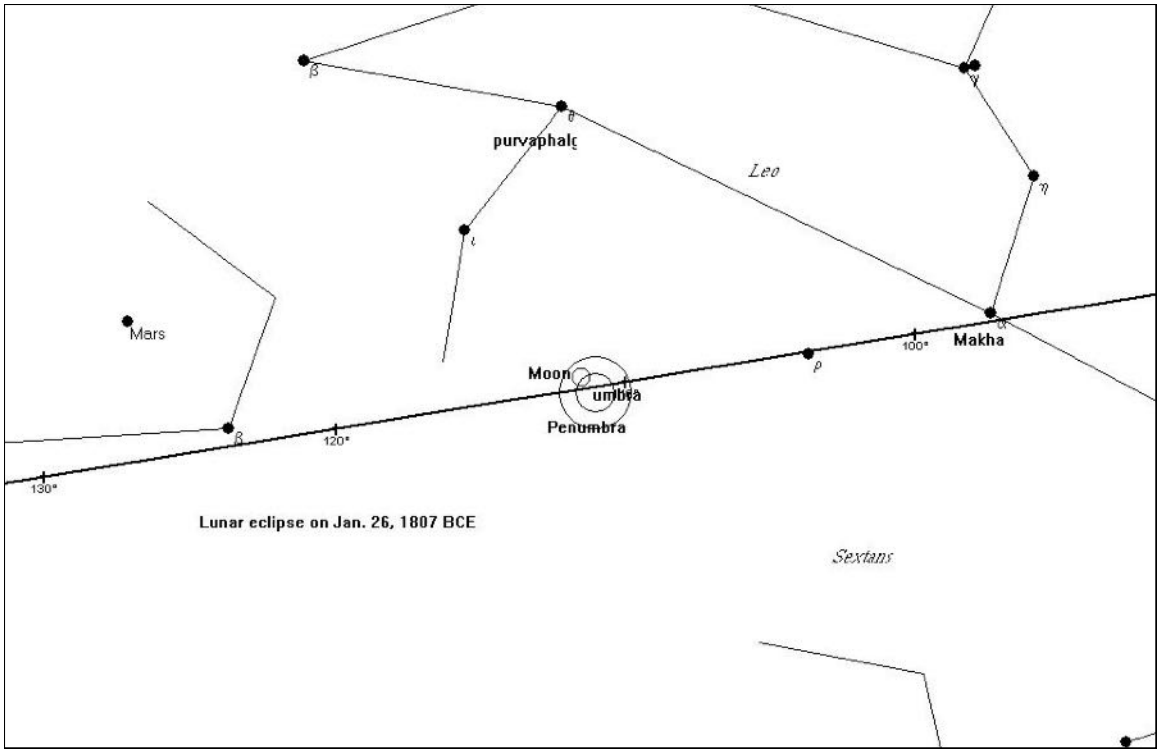


Figure 2. Lunar Eclipse on January 26, 1807 BCE at pūrvaphālgunī

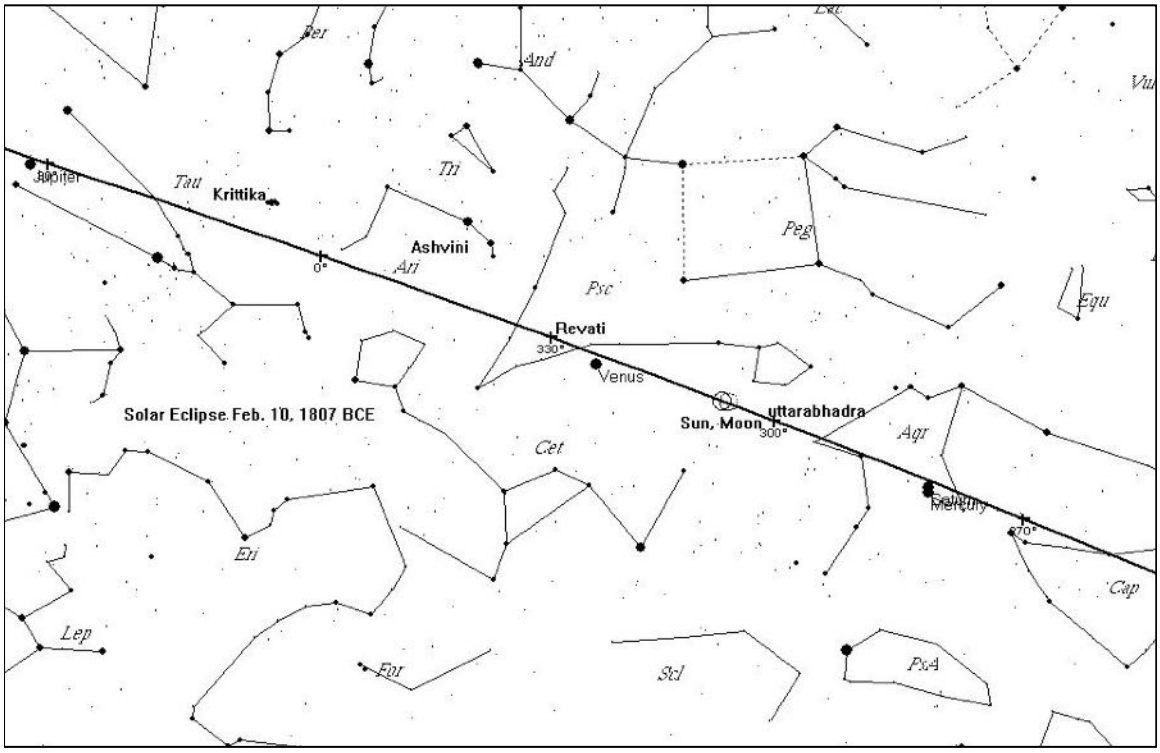


Figure 3. Solar Eclipse on February 10, 1807 BCE

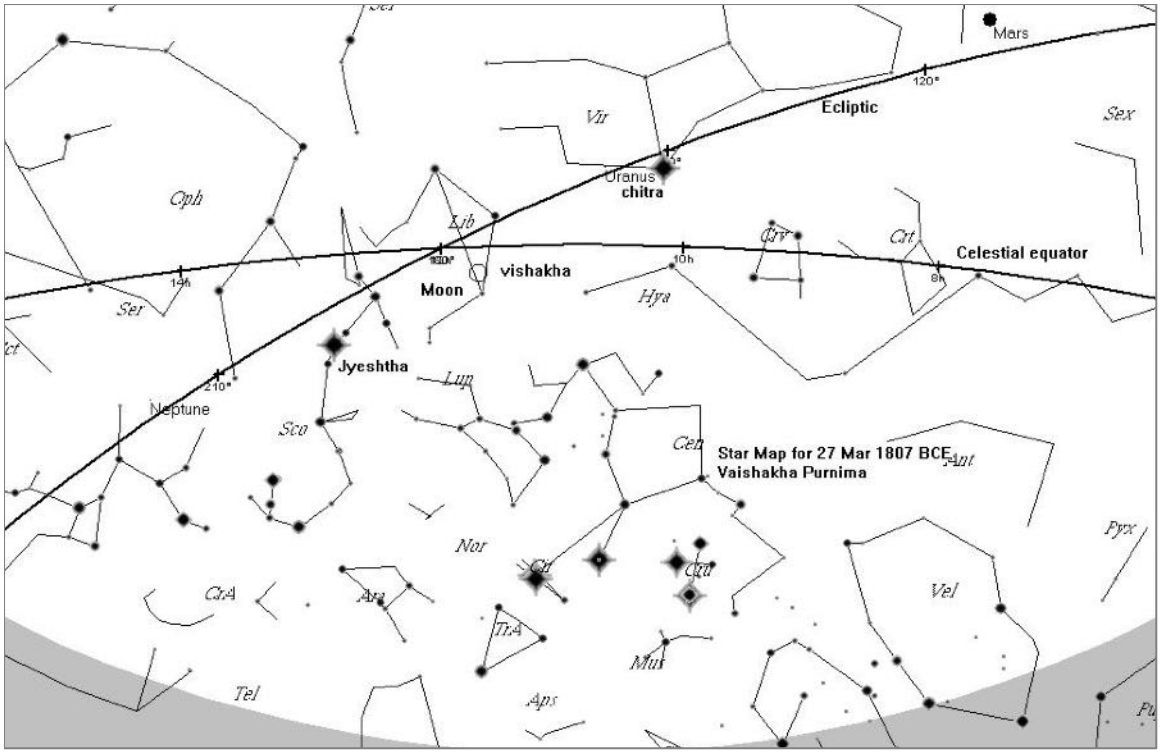


Figure 4. Star Map for March 27, 1807 BCE: vaiśākha paurṇimā ; buddha nirvāṇa

Discussion and Conclusions

If the arguments based on the astronomical interpretation suggested by Sengupta for the verses in saṃyuttanikāya can be believed, then a unique date for the nirvāṇa appears to have been preserved in the Buddhist scriptures. The date is 1807 BCE and is in perfect agreement with the tradition as shown by Kota Venkatachelam, V. G, Ramachandran and Knapp. It is also easy to demonstrate that if the legend that Buddha spent about the last three months of his life in śrāvasti, where he arrived before the winter solstice and attained nirvāṇa on the vaiśākha paurṇimā is true, then 544 BCE, 483 BCE or any of the later dates cannot be the date of nirvāṇa. Since the interval between winter solstice and vernal equinox is three months, and Buddha had arrived at śrāvasti before winter solstice, his nirvāṇa on vaiśākha paurṇimā should occur before vernal equinox. For this to occur, Sun should be near bharaṇi (or, past bharaṇi towards kṛttikā) at vernal equinox. For example, in 2200 BCE, the vernal

equinox occurred on April 8th near kṛttikā and the vaiśākha paurṇimā occurred on March 21, well before the vernal equinox. In 1200 BCE, the vernal equinox occurred on April 1, with the sun between aśvini and bharaṇi , but closer to bharaṇi. The vaiśākha paurṇimā occurred on April 4, just after the vernal equinox. However, for all years after 1000 BCE, the Sun will be near aśvini (and moving towards revati because of precession) at vernal equinox, making it impossible to satisfy the criterion that vaiśākha paurṇimā should occur before the vernal equinox.

The occurrence of the lunar eclipse followed by a solar eclipse within the time interval between winter solstice vaiśākha paurṇimā and fixes the date uniquely at 1807 BCE.

Further Watching:

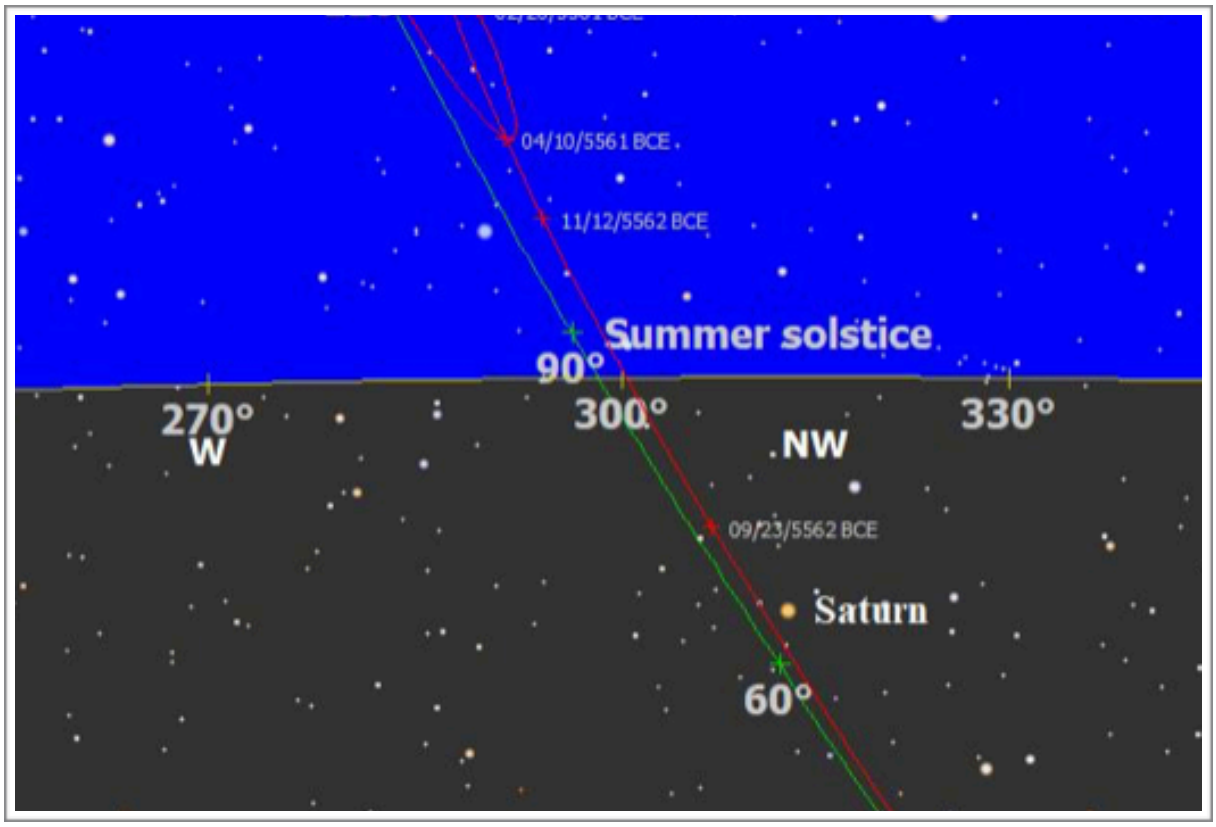
1. Calculation of the Date of Buddha Nirvana:

https://www.youtube.com/watch?v=xs6SmLGVkSs

2. Date of Birth of the Adi Shankaracharya:

https://www.youtube.com/watch?v=Yb0kgKw2CGA

Shri Oak's so called "revolutionary" theory of



Vakra motion: Chapter 16

Vakra: Fiction or Fact

By Dr Narahari Achar

June 2019

Shri Oak's so called "revolutionary" theory of *Vakra* motion

Introduction:

Shri Oak writes a voluminous introduction to retrograde motion.
He also claims 215 astronomical observations in the epic that his date of 5561 BCE for the Mahabharata war can account for, but lists 27 major observations that he really emphasises. But out of these 27 'observations', except for 4, all the observations are referenced from Udyoga and Bhishma parvas only. The remaining four references come from Drona, Karna and Shalya parvas and refer to the 13th, 14th and 17th day of the war. We shall concentrate for the time being on the twenty three major astronomical references taken from Udyoga and Bhishma parvas.

At the outset it must be stated that these references are all omens (nimittas). Only Krishna does not refer to any nimitta. He simply says:

सप्तमाच्चापि दिवसाद् अमावास्या भविष्यति
संग्रामो युज्यतांतस्यां तमाहुः शक्रदेवताम् ॥ 18॥

Karna then says:
स्वप्नाहि बहवो घोरा दृश्यन्ते मधुसूदन
निमित्तानिच घोराणितथोत्पाताः सदारुणाः ॥6॥

प्राजापत्यं हि नक्षत्रं ग्रहस्तीक्ष्णो महाद्युतिः
शनैश्चरः पीडयति पीडयन् प्राणिनोधिकम् ॥7॥

कृत्वाचाङ्गारको वक्रंज्येष्ठायां मधुसूदन
अनूराधां प्रार्थयते मैत्रं संगमयन्निव ॥8॥

" Oh Madhusudana, many horrifying dreams(nightmares) are seen. So also frightful omens and terrifying portents." ||8||
Among these omens, Karna mentions Saturn afflicting Rohini, Mars performing a vakra motion near Jyeshtha and as if praying for friendship with Anuradha.

Let us deal with these terms further:

Standard meanings of affliction (peeda) to a nakshatra and Vakra:

To begin with, "afflicting", "vakra" are terms with very specific and defined meanings, especially where

Varahamihira defines affliction in the following way:

रवि रविसुत भोगमागतं क्षितिसुत भेदनवक्रदूषितम्।
ग्रहणगतम् अथोल्क्याहतं नियतम् उषाकर पीडितञ्च तत्।।
What is the meaning of the above verse?

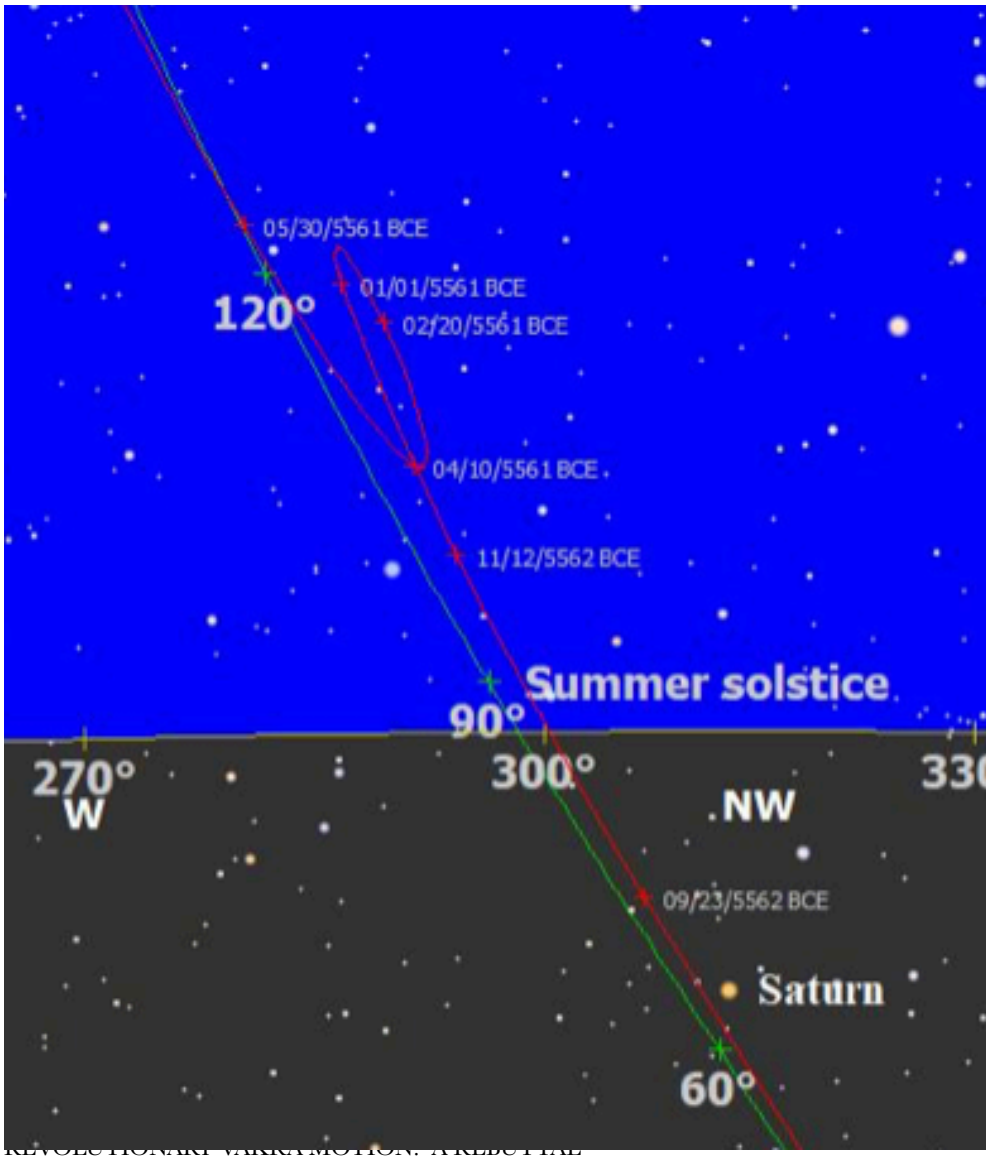
A nakshatra is said to be afflicted (peedita) when
(1) It is tenanted by Sun or Saturn.
(2) It is spoilt by Mars (kshitisuta) by either cutting through or by vakra motion
(3) When it is involved in an eclipse
(4) When it is stuck by a meteor
(5) When it is manifestly crushed by moon
(6) Or when something unnatural happens to it.

When a nakshatra is thus thus afflicted, all the people and things coming under its jurisdiction will be harmed.
From these it will be clear that the above references (Udyoga 141:07 and 08) are for the affliction of Rohini (Saturn being near it "bhogamagatam", Lunar eclipse on Kartika Purnima), and Jyeshtha (Mars being truly retrograde near it, Solar eclipse)

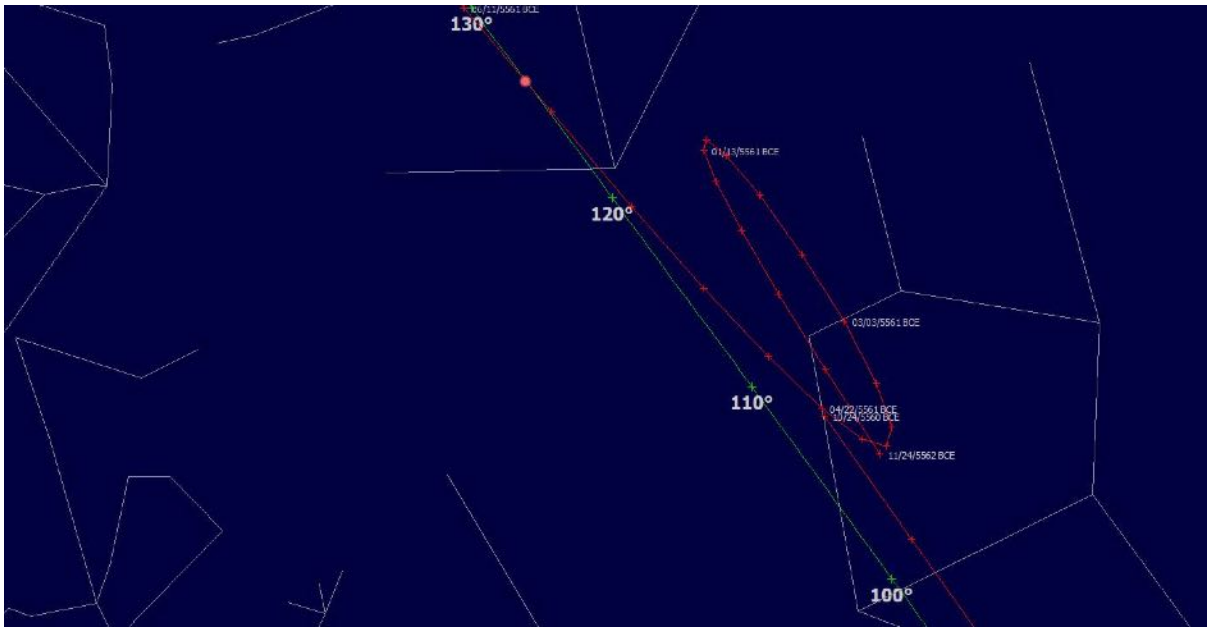
Therefore Shri Oak's interpretation of these terms 'peeda' and 'vakra' cannot be accepted.
For 'afflicting' Rohini, Saturn must be near Rohini and not looking down from the east as Rohini sets in the west.
On 10th Sept 5561 BCE, which is the day according to Shri Oak when Krishna and Karna ride together, Rohini sets at 7:17 am. Mercury and Saturn are in the

eastern Sky but the Sun is also up (5:46 am) and hence neither Mercury nor Saturn can be seen. How can Saturn be described as afflicting Rohini, when it cannot be seen? Moreover, Mercury is also in the eastern sky, but the epic does not say anything about Mercury afflicting/ causing peeda to Rohini.

As far as the 'vakra' motion of Mars is concerned, Mars is retrograde between 11 Feb to about 1 Apr. 5561 BCE and exhibits a spectacular loop seen in the star map.
Mars's orbit is inclined to the ecliptic at only about 1.85°.
When Mars crosses the ecliptic on June 4, 5561, it is at a oblique angle because of the inclination and it is hardly noticeable and in fact shows no deviation from normality (as opposed to the retrograde loop) and can hardly be considered a nimitta or an omen. Furthermore, because the Sun is at exactly the same location as Mars, observationally, neither Mars nor its oblique crossing can be seen.
Those who wish to test this can test this at any point when the Sun and Mars are so close together at many points in the future.



Shri Oak's claims cannot be accepted.



We will consider next his claims on the vakra motion of Jupiter and Saturn. These references are from Bhishma parva. At the outset of his meeting with Dhritarashtra Vyasa declares

इहयुद्धे महाराज भविष्यति महान्क्षयः
यथेहच निमित्तानिभयदान्युपलक्षये ॥(VI.2.16)||

The verse is quite clear and the word "nimmita" is mentioned quite clearly. Therefore, it is clear that the planetary positions must be interpreted in terms of omens.

ग्रहौ ताम्रारुणशिखौ प्रज्वलन्ताविव स्थितौ |
सप्तर्षीणामुदाराणां समवच्छाद्य वै प्रभाम् ||
संवत्सरस्थायिनौ च ग्रहौ प्रज्वलितावुभौ |
विशाखयोः समीपस्थौ बृहस्पतिशनैश्चरौ || (VI.3.25-26)

In describing the planetary positions, the word 'graha' appears. The common meaning is 'planet' When interpreted in this way there appear obvious contradictory and confusing statements and these contradictions have been recognized for a very long time. Achar has discussed these factors and proper interpretations in a paper published in the Annals of BORI, LXXXIV, (13-22), (2003) entitled "On astronomical references in Vyasa-Dhritarashtra samvada in

the Bhishma parvan of Mahabharata". He has also shown that graha can mean comets, and there are comets associated with planets like Jupiter (i.e., their aphelia fall within the Orbit of Jupiter) and are referred to as grahaputras ['belonging to the family of Jupiter' (in fact this is a modern classification!)]. Furthermore, grahaputra can be referred to by the name graha itself. (This is a vedic tradition, Maruts who are rudraputras are referred to as rudras!). As interpreted by Achar, most of the references in Bhishma parva refer to comets and not planets proper. For details Achar's paper can be referred to.

Oak also sees the conflict, but he tries to resolve by interpreting 'pidayan', vakra etc in a fanciful manner.

Vakra and Riju refer to retrograde and prograde motions of the same object and there is no reference to crossing obliquely or otherwise of the ecliptic. The motion is described in terms of its own path and not in reference to the ecliptic.

On October 16, 5561 BCE, (first day of the War ala Shri Oak), Saturn is at the end of Hasta and Jupiter near Uttarashadha (positions attested to by Shri Oak himself). The angular separation between them is more than 90 degrees.

Now lets look at the situation regarding the position of Saturn, for the year preceding October, 5561BCE

Saturn is retrograde from about October 26, 5562 BCE to March 14, 5561 BCE near Uttaraphalguni, is north of the ecliptic by more than 2 degrees, and **does not cross the ecliptic any time in a two year period.** It executes another proper retro loop from Nov 19, 5561BCE to Apr. 18 ,5560 BCE near Hasta and is about 3 degrees away from the ecliptic. Clearly, Saturn' position 2+ nakshatras away from Vishakha in Oct 5561BCE, does not qualify for "***Vishakhayou sameepasthou***" mentioned in verse 03:26 of Bhisma Parva. Since it is at the end of Hasta, it would have been accurate if the verse had mentioned ***"Hasta sameepasthou***" or "***Chitra sameepasthou"*** but rather unfortunately for the war proposal of 5561BCE, the verse does not mention Chitra or Hasta nakshatra. Hence we must reject this so called "***revolutionary Vakra"*** motion as being in gross contravention of facts.

Similarly, lets look at the situation regarding the position of Jupiter, for the year preceding October, 5561BCE

Jupiter is retrograde from Mar 4, 5561 BCE to July 1, 5561 BCE at Purvashadha and is 1degree north of the ecliptic. **It crosses the ecliptic only on Mar 8, 5560 BCE.** Since it is at Uttarashadha nakshatra, it would have been accurate if the verse had mentioned ***"Uttarashadha sameepasthou***" but rather unfortunately for the war proposal of 5561BCE, the verse does not mention Uttarashadha

nakshatra at all as Jupiter's position. Hence we must reject this so called "***revolutionary Vakra"*** motion as being in gross contravention of facts.

Referring to shloka (VI.3.25) above, ग्रहौ ताम्रारुणशिखौ describes two grahas with coppery red hair.
This can only refer to comets and not planets, only comets have "hair", the word comet itself means hair. (we have discussed all these aspects in detail in the chapter "Comets or Planets")

संवत्सरस्थायिनौ च ग्रहौ, and विशाखयोः समीपस्थौ बृहस्पतिशनैश्चरौ refer to two 'grahas' Brihaspati and Shanaishchara, which are near Vishakha and stay there for nearly a year. Referring to the planetary positions just listed, these cannot refer to Jupiter and Saturn which are at Uttarashadha and Hasta respectively. By no stretch of imagination can they be described as being near to Vishakha.To describe the vakra motion as '***oblique crossing of ecliptic***' simply complicates the matter and has no basis.
Out of the 27 major planetary positions listed by Shri Oak, only a couple of them can be accounted for in 5561 BCE. His theories of ***'pidayan'*** and of '***vakra***' motion cannot be accepted.
Simply stated, 5561 BCE cannot account for the planetary positions described in the epic.

Note by Dr Manish Pandit:

Point 1: Can the Moon ever be Vakri?

If we move further and extrapolate this theory given by Shri Oak to Chandra ie the Moon, then a most problematic situation develops. The Moon (and the Sun) can never be retrograde or Vakri. Neither does any astronomy textbook describe the Moon as Vakri, nor does the Mahabharata do so. However, it is noticed that during every year, the Moon too crosses the ecliptic obliquely just like the planets Jupiter, Saturn, Mars and others. This would mean that if we were to accept that the term "***Vakri"*** seen in the verses described within the Mahabharata was to actually mean " an oblique crossing of the ecliptic", then the absurdity introduced by this theory would be that the Moon too would cross the ecliptic obliquely and become ***Vakri or retrograde.***

Above and beyond all the arguments and flaws posed against Shri Oak's theory of a graha crossing the ecliptic obliquely is the presence of this singular problem with this theory that it renders the Moon Vakri or retrograde. Hence the theory cannot be accepted. It cannot be true.

Point 2: Apart from Brihat Samhita, there is one more way in which a nakshatra (in this case Rohini) can be described as "peedita" or afflicted. This is only described in Sarvatobhadra Chakra. (which is specifically mentioned in the Mahabharata war). This is the method used even today to decide affliction to a specific nakshatra. All other methods use affliction to a Rashi or a sign but nakshatra based affliction is a very special and rigorous condition and it is only fulfilled in 3067BCE. For more details see the chapter on Karna's death.

A Refutation of 5561BCE

Science Reproducible by others	No	Yes
Ad-Hoc hypothesis patchwork	Yes (2 Adhika Masa)	No
Consistency of approach	No	Yes
Exclusion of wrong sub-theories	No	Yes
Theory or Claim falsified	Multiple times	No
Preserves ancient thought	Yes	Yes
Accuracy (Verisimilitude score)	Fails multiple points	Passes multiple points
Left out crucial verses as "conflicting"	Yes	No
Cherrypicking data	Yes	No
Moonphase Data Correct from Mission of Peace to 18th day of war	No	Yes
Accepts astronomy absurdities	Yes +++	No
Corroborates Mission of Peace timeline	No	Yes
Corroborates War timeline	No	Yes
Corroborates Balarama's pilgrimage	No	Yes
Corroborates Astronomy around Karna's Death	No	Yes
Corroborates Bhisma Moksha timeline to Rohini star	No	Yes
Corroborates Bhisma Moksha on 4/5th day after Winter Solstice	No	Yes
Uses Anushashana Parva 153:6 to exclude Bhisma Moksha on day of/1 day after Winter Solstice	No	Yes

Chapter 17

Dr Manish Pandit

Dec 2019

A refutation of 5561BCE as the year of the Mahabharata war

Is the derivation of 5561BCE scientific or not?

One of the tests of the scientific nature of a research is its reproducibility. Is the date of 5561BCE reproducible or not? For the moment let us consider the alleged period between 11091BCE and 4508BCE taken by the various researchers who have considered the date of 5561BCE as being the date of the Mahabharata war.

In this period let us take a period of 100 years on either side of 5561BCE to see whether the verse taken to corroborate the position of Saturn and Jupiter together near Vishakha actually brings us to 5561BCE?

Below is the table for Saturn and Jupiter near Vishakha (Swati or Anuradha accepted too in this context of "Vishakha Sameepasthou" as they are =/- one nakshatra) in the 200 years before and including 5561BCE:

Jupiter Conjunct Saturn Julian Calendar Year	Star at which conjunction occurred	Other combinations given in the epic fit the criteria: Lunar eclipse near Plaeides(Krittika) followed by Solar eclipse near Jyestha (Antares) before the war starts
5607BCE	Satabhisha	NA
5626BCE	Punarvasu	NA
5646BCE	Vishakha	Lunar eclipse Punarvasu Nov 11, Solar eclipse Shravana Nov 25
5667BCE	Dhanistha	NA
5686BCE	Punarvasu	NA
5706BCE	Swati	Lunar Eclipse Aug 17 Ashwini, Solar eclipse next year Jan 26

Jupiter Conjunct Saturn Julian Calendar Year	Star at which conjunction occurred	Other combinations given in the epic fit the criteria: Lunar eclipse near Plaeides(Krittika) followed by Solar eclipse near Jyestha (Antares) before the war starts
6003BCE	Hasta	NA
6024BCE	Purvashadha	NA
6043BCE	Bharani	NA
6063BCE	Uttaraphalguni	NA
6083BCE	Moola	NA

Now that we can see that there is no conjunction of Jupiter and Saturn near Vishakha which fits the criteria given in the epic in the 200 years earlier than 5561BCE, lets see the table for Saturn and Jupiter conjunct near Vishakha (Swati or Anuradha accepted too in this context of "***Vishakha Sameepasthou***" as they are =/- one nakshatra) in the period from 4800BCE to 5561BCE:

Jupiter Conjunct Saturn Julian Calendar Year	Star at which conjunction occurred	Other combinations given in the epic fit the criteria: Lunar eclipse near Plaeides(Krittika) followed by Solar eclipse near Jyestha (Antares) before the war starts
5547BCE	Purvabhadrapada	
5527BCE	Anuradha	Lunar eclipse Purvabhadra Jul 19, Solar eclipse Satabhisha Dec 29 (too late that year)
5507BCE	Ashlesha	NA
5488BCE	Purvabhadrapada	NA
5468BCE	Anuradha	Lunar eclipse Ardra Oct 24, Solar eclipse Purvashadha
5447BCE	Ashlesha/Magha	NA
5428BCE	Uttarabhadra	NA
5408BCE	Jyestha	NA
5388BCE	Magha	NA
5367BCE	Revati	NA
5348BCE	Jyestha/Moola	NA
5328BCE	Purvaphalguni	NA
5309BCE	Ashwini	NA
5289BCE	Moola	NA

Jupiter Conjunct Saturn Julian Calendar Year	Star at which conjunction occurred	Other combinations given in the epic fit the criteria: Lunar eclipse near Plaeides(Krittika) followed by Solar eclipse near Jyestha (Antares) before the war starts
5269BCE	Uttaraphalguni	NA
5249BCE	Ashwini	NA
5230BCE	Purvashadha	NA
5209BCE	Uttaraphalguni	NA
5189BCE	Bharani	NA
5170BCE	Purvashadha	NA
5149BCE	Uttaraphaguni	NA
5130BCE	Krittika	NA
5110BCE	Uttarashadha	NA
5090BCE	Hasta	NA
5070BCE	Krittika	NA
5051BCE	Uttarashadha	NA
5030BCE	Hasta	NA
5011BCE	Rohini	NA
4991BCE	Uttarashadha	NA
4971BCE	Chitra	NA
4951BCE	Mrigasira	NA
4932BCE	Shravana	NA
4811BCE	Chitra	NA
4892BCE	Ardra	NA
4872BCE	Dhanishtha	NA
4852BCE	Swati	Lunar eclipse Ardra Oct 28, Solar eclipse Purvashadha Nov 11
4813BCE	Dhanistha	NA

As you can see, in no year 700 years before and 200 years after 5561BCE and including 5561BCE can Jupiter and Saturn be conjunct near Vishakha except in 5646BCE (conjunction occurs at Vishakha), 5706BCE (conjunction occurs at Swati), 5527BCE/5468BCE (conjunction occurs at Anuradha) and 5852BCE conjunction occurs at Swati). Unfortunately in those five years, the Lunar and solar eclipse also do not fit the criteria. Of course we already know that the verse taken to denote Saturn and Jupiter at Vishakha (03:24 and 03:25) do not refer to them at all because those two planets can never penetrate the fixed stars

Sapatarishis (Ursa Major) which are situated very far away. We have dealt with this in the chapter "Comets or Planets" already.

Thus we can see that Saturn and Jupiter are not conjunct at or near Vishakha (give or take even one nakshatra gap at Swati or Anuradha in the time period shown)

Therefore the date of 5561BCE cannot be reproduced by this method at all.

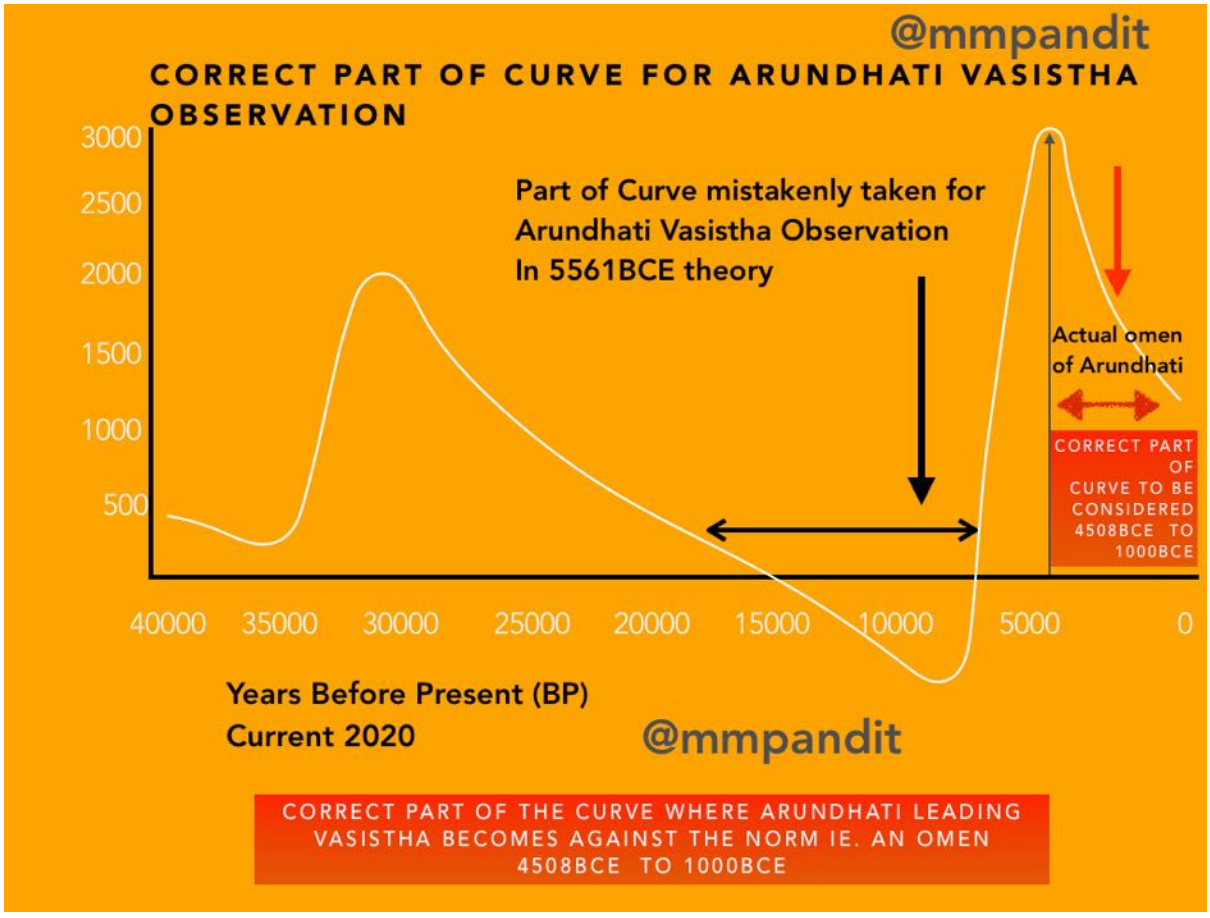
Next, we need to see if we can we reproduce the date of 5561BCE by using the Arundhati Vasistha phenomenon?

The Arundhati Vasistha observation:

The verse in the Mahabharata 02:31 of Bhisma Parva is as below:

या चैषा विश्रुता राजंस्त्रैलोक्ये साधुसंमता ।
अरुन्धती तयाप्येष वसिष्ठः पृष्ठतः कृतः ॥ ०३१ ॥

This is the graph given by Shri Oak in his book "Mystery of Arundhati" which I have modified. The idea is that Arundhati (Alcor) has left her husband Vasistha (Mizar) behind. Shri Oak states in his 2011 book that the AV epoch is 11091BCE



to 4508 BCE and therefore the Mahabharata war must have occurred in this situation. I have reproduced this graph but with my annotations in red and black which explain why Shri Oak/Vartak's theory was mistaken.

Next, let us look at the context of the verse to decide whether this was indeed a permanent astronomy phenomenon running for thousands of years or instead a more temporary phenomenon ie. an omen.

The verses are as follows:

देवताप्रतिमाश्चापि कम्पन्ति च हसन्ति च ।
वमन्ति रुधिरं चास्यैः स्विद्यन्ति प्रपतन्ति च ॥ ०२६ ॥

The murtis of the deities in the temples, tremble, laugh, vomit blood from their mouth and then sweat profusely and fall down.

अनाहता दुन्दुभयः प्रणदन्ति विशां पते ।

अयुक्ताश्च प्रवर्तन्ते क्षत्रियाणां महारथाः ॥ ०२७ ॥

A sound of drumming is heard but nobody is playing the drums,

the chariots start moving despite having no animals yoked to them.

कोकिलाः शतपत्राश्च चाषा भासाः शुकास्तथा ।
सारसाश्च मयूराश्च वाचो मुञ्चन्ति दारुणाः ॥ ०२८ ॥

The kokilas, woodpeckers, parrots, swans and peacocks utter cruel cries.

गृहीतशस्त्राभरणा वर्मिणो वाजिपृष्ठगाः ।
अरुणोदयेषु दृश्यन्ते शतशः शलभव्रजाः ॥ ०२९ ॥

Soldiers ride on the back of their horses with their armour and weapons.

Swarms of locusts are seen at or just before sunrise.

उभे संध्ये प्रकाशेते दिशां दाहसमन्विते ।
आसीद्रुधिरवर्षं च अस्थिवर्षं च भारत ॥ ०३० ॥

All four cardinal directions were burning along with both twilights and it was raining blood and bones.

It is in the midst of these verses suggesting omens of doom does the verse 02:31 arrive which deals with Arundhati who has left her husband Vasistha behind.

Verse 02:32 below is also an omen of doom and deals with yet another astronomy based position, this one is one of the verses saying that Saturn is causing peeda to Rohini or Aldebaran. The important thing to note from the viewpoint of astronomy is that the Jyotish based inference is exactly the same as the astronomy based inference. This is because the verse does not mention the the "peeda" or affliction is being caused to any Rashi (sign) but instead talks about the "peeda" being caused to a nakshatra (fixed star) only. This sort of Nakshatra based "peeda" finds specific mention in the Brihat Samhita of Varahamihira where he states that Saturn or the Sun **must occupy** a nakshatra to afflict it (cause peeda).

A similar inference follows if one checks the Sarvatobhadra chakra (which again refers to peeda to specific nakshatras) and this chakra can be proven to be in use during the Mahabharata war.

Now that this point has been clarified, it is also important to know the second point about this verse and that is that Saturn does not stay in Rohini nakshtra for more than a year at a time. Hence this is definitely a temporary phenomenon. This becomes even more clear when the second part of this verse is looked into: "the hare mark on the Moon has disappeared and indicates great danger or fear." This second observation gives us another indication that these are very temporary phenomena but in addition there is for the first time, an indication as

to the reason for the what is now known to be only temporary: ie. a reversal in the positions of Arundhati and Vasistha.

रोहिणीं पीडयन्नेष स्थितो राजञ्शनैश्चरः ।
व्यावृत्तं लक्ष्म सोमस्य भविष्यति महद्भयम् ॥ ०३२ ॥

It can be definitely understood now that all these observations are not permanent phenomena, in particular, the murtis of the deities in the temples, trembling, laughing, vomiting blood from their mouth and sweating and falling down, the swarms of locusts are seen at or just before sunrise, the hare mark on the Moon disappearing and the raining of blood and bones are in particular omens which are short term in nature. Saturn's motion at Aldebaran/ Rohini is also short term and would not last much more than a year. Therefore we can now be quite certain that the context of the Arundhati Vasistha reference is that of an **omen**. It cannot be anything more than that.

In addition, the disappearance of the hare mark on the Moon is something which indicates that the atmospheric conditions have changed. There are indications elsewhere in the Mahabharata text of meteors hitting the earth and that may well suggest this to be a reason for the hare mark on the Moon being hidden. It is to be noted that Alcor (Arundhati) is of lesser visibility magnitude that Vasistha (Mizar) and so the change in the refractive index of the atmosphere is something which has now resulted in the reduction of the visibility of Arundhati and hence she is no longer visible. However, this latter would require a somewhat different translation of the verse suggested by Shri Oak. Monier-Williams and Apte both confirm that one of the meanings of the term " पष्ठृ तः कृ " can mean to abandon something or somebody.

Thus the verse could indicate that Arundhati has abandoned Vasistha because she is no longer visible. D Koch also confirms exactly such an idea in his thesis.

Hence we can be sure that the Arundhati Vasistha phenomenon is not something which is a long term observation but instead quite temporary in nature. It can thus be considered as an **omen.**

What about the epoch of Arundhati itself?

Can this period of 11091BCE to 4508BCE really be called an epoch? Let us examine this claim further. The problem with the observation of Arundhati leading Vasistha in the time period mentioned above is that this is happening for approximately 5500 years prior to the said proposed date of the Mahabharata war at 5561BCE and around a 1000 years afterward as well. This leads to the obvious question: "How can this observation qualify as an omen in the time period of 11091BCE to 4508BCE where this is happening for approximately 5500 years already?"

What point and which period therefore would the Arundhati Vasistha observation count as an omen?

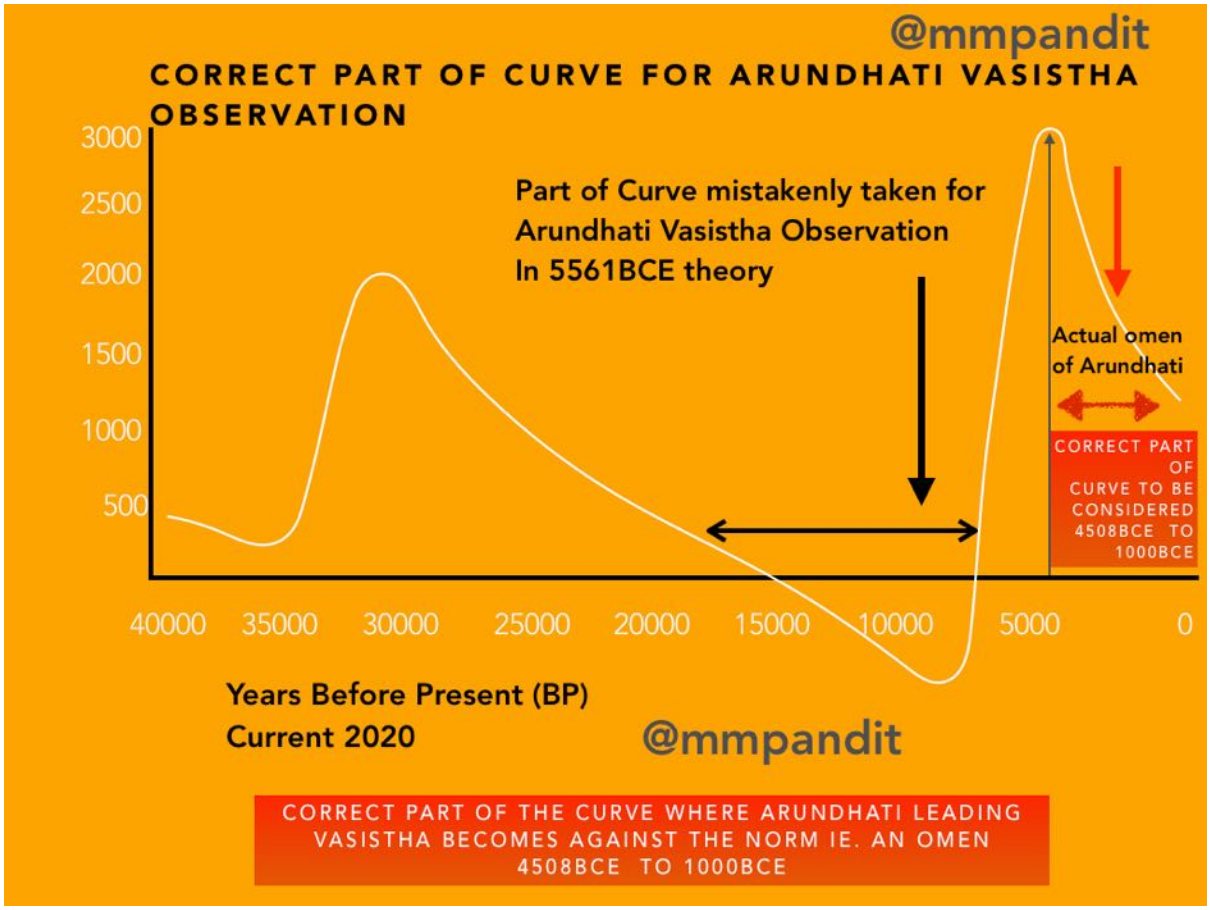
One possibility for the Arundhati Vasistha observation to qualify for an omen is the point in 11091BCE when one can say that AV observation changes… and that's when the change triggers an omen. However, this point at 11091BCE is an impossibility from all points of view as a even remotely plausible date for the Mahabharata war and therefore has to be rejected. Lets move further into the crux of the matter.

The observation, as we know, cannot therefore qualify as an omen in 5561 BCE either, because, in 5561 BCE, she is still leading Vasishtha, but the amount by which she leads is decreasing. For some five thousand and five hundred years, Arundhati is leading Vasistha, not following her.

It is only when one comes to the time interval between 4508BCE and 1000BCE where such an observation as given in verse 02:31 of Bhisma Parva is away from the norm as it in this period that Vasistha/ Mizar leads Alcor /Arundhati and this is the place when the reversal would appear out of the norm and count as an **omen.** Hence we can now formulate the modified Arundhati Vasistha theory as below. This supports our theory that the war occurred in 3067BCE.

Modified Theory of Arundhati Vasistha:

It is only when one comes to the time interval between 4508BCE and 1000BCE where Arundhati leading Vasistha is away from the norm when the Arundhati Vasistha phenomenon counts as an omen. Hence the Mahabharata war cannot occur outside this time period of 4508BCE and 1000BCE.



Next we need to see if there are any exceptions to the Arundhati Vasistha Phenomenon as defined by the 5561BCE theory occurring outside the period of 11091BCE to 4508BCE.

Examples of the AV observation occurring outside the 11091BCE- 4508BCE time period:

If we take one of the other alternative meanings of the word " पष्ठ तः कृ ", as confirmed by Monier-Williams and Apte, as to carry on the back, then the Arundhati Vasistha observation can be seen to occur in 1067BCE, 2067BCE and finally also in 3067BBCE which is our year of the war. Moreover, here Alcor (Arundhati) carries Vasistha (Mizar) on her back through a significant portion of the night which can be regarded as against Dharma.

Position of Pluto:

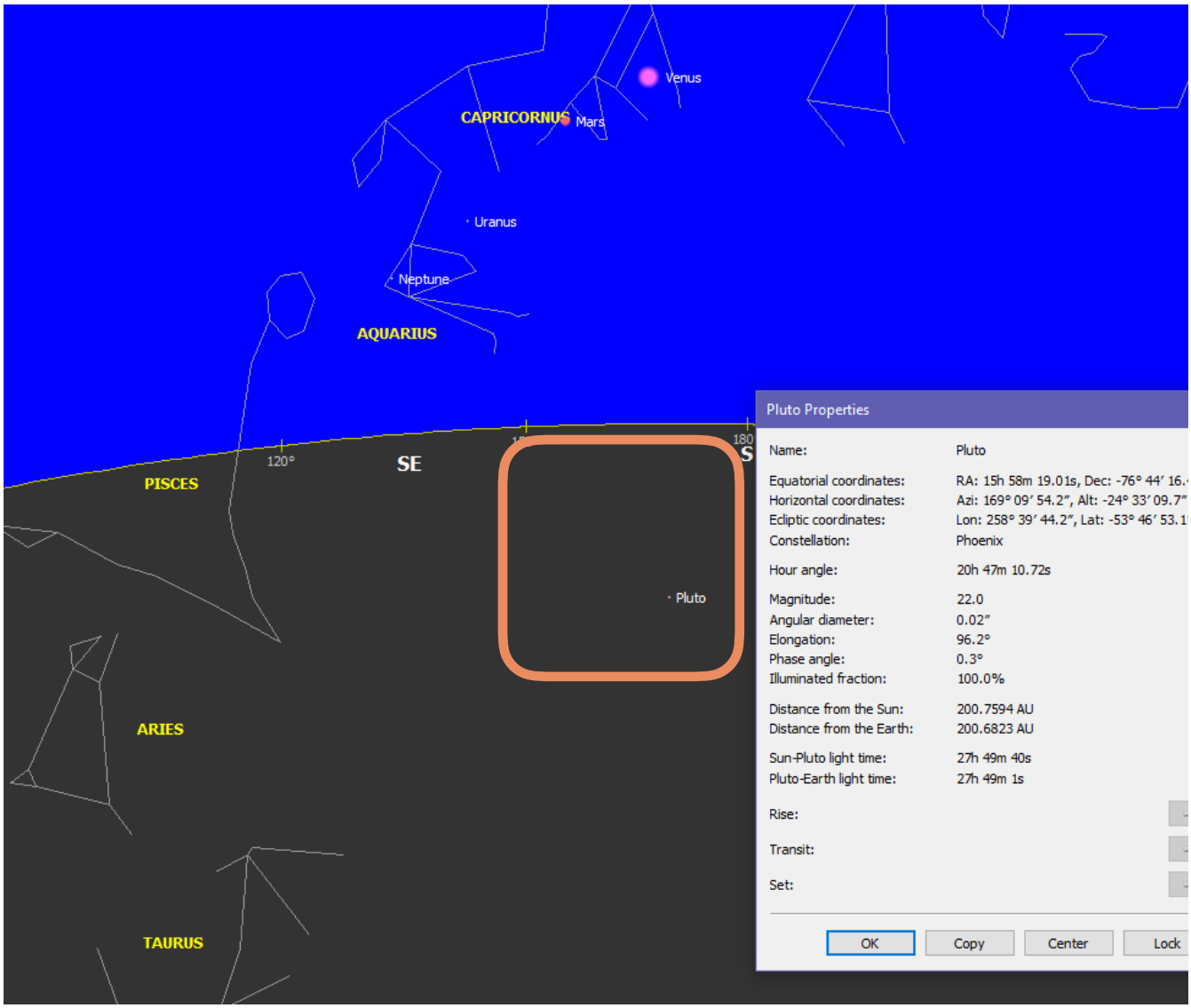
One of the planetary positions envisaged in 5561BCE is that in the verse below:

krttikasu grahastivro naksatre prathame jvalan/
vapumsyapaharan bhasa dhumaketur iva sthitah MB(VI. 3. 26)

“The graha **Tivra** which is **jvalan**/blazing in the first constellation Krttika, and concealing their forms with lustre/ robbing them of their lustre resembles a comet/**Dhumaketu**."

Shri Oak/ Vartak have speculated as to this Tivra graha at Krittika to refer to Pluto. Our criticism is based not on the problem of Pluto's visibility (which would be a problem even with telescopes) instead we take issue with the fact that Pluto cannot actually be visualised anywhere near Krittika nakshatra where it is supposed to be according to this verse.

It is to be noted that Krittika nakshatra runs from 26 deg 40 of Aries to 10 degrees of Taurus in terms of the Rashi zodiac (which we are using only to explain the position of Krittika with regards to the sky). Can we confirm that in 5561BCE, Pluto was indeed at Krittika nakshatra or was it actually somewhere else?



Here is a sky map for Pluto's actual position in 5561BCE. Pluto is actually in Revati, a distance of 2+ nakshatras away from Krittika.

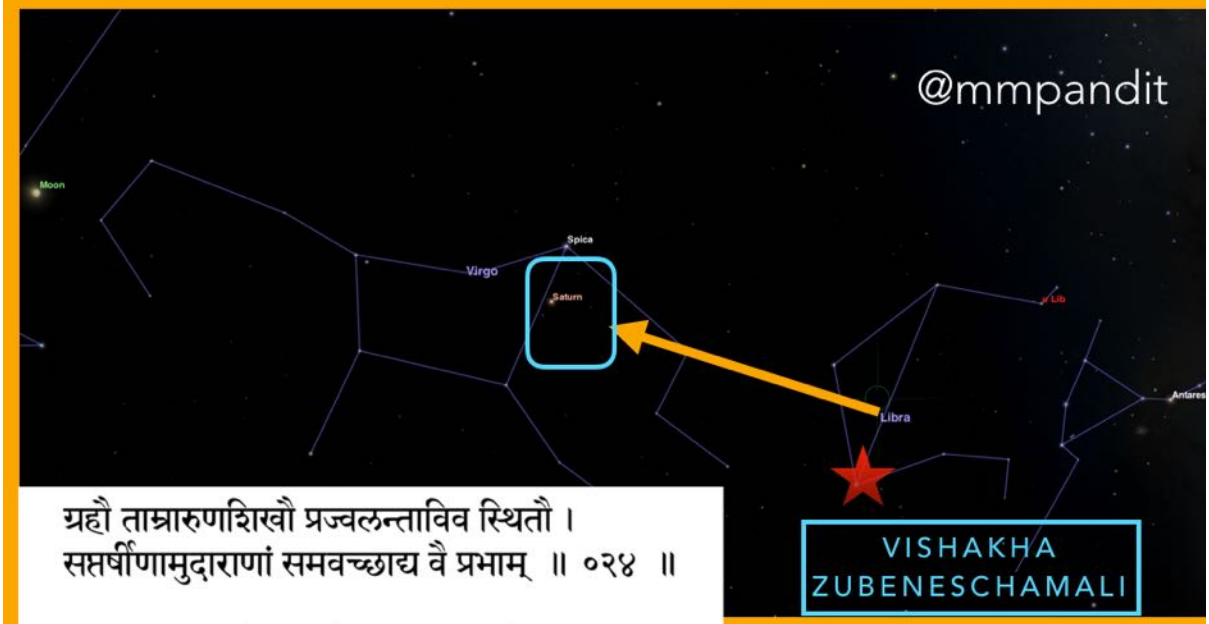
To make it somewhat clearer for beginners in astronomy, I chart the position of Pluto using Swiss Ephemeris of JHora on Oct 16th -5560 (5561BCE): It becomes clear that Pluto is in 21 degrees of Revati nakshatra and more than 30 degrees away from the start of Krittika nakshatra. Moreover, it becomes exceedingly difficult to envisage that Pluto, which can only barely be seen with telescopes could rob the Plaeides stars of their light. Thus this planetary position of 5561BCE also fails. This chart below also illustrates the problem with Jupiter and Saturn's position in 5561BCE which are 55 degrees and 25 degrees away from where they should be (ie. Jupiter 55 degrees away from end of Vishakha and Saturn 25 degrees away from start of Vishakha).

Body	Longitude	Nakshatra
Lagna	28 Aq 09' 40.45"	PBha
Sun - DK	3 Sg 43' 37.51"	Mool
Moon - MK	24 Sc 16' 54.87"	Jye
Mars - AmK	28 Cp 13' 09.98"	Dhan
Mercury - PK	13 Sg 19' 08.19"	Mool
Jupiter - AK	28 Sg 14' 06.82"	USha
Venus - PiK	20 Cp 53' 56.82"	Srav
Saturn - BK	25 Vi 53' 50.96"	Chit
Rahu - GK	20 Sg 15' 53.59"	PSha
Ketu	20 Ge 15' 53.59"	Puna
Uranus	1 Aq 34' 43.04"	Dhan
Neptune	21 Aq 48' 03.97"	PBha
Pluto (R)	21 Pi 17' 05.25"	Reva
Maandi	4 Cp 00' 42.54"	USha
Gulika	23 Sg 53' 33.32"	PSha
Bhava Lagna	12 Pi 14' 08.14"	UBha
Hora Lagna	21 Ge 01' 30.62"	Puna
Ghati Lagna	17 Ar 23' 38.06"	Bhar
Vighati Lagna	29 Ta 14' 15.25"	Mrig
Varnada Lagna	28 Ta 09' 40.45"	Mrig
Sree Lagna	23 Vi 46' 22.01"	Chit
Pranapada Lagn	20 Vi 24' 07.00"	Chit

Natal Chart:

Date:	October 16, -5560
Time:	12:48:57
Time Zone:	5:30:00 (East of GMT)
Place:	76 E 49' 00", 29 N 59' 00"

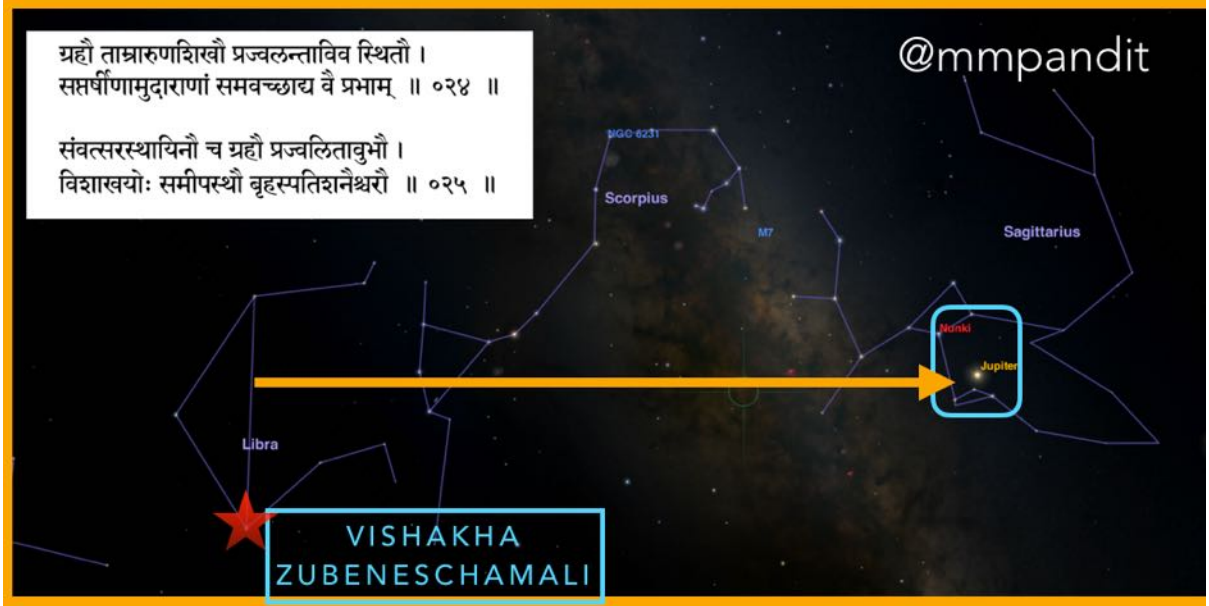
IN 5561BCE "NEAR VISHAKHA" IS EQUAL TO SATURN
25 DEGREES AWAY FROM VISHAKHA, NEARLY 1 RASHI AWAY



ग्रहौ ताम्रारुणशिखौ प्रज्वलन्ताविव स्थितौ ।
सप्तर्षीणामुदाराणां समवच्छाद्य वै प्रभाम् ॥ ०२४ ॥

संवत्सरस्थायिनौ च ग्रहौ प्रज्वलितावुभौ ।
विशाखयोः समीपस्थौ बृहस्पतिशनैश्चरौ ॥ ०२५ ॥

IN 5561BCE "NEAR VISHAKHA" IS EQUAL TO JUPITER
55 DEGREES AWAY FROM VISHAKHA, NEARLY 2 RASHI AWAY



What about Saturn and Jupiter? Even if we assume that the two grahas referred to in verse 03:24 and 03:25 are actually Saturn and Jupiter, are they actually near Vishakha as the verse says?

If we assume that Saturn and Jupiter are near Vishakha, as per verse 03:25, then what does "near Vishakha" mean? In 5561BCE, Saturn is nearly 25 degrees away from Vishakha, which begs the question, if 25 degrees away from the beginning of Vishakha qualified as "***Vishakha Sameepasthou*****"** then wouldn't Vyasa have said ***Hasta or Chitra Sameepasthou ie.*** near Hasta/Chitra instead?

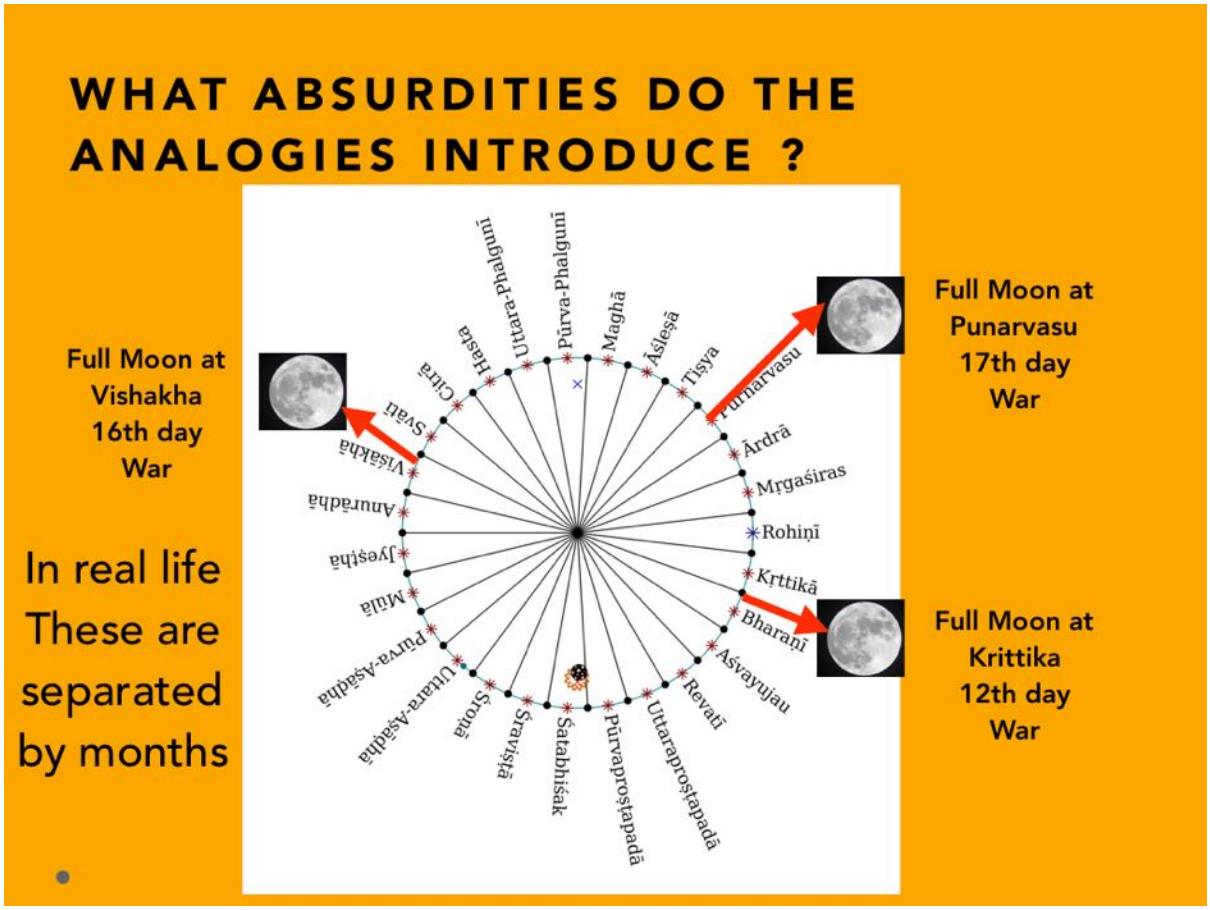
In fact, the story does not end there. Jupiter is nearly 55 degrees away from Vishakha, in Uttarashadha, which begs the question, why would Vyasa have said "***Vishakha Sameepasthou*****"** would he not have instead said: ***Uttarashadha Sameepasthou ie.*** near Uttarashadha instead? Thus neither Saturn, nor Jupiter are corroborated in 5561BCE.

The problem of starting the war on an Amavasya in 5561BCE:

The key problem with starting the war on an Amavasya is that verse 159:42 of Drona Parva makes this an impossibility as the 14th war night waning phase Moonrise in the Eastern part of the sky as illustrated in the chapter on Moonrise data elsewhere in this book cannot be wished away.

Shri Oak/Vartak's theory lands up in even greater difficulties when they try to explain this Amavasya start away by the adoption of Moonphase analogies on the last seven days of the war which persist for at least a few days even after the war. This gives rise to the rather unique problem of the introduction of absurdities such as a Kartika Purnima on the 12th day of the war followed by a Vishakha Purnima on day 16 followed by a Punarvasu Purnima on the 17th war day.

There are 12 (or 13) Purnimas or full moon days in a year. These are separated by around a month and each of these full Moons occurs at various points around the zodiac. Readers from India will easily envisage the impossibility of finding at least three Purnimas (full Moon days at specific stars in the sky) which are normally many months apart in real life, all suddenly occurring in the last seven



days of the war. This makes life incredibly difficult if not untenable for the 5561BCE theory which envisages the Mahabharata war starting on a New Moon day (Amavasya).

We illustrate the problem of why the Mahabharata war cannot start on an Amavasya in a short film which can be seen free here:

https://www.youtube.com/watch?v=fIG86YqfK-E

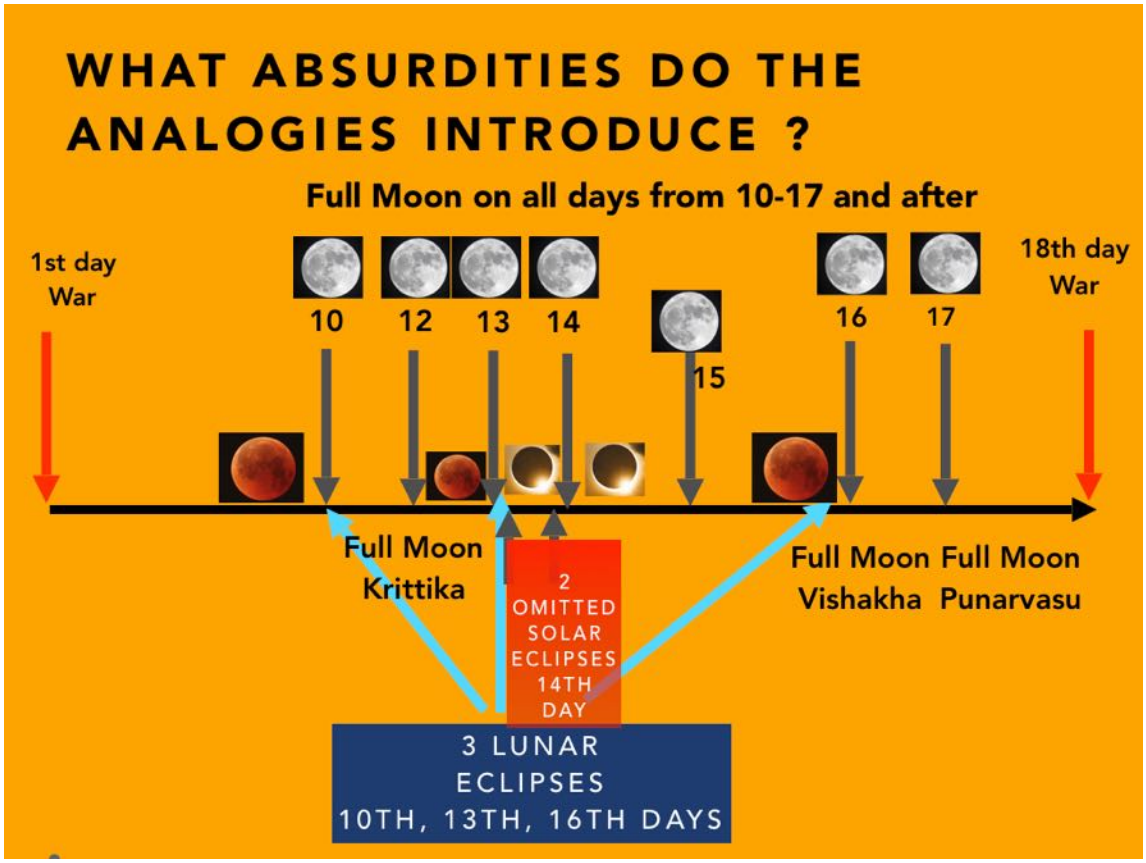
In a nutshell, the effort to corroborate the Amavasya start to the war in 5561BCE leads to an unfortunate disaster for this theory where faces of warriors and canopies of chariots are produced as Moonphase references. Even more problematic is the claim that it is difficult to tell a full Moon apart from a Moonphase upto and including three days before and after that the full Moon.

In India, every Tithi is linked to a specific Vrat or festival and to say that the ancients could not realise exactly which Tithi (and by extension Moonphase) was going on every day is simply untrue. If we accept Sri Oak/ Vartak's theory of 5561BCE, then by extension, we are also forced to accept that a full moon

occurred on days 12 to 17 of the war and afterwards. Is this even remotely possible?

Thus the real life separation of Kartika Purnima, Vaishakha Purnima and Punarvasu Purnima which is many months in real life is now reduced to mere days by this theory and shown in the slide above.

Even more unfortunate for this theory is the fact that if we believe this theory of Moonphase analogies, then there are at least three lunar eclipses introduced as below on the 10th, 13th and 16th days and even two solar eclipses on the 14th war day for 5561BCE. This is explained completely in the chapter on Moonphases and on the chapter on Moonrise.



It is an important point that nowhere in India will you find Trayodashi (13th Moonphase Tithi) being mistaken for a Purnima or full Moon.

Similarly, you wont find Krishna Dwiteeya being mistaken for a full Moon either, hence the argument that the Moon unto 5 days before and after Purnima retains unto 93% of the brightness becomes irrelevant. While many of the problematic Moonphase analogies are reproduced elsewhere within this book in

VERSES WRONGLY TAKEN IN 5561 BCE BY NILESH OAK TO IMPLY FULL MOON PHASE DATA DURING WAR: PART 1

Taken as proof for 5561 BCE	Parva Verse number Critical Edition CE	Verse Description CE	Additional absurdity Yes/No	Actual Observation of Moon/sky Yes/No	Critical Examination = Rejection
✓	*Drona Parva 15:52*	Analogy of canopy of Bhagadatta to the Full Moon near Krittika (12th day)	Yes Full Moon at Krittika during Mahabharata war	None	Analogy does not Qualify as True Moon phase Data
✓	*Drona Parva 48:16*	Analogy of the fallen Abhimanyu to an eclipsed Moon (13th day)	Yes Taken to imply eclipse 2 days later	None	Analogy does not Qualify as True Moon phase Data
✓	*Drona Parva 48:16*	Analogy of the fallen Abhimanyu to an eclipsed Moon (13th day)	Yes Taken to imply eclipse 2 days later	None	Analogy does not Qualify as True Moon phase Data
✓	*Drona Parva 48:22*	Analogy of the fallen Abhimanyu to a full Moon, battlefield to stars in sky (13th day)	No	None	Analogy does not Qualify as True Moon phase Data
✓	*Karna Parva 08:03*	Analogy of the fallen heroes to a full Moon (16th day)	Yes Next verse quotes half a Moon analogy (Asthami Chandra)	None	Analogy does not Qualify as True Moon phase Data
✓	*Karna Parva 35.11*	Analogy of fallen Vivitsu to the full Moon (17th day)	No	None	Analogy does not Qualify as True Moon phase Data
✓	*Karna Parva 43.39*	Analogy of fallen Karna's face to the full Moon (17th day)	Yes verses above and below make additional analogies	None	Analogy does not Qualify as True Moon phase Data
✓	*Karna Parva 67.24*	Analogy of fallen Karna's face to the full Moon (17th day) Gita Press	Yes verses above make different analogies	None	Analogy does not Qualify as True Moon phase Data
✓	*Karna Parva 12.04*	Analogy of killed Kaurava warriors to the Full Moon	No	None	Analogy does not Qualify as True Moon phase Data
✓	*Karna Parva 19.28*	Analogy of killed Kaurava warriors to the Full Moon earrings to stars	No	None	Analogy does not Qualify as True Moon phase Data
✓	*Shalya Parva 64.06*	Analogy of killed Duryodhana to a Full Moon	Yes verses above make additional different analogies	None	Analogy does not Qualify as True Moon phase Data
✓	*Strii Parva 23.04*	Analogy of face of a fallen Shalya Raja to the Full Moon	Yes verses below make additional different analogies	None	Analogy does not Qualify as True Moon phase Data
✓	*Strii Parva 22.06*	Analogy of face of a fallen Balhik Raja to the Full Moon	No	None	Analogy does not Qualify as True Moon phase Data
✓	*Bhisma Parva 93.30-31*	Analogy of Duryodhan with servants with lamps going to meet Bhisma (8th day)	Yes Taken to be first appearance/ description of Moon during war	None	Analogy does not Qualify as True Moon phase Data
✓	*Bhisma Parva 106.35*	Analogy of Arjuna troubling Dushasana with an angry Rahu troubling the full Moon (10th day)	Yes (see paper)	None	Analogy does not Qualify as True Moon phase Data or eclipse
	Total 15 references all wrongly attributed in 5561 BCE to True Observations of Full Moon etc	Not one verse is a True Observation showing Full Moon data in 5561 BCE during war.		0	Rejected all above references as all are mere Analogies not true Observations

a separate chapter, I reproduce these analogies in three tables for the perusal of

5561BCE ERROR ELIMINATION FAILURES: PART 2: MOON PHASE DATA

Error Elimination Experiment Number	What meaning the researcher (Nilesh Oak) took of the MBH Verse and what it actually turns out to be	Cause of Failure	Error Defined? Or Eliminated?	Rejected
Experiment 35 (pp 102)	Oak takes analogy of Satyaki and Abhimanyu in one chariot on 3rd day of the war to mean Sun and the Moon seen on past Amavasya	Its an Analogy only, no true observation of the sky was actually done in this verse again.	No error defined and hence none eliminated. Researcher bias error introduced.	Rejected
Experiment 36 (pp 103)	"First eleven days of the war" See 15 verses in Multiple references of the war as shown in Table: "Verses wrongly Taken in 5561 BCE by Nilesh Oak to imply Full Moon Phase Data during war: Part 1"	15 verses together with Exp 38 taken mistakenly to mean Moon phase data observations during the war when they are in actual fact all ONLY analogies and not true Astronomy Observations. Absurdities not detected. Cherrypicking data.	No error defined and hence none eliminated. Researcher bias error introduced.	Rejected
Experiment 37 (pp104)	"Moon rising with its pointed heads down" 10th day of the war.	Does not even try to explain this one of two true observations in the 18 days of the war of a Moon rise. Data clearly points to Krishna Paksha waning half Moon rise but he still thinks its Shukla Paksha.	No error defined and hence none eliminated. Researcher bias error introduced.	Rejected.
Experiment 38 (pp 105)	"Moon appearing like the Full Moon in last 7 days of the war" See 15 verses in Multiple references of the war as shown in Table: "Verses wrongly Taken in 5561 BCE by Nilesh Oak to imply Full Moon Phase Data during war: Part 1"	15 verses together with Exp 36 taken to mean Full Moon observances and even a lunar eclipse near the 13/14/15th day of the war when they are in actual fact all ONLY analogies and not true Astronomy Observations. Absurdities not detected. Cherrypicking data.	No error defined and hence none eliminated. Researcher bias error introduced.	Rejected

5561BCE ERROR ELIMINATION FAILURES: PART 3: MOON PHASE DATA BY @MMPANDIT

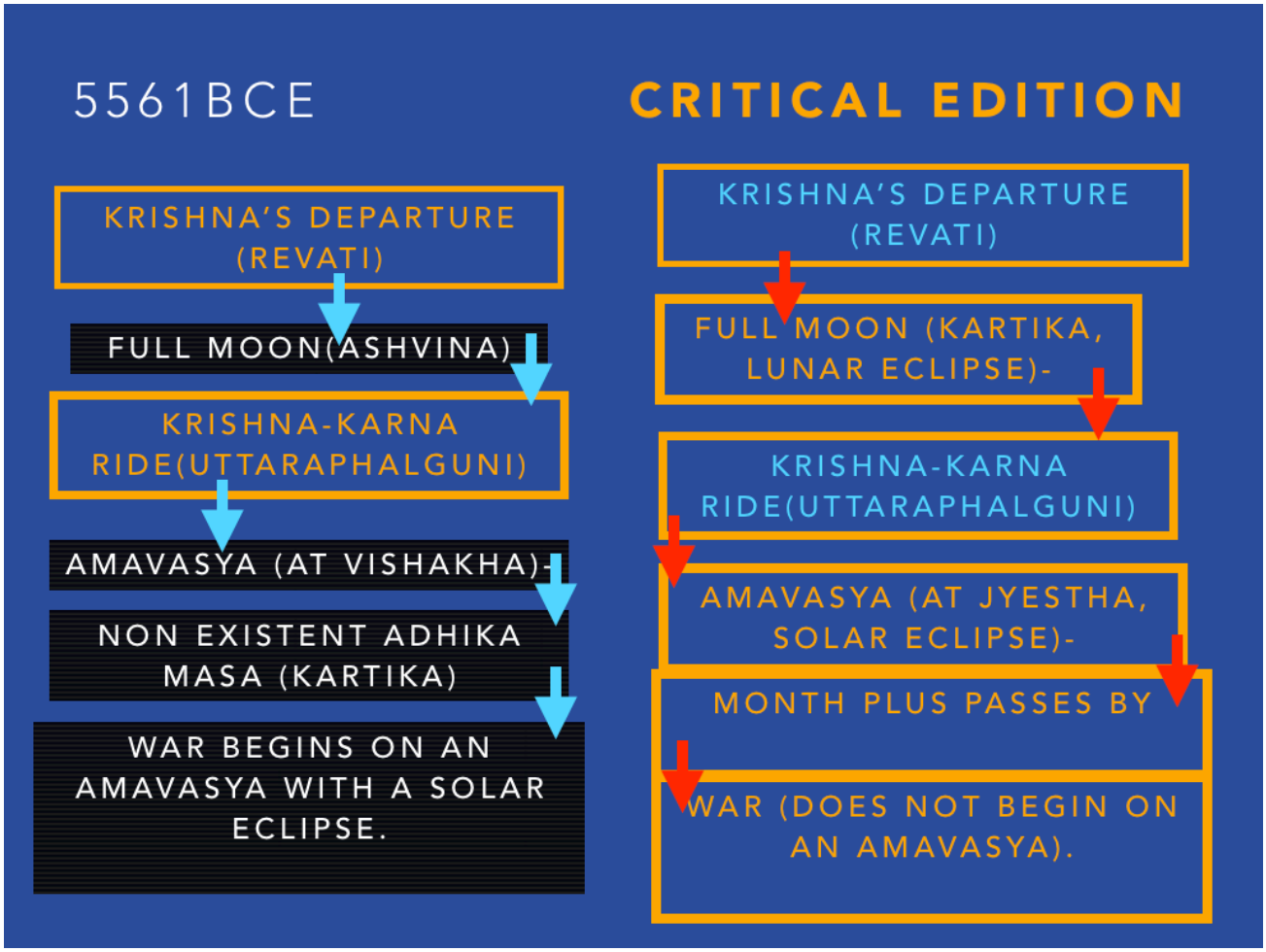
Error Elimination Experiment Number	What meaning the researcher (Nilesh Oak) took of the MBH Verse and what it actually turns out to be	Cause of Failure	Error Defined? Or Eliminated?	Rejected
Experiment 39 (pp 106/7)	Oak takes an analogy of the canopy of the chariot of Bhagadatta on the 12th day of the war to mean observation of the full Moon when in actual fact the verse only points to an analogy. Full Moon even in 5561BCE timeline is still 3 days away by the way.	The Full Moon in Oak's timeline is 3 days away so it cannot fit the timeline anyway. This is an Analogy only, no true observation of the sky was actually done on scrutiny of this verse again.	No error defined and hence none eliminated. Researcher bias error introduced.	Rejected
Experiment 40 (pp 107-108)	Pandyaraj, falls on the 16th day of the war and his face is compared to the Full Moon. It also says that Pandyaraj looks like the "Moon between Two Vishakhas". Since Voyager simulation shows his Moon to be at Punarvasu, Oak believes that "Vishakha" Nakshatra refers to branches of "Punarvasu"	This is an analogy only. Absurdity of Vishakha Nakshatra Full Moon being referred to as Punarvasu 100+ degrees away and seen during Mahabharata war. Analogy only in any case but introduces absurdity. This full Moon is actually way away like Chaitra Full moon in EE 38 (King Neela on day 12)	No error defined and hence none eliminated. Researcher bias error introduced.	Rejected
Experiment 42 (pp109)	On the 17th day of the war, two Panchal warriors are behind King Yudhisthira and are compared to Two Punarvasus protecting the Moon. Having said that Vishakha means Punarvasu in the previous experiment 40, Oak now says that Punarvasu is also Punarvasu. Another conjecture introduced.	Vishakha is taken to be branches of Punarvasu in EE 40 and now, so is Punarvasu. Every Nakshatra merges into any other. Its only an analogy and not an observation of the sky in any case.	No error defined and hence none eliminated. Researcher bias error introduced.	Rejected.
Experiment 43 (pp 110)	On the 17th day of the war, Yudhisthira's injury from arrows are treated and removed. The text compares a happy Yudhisthira to the full Moon having come out of an eclipse. Oak takes the 17th day verse to mean that his timeline of the lunar eclipse on the 15th day is corroborated.	This is all ONLY an analogy and not a true Astronomy Observation. An absurdity is introduced here of a 17th day analogy taken to retrofit a 15th day lunar eclipse in the 5561BCE timeline.	No error defined and hence none eliminated. Researcher bias error introduced.	Rejected

The 3rd Error Elimination experiment failure list has been compiled by @mmpandit on Twitter

Previous EE failures for 5561BCE can be seen on astronomyofindia.wordpress.com

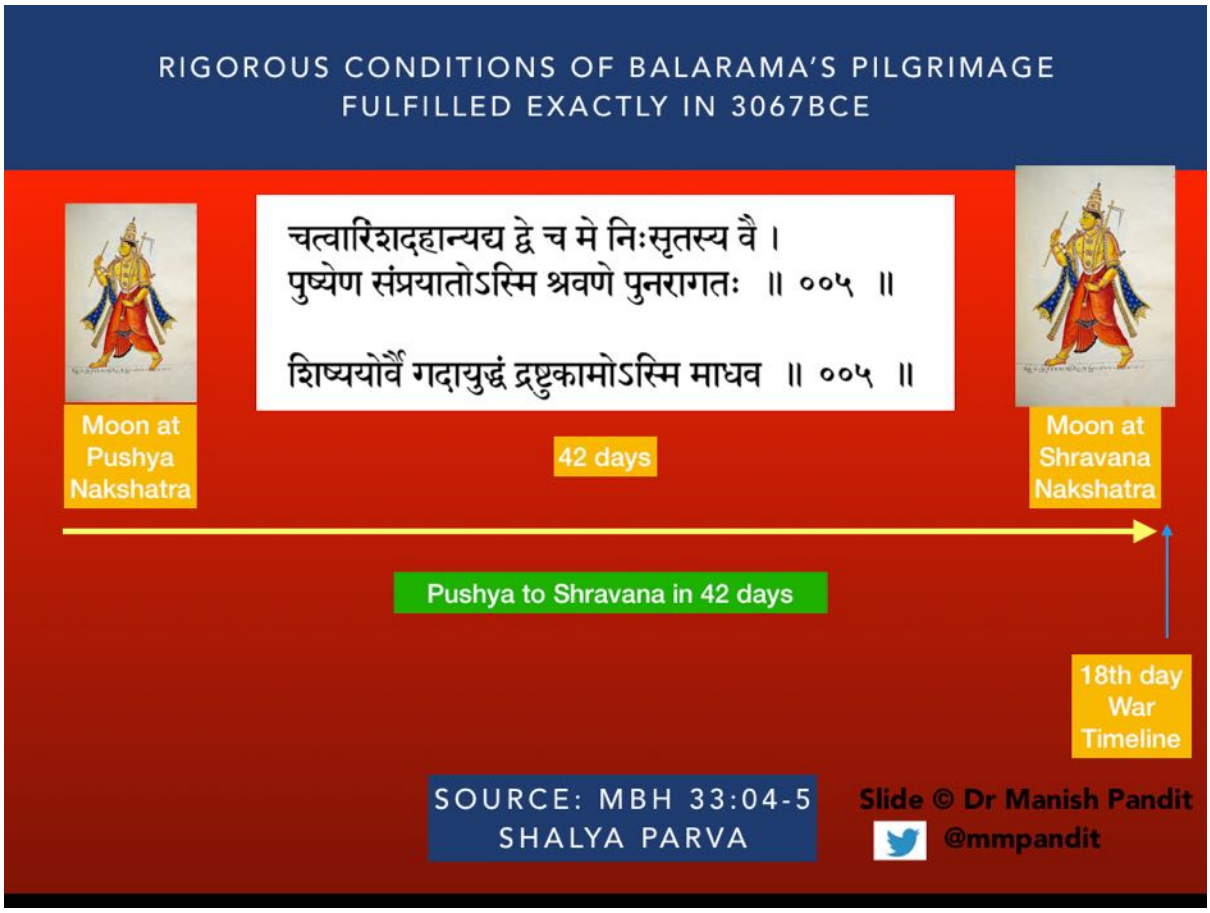
readers.

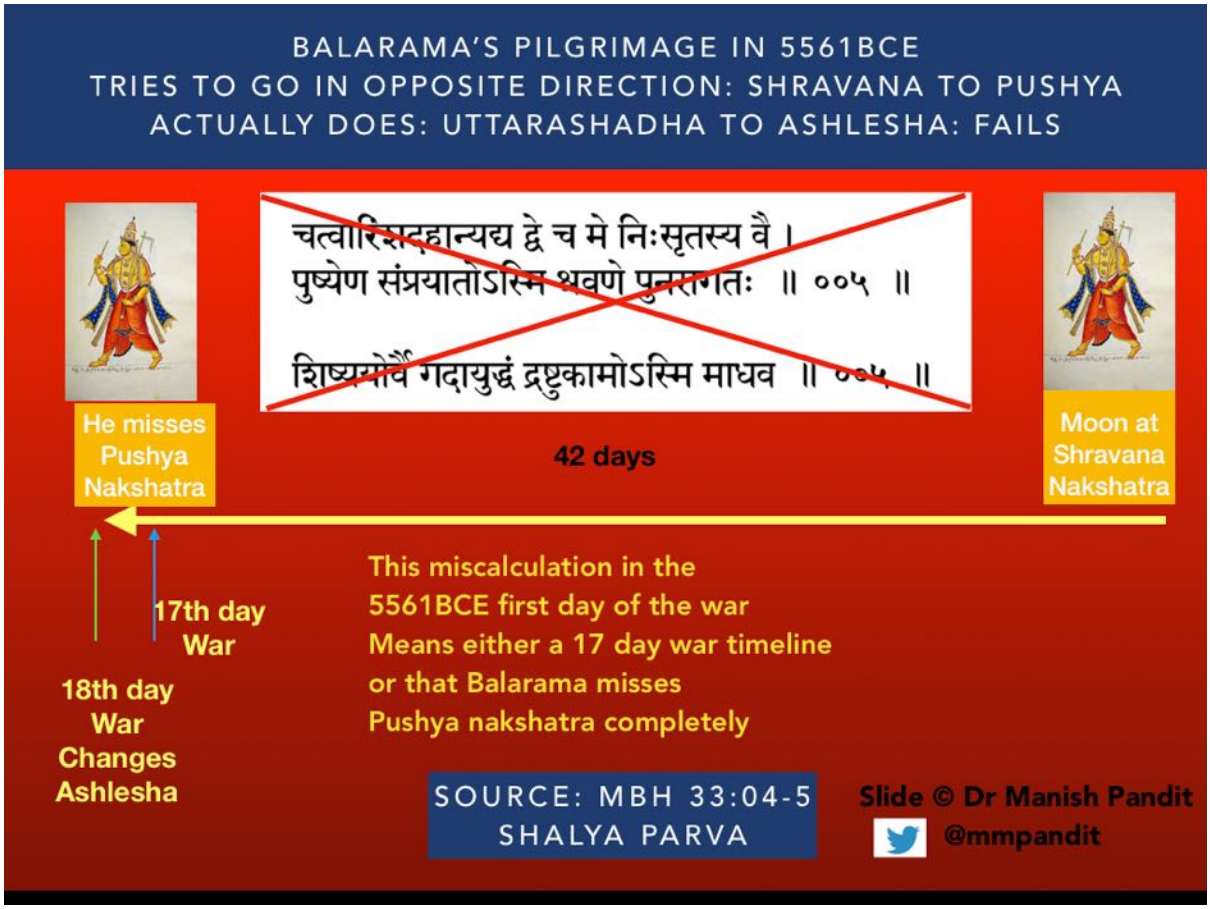
Next, I present the basic differences between Krishna's Diplomatic Mission of Peace the way it is supposed to be in the text of the Mahabharata and the mistakes in 5561BCE.



Next we look at the rigorous conditions of Balarama's pilgrimage (fulfilled exactly in 3067BCE) and how they are failed in 5561BCE.

https://www.youtube.com/watch?v=mLceUJnXydg


RIGOROUS CONDITIONS OF BALARAMA'S PILGRIMAGE
FULFILLED EXACTLY IN 3067BCE
चत्वारिंशदहान्यद्य द्वे च मे निःसृतस्य वै ।
पुष्येण संप्रयातोऽस्मि श्रवणे पुनरागतः ॥ ००५ ॥
शिष्ययोर्वै गदायुद्धं द्रष्टुकामोऽस्मि माधव ॥ ००५ ॥
Moon at Pushya Nakshatra
42 days
Moon at Shravana Nakshatra
Pushya to Shravana in 42 days
18th day War Timeline
SOURCE: MBH 33:04-5
SHALYA PARVA
Slide © Dr Manish Pandit
@mmpandit


BALARAMA'S PILGRIMAGE IN 5561BCE
TRIES TO GO IN OPPOSITE DIRECTION: SHRAVANA TO PUSHYA
ACTUALLY DOES: UTTARASHADHA TO ASHLESHA: FAILS
चत्वारिंशदहान्यद्य द्वे च मे निःसृतस्य वै ।
पुष्येण संप्रयातोऽस्मि श्रवणे पुनरागतः ॥ ००५ ॥
शिष्ययोर्वै गदायुद्धं द्रष्टुकामोऽस्मि माधव ॥ ००५ ॥
He misses Pushya Nakshatra
42 days
Moon at Shravana Nakshatra
17th day War
18th day War Changes Ashlesha
This miscalculation in the
5561BCE first day of the war
Means either a 17 day war timeline
or that Balarama misses
Pushya nakshatra completely
SOURCE: MBH 33:04-5
SHALYA PARVA
Slide © Dr Manish Pandit
@mmpandit

A table charting the various mistakes occurring in the 5561BCE war proposal and the correct theory applied in the modified 3067BCE proposal:

5561BCE VS 3067BCE: CRITERIA PASSED AND FAILED

Criteria	5561BCE	Modified 3067BCE
Theory present	Yes	Yes
Include all MBH text evidence	Yes	Yes
Correct inferences from MBH text evidence	No	Yes
Science Reproducible by others	No	Yes
Ad-Hoc hypothesis patchwork	Yes (2 Adhika Masa)	No
Consistency of approach	No	Yes
Exclusion of wrong sub-theories	No	Yes
Theory or Claim refuted	Multiple times	No
Preserves ancient thought	Yes	Yes
Accuracy (Verisimilitude score)	Fails multiple points	Passes multiple points
Left out crucial verses as "conflicting"	Yes	No
Cherrypicking data	Yes	No
Moonphase Data Correct from Mission of Peace to 18th day of war	No	Yes
Accepts astronomy absurdities	Yes +++	No
Corroborates Mission of Peace timeline	No	Yes
Corroborates War timeline	No	Yes
Corroborates Balarama's pilgrimage	No	Yes
Corroborates Astronomy around Karna's Death	No	Yes
Corroborates Bhisma Moksha timeline to Rohini star	No	Yes
Corroborates Bhisma Moksha on 4/5th day after Winter Solstice	No	Yes
Uses Anushashana Parva 153:6 to exclude Bhisma Moksha on day of/1 day after Winter Solstice	No	Yes
Correct side of Arundhati Vasistha curve (4508BCE to Present)	No	Yes
Correct Interpretation of Arundhati Vasistha phenomenon (Omen)	No	Yes
Corroborates Saturn's/Mars position	No	Yes
Eclipses correctly occur prior to war and 36 years later	No	Yes
Solar Eclipse visible at Kurukshetra/ fixed by Delta T	No (Antartica)	Yes (Delta T)

Conclusion:

These are some of the basic mistakes made in 5561BCE. These prove effectively that the claims cannot be accepted.

Useful resources to further material:

1: We illustrate the problem of why the Mahabharata war cannot start on an Amavasya in a short film which can be seen free here:

https://www.youtube.com/watch?v=fIG86YqfK-E

2: A short film on the rigorous conditions of Balarama's pilgrimage (fulfilled exactly in 3067BCE) and how they are failed in 5561BCE.

https://www.youtube.com/watch?v=mLceUJnXydg

3: Short film: The problem with Krishna's Mission of Peace and 5561BCE

https://www.youtube.com/watch?v=uSf3yFp-v6g&t=2s

Chapter 18
List of Mahabharata References

[1] The Mahabharata, Text as constituted in its Critical Edition, Bhandarkar Oriental Research Institute (Poona, 1972) and Mahabharata References

[2] Sathe, S., Deshmukh, V., and Joshi, P., Bharatiyayuddha: Astronomical References, Shri Babasaheb Apte Smaraka Samiti (Pune, 1985)

[3] Achar BN : On Astronomical References in Vyasa-Dhrtarastra-Samvada in the Bhismaparvan of Mahabharata,

[4] Brihat Samhita by Varahamihira

[5] Oak NN : When did the Mahabharata war happen? The Mystery of Arundhati 2011

[6]Pandit MM, Achar BN: The Mystery of Bhisma Parvan Chapter 3: What does it Mean?

[7]Pandit MM Fixing the Position of Saturn during the Mahabharata War

[8]Pandit MM Why the Mahabharata war cannot start on an Amavasya: Part 1 A critical examination of Moon Phase Data during the Mahabharata War Moon Phase Data during the Mahabharata War

[9] Pandit MM Why The Mahabharata War Cannot Start On An Amavasya: Part 2 Actual MoonRise Data from the 14th night of the war

[10] Achar BN Sri Krishna's Diplomatic Mission and the Date of the Mahabharata War 2018

[11] Vartak PV Swayambhu and "Scientific Dating of the Mahabharata War"

[12] Temple Robert The Crystal Sun : Rediscovering a Lost Technology of the Ancient World

[13] Temple Robert The Sirius Mystery (1976)

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[15]Dunn Christopher "The Giza Power Plant: Technologies of Ancient Egypt" (1998)

[16] Raghavan Srinivas Determination of the Date of the Mahabharata War

[17] Gita Press Edition Mahabharata

Astronomy reference list: Critical edition (CE)

1. **Adi** (**CE 57:72-75**)
2. **Adi** (**CE 2.9**)
3. **Adi** (**CE 2:26-28**)
4. **Anushasan** (**CE 153:26-28**)
5. **Anushasan** (**CE 152:2-3**)
6. **Anushasan** (**CE 152:10-13**)
7. **Anushasan** (**CE 153:1-6**)
8. **Bhishma** (**CE 7:44-47**)
9. **Bhishma** (**CE 3:14**)
10. **Bhishma** (**CE 3:11**)
11. **Bhishma** (**CE 3.15**)
12. **Bhishma** (**CE 3: 26**)
13. **Bhishma** (**CE 3:12**)

14. **Bhishma** (**CE 93:22**)

15. **Bhishma** (**CE 112:130**)

16. **Bhishma** (**CE 3:16-17**)

17. **Bhishma** (**CE 3:27**)

18. **Bhishma** (**CE 2:32**)

19. **Bhishma** (**CE 3:14**)

20. **Bhishma** (**CE 3:13**)

21. **Bhishma** (**CE 3.24-25**)

22. **Bhishma** (**CE 17:28**)

23. **Bhishma** (**CE 55:15**)

24. **Bhishma** (**CE 89:4**)

25. **Bhishma** (**CE 89:6**

26. **Bhishma** (**CE 90:16**)

27. **Bhishma** (**CE 2:31**)

28. **Bhishma** (**CE 17:2**)

29. **Bhishma** (**CE 75:55**)

30. **Bhishma** (**CE 75:55**)

31. **Bhishma** (**CE 2:23**)

32. **Bhishma**(**CE3:28-29,**)

33. **Bhishma**(**CE3:30-31**)

34. **Bhishma** (**CE 2:20**)

35. **Bhishma**(**CE1:5**)

36. **Bhishma** (**CE 20:5**)

37. **Bhishma** (**CE 17:3**)

38. **Bhishma** (**CE 19:36-39**)

39. **Bhishma** (**CE 42:28**)

40. **Bhishma** (**CE 45:62**)

41. **Bhishma** (**CE 54:23**)

42. **Bhishma** (**CE 55:15**)

43. Bhishma (**CE 92:73-75**)

44. **Bhishma** (**CE 92:77-78**)

45. Bhishma (**CE 93:30-31**)

46. Bhishma (**CE 101:33**)

47. Bhishma (**CE 102:78**

48. Bhishma (**CE 103:1**)

49. Bhishma (**CE 108:12**)

50. Bhishma (**CE 1:26-33**)

51. Bhishma (**CE 17:1-2**)

52. Bhishma (**CE 11:3-5, 7-13**)

53. Bhishma (**CE 11:6**)

54. Bhishma (**CE 11:14**)

55. Bhishma (**CE 16:26**)

56. Bhishma (**CE 16:40**)

57. Bhishma (**CE 16:41-42**)

58. Bhishma (**CE 17:18**)

59. Drona (**CE 112.22**)

60. Drona (**CE 15:52**)

61. Drona (**CE 19:18**)

62. Drona (**CE 30:26**

63. Drona (**CE 48:16-17**)

64. Drona (**CE 48:22**)

65. Drona (**CE 159:11-14**)

66. Drona (**CE 159:22-24**)

67. Drona (**CE 159:25**)

68. Drona (**CE 159:26-30**)

69. Drona (**CE 159:42**)

70. **Drona** (**CE 161:1-2**)

71. Drona (**CE 159:43,**)

72. Drona (**CE 159:46**)

73. Drona (**CE 159:44-45**)

74. Drona (**CE 159:47**)

75. Drona (**CE 159:48-50**)

76. Drona(**CE159:15-21**)

77. Drona(**CE161:15-17**)

78. Drona(**CE159:31-41**)

79. Drona (**CE 19:41**)

80. Drona(**CE37:20**)

81. Drona(**CE96:5**)

82. Drona(**CE107:35**)

83. Drona(**CE114:20**)

84. Drona(**CE117:16**)

85. Drona(**CE155:26**)

86. Drona(**CE162:37**)

87. Karna (**CE 8:3**)

88. Karna (**CE 14:50**)

89. Karna (**CE 15:42**)

90. Karna (**CE 32:6**)

91. Karna (**CE 33:16**)

92. Karna (**CE 35:11**)

93. Karna (**CE 40:104**)

94. Karna (**CE 43:39-40**)

95. Karna (**CE 55:33-34**)

96. Karna (**CE 67:24**)

97. Karna (**CE 68:49**)

98. Karna (**CE 68:47**)

99. Karna (**CE 12:4**)

100.Karna (**CE 19:28**)

101.Karna (**CE 26:34**)

102.Karna(**CE8:23**)

103.Karna(**CE68:24**)

104.Shanti (**CE 47:1-4**)

105.Shanti (**GP 47:3 – additional text**)

106.Shanti (**CE 1:1-2**)

107.Shanti (**CE 38:30**)

108.Shanti (**CE 38:35-36**)

109.Shanti (**CE 39:2**)

110.Shanti (**CE 39:16**)

111.Shanti (**CE 52:26-34**)

112.Shanti (**CE 53:1-27**)

113.Shanti (**CE 58:27-30**)

114.Shanti (**59:1-3**)

115.Shanti (**CE 161:1**)

116.Shanti (**CE 161:48**)

117.Shanti (**CE 291:4**)

118.Shanti (**CE 70:6-28**)

119.Shanti (**CE 224:12-31**)

120.Sabha (**CE 49:24**)

121.Stri (**CE 23:4**)

122.Stri (**CE 22:6**)

123.Stri (**CE 26:24-43**)

124.Stri (**CE 26:44**)

125.Stri (**CE 19:2**)

126.Stri (**CE 25:16**)

127.Shalya (**CE 64:6**)

128.Shalya (**CE 34:12**)

129.Shalya(**CE34:14**)

130.Shalya (**34.9**)

131.Shalya(**CE34:13**)

132.Shalya (**CE 53:36-37**)

133.Shalya (**33:5**)

134.Shalya (**33:16-17**)

135.Shalya (**53:22**)

136.Shalya (**CE 59:21**)

137.Shalya (**CE 54:30-32**)

138.Shalya (**CE 55:10**)

139.Shalya (**CE 56:34**)

140.Shalya (**CE54:17**)

141.Shalya (**CE 59:10**)

142.Shalya (**CE 54:42**)

143.Shalya (**57:46-56**)

144.Shanti (**CE 101:9-10**)

145.Shalya (**CE 54:27**)

146.Shalya (**CE 3:28**)

147.Shalya (**CE 32:49**)

148.Shalya (**CE 45:49**)

149.Shalya (**CE 3:28**)

150.Shalya (**CE 32:49**)

151.Shalya (**CE 45:49**)

152.Shalya (**CE 23:4**)

153.Shalya (**CE 34:28, 30-31 -31**)

154.Shalya (**CE 34:69**)

155.Shalya (**CE 34:78-81**)

156.Shalya (**CE 35:1**)

157.Shalya (**CE 35:46**)

158.Shalya (**CE 35:53**)

159.Shalya (CE 36:1-4)

160.Shalya (CE 36:33-36)

161.Udyoga (CE 82:5-10)

162.Udyoga (CE 109:12)

163.Udyoga(CE141:7)

164.Udyoga (CE 141:8-9)

165.Udyoga(CE140:18)

166.Udyoga(CE81:6-7)

167.Udyoga (CE 155:37-38)

168.Udyoga (CE 148:3)

169.Udyoga (CE 141:10)

170.Udyoga(CE154:15)

171.Udyoga (CE 154:33-34)

172.Udyoga (CE 140:6-15)

173.Udyoga (CE 140:16-17)

174.Vana(CE80:79)

175.Vana(CE80:85-86)

176.Vana(CE80:130-131)

177.Vana(CE81:3-4)

178.Vana(CE81:42)

179.Vana(CE81:91)

180.Vana(CE81:92-93)

181.Vana(CE81:125)

182.Vana(CE81:131)

183.Vana (CE 81:175)

184.Vana (CE 82:4-6)

185.Vana(CE82:34)

186.Vana(CE82:59)

187.Vana(CE88:2-10)

188.Vana(CE129:20-22)

189.Vana(CE130:1-7)

190.Vana(CE82:31)

191.Vana (CE 148:10-36, 38-39)

192.Vana(CE148:6-8)

193.Vana(CE148:37)

194.Vana(CE186:2-5,8-10,18-25)

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197.Virata(CE47:3-4)

198.Virata(CE45:23)

199.Virata(CE47:4)

200.Mausal (CE 1:1)

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