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KALIYUGA, SAPTARṢI, YUDHIṢṬHIRA AND LAUKIKA ERAS

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The aim of this paper is to look for astronomical evidence for these four related Indian eras. After discussing the evolution of the concept of *yuga* it is concluded that *Mahāyuga* is a kind of the least common multiple of the most accurate periods of the sun, moon and planets. The traditional date of *Kaliyuga* given by Āryabhaṭa is juxtaposed with that suggested by Srinivasan Raghavan. The suggestion represents a remarkable configuration of the five planets and the moon in the morning of February 7, 3104 BC which is depicted in the Mohenjodaro seal M 430. It is argued that Varāhamihira's statement about the movement of *Saptarṣis* is misunderstood and it points to the discovery of precession by *Vṛddha Garga* in 500 BC. The theory of trepidation is traced to a misidentification of the ancient year beginning on *Caitrī* Purṇimā with vernal equinox instead of the winter solstice by Āryabhṭa. The paper ends with the identification of the four animal figures on Mohenjodaro seal M 420 with the constellations at the four cardinal points on the ecliptic in 3000 BC.

Key words : *Indus* valley seals M 430 and M 420, *Kaliyuga* and *Mahāyuga.*

INTRODUCTION

All the four eras, viz., *Kaliyuga, Saptarṣi, Yudhiṣṭhira* and *Laukika* eras, are related to the events described in the epic *Mahābhārata.* In chronological order, they are:

(i) Coronation of Yudhiṣṭhira and performance of the Rājasūya sacrifice 15 years before the Mahābhārata war; it represented the beginning of the Yudhiṣṭhira era.

(ii) The Mahābhārata war which was a turning point in the history of Bhārat.

(iii) Mahānirvāṇa of Lord Kṛṣṇa 36 yrears after the Mahābhārata war, which represented the end of Dvāpārayuga and the beginning of *Kaliyuga.*

(iv) Ascension of Yudhiṣṭhira to the heavens 25 years after the beginning of Kaliyga, which represented the beginning of the *Saptarṣi* or *Laukika era.* Hence, fixing the date of any one of them would automatically fix the dates of the others.

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The *Kaliyuga* is the most widely quoted era in all the *purāṇas* and in the astronomical works of the *Siddhānta* period. It is still mentioned in all the Indian *pañcāngas*. They take the word of Āryabhata and place its beginning at the local midnight of Ujjain between February 17 and 18, 3102 B.C. On this basis we get the following years for the beginnings of the above four ancient eras[1] :-

Yudhiṣṭhira Era	3153	B.C.
Mahābhārata War	3138	B.C.
Kali Era	3102	B.C.
Saptarṣi or *Laukika Era*	3077	B.C.

Let us enquire whether there is any astronomical and other evidence to support these dates.

The Yuga Concept

The concept of the *Yuga* arose from the near commensurabilities of the periods of revolution of the moving celestial luminaries like the sun (which shows apparent motion), the moon and the five bright planets, because they give rise to cyclic repetitions of their conjunctions with one another, the so called *yogas*. The simplest case is that of the 5-year *yuga* cycle during which we have approximately 5 revolutions (*bhagaṇas*) of the sun and 67 revolutions (*bhagaṇas*) of the moon giving rise to 62 synodic lunar months (*tithīmāsas*). This lunisolar *yuga* was later extended to 2850 years[2] in the *Romaka Siddhānta*, as it contained 10,43,803 *bhagaṇas* of the stars (sidereal days), 2,850 *bhagaṇas* of the sun (sidereal years), and 38,100 *bhagaṇas* of the moon (sidereal lunar months) giving rise to 35,200 synodic lunar months (*tithimāsas*) in 10,40,953 *sāvana* (civil) days.

Another simple cycle is the 60-year cycle of Jupiter which is made up of the 5 year *yuga* and the 12-year period of Jupiter which is made up of the 5-year *yuga* and the 12-year period of Jupiter. It contains roughly 249 *bhagaṇas of Mercury*, 97.5 *bhagaṇas* of Venus, 60 *bhagaṇas* of the sun, *32* bhagaṇas of Mars, 5 *bhagaṇas* of Jupiter and 2 *bhagaṇas* of Saturn. It also contains roughly 802 synodic lunar months, 189 synodic periods of Mercury, 37.5 synodic periods of Venus, 28 synodic periods of Mars, 55 synodic periods of Jupiter and 58 synodic periods of Saturn. Hence, if all of them were in conjunction with the sun at one time, they would be roughly so again after 60 years. However, actually they would occupy an arc of ± 20 degrees around the sun at the second time due to the remaining fractions of their synodic periods. The spread of their arc would lenghten further after each period of 60 years. There are two ways of getting around this noncommensurability. One is to give the *bhagaṇas*, i.e. the number of revolutions made during 60 years, in fractions as done at present. It is

well known that the Indian astronomers were quite adept in dealing with very large numbers by their use of the decimal value notation of the basic digits from 0 to 9. But they had not discovered the notation of the decimal fractions. So, they decided to avoid the complicated vulgar fractions without sacrificing accuracy by choosing a very long period for the yuga, called *Mahāyuga,* so that it could contain integral numbers of bhaganas for all the bodies. This amounts to taking the least common multiple of their periods.

The Mahayuga

At first, the *Mahāyuga* described in the *Puliśa Siddhānta*[3], consisted of 12,000 years divided into four parts in the ratios of 4:3:2:1:, viz, *Kṛtayuga* of 4,800 years, *Tretāyuga* of 3,600 years, *Dvāpārayuga* of 2,400 years and *Kaliyuga* of 1,200 years. This division was based on the historical perception of the human civilization in the ancient times. Later, when this period was found to be too short, it was argued that the years mentioned above should be taken as *Daiva* (Gods') years. Here one day of the gods is taken to be equal to one human year and 360 such days make up the *Daiva* year. In this way the duration of the *Mahāyuga* was extended to 43,20,000 years, which was also divided in the ratios of 4:3:2:1 into *Kṛta, Tretā, Dvāpara* and *Kali* yugas. It may be noted that $43,20,000 = 2^{16} \times 3^3 \times 5^3$ is divisible by many numbers like 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 16, 18, 20, 24, 25, 27, 30, 60, etc.

Āryabhata was the first astronomer who made use of the concept of the *Mahāyuga.* But he divided the *Mahāyuga* into four equal parts of 10,80,000 years[4]. Taking this as the basic period it was postulated that all the known seven luminaries came into conjunction at the beginning of each yuga. That is why the *bhaganas* of the various bodies in a *Mahāyuga* given in his theory are all divisible by four. But later astronomers reverted back to the original division of the *Mahāyuga* in the ratios 4:3:2:1. As this would not allow all the bodies to come into conjunction at the beginning of each of the four *yugas,* it was postulated that they were in conjunction only at the end of *Kṛtayuga* and at the beginning of *Kaliyuga*[5]. In this way the basic period was doubled to 21,60,000 years. Finally, when the accuracy of the bhaganas increased further, it became necessary to use the full length of the *Mahāyuga* as the basic period. And then one had to restrict the conjunction of all the moving bodies only to the beginning of the Kaliyuga during each cycle of the *Mahāyuga.*

We need not go here into the further elaboration of the *Mahāyuga* into *Manvantaras* and the *Kalpa* as they are not relevant for our discussion.

The Kaliyuga Era

(a) *Tradition* :– Following Āryabhata it is traditionally assumed that the sun, the

moon and the five planets were at *Mesādi,* the first point of the Hindu zodiac, on the midnight at Ujjain between February 17 and 18, 3102 B.C.[6], which represented the beginning of *Kaliyuga.* The computed positions of these bodies differ considerably from their assumed positions, for example as given by P.C. Sengupta[7] and others. Hence we need not stick to the exact time of the day. Consequently, we have made calculations for the time of sunrise at Ujjain (longitude 75°43' E and latitude 23°09'N) on February 17, 3102 BC with two different programmes:

(i) The commercially available LOADSTAR programme, and

(ii) A programme written by one of us (G.M. Ballabh). The positions obtained from both the programmes were almost identical; they are given in table 1 (a) and are illustrated in Fig. 1 (a). We see that the 17th February was *amāvasyā,* λ (285) = 352°, the first day of *Kaliyuga* on February 18, 3102 BC was Caitra S 1.

However, we see that the sun was 8°.3 behind *Meśādi,* Mars and the moon were combust, Saturn and Mercury were morning objects, while Venus and Jupiter were seen in the evening. The total span of all the bodies was about 41° , because Saturn and Mercury were rather too far away from the others which were lying within a small arc of 14° only. On account of such glaring discrepancies it has been concluded by most investigators that Āryabhata derived the moment of the commencement of *Kaliyuga* by making back calculations from his planetary constants. However, it would be almost impossible to get an exact conjunction of all the seven bodies from a given set of planetary data on acount of the incommensurability of their periods. It is much more likely that Āryabhata made the assumption that there was a conjunction of all

TABLE 1 (a) TRADITIONAL KALIYUGA

JD=588464.575 = 17 Feb. 3102 BC 1^h. 81 UT

Object	β	λ (Trop)	λ (285)	Visibility
Sun	0°.0	303°.8	351°.8	
Moon	+1.8	304.5	352.5	Combust
Mercury	-2.2	288.2	336.2	Morning
Venus	-1.2	316.2	364.2	Evening
Mars	-1.1	300.4	384.4	Combust
Jupiter	-1.3	317.6	365.6	Evening
Saturn	-1.1	276.5	324.5	Morning

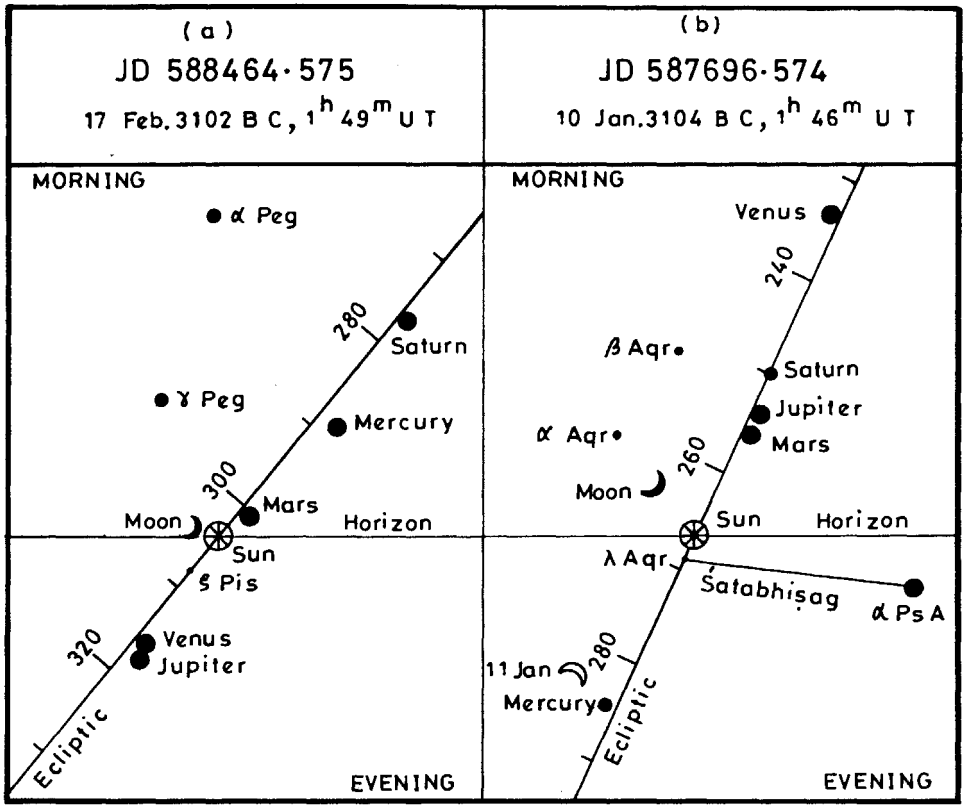

Fig. 1: Planetary configurations at the beginning of Kaliyuga.
(a) For traditional date, (b) For modified date.

the seven bodies at *Meśādi* on the date chosen by him, and then combining this with the observations available to him in his epoch, he derived the best fitting constants of the planetary motions. In fact, Billard[8] has shown that this was the method adopted by the later *Siddhantic* astronomers for deriving the *Bīja* corrections. Even in the preparation of the modern ephemerides, some of the constants are adjusted to fit the observations.

(b) *A New Look* :– Then the question arises as to why did Āryabhata choose that particular year for the beginning of *Kaliyuga*? The answer would be that there must have been a tradition based on some past memory of an event when the seven luminaries were actually seen together near the beginning of the year. However, at no time in the Vedic antiquity did the year start at the middle of *Śiśir ṛtu* as one would infer from the tropical longitude of the sun equal to 304° as was the case on February

TABLE 1 (b) S. IYENGAR'S KALIYUGA

JD=587696.574 = 10 Jan. 3104 BC 1^h. 17 UT

Object	β	λ (Trop)	λ (285)	Visibility
Sun	0°.0	266°.8	314°.8	
Moon	+4.9	364.4	312.4	Combust
Mercury	+0.8	284.8	332.8	Evening
Venus	+0.8	233.7	281.7	Morning
Mars	-0.9	256.0	304.0	Morning
Jupiter	-0.6	253.8	301.8	Morning
Saturn	-0.0	250.0	298.0	Morning

18, 3102 BC. Obviously, there has been some confusion which can be cleared by following the suggestion of Srinivas Raghavan[9] that we should go back by 26 lunations from the traditional *Kaliyuga* date. According to him the conjunction of the seven luminaries occurred at 5 p.m. on January 10, 3104 BC. Our calculations for the time of sunrise at Ujjain on that date are given and illustrated in *Fig. 1 (b)*. From this we see that while Saturn, Jupiter, Mars, the moon and the sun were within an arc of 17 degrees, Venus and Mercury are too far away. But all bodies except Mercury are morning objects, and the tropical longitude of the sun is 267° i.e. near the winter solstice, which represented the beginning of the sacrificial year before and upto the *Vedāṅga Jyotiṣa* period[10].

Now, around 3000 BC the sacrificial year was most probably started on *Phalgun* S 1 after the *Mahāśivarātri,* which represented the longest *śivarātri* of the year in that epoch[11]. In Table 2 we have listed the positions of the sun, the moon and the five planets at the ends of three *śivarātris* when the sun was rising at Ujjain on December 10, 3105 BC (amānta Pauṣa K 14), January 9, 3104 BC (*amānta Māgha* K 14), and February 7, 3104 BC (*amānta Phālgun* K 14). These are illustrated in *Figs. 2 (a), 2 (b) and 2 (c),* respectively. Here January 9, 3104 BC was the *Mahāśivarātri* with the sun in the *Śatabhisag nakṣatra,* and the year began on January 11, 3104 BC with Phalgun S 1. The configuration of the seven luminaries at the end of the *śivarātri* of the first month of the year is shown in *Fig. 2 (c).* Here we have a remarkable assemblage of the moon and the five planets within an arc of 25 degrees visible in the east to everyone in the early morning sky before sunrise. In fact, this configuration is very much more striking than those in 747 BC which are commemorated in the *Nebunasser era* of February 26, 747 BC[12]. People would certainly remember such a

TABLE 2 (a) AMĀNTA PAUSA ŚIVARĀTRI (END)

JD=587665.560 = 10 Dec. 3105 BC 1^h. 13 UT

Object	β	λ (Trop)	λ (285)	Visibility
Sun	0°.0	235°.6	283°.8	
Moon	+2.4	216.0	264.0	Morning
Mercury	-1.7	231.1	279.1	Combust
Venus	+2.1	196.1	244.1	Morning
Mars	-0.7	231.1	279.6	Combust
Jupiter	-0.5	246.5	294.5	Evening
Saturn	-0.1	246.2	294.2	Evening

TABLE 2 (b) AMĀNTA MĀGHA ŚIVARĀTRI (END)

JD=587695.573 = 9 January 3104 BC 1^h. 13 UT

Object	β	λ (Trop)	λ (285)	Visibility
Sun	0°.0	265°.6	313°.8	
Moon	+4.6	251.6	299.6	Morning
Mercury	+0.5	283.5	331.5	Evening
Venus	+0.9	232.4	280.4	Morning
Mars	-0.9	255.2	303.2	Morning
Jupiter	-0.5	253.6	301.6	Morning
Saturn	-0.1	249.9	297.9	Morning

TABLE 2 (c) AMĀNTA PHĀLGUNA ŚIVARĀTRI (END)

JD=587724.577 = 7 February 3104 BC 1^h. 88 UT

Object	β	λ (Trop)	λ (285)	Visibility
Sun	0°.0	294°.5	342°.5	
Moon	+5.0	273.5	321.5	Morning
Mercury	+2.5	278.3	326.3	Morning
Venus	-0.5	267.7	315.7	Morning
Mars	-1.1	277.8	325.8	Morning
Jupiter	-0.6	260.2	308.2	Morning
Saturn	-0.1	253.1	301.1	Morning

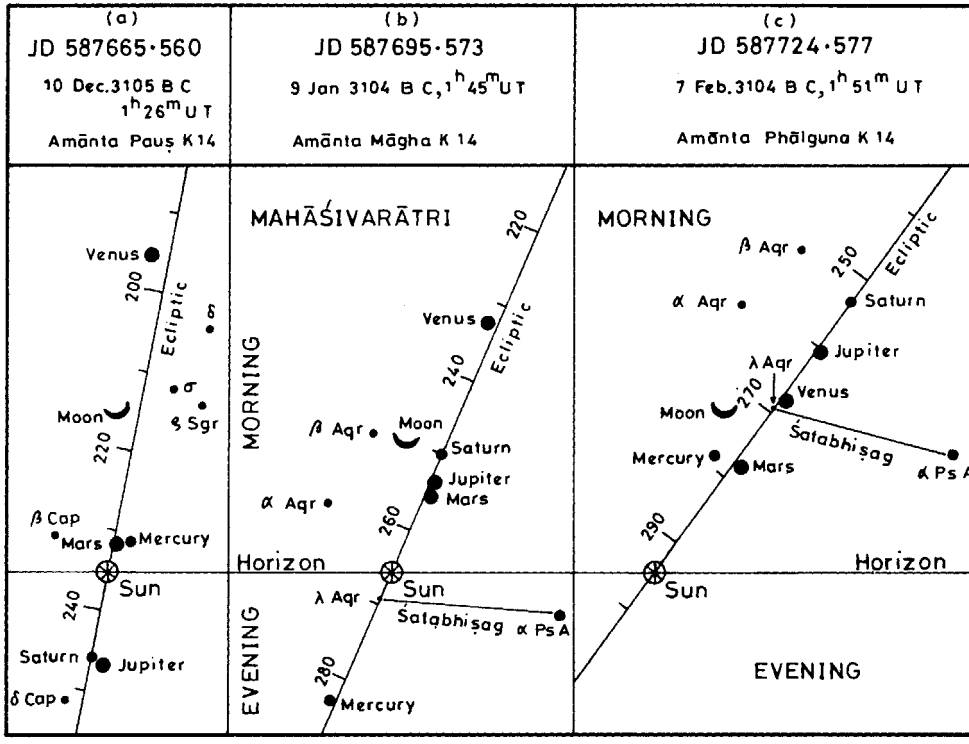

Fig. 2 : Planetary configurations on the Sivarātris of amānta Pauṣa, Māgha and Phālguna months of 3104 - 3105 BC,
(a) Pauṣa K 14, (b) Māgha K 14, (c) Phālguna K 14

phenomenon for thousands of years and it must be the basis of the traditional legend that the seven luminaries came together at the beginning of the year around 3000 BC In our opinion the figures in the Mohenjodaro Seal No. 430, shown in *Fig. 3* represent this configuration and the person in front of the Firegod *(Agni)* is starting the yearly sacrifice (*saṃvatsarasatra)* with the sacrificial goat behind him. It is reasonable to assume that Āryabhata was harking back to this tradition; but he made the mistake of assuming that the year started with the sun at *Meśādi* on the vernal equinox day based on the theory of trepidation as explained in the next section. Anyway we can safely pronounce that the beginning of the astronomical *Kaliyuga* commemorates the actually observed event of 7th February 3104 BC. The traditional date of 17-18 February 3102 BC is not far from it, and we can ignore the difference of two years in such a long span of time.

It may be noted that one of the figures in the seal has a halo over its head; so it might be representing the sun. It has four figures in front of it and two behind it.

Mohenjodaro (M 430)

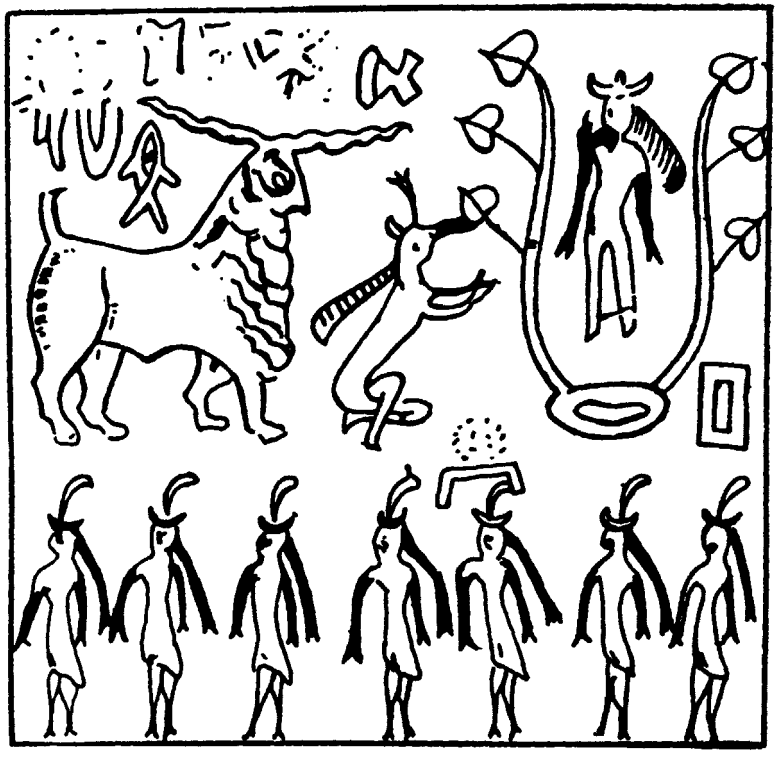

Fig. 3: Mohenjodaro Seal Number M 430.

In that case the seal would be representing the actual configuration on the first day of the year i.e. January 11, 3104 BC, i.e. Phālgun S 1, with Venus, Saturn, Jupiter and Mars seen ahead of the sun in the morning while the moon and Mercury are seen behind the sun in the evening. But the configuration of February 7, 3104 BC would be the more striking one and visible to everybody.

Origin of the Theory of Trepidation

We have surmised above that Āryabhata mistook the year beginning at the commencement of *Kaliyuga* to be the vernal equinox in *Aśvini nakṣatra* , i.e. in the lunar month of Caitra around 3100 BC just as it was the case during his time of 300-500 AD. Let us seek the reason for this assumption. Āryabhata knew about an earlier epoch when the vernal equinox was in *Kṛttikā*[13] and he concluded that the year must be starting in *Vaiśākha* at that time. This sliding back was also continuing during his time also, as shown in *Fig. 4*. Āryabhata was also aware that in the remote past the year was started in *Caitra*[14] and somewhat later in *Phālguna*[15]. So it was logical for him to argue that the vernal equinox was oscillating around *Aśvini* upto *Kṛttikā* on one side and *Uttarā Bhādrapadā* on the other. This is known as trepidation (*tripadi*), which is shown in *Fig. 4* by the zigzag curve with a half period of 3400 years.

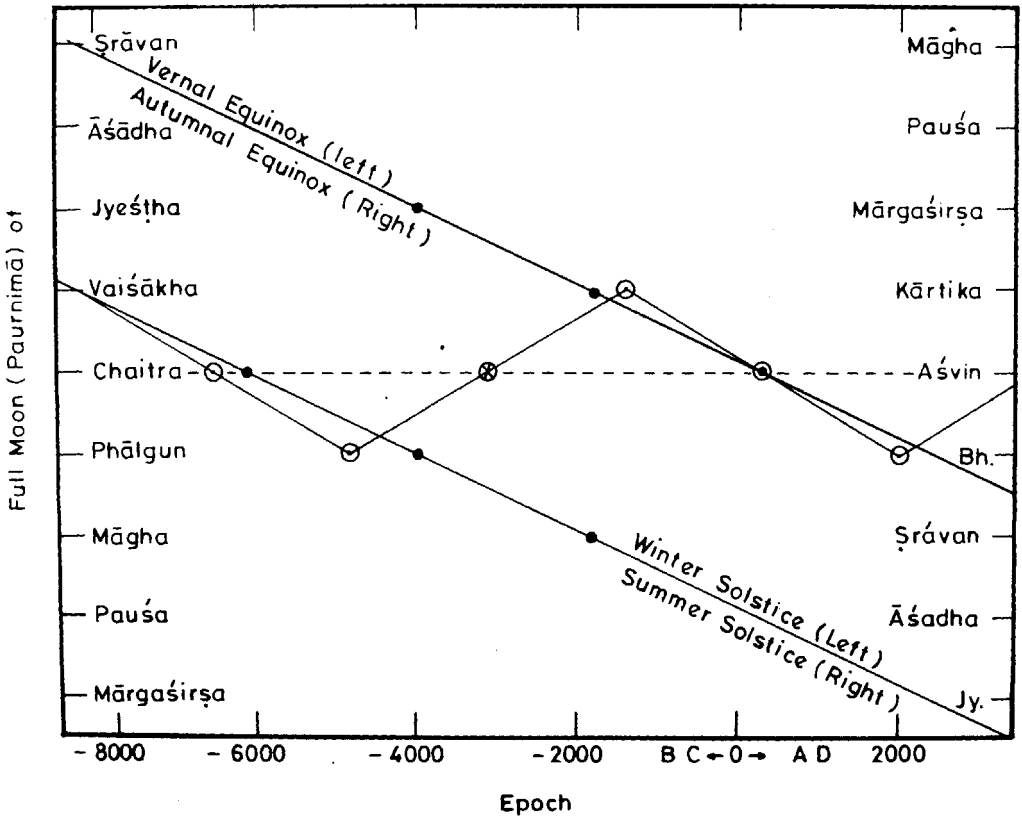

Fig. 4 : Precessional shift in Solstices and Equinoxes and their relation to the theory of Trepidation.

Accordingly, the vernal equinox would have been in *Aśvini*, i.e. in the month of Caitra in 3100 BC. However, there is an error in this argument, because the earlier year beginning in *Caitra* and *Phālguna* referred to the sacrificial year which started at the winter solstice and not at the vernal equinox. In fact, *Vedānga Jyotiṣa* specifically states that the sacrificial year started at winter solstice in the month of *Māgha* in that period. It corresponds to the vernal equinox in *Kṛttikā/Bharani* when the civil year was started at the autumnal equinox in the month of *Kārtika*.

Fig. 4 shows two parellel lines, one depicting the shift in the month of vernal/ autumnal equinox and the other depicting the shift in the month of the winter/summer solstice, caused by the phenomenon of precession. The zigzag curve jumps from one line to the other, which is contrary to the well understood phenomenon of precession. We see that the winter solstice line shows that the sacrificial year started on *Phālguna* S 1, i.e. after *Mahāśivarātri* on *Amānta Māgha* K 14, around 3100 BC. The clearly visible gathering of the seven celestial luminaries occurred at that time as we have found.

As discussed below, Vṛddha Garga had discovered the phenomenon of precession around 500 BC. But his terminology was not understood by the later astronomers including Āryabhata and Varāhamihira.

Saptarṣi or Laukika Era

This era is based on two assumptions, both attributed to Vṛddha Garga as quoted by Varāhamihira. They are: (i) *Saptarṣis* reside in each *nakṣatra* for 100 years and then move into the preceding *nakṣatra;* and (ii) *Saptaraṣis* were in the *Maghā nakṣatra* during the reign of Yudhiṣṭhira and they moved into the *Aśleṣā nakṣatra* when he ascended to the heavens 25 years after the beginning of *Kaliyuga*. Since then, each century is designated by the presiding *nakṣatra* of the *Saptarṣis* as *Maghā* (3177 BC to 3078 BC), *Aśleṣā* (3077 BC to 2978 BC) etc. This system has been used in Rājatarangiṇi[16] (history of Kashmir), in the history of Nepal and in the *purāṇas*. It represents an agreed chronological reckoning. But does it have any astronomical basis?

It is an observed fact that the *Saptarṣis* (Ursa Major) do not move from one *nakṣatra* to the other in the above fashion. However, according to W. Brenard[17], *Saptarṣis* represented the solstical colure; and in the Yajurjyotiṣ the word Ṛṣi has been used for the moon[18]. Hence, if *Saptarṣis* are supposed to represent the summer solstice, i.e. the northernmost point on the ecliptic, and *nakṣatra* is taken as a *nakṣatra* of the moon, i.e. one day, then we can say that according to Vṛddha Garga the summer solstice shifted by one day, or one degree, backwards in 100 years. This gives a period of precession equal to 36,000 years as compared to its actual value of about 26,000

years. Most probaly it was Vṛddha Garga who discovered the phenomenon of precession and obtained an approximate value for its rate as one degree in 100 years as compared to its actual rate of one degree in 71 years. If we recall that Hipparchus had obtained a rate of precession of one degree in 120 years, we have to agree that it was certainly a remarkable acheivement of Vṛddha Garga. But it was not properly understood by the later astronomers.

Now, according to Vṛddha Garga[19], the sages (*Saptarṣis*) resided in the Maghā *nakṣatra* when king Yudhiṣṭhira ruled the earth, and the year of his reign can be obtained by adding 2,526 years to the number of *Śaka* years elapsed. If the *Śaka* year mentioned here is taken as *Śalivāhana Śaka,* then it takes us back to 2448 BC which differs from the traditional *Kaliyuga* by 654 years. But, acording to Kota Venkatachalam[20] one has to take the *Śaka* to be that of King Cyrus. In *Encyclopedia Britannica*[21] we find that King Cyrus (Persian Kurush) became king in 559 BC. This would give us a date of 3064 BC for the end of Yudhiṣṭhira's reign, which differs from the traditional *Saptarṣi* or *Laukika* era by 13 years only. Hence Pandit Venkatachalam may be right and we may actually fix the time of Vṛddha Garga as about 500 BC.

We get corroboration of the above conjecture from the following calculation. In 500 BC the summer solstice used to occur at nirayan longitude λ (285) = 100° according to the *Citrā-pakṣa.* Then, using Vṛddha Garga's rate of precession of 1° per century we find that in 3100 BC the summer solstice would have been presumed to be at the *nirayan* longitude 126° , which corresponds with *Maghā* (α Leonis). This is most probably how Vṛddha Garga might have come to the conclusion that the *Saptarṣis* were in *Maghā* during Yudhiṣṭhira's time, although actually the summer solstice was then at the *nirayan* longitude of 136° corresponding to *Pūrvā Phālgunī* (δ Leonis). However, according to Varāhamihira the *Saptarṣis* were in *Kṛttikā* (Pleides) during Yudhiṣṭhira's time. This was so because he identified the *Śaka* of Vṛddha Garga with *Śālivāhana Śaka* instead of the *Cyrus* era. Thus he got 2448 BC for the reign of Yudhiṣṭhira which would correspond to *Kṛttikā* century according to Vṛddha Garga.

The epoch of the *Mahābhārata* story deduced by Vṛddha Garga is not far from the *Vedāṅga Jyotiṣa* period when the summer solstice was in *Aśleṣā nakṣatra.* Hence *Vedānga Jyotiṣa* type calendar was assumed to be in vogue during the *Mahābhārata* period. Consequently, all the astronomical references in the present text of the *Mahābhārata* epic of 1,00,000 verses are most probably interpolated on that basis. According to M.R. Yardi's[22] statistical analysis of the *anuṣṭubha ślokas* in the *Mahābharata* epic, these references do not form part of the *Jaya Grantha*, i.e. the original text of the *Mahābharata* of 25,000 verses.

Conclusion

The authenticity of the *Yudhiṣṭhira, Kaliyuga* and *Saptarṣi* or *Laukika* eras has often been questioned. It is shown here that the traditional dates for them do have some astronomical basis, although the actual dates may differ from them by reasonably small amounts. Tying them up with the other historical eras is a challenging job.

We have pointed out that the Mohenjodaro Seal No. M 430 depicts the planetary configuration at the beginning of *Kaliyuga* on February 7, 3104 BC (or January 11, 3104 BC). Another Mohenjodaro Seal No. M 420 shown in *Fig. 5* also represents this

Fig. 5 : Mohenjodaro Seal Number M 420.

era in a different way. At that epoch, the vernal equinox was at *Rohinī* (α Tauri) in Taurus, the summer solstice was at *Pūrva Phālgunī* (δ Leonis) in Leo, the autumnal equinox was at *Jyeṣṭhā* (α Scorpio) In Scorpius, and the winter solstice was near *Śatabhiṣaga* (α Piscium Australis) in Aquarius. These constellations are represented in the seal by four animals, viz. water buffalo instead of the bull, tiger instead of the lion, elephant instead of the scorpion, and boar representing abundance of water. For the identification of the last two figures we refer to *Ṛgved*[23] where the elephant god *Ganeśa* is called *Jyeṣṭharājā* i.e. the king of *Jyeṣṭhā* or α Scorpio, and to the puranic story of *Varāha* (rhino) who lifted the earth from the ocean, which is an allegory to the rejuvenation of the sun after winter solstice. It may be noted that the nakṣátras Anuradhā, Jyeṣṭhā and Mūla together form the trunk of an elephant.

The central figure in the seal with the *lingum erectus* position is that of *Prajāpati-Brahmā,* the lord of the civil year starting at the autumnal equinox. According to the well known mythological story, which is based on a *Ṛgvedic* tale[24] Prajapati was enamoured by his daughter. When she took the form of a she-deer, Prajāpati went after her in the form of a he-deer. Seeing this heinous crime Rudra killed him by shooting an arrow. The story is depicted in the sky[25] with *Mṛga* (Orion) as Prajāpati, *Rohinī* (Aldebaran) as his daughter and *Vyādha* (Serius) as Rudra. This story is actually an allegory to the sliding back of the vernal equinox from *Mṛgaśirṣa* (λ Orionis) to *Rohinī* (α Tauri) at about 3200 BC when the beginning of the civil year at the autumnal equinox was changed from the month of Mārgaśirṣa to the month of Kārttika.

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