

#### PIDAPARTY Purna Satya HARIPRASAD

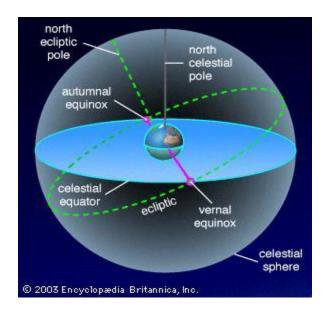
- Koundinyasa gothram
- Pidaparty China Purnayya Siddhanti Grand father
- "Daivajna Bhushana", "Ganita Kalanidhi" Pidaparty Krishnamurty Sastry (1897-1977) – Father
- Born in Rajahmundry on January 8, 1935
- Now permanent resident of Secunderabad since 1994
- Education ICWA Final 1966;
- B.A. (Maths& Statistics) 1957
- No schooling studied Sanskrit with father in a traditional way for > 10 years – Passed Govt Sanskrit Exam in 1949
- Employed in Calcutta, New Delhi, Madras, Bombay, Bangalore & Hyderabad – in India
- Assignments outside India Lusaka (Zambia), Port Harcourt (Nigeria) and Guneid (Sudan)
- Designed & installed Sundials in Andhra Pradesh
  - at Ashram Public School, Kakinada in 2007
  - in Dwaraka Tirumala near temple in 2010
  - Shilparamam, Tirupati (2012) –
- a post retirement hobby with no formal guidance from anyone only blessings from father.

See inner cover pages

# Vishuvat Chalana

(PRECESSION OF EQUINOXES)

(A brief and authentic journey from Vedic times to the present)



वेदमयीं नादमयीं बिन्दुमयीं परपदोद्यदिन्दुमयीं मन्त्रमयीं तन्त्रमयीं प्रक्रुतिमयीं नौमि विश्वविक्रुतिमयीं

PIDAPARTY Purna Satya HARIPRASAD e-mail: hariprasadpps@gmail.com

#### Sundials designed and installed by the Author



In Shilparamam, Tirupati in 2012/2013



Dwaraka Tirumala Near Temple (2008-2010)



At Ashram Public School, Kakinada (2005-2007)

#### By my father Sri PidapartyKrishnamurtySastry (1897-1977)



<u>At Sri SatyanarayanaSwamy temple,</u> <u>Annavaram Hills (1943)</u>

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#### Author's address

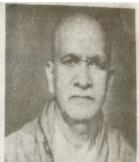
PIDAPARTY Purna Satya HARIPRASAD 1-30-46 Thirumal Nagar, Kanajiguda Military Dairy Farm Road Secunderabad 500015 Telengana - India

Cell: 09703397888 or 09440668909

#### **DEDICATION**

It would have been impossible for me to bring out this booklet without blessings **Of** 





Late Sri Pidaparty Subrahmanya Sastry (Left) (my father's second elder brother) who was responsible for voluminous revision of earlier version of Ketkar's 'Jyotirganitam' and bringing out 1937 edition and

"Daivajnabhushana", "GanitaKalanidhi"

Late Sri PidapartyKrishnamurtySastry (Right)

(1897-1977) – my father

Both studied 'Ancient Indian Astronomy' in Varanasi under the learned guidance of 'Mahamahopadhyaya' Sri Muralidhara Jha.

My father and his elder brother devoted their life time for upholding the honour and legacy of PIDAPARTY family. They continued the tradition based on principles of accurate Panchanga and Dharma Sastra decisions based on ancient Indian Astronomy and related Sastras

#### Introduction

The aim of this booklet is to present a summary of extracts from archives of ancient Indian Astronomy relating to Vishuvat Chalana popularly known as AYANAMSA with a view to test the validity and authenticity of Calendar Reform Committee's recommendations in 1955 and reconcile with evidence available on record in various published literature. For the benefit of interested readers, information available is collected and presented in a logical manner.

Secondly there is adverse propaganda deliberately publicized and perpetuated by Western Indologists / pseudo Scientists and believed / followed by some pseudo intellectuals in India without studying or understanding what is available in ancient Indian Astronomical literature.

There is abundant evidence of knowledge available in ancient India such as Vedas, Vedanga Jyotisha, Suryasidhantha etc. Vedic Sanskrit is beyond the comprehension of average Sanskrit scholars today.

The writer does not claim or represent himself as an authority on the subject. He is neither a scholar nor a scientist. He has chosen to compile the information he is able to lay his hands on and

present it in a logical manner for the benefit of interested readers.

Readers may kindly review the material critically and offer suggestions and comments to e-mail id: <a href="mailto:hariprasadpps@gmail.com">hariprasadpps@gmail.com</a>. They will be gratefully received and acknowledged.

Secunderabad, November 2016

PIDAPARTY Purna Satya HARIPRASAD

### Some basic terms used in this booklet

Equator is known as 'Bhu-madhya Rekha' - The imaginary line that divides the Earth into two equal halves – That is Horizon.

**Ecliptic is known as 'Kranti Vrutta' –** apparent path of the Sun.

When Equator is extended indefinitely, the Equator and the Ecliptic intersect at two imaginary points. These two points are known as Vishuvats or Equinoxes. These are Vasanta Vishuvat and Sarat Vishuvat – Vernal Equinox and Autumnal Equinox respectively. Angle at the points of intersection is 23.5°.

## **Stellar Segments**

**Ecliptic (360°)** is sub-divided into 27 equal stellar segments or Nakshatra vibhagas of 13° 20′ each.

These stellar segments were mentioned in:

"मघाद्यं श्रविष्टार्धं आग्नेयं क्रमेण उत्क्रमेण सार्पाद्यं श्रविष्टार्धांतं सौम्यं"

Mythryopanishat.

The period of Sun's transit from the beginning of stellar segment 'Magha' to the middle of stellar Segment Dhanishtha was 'Dakshinayana'.

**Dhanishtha** is also known as **Sravishtha** and '**Agni Devatakam**'. Period of Sun's transit from the middle of stellar segment Dhanishtha to the end of stellar segment 'Aslesha' was **Uttarayana**.

This confirms that segmentation of **Ecliptic into 27 equal parts** from Vedic period

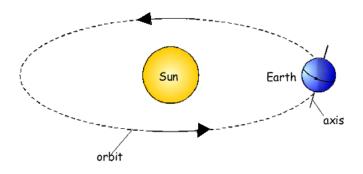
Unfortunately these segmentations are not visible to the naked eye. Therefore one has to necessarily depend upon what is visible.

Sanskrit name	English equivalent		
ASWINI	Beta ARIETIS		
BHARANI	41 ARIETIS		
KRITTIKA	Eta Tauri / Alcyon / PLEIADES		
ROHINI	Alpha Tauri / ALDEBARREN		
MRIGASIRA	Lambda ORIONIS		
ARUDRA	Alpha Orionis / BETELGEUSE		
PUNARVASU	Beta Geminiorum/CASTOR/		
	POLLUX		
PUSHYAMI	Delta CANCRI		
ASLESHA	Alpha Cancri / HYDRAE		
MAGHA	Alpha Leonis / REGULUS		
PURVA PHALGUNI	Delta LEONIS		
UTTARA PHALGUNI	Beta Leonis/DENEBOLA		
HASTA	Delta CORVI		
CHITRA	Alpha Virginis / SPICA		
SWATI	Alfa Bootis/ARCTURUS		
VISAKHA	Iota LIBRAE		
ANURADHA	DeltaSCORPIONIS		
JYESHTHA	Alpha SCORIONIS / Antares		
MULA	Lambda SCORPIONIS		
PURVASHADHA	Delta SAGGITARII		
UTTARASHADHA	DeltaSAGITTARII		
SRAVANAM	Alpha AQUILAE (Altair)		
DHANISHTHA	Alpha DELPHINUS / DELPHINI		
SATABHISHAM	Lambda AQUARII		
PURVABHADRA	Alpha PEGASSI		
UTTARABHADRA	PEGASSI / Alpha ANDROMEDAE		
REVATI	Zeta PISCIUM		

#### 1. VISHUVAT CHALANA

While **Ecliptic** is **stationary**, equinoxes are not because of cyclic wobbling effect of tip of the axis of the Earth. They keep moving in very slow pace. Their motion is backwards. Rate of movement of equinoxes is known as **Vishuvat** chalana or Precession of Equinoxes or also Ayana chalana. This precession is slightly > 50".2 per year. To move 1°, they take 72 years approx.

For the benefit of those who are unfamiliar with the subject, it is necessary to clarify what is "Vishuvat-Chalana" or 'Precession of Equinoxes'.



The system shown above is known as 'Heleo-Centric' i.e. Sun at the centre. Axis of the Earth is slightly inclined, while revolving around the Sun, makes a revolution at the end of the Axis.

This motion is known as <u>precession</u> of equinoxes or 'Vishuvat-chalana'. It is a cyclic wobbling motion in the orientation of Earth's axis. It takes approx 26,000 years to complete one revolution. See the picture.



Knowing the accurate position of equinoxes on the Ecliptic and the rate of precession is important for the purpose of calculation and compilation of Panchangas, determining the planetary positions and their effects on humanity. Therefore they are the backbone in Astronomical/Astrological calculations.

That is the subject matter of this booklet. There are 4 sections A, B, C and D in the booklet.

'A' deals with an overview of VISHUVAT CHALANA
From Vedanga Jyotisha to Positional Astronomy
Centre.

'B' deals with explanations to some significant issues, with evidence on record.

'C' deals with Summary and why bring in Ketkar's Jyotirganitam (1937 edition)

'D' deals with aliens' view on record of India's ancient History



# VISHUVAT CHALANA in ancient times to the present

- in VEDANGA JYOTISHA

# in Varahamihira's

- Panchasiddhantika
- Brihatsamhita
- in 1937 edition of Ketkar's Jyotirganitam
- in Calendar Reform Committee's Report / Positional Astronomy Centre

#### **VEDANGA JYOTISHA**

'स्वराक्रमेते सोमर्की यदा साकं सवासवौ स्यात्त<u>दादियुगं</u> माघः तपः शुक्लोयनं ह्युदक्" 6 प्रपद्येते श्रविष्ठादौ सुर्याचन्द्रमसावुदक् सार्पार्धे दक्षिणार्कस्तु माघश्रावणयोः सदा 7 धर्मवृद्धिरपां प्रस्थः क्षपाह्लास उदग्गतौ दक्षिणे तौ विपर्यासः षण्मृहर्त्ययनेन त् 8

(Yajur-Vedanga Jyotisha)

In Vedanga Jyotisha period, Uttarayana began when Sun entered the beginning of Stellar segment Dhanishtha (Sravishtha). Then Longitude was 270°. Then VISHUVAT was at - 23° 20′.

This was explained in 1937 edition of Jyotirganitam by Sri Ketkar and my father's elder brother Sri Pidaparty Subrahmanya Sastry with supporting evidence from various authoritative sources such as Vedas, Upanishats, Brahmanas, Vedanga Jyotisha, Varahamihira's Panchasiddhantika, Brihatsamhita etc.

That was also explained by Prof T S Kuppanna Sastry in his commentary on Vedanga Jyotisha and endorsed by Prof K V Sarma.

Late Prof T S Kuppanna Sastry, ex-Principal, Sanskrit College, Chennai, in his introduction to Vedanga Jyotisha, confirmed that "- 23° 20' perfectly agrees

with what Varahamihira (530 A. D.) discovered by his intensive observation (vedha)".

Late Prof T S Kuppanna Sastry translated and commented on Vedanga Jyotisha in English. This book was later edited by Prof K V Sarma, an acknowledged Research Scholar in ancient Indian Astronomy and published by Indian National Science Academy, New Delhi.

# <u>Varahamihira – in</u> Panchasiddhantika

See the following sloka in Varahamihira's Panchasiddhantika (Paulisa Siddhanta (III-21):

# "आश्लेषार्धात्यदा निव्नुत्तिः किलोष्णकिरणस्य युक्तमयनं तदासीत्सांप्रतं अयनं पुनर्वसुतः"

Meaning: Dakshinayana began when Sun was at the mid-point of Stellar segment Aslesha i.e. when Sun's transit changed direction from North to South. This happened during Vedanga Jyotisha period. During Panchasiddhantika Period Dakshinayana began when sun was in Stellar segment Punarvasu.

## Varahamihira – Brihatsamhita

In Brihatsamhita III-1 see the following sloka:

# "आश्लेषार्धात्दक्षिणं उत्तरायणं रवेर्धनिष्टाद्यं न्यूनं कदाचित् आसीत्येनोक्तं पूर्वशास्त्रेषु"

Meaning: According to ancient Indian Sastras, beginning of Ayana (change in the direction of Sun's transit from South to North and North to South) occurred when Sun was at the mid-point of Stellar segment Aslesha and beginning of Stellar segment Dhanishta respectively.

Varahamihira stated in *Panchasiddhantika that* beginning of Dakshinayana occurred when Sun was in mid-point of Aslesha Star. That implies Uttarayana began when Sun was in <u>Stellar</u> Segment Punarvasu.

Vedanga Jyotisha period was estimated to be 1470 years by some scholars before Salivahana Saka and therefore Varahamihira period was + 450 SaliVahana Saka. Difference between the two was 1920 years.

1920 72 = 26° 40'.

# 1937 EDITION OF KETKAR'S JYOTIRGANITAM on Vishuvat

## Methodology followed by Ketkar in 1937 edition of Jyotirganitham – Pages 35-42 before Pradhama parichcheda

#### **Cumulative Precession of Equinoxes / Ayanamsa**

From VedangaJyotisha period

To Varahamihira period	+ 26° 40'(1)
VedangaJyotisha period	- 23° 20′(2)
Varahamihira period	+ 3° 20'(3)

Even Brahmagupta does not appear to have mentioned Ayanamsa. Bhaskaracharya said it is probably because it was marginal during his period. There is evidence, in his own words, that Varahamihira determined it by his own intensive observations (vedha).

Varahamihira's period Salivahana Saka 450 or 528 A.D. 3° 20'(3) Precession in 1350 years

@1° in 72 years <u>18° 49'</u>

In Salivahana Saka 1800 22° 09'(4)

# 22° 09'(4) is the basis for Jyotirganitham (tables)

"एवं शालिवाहन शके १८०० वर्षे शास्त्रशुद्धाः, गणितशुद्धाः .." – Shri Ketkar confirmed.

"(4) – These Ayanamsas were applied in 1937 edition of Jyotirganitam.

2015-16 A.D. = Salivahana Saka 1938 Salivahana Saka 1938 – 1800 = 138 years

Precession during 138 years =  $1^{\circ}$  56'(5) 22° 09' (4) +  $1^{\circ}$  56' (5) =  $24^{\circ}$  05' (6)

Positional Astronomy Centre, successor to Indian Ephemeris & Nautical Almanac Unit arrived at (6) for the relevant year Saka 1938.

But ...There is a widespread feeling among many in India that Ayanamsa and annual precession recommended and fixed by the Calendar Reform Committee now being followed by Positional Astronomy Centre (successor to Indian Ephemeris and Nautical Almanac Unit) was ad-hoc, arbitrary and not based on scientific basis.

Wording in the Recommendation No 5 in Report of the Calendar Reform Committee possibly led to the misunderstanding. Please see the underlined wordings in the recommendation: "The calculation of solar months ........ will start 23° 15'...... This tallies with the present practice of most almanac makers" ........ "This recommendation is to be regarded only as a measure of compromise, so that we avoid a violent break with the established custom....."

## **Cumulative Ayanamsa**

In 1953-54, Calendar Reform Committee issued a Questionnaire to all Panchanga makers in the country on various facets of compilation of Panchangas. Summary of replies received with respect to cumulative and annual Precession are as follows:

Summary of responses related to the date – as on 21st March 1954.

Cumulative Precession	No of Panchanga Kartas
followed	
21° 49′	2
22° 23′	1
23° 04′	1
23° 08′	2
23° 10′	2
23° 12′	36
23° 13′	3
23° 24′	1
23° 51′	1
23° 52′	2
Total	51

My father reported a figure of 23° 12′ 7″ in his reply. Calendar Reform Committee adopted 23° 15′ as on 21st March 1956.

Summary of replies received with reference to annual precession is as follows as on 21<sup>st</sup> March 1954:

Annual precession	No. of Panchanga Kartas
48"	1
50" to 50".19	5
50".2	34
50".3 to 50".5	5
58".5	1
???	5
Total	51

My father reported a figure in his reply 50".268 per year.

People were led to believe that the Committee gave in for majority opinion—without considering the merits on scientific basis or based on authoritative ancient Indian literature available on the subject.

In the next section, we shall try and identify important issues, and find supporting evidence in available ancient literature on ancient Indian Astronomy and related Sastras.

# B

# Some significant issues

- Relevance of Mareechi Bhashyam of Brihatsamhita – Punarvasu midpoint or 3/4<sup>th</sup> of Punarvasu?
- Relevance of Aadiyuga in Vedanga Jyotisha, Vedanga Jyotisha period & No. of Revolutions of Equinox, Vishnupurana etc – also Brahma's life span
- Whether Lagadha was author of Vedanga Jyotisha
- Precession before Vedanga Jyotisha
- Varahamihira's Sakakaala Salivahana Saka?
- Precession Pendular or Circular?
- Newcomb's formulae for the future?
- Luni-precession & my father's discovery
- U.S. Naval Observatory's findings in 2014
- Sunya-ayanamsa period/Location
- Chaitrapaksha or Raivatapaksha?

# Relevance of Mareechi Bhashyam of Brihatsamhita – Punarvasu midpoint or 3/4th of Punarvasu?

This became an issue whether it is Mid-point of Punarvasu or %thof Punarvasu.

# "आश्लेषार्धात्यदा निव्नुत्तिः किलोष्णकिरणस्य युक्तमयनं तदासीत्सांप्रतं अयनं पुनर्वसुतः

Sri Ketkar and Sri Pidaparty Subrahmanya Sastry confirmed that it was **mid-point of stellar segment Punarvasu** by quoting **Brihatsamhita – Mareechi Bhashyam.** 

Sri Ketkar stated Punarvasu yogatara is located at the beginning of Stellar segment Punarvasu. Therefore it is one and half nakshatras away from mid-point of Stellar segment Aslesha.

Prof T S Kuppanna Sastry in the introduction to Vedanga Jyotisha and Prof K V Sarma in "The Facets of Indian Astronomy" justified ¾th of Stellar segment Punarvasu.

That means, according to Prof Kuppanna Sastry and Prof K V Sarma, equinoxes moved 1¾ Stellar segments from Vedanga Jyotisha period to Varahamihira period. [¼ in Punarvasu + 1 stellar segment in Pushyami + ½ in Aslesha = 1¾ Nakashatra segments.] — "in Page 13 —

Introduction". He also confirmed that it agrees with the position of equinox at (-) 23° 20′ during Vedanga Jyotisha period.

English translation and commentary of Panchasiddhantika by G. Thibaut edited by Mahamahopadhyaya Sudhakar Dwivedi (my father's paramaguru) – published by Chowkhamba Sanskrit Series (Varanasi) also confirmed and proved that equinox was at (-) 23° 20' from Nirayana Meshadi.

#### But

Varahamihira in Bruhatsamhita (III-1) second stanza – see what he stated:

"उक्ताभांशै: विक्रुति: प्रत्यक्ष परीक्शणै: व्यक्ति: "Meaning: Equinoxes moved 27° between the periods of Vedanga Jyotisha and Varaahamihira. There is Vikruti - विक्रुति: here means 'distortion'

Somayaji Neelakantha (Kerala), another confirmed acknowledged scholar, that Varahamihira's observation above as that precession of 27° was correct. Then why did Varahamihira say 'विक्रति:'

In *Mareechi Bhashyam* of Bruhatsamhitha, Mareechi said:

# "सायन कर्कटकादिरत्र निरयन पुनर्वस्वर्धमेव भवति अयनयो: कर्कमकराद्यो: सायनत्वेन अभिमते पुनर्वस्वंतिम चरणादिति"

That is: If we consider that the beginning of Karkataka and Makara are based on Sayana system, it is the beginning of ¼ of Stellar segment Punarvasu. If we go by Mareechi Bhashyam, beginning of Karkataka is Sayana, mid-point of Punarvasu is Nirayana, then difference between the two is 3° 20′.

This is the Ayanaamsa or cumulative precession during Varahamihira period. The issue was thus resolved by Sri Ketkar and my father's elder brother Sri Pidaparty Subrahmanya Satry.

Many scholars appear to have missed the point in Mareechi Bhashyam, including Prof T S Kuppanna Sastry and Prof K V Sarma. Sri Ketkar noted it, properly interpreting "आश्लेषाधीत्दक्षिणं उत्तरायणं...." In Brihatsamhita III.1.

# 3. Relevance of Aadiyuga in Vedanga Jyotisha, Vedanga Jyotisha period & No. of Revolutions of Equinox, Vishnupurana etc – also Brahma's life span

Please notice use of the word "Aadi yuga" in Vedanga Jyotisha and the conditions associated with it below.

# "स्वराक्रमेते सोमर्की यदा साकं सवासवौ स्यात्त<u>दादियुगं</u> माघः तपः शुक्लोयनं ह्युदक्" Vedanga Jyotisha, 7<sup>th</sup>sloka

Aadi-yuga means the very first yuga in the <u>present</u> Brahma's life. In the present Brahma's life, 50.0006 years is over i.e. 155,521,955,885,117 solar years (2016), a little more than 1<sup>st</sup> half is over. That is 100 years in Brahma's life is 311,040,179,288,075 solar years. This is the Ayuhpramana in Brahma's life.

Stellar segment 'Dhanishta' is a group of stars. 'Yogatara' (principal star) is recognized and acknowledged as 'Alpha Delphini' located at the beginning. 'Aadi yuga' starts when Sun and Moon shine at the beginning of Dhanishta Nakshatra, then the beginning of Magha masa (month), Tapo masa, Sukla paksha (1st fortnight), Uttarayana (beginning of Sun's transit towards North).

'Aadiyuga', conditions (astronomical) associated with it, Brahma's life span in his time scale should have been referred to. These factors are very relevant to Vedanga Jyotisha and to determine Vedanga Jyotisha period. It is unfair and unrealistic to ignore these criteria and assign an age for scriptures like Vedas and Vedanga Jyotisha.

Western Scientists tried to attribute someone's name as an author and assign an age to the ancient text. Indian scholars joined, applauded their findings and fell in love with Western Scientists.

Many such Scientists were unable to digest the fact that these ancient Indian texts were in existence, not necessarily in a printed format, but through Guru Parampara, from times immemorial in India.

For example, Vedanga Jyotisha was dated 1370-1340 B.C. by Prof T S Kuppanna Sastry; and by late Swamikannu Pillai from B. C. 1400 to B.C. 850 etc. For this purpose, they measured angular distance of equinox on the date assigned to Vedanga Jyotisha, and the desired date (say today) and calculated the period / year - @ 1° in 72 years.

Fallacy in this method is omission of number of revolutions completed by equinox, @ 26,000 years for each revolution, in the intervening period. It was overlooked by almost all scholars and research scientists.

It is impossible to determine the number of revolutions of Equinox and assign a number. Here is additional evidence.

**"इयास: क्रुष्णे द्शभि: सहस्रै: अवतमिन्द्रै:**" (Rig-Veda 8-96-13) Meaning: Indra or Vishuvath or equinox makes revolutions  $-15 \times 10 \times 1000 = 150,000$  times (in one Kalpa - implied). \*Kalpa is 4320 million years. That is 150 revolutions in one Mahayuga. One Kalpa = 1000 Mahayugas. It comes to 28,800 years for completing one revolution as against 26,000 estimated at present.

While interpreting Vedas, following are the standard and acknowledged equivalents:

Agni = Vasanta Vishuvath / Vernal equinox
Indra = Sarath Vishuvath / Autumnal Equinox
Mitra= Winter Solstice
Varuna = Summer Solstice

Let us introspect ourselves. How many Vedic or Sanskrit scholars understand this Vedic Sanskrit like this?

# "शीक्षाविभिंदो अस्मै चत्वारि अयुता ददत् अष्टापरः सहस्राः"

(Rig-veda 8-2-4)

Meaning: Oh Vibhindo! You gave me knowledge and wisdom. 1 Kalpa =  $432 \times 10,000 \times 1000$  years = 432 crore years or 4320 million years.

The above mentioned references make it clear that ancient Indians were well aware that Vishuvat (equinox) makes revolutions. Rig-Veda refers to

revolution period of 28,000 years for each. Rig-Veda also confirms reference to Mahayugas and Kalpas and their duration as given in Brahma's life.

# "त्वं अग्रे प्रथमो अंगिरारुषिः देवो देवानां अभवःशिवःसखा"

(Rig-veda 1-31-1)

Meaning: Agni (vishuvat) is in Meshadi (First Point of Aries). Gods are in their respective places. i.e. the **ecliptic**, which is located in between Aswini star and middle of Chitra star, is on the Northern side of Equator.

As per Surya Sidhantha, Madhyamadhikaara, Brahma's life span:

"परमायुः शतं तस्य तया अहोरात्र संख्यया आयुषो अर्धमितं तस्य शेषकल्पोयमादिमः २१ कल्पादस्माच्च मनवः षड्व्यतीताः ससन्धयः वैवस्वतस्य च मनोः युगानां त्रिघनो गतः २२ अष्टाविंशद्युगादस्माद्यातमेतक्त्रुतं युगं अतः कालं प्रसंख्याय संख्यामेकत्र पिण्डयेत्। २३ ग्रहर्क्ष-देव-दैत्यादि स्रुजतोस्य चराचरं क्रुतद्रि वेदा दिव्यब्दाः शतग्ना वेधसो गताः २४

Brahma Siddhantha, Surya Siddhanta etc quoted in "Panchanga Peethika Lekhana Prakriya" — > 160 year old book — recently published by Rastriya Sanskrit Vidyapeetha, Tirupati.

#### Brahma's LIFE SPAN

BRAHMA'S LIFE is limited to 100 years in his time scale.

But Brahma's time scale is different from the time scale of human beings.

At the end of LIFE OF each Brahma, the world will come to an end.

Then another Brahma will come into being.

432 crore years for human beings = one daytime for each Brahma.

864 crore years for human beings = 24 hours or day & night for each Brahma.

Duration of a month (30 days) for each Brahma =  $30 \times 8,640,000,000 = 259200,000,000$  solar years for human beings.

Duration of a year  $(360 \text{ days}) = 360 \times 8,640,000,000$ = 3,110,400,000,000 solar years for human beings

Number of Solar years lapsed in present Brahma's life = 155,521,955,885,117 (2016) solar years.

100 years in Brahma's life = 311,040,000,000,000 solar years

#### <u>155,521,955,885,117</u> 3,110,400,000,000

= 50.0006 years lapsed in Brahmas life.

That is why, we say in Sankalpa "dwiteeya pararthe...."

We are now in 28<sup>th</sup>Mahayuga Each Mahayuga = 4,320,000 Years

In 28<sup>th</sup> Mahayuga we are in Kaliyuga. Kaliyuga's duration = 432,000 years.

5,117 (2016) years lapsed in Kaliyuga.

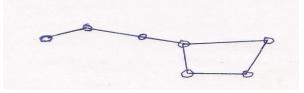
World and creation will come to an end only at the end of each Brahma's life but not at the end of each Kaliyuga.

Aadi-yuga means the very first yuga, where all the conditions spelt out earlier are satisfied, in the Brahma' life. In the present Brahma's life, 50.0006 years is over i.e. 155,521,955,885,117 solar years (2016), a little more than 1st half is over. That is 100 years in Brahma's life is 311,040,179,288,075 solar years. This is the Ayuh-pramana in present Brahma's life.

#### 4. VISHNUPURANA

According to Vishnupurana, \*Dhruva did penance. Having been pleased, Vishnu appeared and gave him a gift. As a reward for Dhruva's penance, "SaptarishiMandalam" revolves around Dhruva once every 26,000 years. "Based on this, annual precession may be calculated as 49".846. See how close it is to current estimate of 50".27.

### \*[a book "Nakshatramulu" in Telugu by Late Gobburi Venkatananda Raghava Rao]



"Saptarishi Mandalam" appears in the sky somewhat like this.

# 5. Whether Lagadha was author of Vedanga Jyotisha

#### **Author of Vedangas Jyotisha**

Many in India (even learned scholars) believe that the author was Lagadha.

"कालज्ञानं प्रवक्ष्यामि लगधस्य महात्मन:" — Vedanga Jyotisha — 1<sup>st</sup> sloka Meaning: I am transmitting the knowledge and wisdom of 'significance of time' to Lagadha Mahamuni (Mahatma). Who is 'I'? It is unknown. That is such texts are known as 'apaurushiyas'.

If Lagadha was the author, he would not have addressed himself as "महात्म". The expression "लगधस्य" would not have been used. That Lagadha was the author was advanced by some vested interests only to counter the fact that it was "apaurusheya". The fact is that Lagadha was a Special Purpose Vehicle used by the divine power for the purpose of transmitting the knowledge for the benefit of the Society.

# LAGADHA was NOT the author of VEDANGA JYOTISHA.

#### 6. Precession – before Vedanga Jyotisha

Enough evidence is given from Rig-Vedas to establish that Precession was well known to ancient Indians.

Between Vedas and Vedanga Jyotisha, evidence available re-iterates knowledge of Precession of Equinoxes. Here it is:

'**Udagayanam**' or beginning of Uttarayana – let us look at the details.

Sun was at the end of Stellar segment Dhanistha during Krittika Kaala. Sun was at the mid-point of Stellar Segment Dhanistha during Maitryopanishad period. Sun was at the beginning of Stellar Segment Dhanishtha during Vedanga Jyotisha period – beginning of Uttarayana occurred. Transit of Sun shifts towards the North when Uttarayana begins.

# "सुर्यो योनिः कालस्य .......मघाद्यं श्रविष्टार्धं"

Maitryopanishat

"आद्यं, अर्धं" ....these words indicate sub-divisions of each stellar segment into padaas / quarters.

"**नक्षत्राणि वसवः"** — these words indicate stellar segmentation of 27 Nakshatras.

# "यत्पुण्यं नक्षत्रं तत्वट्कुर्वीतोपव्युषं यदा वै सूर्य उदेति तदा नक्षत्रं नैति"

(१-५-१)Taithireeya Brahmana

# "वसवोवा अकामयन्त अग्रं देवतानां परियामेति ततो वै अग्रं देवतानां पर्यायन्"

(३-የ-५,८) Taithireeya Brahmana

Krittikaa Kaala is referred here.

# "सकल कर्मसु क्रुत्तिक: प्रथमं आचक्षते श्रविष्टातु संख्यायाः (प्रथमं आचक्षते)"

(Vedanga jyotisha Bhashya by Somakara)

Look	at	the	following	table.	Please	note	that
Vishuvat / equinox is moving backwards.							

Udagayanam	Day	Sun's	Before	
		position	Salivahana	
			Saka	
Krittika kala –	Purnima	End of	Year 2364	
Somaakarabhashya	in	Dhanishtha		
<ul> <li>VedangaJyotisha</li> </ul>	Maagha			
Maithryopanisat	Ashtami	Mid-point	Year 1883	
	in	of		
	Maagha	Dhanishtha		
Vedanga Jyotisha	Pratipat	Beginning	Year 1470	
	in	of		
	Maagha	Dhanishtha		

If the movement of equinox is forward, Sun's position should have moved, at the time of Udagayanam, from end of Dhanishta to beginning of Satabhisha. Instead, it moved from the end of Dhanishta to the mid-point of Dhanishta from 2364 before Salivahana Saka to 1883 before Salivahana Saka – in 481 years.

## 7. <u>Varahamihira's Sakakaala – Salivahana</u> Saka?

There was a lot of guesswork on the topic. Some of the results were:

- 1. That Varahamihira's period is the same as Sunyayanamsa period.
- 2. That Varahamihira and Mahakavi Kalidasa are contemporaries.

- 3. That Varahamihira's period is it Salivahana Saka or Vikrama Saka?
- That Kaliyuga 3042 / 59 B. C. that it finds a mention in the history of Kashmir Maharaja "Raajatarangini" and "Kutuhalamanjari"
- 5. That there was "Loukika Saka in practice"; that Saka began in 3077 B.C.; and when 'Dhruva' is deducted, it is 551 B.C.
- 6. That Brahmagupta's period is not 7<sup>th</sup> century but it is 1<sup>st</sup> century, therefore Varahamihira's period is much earlier.
- 7. Based on 10<sup>th</sup> sloka in 'Kalakriyavadam' in Aryabhateeyam Aryabhata's age was 20 years when Kaliyuga was 360.

Late Prof K V Sarma's (Krishna Iyer Venkateswara Sarma) Research Scholar's papers were published under the title "Facets of Indian Astronomy" by Rastriya Sanskrit Vidyapeetham, Tirupati. He concluded that it was Salivahana Saka 505 in his article 'Saka Era of Varahamihira'.

Prof Sarma argued that use of expression 'Saka Kala' in Varahamihira's books Panchasiddhantika and Bruhatsamhita is the basis for such conclusion.

Our attention is invited to 3<sup>rd</sup> sloka in Saptarishi Chara, 13<sup>th</sup> Adhyaya in Brihatsamhita reading as follows:

# "आसन् मघासु मुनयः शासति प्रुथ्वीं युधिष्टिरे

#### षड्द्वीक पंचद्वियुतः <u>शक काल</u>स्त स्य राज्ञ्श"

Meaning: Saptarishi Mandala was in 'Magha' Nakshatra during Yudhistira period. Any year in Sakakala + 2526 = yudhistira period.

Our attention is also invited to 8<sup>th</sup> sloka in 1<sup>st</sup> Adhyaya in Panchasiddhantika reading as follows

#### "सप्ताश्विवेदसंख्यं <u>शककाल</u>मपास्य, चैत्रशुक्लादौ अर्थास्तमिते भानौ यवनपुरे सोमदिवसाद्ये"

Meaning: When 427 is deducted from Sakakala, in the beginning of Chaitra Suklapaksha, Monday, at the time of Sunset in Yavanapura.

It implies that Panchasiddhantika was written by Varahamihira in Salivahana Saka 427. 78 must be added to get Christian Era. 505 A.D. is the year of Varahamihira.

In 1937 edition of Jyotirganitham, Sri Ketkar decided that Varahamihira's period as Salivahana Saka 450 which means 528 A.D.

There is unexplained difference of 23 years between Sri Ketkar's Jyotirganitam and the findings of Prof K V Sarma leaving it for the imagination of readers and scholars.

#### 8. Precession – Pendular or Circular?

In Surya Siddhantha, there is a chapter known as Triprasna-dhikara. There are four slokas 9, 10, 11 and 12 which suggest that the movement of Equinox is pendular  $-27^{\circ}$  on one side and  $27^{\circ}$  on the other side.

त्रिंशत् क्रुत्यो युगे भानां चक्र प्राक परिलम्बते तद्गुनात् भूदिनैः भक्तात् द्युगणाद्यदवाप्यते १ तद्दोस्त्रिघ्ना द्शाप्तांशा विज्ञेया अयनभिधाः तत्संस्क्रुतात् ग्रहात् क्रान्तिच्छायाचरदलादिकं १० स्फुटं द्रुक्तुल्यतां ग्च्छेदयने विषुवद्वये प्राक् चक्रं चलितं हीने छयाकत् करणागते ११ अन्तरम्शैरथावुत्य पस्चात् शेषैः तथा अधिके

Please see what Prof A. K. Chakravarty says in his commentary on Surya Siddhanta"

"...the language is cryptic, the principle is contradictory to the text itself and the results obtained are erroneous. These errors could be easily detected by Gnomon shadow. Except these four verses, the topic or its application nowhere occurs in the whole text... It is now believed that these verses were interpolated in the text in a later period. Such interpolations are not uncommon...." (The Surya Siddhanta, by Prof A. K. Chakravarty, published by Asiatic Society, Kolkata – page 113). To prove that Vishuvat does not oscillate like pendulum and what was alleged to be in

Suryasiddhanta is not correct, here is Satapatha Brahmana:

Satapatha Brahmana (2-1-2) says:

"एकं द्वे त्रीणि चत्वरीतिवा अन्यानि नक्षत्राण्यथैता एव भूयिष्टायक्त्कृत्तिका एताह वै प्राच्यै दिशोनच्यावंते शर्वाणिहवा अन्यानि नक्षत्राणि प्राच्यै दिश:च्यवन्ते"

There are many stars in the group of Stellar Segment Krittika. There are only 1, 2, 3, 4 stars in the other Stellar Segments. The Stars in Stellar Segment Krittika are always in the East. Other stars keep moving from the East.

Krittika Principal Star (yogatara) was 36° away from 'Aswinyadi', the First Point of Aries. If movement of Equinox is not circular, but oscillates like pendulum, it is impossible Dr Madhavan (kerala) says. If the slokas 9, 10, 11, 12 in Surya Siddhantha are not interpolated, they are inconsistent with *Rigveda* (8-96-13) and Satapatha Brahmana (2-1-2)

## 9. SIMON NEWCOMB (1835-1909) on Vishuvat

Newcomb was one of the scientists / astronomers who was associated with U. S. Naval Observatory. In the year 1867 A.D. He declared that annual precession was **50".2388**. The basis for Newcomb's

calculation is difference between 'siderial year' and 'solar year'. That is the annual precession.

	Days	Hours	Minutes	Seconds
Siderial Year	365	06	09	09
Solar year	365	05	48	46
Difference	-	-	20	23

Difference in Seconds (arc) = 1,223 seconds  
Sidereal year (time) = 315,58,149 seconds  
$$360^{\circ}$$
 = 12,96,000 seconds (arc)

In 315,58,149 *time* seconds
It can cover a distance of 12,96,000 <u>arc</u> seconds
In 1,223 time seconds ???

1,223 x 12,96,000
315,58,149

#### = 50".225 precession per year

**Simon Newcomb** later developed a formula, as given below, because annual precession is not static and it is changing.

## 50".2564 (for 1900 A.D.) + 0".000222 for every year.

The formula was changed and further refined in 2012 A.D. Now –

It is 50".245223 (for 2012 AD) + 000349 every year.

#### 10. <u>Luni-Precession –Percival Lowell (NASA)</u>

A scientist by name Mr Percival Lowell, who was with NASA mentioned about 'Luni Precession' in 1914. A rough paper was found providing explanation of Luni Precession. Conclusion was that every year 0".11 should be added. No additional clarification is available.

#### 11. My father's formula

My father, late Sri Pidaparty Krishnamurty Sastry, an acknowledged authority in ancient Indian Astronomy analysed and delved into the subject as on 1-1-1967 (for Godavari Pushkaram) as follows:

When one determines cumulative precession from the first point of Aries, following example may be useful and serve the purpose:

Cum.precession / Dhanishtha Cum. precession / Chaitra paksha	23° 35′ 15″.1 23° 22′ 50″
Sayana Dhanishtha Vedanga Dhanishtha Dhruva Cum. precession / Dhanishtha	316° 55′15″.1 <u>293° 20′ 0″.0</u> 23° 35′15″.1
Chitra Dhruva cumulative precession (Chaitra paksha) As per Indian Ephemeris	180°00′00″ 23°22′50″ 23°23′34″
Sayana Chitra	203°22′50″

#### **Difference**

0° 12' 25"

The difference is caused by natural movement of stellar segments.

Dhanishtha segment moves per year + 0".074 Chitra segment moves per year - 0".027

The distance between the two Nakshatras increases @ 0".107 per year. This must be added every year to the cumulative precession.

My father suggested 0".107 and Percival Lowell suggested 0".11 – a difference of 0".003 per year. My father's explanation is quite clear. I could not lay my hands on explanation given by Percival Lowell.

#### 12. U S Naval Observatory - (2014)

**United States Naval Observatory** determined total precession **in 100 years is 5028".8**. That is – **annual precession is 50".288**. This information was given to the writer by e-mail by Mr James Hilton [james.hilton@usno.navy.mil] on 23<sup>rd</sup> September 2014.

#### 13. Sunya-ayanamsa period/Location

Calendar Reform Committee decided cumulative Precession was 23° 15′ as on 21st March 1956 and annual precession at 50″.27. On this basis Sunyayanamsa period would be 291 A.D. Comparative table below provides more details:

Institution/Scientist	Annual	Sunyaayanamsa
	precession	Period
Varahamihira	50".00	282 A.D.
Newcomb (1)	50".225	290 A.D.
Newcomb (2)	50".2388	290 A.D.
Calendar Reform	50".27	291 A.D.
Committee		
U.S. Naval Observ.	50".288	292 A.D.

## Basis: Cumulative Precession in 2010 was 24° = 86,400"

These are at best, guesstimates.

Please see also discussion on 14. Chaitrapaksha vs Raivata Paksha Ayanamsa.

#### 14. Chaitrapaksha or Raivatapaksha?

This is no longer an issue. Even Calendar Reform Committee, in its report, chose to ignore the topic.

For the sake of good order, brief summary is given below.

Can we pin-point this location 0° 0′ 0″? It is not easy. There are two theories. These are known as "Chaitra Paksha" and "RaivataPaksha".

"Chaitra Paksha" is a method followed to determine cumulative precession from "First Point of Aries" using mid-point of Stellar segment Chitra as a basis.

"Raivata Paksha" is a method followed to determine cumulative precession from "First Point of Aries" using end of Stellar segment Revati as a basis.

There are 32 stars in Stellar segment Revati. Which star is a principal star (Dhruva) or Yoga Tara is difficult to identify.

Stellar segment Chitra has only one star – that too at the mid-point. This is recognized as 'Yoga tara". 180° on either side is the First Point of Aries. It is visible, easily identifiable and reliable.

Therefore "Aswinyadi" or 'Meshadi' or "First Point of Aries" is located precisely 180° away from midpoint of Stellar segment of Chitra

Chaitra Paksha is based on beginning of Stellar segment Dhanishtha and has the sanction of Vedanga Jyotisha and Garga Samhita etc. Therefore it is ancient. Perceptible difference one can notice in the table in 'B' under Udagayanam. Vishuvat moved backwards one half of stellar segment from Mytryopanishat period to VedangaJyotisha period indicating that Precession of equinoxes was known to ancient Indians.

Sun and Moon changed (Vedanga Jyotisha period) the direction from South to North (beginning of Uttarayana), according to Vedanga Jyotisha in

#### "स्वराक्रमे ते सोमार्की ...."

#### at the beginning of Stellar segment Dhanishtha.

In "यदा माघस्य शुक्लस्य----- "it is stated that Sun changes the direction from North to South (Dakshinayana begins) when sun is at the mid-point of Stellar segment of Aslesha. Then moon is in Stellar segment of Chitra.

{Sri Ketkar, author of Jyotirganita, has proved that the above mentioned incident occurred on 4<sup>th</sup> January 1421 B.C. – 1499 years before Salivahana Saka – Pushya Bahula Amavasya Budhavara (Wednesday). He might have ignored earlier cycles}

The division of Stellar segments was described in 'Daivajna Kamadhenu' based on Chitra Nakshatra only. Dhanishtha principal star (yogatara) is at the very beginning of Stellar segment Dhanishtha. Therefore 'Meshadi' or 'First Point of Aries' is 5 Stellar segments (Dhanishtha, Satabhisham, Purvabhadra, Uttrabhadra, and Revati) away i.e. 13° 20' x 5 = 66° 40'. Therefore Ayanamsas determined with reference to mid-point of Chitra Nakshatra segment are authentic and correct — they are known as Chaitra PakshaAyanamsa.

### In support of Chaitra Paksha Ayanamsa – Adharvana Veda

Since Dhanishtha principal star (yoga Tara) is located at the very beginning of Stellar Segment Dhanishtha, even Western Astronomers identified and recognized beginning point of Dhanishtha as 'Alpha Delphini' as a reference point.

In Indian Panchangas, year starts with 'Chaitra' month. This is based on Chitra Nakshatra. Look at this:

"चित्रावशतः चैत्रनिर्णयः" - Adharvana Veda

# Raivata Paksha ayanamsa is not authentic.

#### **Therefore**

One can now safely conclude that the recommendation made by The Calendar Reform Committee in its report in 1956 on Vishuvat Chalana and now being followed by the POSITIONAL ASTRONOMY CENTRE (Successor to Indian Ephemeris & Nautical Almanac Unit), Kolkata is not Ad-hoc, and arbitrary.

The Recommendation is fully supported by VEDANGA JYOTISHA and VARAHAMIHIRA'S PANCHASIDDHANTIKA and BRIHATSAMHITA

# C

#### **SUMMARY**

- Vishuvat-Chalana was known to our ancestors in India from Vedic period – References exist in Rig-Veda, Taithiryopanishad, Maithryopanishat, Satapatha-Brahmana, Vedanga Jyotisha, Garga Samhitha, Varahamihira etc.
- 2. Clear link from Vedanga Jyotisha to the recommendations of Calendar Reform Committee was established and matched with U.S. Naval Observatory's findings as recently as in 2014. They are neither adhoc nor arbitrarily fixed.
- 3. That Lagadha was not the author of Vedanga Jyotisha and it was "Apaurusheya" was also explained.
- 4. Meaning of "Aadiyuga" in Vedanga Jyotisha was brought out and highlighted together with elaborate explanation of Brahma's Life.
- 5. Demolished the theory that "Vishuvat-Chalana was pendular and not circular".

- 6. That Varahamihira's period was 450 Salivahana Saka was clearly broght out.
- My father's findings were matched with Mr Percival Lowell's LUNI PRECESSION' with a marginal difference of 0".003.

## WHY 1937 EDITION OF KETKAR'S JYOTIRGANITAM

#### **Background in brief**

Sri Venkatesh Bapuji Ketkar, a scholar who dedicated his life to ancient Indian Astronomy published a book 'Jyotir-ganitham' in 1897 A.D. It is a book containing tables — like a ready reckoner — to facilitate calculation and compilation of planetary positions for Panchangas. He lived in Bijapur now in Karnataka state.

Under the patronage of The then Maharaja of Mysore, 2<sup>nd</sup> Karnataka Astronomical Conference was held for two-three days in Mysore in 1934 A.D. where several scholars from South India participated to discuss various issues facing Indian Astronomers. Sir Vepa Ramesam, the then sitting judge of Madras High Court presided over the function.

Well known scholars such as Sri Venkatesh Bapuji Ketkar, his son Sri Dattatreya Venkatesh Ketkar, my father's second elder brother Sri Pidaparty Subrahmanya Sastry, my father Sri Pidaparty Krishnamurty Sastry and many others attended the function.

One of the issues, then facing astronomers, among other issues, was whether 'First point of Aries' also known as 'Meshadi' or 'Aswinyadi' should be reckoned with reference to Star 'Chitra' or 'Revati'. This is known as 'Chaitra Paksha' or 'Raivata Paksha'. Among other decisions, Conference decided in favour of 'Chaitra Paksha'. My father and my father's elder brother proposed and argued in favour of Chaitra Paksha ayanamsa and other related issues. It was carried by the Conference.

Sri V B Ketkar and his son D V Ketkar approached, at the end of the Conference, my father with a request - that they were convinced with the arguments presented at the Conference, that it was necessary to make significant corrections in 1897 edition of Jyotirganitham and that my father should make all the corrections before it is reprinted. My father proposed that his elder brother Sri Subrahmanya Sastry is an expert in Ganitha Sastra and that he alone can do this voluminous job. 1937 edition of Jyotirganitham is the effort of my father's elder brother Sri Subrahmanya Sastry. Incidentally, my father Sri Krishnamurty Sastry and his second elder brother Sri Subrahmanya Sastry studied ancient Indian Astronomy in Varanasi under learned the guidance of 'Mahamahopadhyaya' Muralidhar Jha. 'Mahamahopadhyaya' Pandit Sudhakar Dwivedi was their Paramaguru.

#### References

- Rig-veda
- AdharvanaVeda
- VedangaJyotisha
- Indian National Science Academy
- Satapatha Brahmana
- Taittiriya Brahmana
- Maitryopanishath
- Suryasiddhantha
- Panchasiddhantika
- Brihatsamhita
- 1937 edition of Jyotirganitam
- Report of Calendar Reform Committee
- Facets of Indian Astronomy Prof K V Sarma



# What aliens think of India's ancient history!

# Sole purpose of Vedas and Vedanga Jyotisha — in sloka 3

"वेदा हि यज्ञार्थं अभिप्रव्रुत्ताः कालानुपूर्व्या विहितास्य यज्ञाः तस्मादिदं कालविधान शास्त्रं यो ज्योतिषं वेद स वेद यज्ञान्"

Mr D W Whitney wrote: "...and when we come to add that the jyotisha (Vedanga Jyotisha) has no definable place in Sanskrit literature, or relation to the Vedic ceremonials ... we shall see that this famous datum which has seemed to promise so much, has caused so much labour and discussion, and is even yet clung to by some scholars as the sheet anchor of ancient Hindu chronology, is nothing but a delusive phantom."

#### Ref. Oriental and Linguistic studies, 2<sup>nd</sup> series, New York 1874 Page 384

Does Mr Whitney understand Sanskrit? Look at his arrogance? Shall we feel sorry for his ignorance?

Vedanga Jyotisha, according to Mr Whitney, has no definable place in Sanskrit literature??? Or Vedic ceremonials??? Did he ever see the tree below??



#### Mr. Whitney goes on to say:

Mr. D W Whitney wrote: "The so called vedic astronomical manual (Vedanga Jyotisha) whose first object seemingly ought to be to give rules on such points (as amavasya etc) is **mostly filled with un-intelligible rubbish**, and leaves us in the lurch as regards valuable information."

"Unintelligible rubbish..." - eloquently speaks about his intellectual level. We should allow Mr Whitney

to remain in the lurch which he very richly deserves.

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Mr. John Bentley had to say about our Yuga system "......The means were adopted by Brahmins for completely doing away their ancient history and introducing the periods now in use by which they threw back creation to the immense distance of 1,972,947,101 before Christian Era, with a view, no doubt to arrogate themselves that they were the most ancient people on the face of the Earth"

Ref: History of Oriental Astronomy, Proceedings of an International Astronomical Union Colloquium No 91, New Delhi, November 1985

In INDIA???,
National Capital Region, New Delhi???
As recently as in 1985???

Did we honour Mr. John Bentley with Bharat Ratna???

Probably there was a standing ovation for the eloquent testimony Mr. John Bentley gave India and Indians.