

CHRONOLOGY OF ANCIENT BHARATH

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Summary of The Chronology of Ancient Bharat

By

Prof. K. SRINIVASARAGHAVAN, M.A.,

The purpose of this book is to show the havoc played by the British Historians in the History and Tradition of Ancient Bharat.

Part I: CRADLE OF MAN: Geography, Geology, Anthropology and Rig Vedic Hymns show that Life was first evolved only in the basin of River Saraswaty. Man first appeared here about the time the Himalayas began to grow rapidly i.e. about 2 million years ago. The Human form was well established by the time the Himalayas stopped its rapid growth i.e. about a million years ago. The evolution of races and cultures was here in this cradle. Man urged by the wandering lust spread over the world in waves.

Part II: ELEMENTS OF ANCIENT HINDU ASTRONOMY: Astronomical data in ancient traditions and books give the correct dates of the events mentioned therein. The Vedic Astronomy is the oldest and its elements are explained here.

The Nakshatra system is the greatest discovery of Ancient Man in Bharat. In Part 2, The Aswinyadhi is correctly fixed for reckoning Ayanamsa.

Part III: KALI YUGADHI—ASTRONOMICAL & LUNI SOLAR: The mistakes committed by Bentley and others is shown clearly. The arrogant abuses of these scholars is proved to be baseless. 17/18 Feb. 3102 B.C. as determined arbitrarily by Bentley is shown to be wrong. The correct date of the conjunction of the 5 planets at the Zero point of the Zodiac of Vedanga Jyothisha is 10 Jan. 3104 B.C. The Luni solar Kaliyuga began on 28 Dec. 3101 B.C. with the sun and moon at the same point—Mid Shravishta.

Part IV: THE SAPTHA RISHI ERA or VAIVASWATHA MANVANTRADI: To all scholars of chronology, this is a real era, with cycles of 100 years. But so far no one has fixed the correct date of its beginning. It is shown that it began on Friday, 21 Nov. 8576 B.C. One important point to note is that the week cycle, the 5 year yuga cycle, 60 year cycle and 100 year cycle, began on this date with the sun and the moon at the beginning of the Zodiac of the Vedanga Jyothisha i.e. Mid Shravishta.

Part V: DATE OF MAHA BHARATA WAR: 22, Nov. 3067 B.C. The Maha Bharata is teeming with plenty of astronomical data which are all consistent. The Historicity of Maha Bharata is thus established.

Part VI: PURANIC CHRONOLOGY: The Puranas have clear and consistent Chronology. The British Historians have distorted the facts, and have written their own Purana of Bharat.

Part VII: The biographies and horoscopes give the date of birth of Sri Rama, Sri Krishna and Adi Sankara. These fit in very well with the Puranic Chronology. Sri Rama was born on 10, Jan. 4439 B.C. Sri Krishna was born on 27, July 3112 B.C. and Sri Adi Sankara was born on 18, April 608 B.C. The Paripadal verse on Vaigai was sung on 25 June 540 B.C.

The History of the Ancient Tamils is in general agreement with the other important events in the history of Ancient Bharat. Racially and culturally Bharat is one. The 2 race theory of the British historians was invented to help the policy of "divide and rule". There is no mention of 2 races in any ancient book of Bharat. The History of the Tamils is as old as the history of Bharat.

The doubts raised in the horoscopes of Sri Rama and Sri Sankara are clearly analysed and proved baseless.

The age of Buddha as found in the puranas agree with the age of Moryas. It was intended to civilise the nations that lived to the West and North West of India. It did not take root in Bharat. But when these semi civilised races invaded Bharat again and again, they were slowly absorbed and their religion—Buddhism, found a revival for a short time, till it was also completely absorbed.

Jainism and Buddhism gave birth to christianity and Islam. When these religions entered Bharat with the spirit of conquest, they were met by the upheavals of Vaishnavism and Sivaism and slowly silenced.

The History of Bharat from its very early days has been one of integration in all fields of human activities.

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Sri G. S. SAMPATH IYENGAR, B.Sc.,
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Chronology of Ancient Bharath

CONTENTS

- Part I : Cradle of Man
- Part II : Elements of the Astronomy of Bharat
- Sec. A : First Almanac
- Sec. B : Part 1 Nakshatras
" 2 "
- Sec. C : Chap. 1. Thithi, Muhurta, Lagna
" 2. Vara or week day
" 3. Kethus or Upagrahas
" 4. Error in the position of a planet
" 5. Appendix.
- Part III : Date of Kali Yugadhi
- Part IV : Date of Saptha Rishi Era
Chap. 1. Vaivaswatha Manvantradi or
Saptha Rishi Era.
" 2. Date of Kali Yugadhi and
Saptha Rishi Yugadhi.
" 3. The shift in the New Year Day.
" 4. Saptha Rishi Era and the related Eras of
Hindu Chronology.
" 5. A note on the Rig Vedanga Jyothisha.
- Part V : Date of Maha Bharata War
- Part VI : Puranic chronology.
Chap. 1. Royal dynasties from Vaivaswatha Manu
to the Maha Bharatha War.
" 2. Puranic History of Bharat from the
Maha Bharata War to the Salivahana Era.
- Appendix: Chap. 1. Age of Gautama Buddha.
" 2. Date of birth of Sri Adi Sanakaracharya.
" 3. Historicity of Sri Rama etc.
" 4. Sri Rama's Horoscope.
" 5. Time Reckoning in Ancient Bharath.
" 6. The Early history of the Tamils, according
to the Puranas and early Tamil Literature.
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PREFACE

Part I → A

This book has two parts; the first part fixes the Cradle of Man and the second part deals with his knowledge of Astronomy and the time when he framed the first Almanac.

It is not mere patriotism that prompted me to write this paper. It was an earnest desire of mine that I should put in writing what I learnt from my Acharyas, and what I added to it. Since this traditional knowledge is fast disappearing and is giving place to a disbelief in the Vedic age, I felt it my duty to publish this; a few of my friends goaded me to do so, and but for their sustained enthusiasm, I would not have picked up enough courage to write this book.

I wish to repeat the words of Lokamanya Bala Gangadhar Tilak: "I shall consider myself well rewarded if this essay does in any way contribute to a fuller and unprejudiced discussion of the high antiquity of the Aryan civilisation".

Evidence is brought in from Archaeology, Anthropology, Astronomy, Geology, Geography, Palaeontology, Rig Veda, Sanskrit literature, and the works of the Indian and western Oriental scholars.

In the first part, it is established that the valley of the River Saraswathy (the present Ghagger) in the broad flat plain between the Rivers Sutlej and Jumna in the Punjab, was the home of the earliest man and his culture.

In the second part, is explained the origin and development of the concepts of Nakshatra, Thithi, Vara, Masa [solar, lunar and luni-solar], Rithu, Ayana, Varsha, Yuga (cycle of 5 years), Saptha Rishi cycle of 100×27 years, Kali yuga Era Saptha Rishi Era (or Vaivaswatha Manvanthara Era). These are regularly repeated by the Hindus in their daily sankalpa (prayer etc). The Rig Vedic Rishis must have had an era to reckon time, and an almanac to regulate the annual sacrifices. There was greater need for the almanac, since they were great navigators of the inland waters of the "Sindhu" and the "Rajaputana Sea", and of the open Southern Ocean (Arabian Sea), with their regular winds and tides. The exact dates of the Kali Yuga and the Saptha Rishi Era are accurately determined by mathematical methods. (page 32, chap. VII).

I must thank Dr. V. N. Sharma, Ph.D., Professor of Indology and Principal, Children's Garden School, Mylapore, Madras, and Sri. K. J. Sharma, B.T., Retired Lecturer, National Theosophical College, Adyar, Madras. They have spent many hours with me in framing the subject matter, and drawing the necessary maps.

Prof. K. Subramaniam, M.A., Additional Professor of Mathematics, Vivekananda College, Mylapore, Madras, Professor L. V. Subramaniam M. A., Professor of Mathematics, Vivekananda College, Agatheeswaram, Kanya Kumari District, Madras State, Professor T. S. Kuppanna Sastriar, M.A., L.T., a scholar of Siddanta Jyotishas and Retired Professor of Sanskrit, Pudukotta College, Madras State, and Professor V. Rajagopal M.A., Professor of Sanskrit, Vivekananda College, Mylapore, Madras, have helped me a good deal. My thanks are due to them for their invaluable help.

I must thank Dr. George Kuriyan Ph. D. Professor of Geography, Madras University. In spite of the very heavy work on hand, he was able to spare time to go through the manuscript, and discuss the various points in detail. He suggested many changes to improve the presentation of the subject matter. It is his encouragement that emboldens me to present this to the readers.

My thanks are due to Professor R. S. Chakravarthy, M.A., Retired Professor of History, Vivekananda College, Mylapore, Madras. He was a source of inspiration at every stage. He discussed the subject with me in detail and went through the manuscript carefully. The present form of the book is due to his intellectual guidance.

I must thank the Srinivasa Gandhi Nilayam Press, Mylapore, Madras for their earnest cooperation.

I request the readers to write to me their suggestions, criticisms and remarks.

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PART I

THE CRADLE OF MAN AND THE HOME OF THE ARYAN CIVILISATION



Where on earth was man first evolved? Was it in one centre or simultaneously in more than one? Which was the primary centre of culture?

Great Scholars have tried to find a solution to the above problems. From Von Hackel to the present day, many theories have been postulated. They have pressed in their service, geology, palaeontology, archaeology, anthropology, comparative grammar, comparative religion, etc., We shall first give a short summary of their final findings: (Ref. 3)

I. The Geologists have divided the age of the earth into Eras, based on the different life-forms obtained from the fossils. They are :

- (i) Pre Cambrian : No life : Before 600 Million years ago.
- (ii) Paleozoic Era : 600-210 Million years ago
[Cambrian is the first age in the Paleozoic Era, when life forms were evolved]
- (iii) Mesozoic Era : 210—60 Million years ago
- (iv) Cenozoic Era : up to the present.

The Cenozoic Era is divided into the Tertiary period up to 1 Million years ago and the Quarternary period up to the present. The Quarternary period is divided into

1. Pleistocene epoch-up to 25,000 years ago, and
2. Recent epoch up to date.

The geological epochs of the Quarternary period in detail are :—

- (i) Early Pleistocene : 1,000,000 BC.
Gunz glaciation : 750,000 BC.
Interglacial period : up to 450,000 BC.

(ii) Middle Pleistocene :

- Mundel glaciation : 450,000 BC.
- Inter-glacial period : 250,000 BC.
- Glaciation : 250,000 BC.

(iii) Late Pleistocene :

- Inter-glacial period : 180,000 to 70,000 BC.
- Wurm glaciation : 70,000 BC.
- The present inter glacial period.

II Skeletal remains of Man have been obtained in different parts of the world, and their ages are fixed by the age of the surrounding strata : (Ref. 8)

They are—

- A (i) Zinganthropos : 1,750,000—Africa
 (ii) Australo Pithecius " " "

These two species knew the use of tools and fire.

- (iii) Pithecanthropos : 500,000 BC.—Java
 (iv) Sinanthropos : " " Peking
 (v) Hidelberg : " " Europe
 (vi) Swans combe man : 250,000 BC. "
 (vii) Neanderthal man : 250,000 BC. "

These knew the use of tools and they buried the dead.

- (viii) Fonte chevade Man: 150,000 BC.

All the above races have completely died out.

- B. (i) Chancelade Man }
 (ii) Cro-Magnon Man } 80,000 BC.
 (iii) Homo-Sapiens }

Type B races did not spring up from any of the previous races. The two types A and B lived together for a long time, the earlier race slowly died out, and the latter developed fast and spread over the earth.

III A. Again during Wurm glaciation i. e. *during the upper Paleolithic age*, the homo-sapiens (true men) appeared suddenly, grew into large numbers and peopled most of the earth including the Americas. They developed arts and crafts and were mostly Cave men in the beginning. There is evidence that Homo Sapiens lived in India about 200,000 BC. (Ref. 1)

B. Mesolithic age—The above race of man spread into Europe from Western Asia about 80,000 BC. (Note 1.) They had sickles, reaping knives,

pestles, and mortars, built round huts, and brick walls. They had goats and dogs, and knew fishing. They reached Europe many milleniums after their development in Asia. (Note 2)

C. Neolithic age: Revolutions in the history of man in the east made them go into Europe and Africa in waves from 20,000 BC. (cf. Anceint Egyptian and Sumerian civilisations) They built villages, knew the use of copper, and made pottery. They had developed the art of weaving. Religions grew up and sculptured images were well fashioned. Language and writing were well developed. There is evidence to show that they lived at Susa in 25000 BC. This Sumerian culture spread all over the world. Many historians have written in detail about the spread of this culture.

Waddell: "Makers of civilisation", emphasises the theme that Sumerian culture is Aryan and that the Aryans spread over the whole world. Thus they conclude that early man lived in Northern Persia or Turkistan. There are some historians who favour the central Asian Home of man. Racial prejudice would not permit them to move eastwards to the plains of the Punjab (Ref. 2). Great scholars and eminent geographers fell a prey to this prejudice.

During the ages ascribed to the birth of Man (Note 3) Turkistan was a sea, and when it later dried up, it became a semi-desert. Moreover there are no remains of early human occupation here. This area could not have supported vast numbers of fast-growing population. The geographic factors necessary for the development of man and culture did not exist in this region at that time.

IV. Let us now see the state of the surface of the earth when the homo-sapiens were just evolved. Just before the dawn of Man, the surface of the earth underwent many changes, breaking, sinking, tilting, rising etc. But there were fairly long intervals of stable existence also. About 2 Million years ago, there was a terrible crumpling and heaving of the crust of the earth. Old mountains were shattered to pieces, oceans were filled up, new mountains and oceans were formed. Volcanoes continuously poured out their lava for thousands of years. Geologists term this wild change, the Alpine storm. This storm settled down about a million years ago. During the storm, "Lemuria" the great continent which extended over the whole of the Indian Ocean and South Pacific ocean was shattered and sunk leaving a few pieces alone. The Arabian Sea came into existence (Ref. 12). The Arakanyomas of Burma extended south through Andamans and Nicobar to Sumatra (12). But this storm was not violent in Western Himalayas, which rose slowly from the

bottom of the sea. (Note the Jhelum's course in the Kashmir valley). The violence of this upheaval was not felt very much in the region bounded by the Siwaliks on the north, the Aravallis on the west, and the Vindhya in the South. (Note 4). The region to the South of the Vindhya, the Deccan, remained almost unaffected.

Again

- (i) The Gobi was a fresh-water sea draining into the Pacific.
- (ii) Western Turkistan, Caspian, Black sea and the Pripet marshes were one sheet of water draining into the Atlantic.
- (iii) The Sahara was divided into 2 big seas.
- (iv) The Rajaputana desert was a fresh-water sea draining into the Arabian sea. (Note 5), Most of Cutch and Sindh was under the sea. (12). The Sindhu (Indus) fell into this sea at a point very near the site of modern Mohanjadaro. The River Saraswathy (the present dry bed of Ghagger) and its tributaries the Apaya, Dhrishadvati, Ila and Bharati, rose in the Sivalik range and flowed into the Rajaputana sea, after watering the flat plain between the Sutlej and the Jumna. The Sutlej and Jumna flowed directly into the Rajaputana sea and had their own valleys. The Ganges, and the Sarayu fell independently into the shallow eastern sea, which spread over the present southern and eastern Gangetic plain. (1,12)
- (v) The climate was mild all over the world, including Northern Siberia, allowing easy migration of animals between Asia and America. (4) The midworld mountain belt across the Pacific was another link between Asia and Americas. (2) The architectural and cultural link between S. E. Asia and Mexico, central America and Peru through the Polynesian Islands can still be seen.
- (vi) The S. West Monsoon was not there. (Note 6) Strong winds blew from the N. W. and there was heavy rain in the N W. Himalayas. The rivers of the Punjab were always in flood. The region to the south-east in the present Dandakaranya was a desert (it was only after the birth of the S. W. Monsoon this area became densely forested, and the Ganges became a great river and the Saraswathy slowly dried up.
- (vii) The flat plain between the Sutlej, the Jumna, the Sivalik. range and the Vindhyas remained unaffected by the violent geological changes (Note 7) It had an excellent climate and had all the geographical factors necessary for the evolution of Man. (2,7,12)

It was in this geographic setting that Man was evolved. The evolution of man was almost during the same one million years that saw the settling down of the Himalayas. All the geographic factors necessary for the birth of man *'existed here alone and it was here alone* man was created. (Note 8) *From a common stock* the many branches of human evolution started. The urge to roam over land and sea made him spread rapidly over the whole world.

V. No ancient nation, except the Vedic Aryans, has asserted in its books and legends its own country as the place of its original home. (19) *It is the Rig Veda alone* that asserts in clear and unambiguous words, that man was first born on the banks of the River Saraswathy, (Note 9) and that it was from here, that early Man moved out colonising every habitable place. They named them Aryana Vijeya, Sumeria, and so on. Again from these secondary centres they moved still further west and north and spread over the Earth.

Let us impartially compare the ancient centres of culture. They were all river valleys i The Indo-Gangetic plain ii The Nile valley iii Iraq and iv others. In extent the Indo-Gangetic plain was a very vast area compared to the others. It extended over 1500 miles from east to west and over 1000 miles from the densely forested Himalayas on the North to the desert and inland sea of Rajaputana (draining into the Indian Ocean) on the south. It was watered by over 15 perennial rivers (described in the R. Veda). It had very good rainfall and a marked season of rainfall flooding the rivers regularly. The climate was mild. There were extensive and excellent areas fit for wet, dry and garden cultivation (R. V). Large tracts of very good pasture land lay to the west and to the east of the inland sea, where the horse, the sheep, and the cow found a natural habitat. Compared to this what are the other short narrow ribbons of green extending to not over a mile on either side of the rivers flowing through very bad deserts in the other centres. Hence it is no wonder that Nature chose the Indo-Gangetic plain as the focus for the creation of man and the development of culture.

VI Let us now read the words of the Rig Veda on this subject : The following are taken from (i) Vedic India by Sri S. R. Das (5) and (ii) Manavasrishti Vijnanam" by Sri Kota Venkatachalam (19) and others.

- (i) Saraswathi, the consort of Brahma, the creator, is his creative power.
- (ii) R. V. 3-33-4 This creative centre of man, River Saraswathy, was made by the Devas.

- (iii) R. V. 3-33-47 Oh! Saraswathi, you are the generating agent appointed by the gods.
- (iv) R. V. 1-1-3-10 O! our dear sacred Saraswathi.
- (v) R. V. 1-1-3-11 The River Saraswathy is the inspirer of harmonious expressions, prescribes rules of conduct to be practised by the meritorious and is the custodian of sacrifice.
- (vi) R. V. 1-24-9-8 I invoke the waters of Bharati, Ila and Saraswathy for inspiring in us prosperity and knowledge.
- (vii) R. V. 2-4-9-17 *All life takes its origin from your womb.* You are the incarnation of the Goddess of Energy Abundance of flood and rapid in its flow, to those accustomed to religious rites it bestows sublimity of penance.
- (xii) Manu 2-17 The land chosen by the gods between the Saraswathy and Drishadvati is called Brahnavarta. It is so called because Brahma the creator, descends here again and again.

VII Let us now consider what the Puranas say on this subject :—

- A. According to all puranas Devahuti, the mother of mankind, the first daughter of Swayambu Manu, lived with her husband, Rishi Kartama, on the banks of R. Saraswathy.
- B. The River Saraswathy has the greatest number of holy places along its course, and is the holiest of rivers.
- C. The Bhagavad Gita had its birth in Kurushetra, on the River Saraswathy.
- D. The ancient Saptharishis—the progenitors of the Human Race lived in this region.
- E. The Holy fire was first kindled on the banks of R. Saraswathy by the Seers Brighu, Angiras, and Atharvan.
- F. The Agamas, and the Puranas were first expounded in this region.
- G. The first Astronomical observatory was established here, and the first calendar was brought forth from it. The meridian of the Saraswathi Triveni—the junction of Bharati, Ila, and Saraswathy—is still the prime meridian of Indian astronomers. The observatory at Ujjain (that was built later) is on the same meridian.
- H. During coronation and Raja Suya Sacrifice, the emperors were bathed with the waters of Saraswathy.

- K. In the Rig Veda, Saraswathy is mentioned in 73 places, Sindhu 19, Yamuna 3, Ganga 2, and the rest only once. R. Saraswathy is considered the holiest of Rivers. Mahabharata Salya parva, chapters 35-55, describes the many holy ghats on the Saraswathy from its mouth at Prabhasa to its rise in the Siwaliks. No other river is described in such detail in any Purana
- L. Swayambhu Manu (the self created man), is called 'Bharata' in the Rigveda, since he 'bore' mankind in himself. The children of Manu (all mankind) are called Bharatas.
- M. Rishi Vasishtha, the son of Mitra (the sun God) was the high priest of the solar cult and the solar line of kings. It was here that he established the worship of 'Sun' as the greatest of Gods, and built temples for him. He travelled far and wide, over land and sea, and spread his religion all over the world (words of Agastya in R. Veda) All the ancient nations, Sumerians, Egyptians, Babylonians, Chaldeans, Mexicans, Peruvians, had great and splendid temples for 'Sun', their greatest God. Huge golden idols were installed in these temples. Again it was from here the culture of the Sumerians, (Note 8) the Panis of R. Veda (The Phones of the Mediterranean), the Yadavas, and others spread over the whole world, educating, and civilising the wild nations scattered over the world.
- N. The horse was evolved to its present form in the Siwalik region and the cow in the region between the Yamuna and the Vindhya (16) The sanskrit name for the horse is Saindava (product of Sindhu region). The natural home with the greatest number of cows is still the region west of Jumna. To the ancient Aryans these two were very sacred animals. They were well tamed for the home and the field. (Rig Veda) (20).

Many scholars have written about the glorious Rig Vedic civilisation and the expansion of the early Aryan culture. The motto of the Aryans was "Kurvanto vishvam Aryan" (make the entire world Aryan). (15)

It was in an unholy day the European Orientalists *introduced* the word *Aryan Race* for which there is no reference in the histories and mythologies of all nations (4, 15). This has caused the evil of bringing forth many races into the market of history and consequent misery to mankind. Again the search for the home of the Aryan Race (these 300 years) is just like searching for a black cat in a dark room when it is not there. All men are the children of Manu and all are Bharatas (10.) In very ancient times they all spoke prakrits of Sanskrit (15). It is this aspect of language that has caused confusion in the minds of oriental

scholars. It is time for the barriers of race to be removed and the brotherhood of man established.

Hence we may conclude that the birth and growth of the Human race was here in the basin of the R. Saraswathy, and it was from here that Man spread over the world in waves and established subsidiary centres of culture. (2, 4, 20).

Note 1. 80000 years ago, the Mediterranean sea was divided into 2 lakes. Europe and Africa were connected through the Gibraltar and Sicily. Northern Greece and Asia Minor were continuous land. The lowlands of Turkistan, the Caspian sea, the Black sea, the Pripet Marshes and the Baltic sea were one continuous stretch of water.

The Neanderthal man was found in Africa and Southern Europe. It was then the Cro-magnon man entered Europe (from western Asia), and over came the earlier Man who was there before him.

(1) Irving and Hannah Goldman : "First Man".

P. 35 : "Cro-Magnon Man appeared in Europe, no one really knows from where, and they brought with them a new and richer life"

(2) Patrick Moore : "The true book about Man"

P. 86. "Cro-agnon man arrived in Europe between 50000 and 80000 years ago, and he may well have fought and destroyed the struggling Neanderthals."

There are many other writers expressing the same view.

Note 2. The whole paragraph is a summary of the views expressed by i Gamow in "A planet called Earth" (1963) ii Bowen (R.N.C.) "The exploration of time" (1958) iii Bates (D.R.) "The planet Earth" (1957)

Note 3. It is surmised by western scholars that Sumerians from Persia entered the Punjab and Sind and became the early settlers in India (about 20000 years ago). Then another nomadic people came into the Punjab from Turkistan or Persia. These are called Aryans (ie between 20000 and 10,000 years ago)

Durant : "Story of civilisation"

Page iii. "Sumeria"-About 20000 years ago there lived in Susa a people called Elamites in the Bible-"A people of unknown race and origin". They had copper weapons and tools. They cultivated grains, domesticated animals. They wrote (in hieroglyphic) business documents. They had mirrors and jewellery and carried on trade from Egypt to India. They had the potter's wheel, and waggon wheel (found later in Egypt and Babylon). The city survived 6000 years till the 14th century A.D.

Page 118. Despite much research we cannot tell of what race the Sumerians were, nor by what route they entered Sumeria. The legend is they sailed in from the Persian Gulf. They were non-Semitic and had milleniums of war with the Semetic people around them.

Page 119. Their dress, form of goverment, history, mythology (dynasty from 432000 years) are exactly like those of a Hindu Puranic story They called themselves Aryans. They had city states, with a central temple for a God or Goddess.

Page 124. They worshipped Sun God as their important.Deity, and had big temples built for him.

Page 394. The oldest civilisation is the Indian Civilisation.

(2) *Waddel- "Makers of civilisation"*

The Aryans of India settled in Susa and then they were called Sumerians. They spread over the whole world carrying the torch of culture to every country and every people.

Note 4. Dim memory of this is given in the Rig veda. "In the beginning Indra fixed up the shaky mountains. He fixed the rolling earth. He pacified the shaky mountains".

Note 5. Prof Hora of Delhi : "The fossil of a fish found in the Rajaputana has revealed that it was a fresh water sea. A description of this particular fish is given in the Rig Veda.

Note 6. The South West Monsoon of India is caused by the Gobi and Rajaputana deserts. Since they were seas during the Rig Vedic times and earlier, the wind system and rainfall were not of the Monsoon type. According to the Rig Veda, the wind came almost always from the North West, and there was a marked season of rainfall for two months only, commencing one month after the Summer solstice. The Puranic story is that during the rule of Emperor Sagara, earth quakes and volcanoes changed the face of the earth and caused tremendous havoc by destroying many lands and peoples. It was during the days of his grandson Bagiratha, the Monsoon began and the present Ganges was born. Hence she is called Bhagirathi.

Note 7. The Sivalik ranges slowly rose up, when the salt ranges were also formed. This is possibly before the birth of the Himalayas. There was a second pushing up of the Sivalik ranges in recent times when the Saraswathy dried up together with the Rajaputana sea, and the valleys of the Jumna and Sutlej were deflected to their present position.

Note 8. i It is supposed that no life existed in the world in the pre-cambrian age. But a study of the salt ranges of the Punjab has revealed

precambrian life forms, thus clearly proving the origin of life in the Punjab in the region of R. Saraswathy.

ii The Sivalik ranges of Punjab is a Museum revealing the various stages of the evolution of the horse, the hippo, etc. Again this region was inhabited by a large number of many varieties of apes, and early Man, and they roamed all over the region from Spain to Java. Prof. E. Smith thinks that Man must have evolved only here (Refer: Evolution of Man Pages 100-101)

Note 9. There are many Rig Vedic verses asserting the Saraswathy Basin as the Home of Man (Bharatas). Since Man bore Mankind in himself, he is called Bharata. There is not a single reference to their having come from outside.

Murrow (T). "The Sanskrit Language"

"For the Indo-Aryan Invasion of India, no direct evidence is available.....In the text of the RigVeda itself, although allusions are not uncommon, there is no reference anywhere to the fact of the migration nor any definite indication that it was still remembered.

Notes on Maps I and II : Before 8000 B.C.

1. The ancient Mediterranean sea of Eurasia extending from the Baltic over the Pripet marshes, Blacksea, Caspian sea, Aral sea and Lake Balksh to the Arctic Ocean.

2. The Mid Asiatic sea covering the area of the Tarim basin and Gobi desert.

3. The Rajaputana sea.

4. The Eastern Gangetic basin sea.

5. The Isthmus of Bosphorus connected Asia and Europe over a broad passage.

6. There was a continuous land mass from Burma and Malaya extending over the Malenesian and Polynesian islands right up to Central America — The Mid world moutain belt of fold mountains.

7. The broken bits of the Lemurian continent extending over the south western Arabian sea up to Madagascar.

8. The land mass connecting Southern India and Ceylon extended almost upto the Equator.

9. The distribution of water masses over Central Asia caused a mild climate over the whole area and the rivers of Punjab were almost always in flood. There was a definite season of 2 months when there was heavy rain in Punjab. The wind system was mostly from Northwest.

There were storms in the Rajaputana sea, and the Arabian sea had a one way wind system that helped navigation along the south coast of Western Asia and East coast of Africa.

Mohenjadaro (the city of Panis) (the city of the dead, as it is called) was a very busy sea port and the trade was entirely in the hands of Panis [Phoenicians] who established colonies all over the coast line of the Arabian sea, from East Africa to the southern tip of India. The Yadus and Turvasus became rivals to the Panis on both land and sea and went to all corners of the earth. The Yadus established the south Indian colonies and got mixed up with the earlier settlers who came from the basin of the Narbada by land, crossing the Central Indian forests, deserts, and mountains. (Dandakaranya was a desert) Dwaraka was the gate way for foreign trade (Dwaraka = gate-way city) Broach or Brighukatcha was another important port. The shallow sea and marsh of the eastern Gangetic plain and the Chota Nagpur high land did not allow easy trade routes to the Bay of Bengal. Later Orissa became a maritime centre, as more people moved towards the east coast of the Deccan.

10. The Indus, the Sutlej (Satadru - river of many courses or shifting courses Ref. Imperial Gazetteer of India), Yamuna and Saraswathy fell independently into the Rajaputana sea. Most probably the Chenab also had a direct course to the Rajaputana sea (and did not join the Indus). The flat plain of these rivers extended over a large area, had a good climate and had all the facilities for the development of culture and rapid increase of population.

Notes on Map III: 3000 B. C.

(i) Sometime about 8000 B. C. there was a slight tilt in the Asiatic land mass, the northern parts rose up gently and the southern coastal area sank down slowly.

(ii) The course of the Jumna was deflected and it joined the Ganga. The Monsoon helped the Gangetic plain and Punjab became slowly drier (till 1000 A. D.)

(iii) The mountain system of S. E. Asia with its broad plains extending over the Pacific slowly sank down and that which is left of it is the many thousand islands, big and small with their old inhabitants in an uncivilised state.

(iv) The straits of Bosphorus broke open and helped in drying up the Asiatic Mediterranean sea by allowing the water to flow into the European Mediterranean sea.

(v) The Rajaputana sea become a rich and fertile plain well watered by the many canals of the Indus, Asikini and the Saraswathy. The eastern Gangetic trough dried up and became an extensive plain well watered by the many rivers flowing from the Himalayas in the North and the Dandakaranya on the south. The Gobi and Caspian area became drier and the climatic features of Asia completely changed. The S. W. monsoon of India was born, flooding the rivers of India for nearly three months in the year. The Rajaputana remained a fertile plain till about 1000 A. D. (Refer. Imperial Gezetteer of India) and then it rapidly became more and more of a desert.

- (vi) As the Gobi region became drier, many millions moved out
- (a) some went over the Bering to North America ;
 - (b) many moved west ward into Europe and western Asia ;
 - (c) Movement into Southern China was prevented by the heavy monsoon and the sinking of the Pacific ;
 - (d) The exodus from India joined the stream from central Asia. This combined stream keeping their cultures almost unaffected, moved over the whole of Europe and Africa till they met the old inhabitants of these lands and drove them further away.

(vii) The big island of S. W. Arabian sea sank leaving the present scattered islands.

(viii) Therefore during 8000 B. C. to 1000 A. D. there was a rapid increase in population in India where from many migrated to all parts of the world.

Notes on Maps III and IV

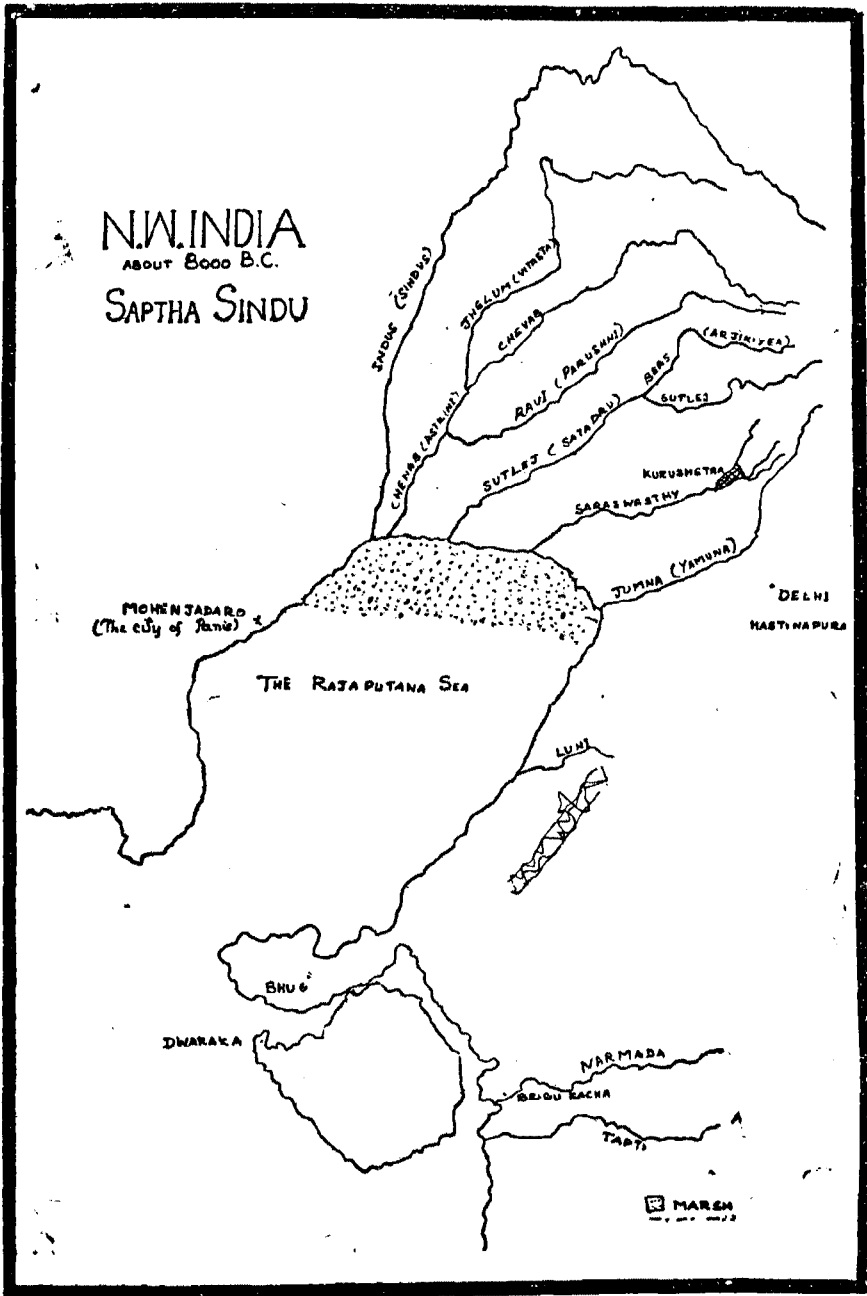
(i) As the Desert of Rajaputana got established many migrated from this area to the south of India during 3000 B.C. to 1000 A.D. A Rann (marshy sea) separated Kathiawar from the main land till about 500 A.D. The greater Ramn was almost a sea till about 1850 A.D., when a huge sand bank rose up between the Indus and Cutch and closed up the western end of this sea, which turned it into a Rann, as we see it today.

(ii) When Rajaputana was a fertile plain, the Indus, the Virasta and the Saraswathy canals watered the area. The Saraswaty entered the sea north of Cutch (present Ramn) at its eastern end and joined it flowing westwards, at the port of Prabhasa—a very holy place, where according to Mahabarata and Bhagavata Purana the Yadavas perished in a civil war.

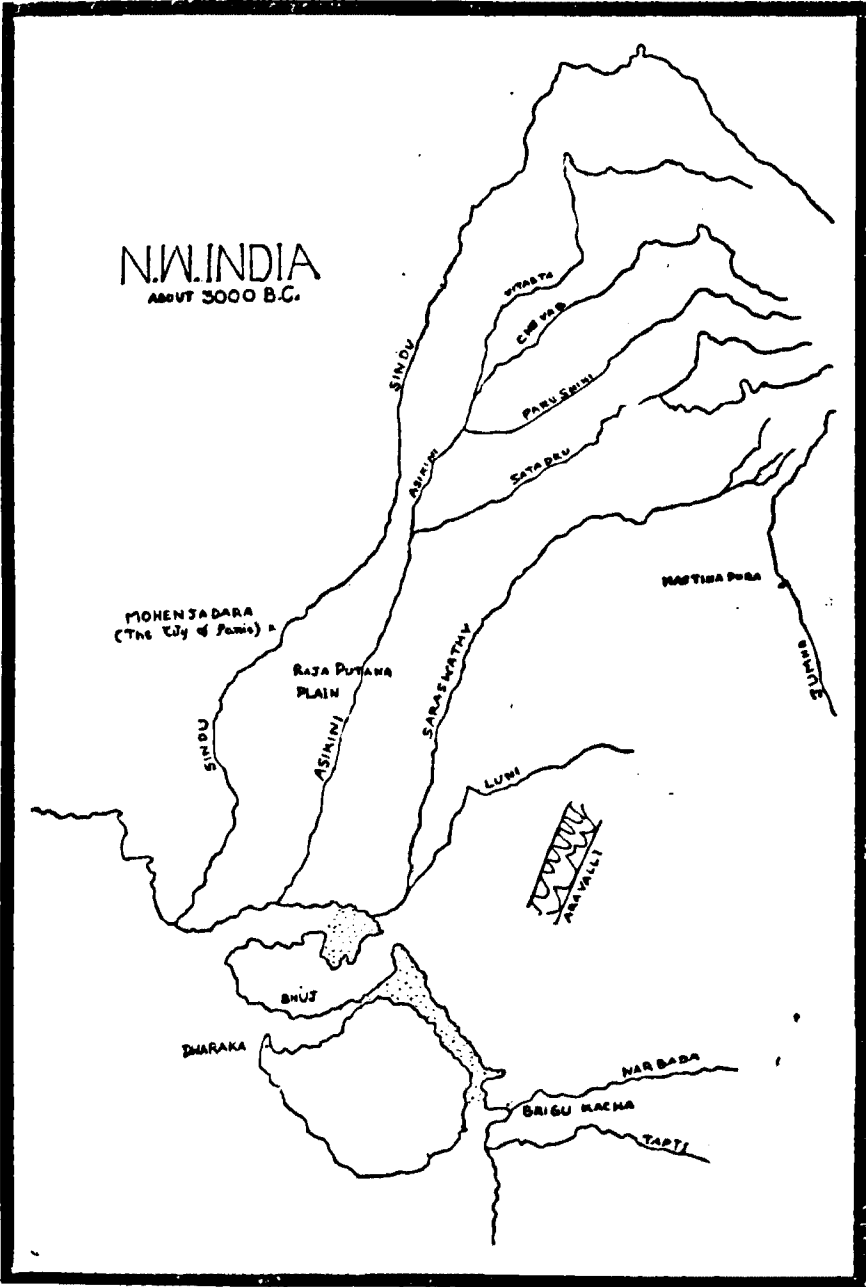
The Imperial Gezetteer of India gives detailed description about the changes that occurred in this area.



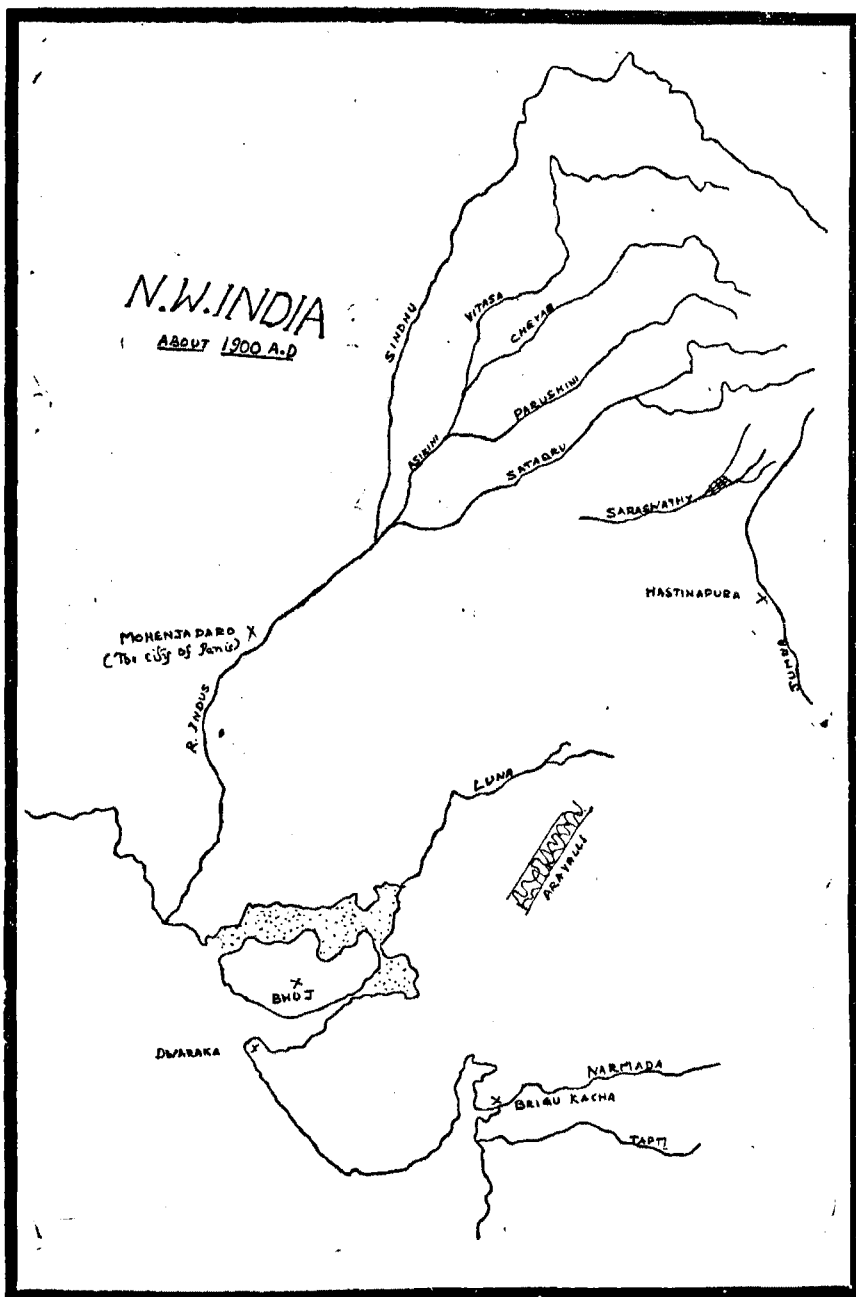
Map I



Map II



Map III



Map IV

Detailed Notes from Reference Books for Part I

I. *Basham (A. L.) "The wonder that was India". (London)*

Page 10—Palaeolithic pebble tools of the Sohan culture in Punjab—400,000 to 200,000 B.C. (Possibly the work of primitive anthropoid types like the pithecanthropus of Java).

The "Madras Industry" of South India of the same period indicates a more advanced type of man - Homo Sapiens.

The Ganges Valley was a shallow sea (at this time) but the two areas were connected by the Rajasthan uplands. "They lived for many millennia in India, and their blood may still flow in the inhabitants of Modern India." "Homo Sapiens continued in India, his skill and technical equipment imperceptibly improving down the ages..."

Page 11. He was a hunter and food gatherer at first, but slowly developed agriculture and built villages,

Page 14. Harappa and Mohenjadaró - cultures discussed. They traded with Sumer and the Indus seals are found in Sumer, Babylonia etc. indicating permanent residence of Indian merchants in those places. Each merchant had a seal, (it seems). 2000 seals have been found so far

The script had some 270 characters.....

2. *Bates (D.R.) - "The planet earth" 1957*

Page 121—129. "Climate in the past"

"It is not an accident that so many of the earliest civilisations grew up in certain fertile regions from Egypt to N.W. India, whose climates (and natural resources such as large permanent rivers for additional water supply as well as for communication) have much in common. Nor is it an accident that "rain-making" continued to be one of the most important priestly functions.....".

Page 162—Sea level and Isostasy.

Rise in sea-level since last glaciation.

Time in 1000 years before present	0	1	2	3	4	5	6	7	8	9	10	12
Sea level, feet below present	0	4	8	12	18	20	26	44	49	62	79	122

3. *Bowen (R.N.C.) Ph.D. B.sc. "The exploration of time" 1958.*

Introduction—"for the field of geo-chronology (i.e., science of dating), Physical, Chemical, Astrophysical, Astronomical, Botanical, Zoological,

Geographical, Archaeological, Anthropological, Meteorological Methods are used.

Page 100-126—Types of man

120-122—Home of Man

124 —Human remains

4. *Brooks (Robert R. R.)—Two parallel ancient civilisations"—*
"Span April 1966"

"The first Americans came from Asia 25000 years ago.—They came in a series of waves from all parts of Asia"

5. *Das (A.C.) M.A., Ph.D.—Rig Vedic India*

[A very good book of reference regarding the age of the R. Veda and the geography of Bharat at that time.]

Age of R. Vedic civilisation—25000 B. C.

Geography of the world about 10000 B. C.

Drying up of the Rajaputana sea 7500 B. C.

Spread of man from Bharat westwards.

Saptha Rishis are termed Pitirs Rig Veda X-15—8 and 11.

Paris [or Phoenecians] went out of Bharat about 30000 years before, and colonised the western coast of Asia.

6. *Dhun and Dobzhansky—"Heredity, Race and Society"—*

"Max Muller.....on an unlucky day used the words Aryan race. Thus there arose truly out of talk alone an imaginative creature-Aryan Man"—quoted by Sri P. N. Oak

7. *Elliot Smith(G) (i) Evolution of Man (ii) Human History (iii) In the beginning (iv) Early Man.*

8. *Gamow (George): "A planet called Earth" 1963*

Page 230-233—Age of Man

- | | | |
|----|-----------------------------------|------------------------|
| I | 1. Australo pithecus | } 2 Million years ago. |
| | 2. South African Ape man (hunter) | |
| | 3. Zinjanthropos |  | 1,750,000 years ago |
| II | 1. Pithecanthropos - Java | 500000 B.C. |
| | 2. Sinanthropos - Peking - | " " |
| | 3. Hidelburg - Europe | " " |
- III. These are followed by (a) Homo Neanderthalensos in Asia, Africa and Europe (b) Cromagnon in France.

9. *Geological Survey of India (Memoirs)*

10. *Hari vamsa*

Vaivaswatha Manu performed an Yagna for Mitra Varuna and out of it was born Ila. She begot Pururava by Budha (son of Soma deva). She then became Sudyumna and begot sons of the solar line.

11. *Hera-Indus Civilisation*12. *Imperial Gazetteer of India*

Page 1. "The Aravallis are but the depressed and degraded relics of a far more prominent mountain system, which stood in Palaeozoic times (i.e., 200 Million years ago) on the edge of the Rajaputana sea"

Page 3. "A comparatively recent development of these movements between Assam and Rajmahal hills has formed the eastern or gangetic depression, and the final dividing of the waters of these two great river systems (Indus and Ganges) may have occurred almost within historic times"

"Probably it was then that the connecting link between India and Africa was severed, and that the western continent indicated by the coral archipelagoes of the Maldive and Laccadive islands was submerged".

Page 4. "The inference drawn by geologists from the general distribution of the hydrographical features of India seems to be that the continent as we now know it is but the eastern half of a far wider land area, of which the main water parting was nearly if not absolutely coincident with that of the western ghats; and that the rivers flowing westward therefrom have disappeared with the land which they intersected."

"The earliest recognisable term for India, Bharat Varsha (the land of the Bharatas - a noble warrior tribe"

Pages 33 - 35 - Description of the desert of Rajaputana (Thor and Sind) River Luni, Rann of Cutch.

Page 99. The Andamans and Nicobars have been isolated from the Arakan coast by submergence at a probably recent date. Narbada Valley-clays and sandstones of pliocene or pleistocene age—

Hippopotamus bones - Godavari Alluvium beds—.

Page 100. Depth of alluvium in the Indo-Gangetic valley is very great.

13. *Abichandani (C. T.) and Roy (B.B.) of Central Arid Zone Research Institute Jodhpur.*

Article on "Rajasthan Desert, its origin and amelioration"—Indian Geographical Journal, Madras vol XLI Nos. 3 and 4.

14. *Murrow (T) "The Sanskrit Language"*

"For the Indo-Aryan invasion of India, no direct evidence is available In the text of the Rig Veda itself although allusions are not uncommon, there is no reference any where to the fact of the migration, nor any definite indication that it was still remembered" quoted by P. N. Oak.

15. *Oak (P.N.) "A blunder of historical research" or "Aryan, no race, only an ideal of thorough-bred man."*

("Kuruwanto vishuvam Aryan", "make the entire world Aryan" was the motto of Ancient Indians. Theories of the various homes of the Aryan race criticised, since there was no Aryan race as such. Sanskrit was a widely spoken world-language in ancient times. The Aryan race is a myth. The Indians migrated from their Indo-Gangetic home to all parts of the world.

16. *Premnath : "Indus civilisation"*

17. *Srinivasa Iyengar (P.T.)—"History of Tamils"—1929*

18. *Taylor (Griffith) - "Man and Environment" etc.*

19. *Venkatachalam (Kota) "Manavasrishti Vignanam"*

20. *Waddell : "Makers of civilisation"*

PART II Sec. A.

THE FIRST ALMANAC



CHAPTER I

Salutations at the feet of the Saptha Rishis, the great teachers and fountainhead of all wisdom.

Swami Vivekananda: "What your European pandits say about the Aryans sweeping down from some foreign land, snatching away the land of the aborigines, and settling in India by exterminating them, are all pure nonsense, foolish talk. Strange, that our Indian scholars too, say amen to them, and all these monstrous lies are being taught to our boys. This is very bad indeed."

A perusal of the Rig Veda (5,29) tells us that it is no exaggeration to say that the civilisation of the Pre-Vedic Age was a glorious one, superior in many respects, to what we call the modern civilisation. It is a forgotten one due to milleniums of a dark age. But tradition still lives and the earliest book of men, the Rig Veda, is still preserved in its purest form.

It reveals a good knowledge of Astronomy. From the internal evidence in the R. V. and the Vedanga Jyothisha many oriental scholars have tried to fix the age of the R. V. ; Prof. Max Muller, Dr. Haug, Prof. Wilson, Prof. Whitney, Prof. Weber, M. Biot, M. Thibaut, Dr. Schrader. Mr. Warren, Mr. Colebrooke, Mr. Bentley, Sri Krishna Sastri, Prof. K. L. Chhatre, Sri Sankara Balakrishna Dikshit, Lokamanya Bal Gangadhar Tilak, Swami Mahadevananda Giri, and many others have estimated the age of the Rig Veda from 1200 B. C. to 6850 B.C. During and before the R. Vedic age, there must have been definite methods of reckoning time, and an era must have been in existence. My search is for that era which is mentioned by Garga, Parasara and many later astronomers. It was replaced by the Kali Era of Parasara, which is mentioned together with the earlier Era of the Saptha Rishis in many places in the Puranas and other works.

When the Siddantas were established after 500 A. D. knowledge of the earlier eras was confused and misunderstood, and finally was given

up and the Salivahana Era became established as the most important era for reckoning time (23).

The Saptha Rishis, the seven great poet-seer-prophets:—Atri, Brighu, Kutsa, Vasista, Gautama, Kashyapa and Angirasa were the advisers and priests of Daksha-Prajapathy (the great emperor). They performed the greatest of Yagnas, extolled in the Vedas, for the emperor. The Rig Veda mentions them as “those ancient seers”. The Rig Vedic seers praise them again and again. They are the progenitors of the human race and were responsible for the cultural development of Man. Their names are familiar to every dwija who performs the Sandhya upasana. They are associated with the planets also. Atri is the father of Chandra (Moon). Brighu is the father of Succra (Venus), Vasishta is the son of Mitra, the Sun God. He was the high priest of the Solar cult and the Solar line of kings. Kashyapa is the father of Agni—Angaraka, (Mars). Angirasa is the father of Brihaspathy (Jupiter), Budha (Mercury) is the son of Chandra (Moon) by the wife of Brihaspathy (Jupiter), Sani (Saturn) is the son of Aditya (Sun) by his wife Chaya (shadow.) These are the Saptha Rishis of Ancient Vedic tradition.

After Daksha, his grandson (by his daughter) Vaivaswatha Manu (Son of Surya or Vivaswan) became the first emperor of the solar dynasty. It was during his days Yagna, Tapas and Agamas (including idol worship, mantras etc). Vyakarana, (Grammar), Ayurveda (Medicine,) Jyothisha (Astronomy) were developed and established for the good of mankind. The laws governing Thithi, Nakshatra, Masa, Rithu, Eclipses and the motion of the planets were systematised. During this period the mercantile fleets of the Bharatas roamed over all the seas (28) Navigation depends on a good Almanac. (Their art of navigation is now a forgotten science) Hence arose the need for a well-codified good Almanac. The Saptha Rishis inaugurated the Saptha Rishi Era and formulated the laws of the Calendar.

The following extract from Bryant's: Ancient Mythology Vol. IV is quite true of the Saptha Rishis, the worshippers of Indra, the great God, who taught them all the arts of culture.

“They were the first founders, the founders of cities, and of mighty states, who showed a path through the seas, before unknown, and when doubt reigned and dark uncertainty, who rendered life more certain. They first viewed the starry lights and formed them into schemes. In the first ages when the sons of man knew not which way to turn, they assigned to each his just department, they bestowed of land a portion, and of sea a lot, and sent each wandering tribe far off to

share a different soil and climate". "Indra for the sake of his friend the Manu bestowed everything for the benefit of mankind. (R. V. 3-3-31-15)"

An observatory was established on the banks of the River Saraswathy, at about 31°N. Lat. (28). This river, extolled in the Rig Veda, was a roaring river, emptying into the sea of Rajaputana, the present Thar desert. The dry bed of the river is now called Ghagger. It flows west of Delhi, between the Sutlej and the Jumna. The meridian of this observatory has remained the Prime meridian of all Hindu astronomers through out the ages. Many a time observatories were built in about the same place. Any millenniums later the famous observatory at Ujjain (23½ N.L.) was built on the same meridian. It is now the prime meridian for all Indian Almanacs. Various instruments and buildings were built to study the motion of the heavenly bodies (29). The most important of all observations was to determine the exact moment of Dakshinayana (Summer Solstice), and Utharayana (winter solstice) for it was then the sun was nearest or farthest from the observatory, (Modern astronomers fix the vernal equinox, the first point of Aries, γ , as the Zero position for heavenly observations). Again, the ancient Rishis knew that Dakshinayana and Utharayana slowly moving, were causing earlier occurrence of seasons in long periods (39, 40), and hence arose the necessity for fixing its position accurately by observation.

They instituted (i) the Nakshatra system for naming the days and (ii) the Thithi system for civil and legal purpose i.e., a day was defined with respect to the position of the sun in the 12 Zodiacal signs and the moon's phase. The calendar month and calendar dates were not used by them to denote the day. As an example we find from the Mahabharata Virata Parva chap (52) that when the 13 years of exile was over, Urvashi's curse cleared and Arjuna regained his masculine form, donned his armour, and blew his conch, revealing himself to the Kauravas. Immediately, Duryodhana told Bheeshma and others that the 13 years of exile was not over and Arjuna should not have revealed himself then; but Bheeshma, immediately told him that 13 Lunar years 5 lunar months and 12 days were over. i.e., $(13 \times 12 \text{ plus } 5) \times 29.53 \text{ plus } 12 = 4766.42$ days. But 13 years = $13 \times 365.2568 = 4748.34$ day. This shows that the Pandavas were in exile for 18 days more according to our Calendar date reckoning. But this is because the thithi came within the first 10 days of the month of Dhanus when they went into hiding and 12 lunations later (ie 354 days), it was in the month of Krithika and so, one

more lunation was necessary (i.e., another 29.54 days), for the same month in the month of Dhanus.

Thus we find the thithi cycle was considered legal and not date as we now have (28).

Rig Veda 10-85-13

Savita's dowry of cows to his daughter Surya (married to Chandra-Moon), had gone on Agha day. She was led to the bride-groom's house on the 2 Arjuni days.

Atharva Samhita 14-1-13

The same above, with Agha changed to Magha and Arjuni changed to Phalguni.

This shows that during Rig Vedic times, days were named after the Nakshatras. [p. 217—Report of the Calender Reform Committee, Govt. of India.]

CHAPTER II

To the ancient Aryan astronomers, the ecliptic was a dial and the solstitial colours were moving fingers on the dial, announcing at different periods that they had retrograded at about 1° for every 72 years nearly along the ecliptic.

Note (1): Verse 289 of "Jyotisha Karand"—At the time of Dakshinayana Vishu, the Nakshatra Abijit is at the Zenith and Pushya at the Nadir". i.e., at the time of the Vernal equinox, the sun was in the beginning of Aswini- Jyotisha Karand was written in 514 A.D. as a guide to Surya Prajnapathi—oldest Jain work on Astronomy written probably about 528 B.C.

Note (2) Varaha Mihira: "The Southward journey of the Sun is from $\frac{1}{2}$ Aslesha and his north-ward journey from the beginning of Dhanishta. It was so at one time according to our ancient sastras in old treatises, but now Dakshinayana is in the beginning of Kataka, and the other ayana from the beginning of Makara as can be seen plainly by the naked eye." V. M. therefore lived about 3600 Kali or 500 A.D. and the reference is to a period about 1134 B.C. (1968 Kali).

According to the Puranas, Daksha is the custodian of time. His 28 daughters—Nakshatras (Lunar mansions) were given in marriage to Chandra—Moon—and he stays with them for a day in turn (21, 25, 28, 37, 40, 42, 43.) Abijit, the youngest and the most beautiful, left her husband and went away to perform tapas. This story indicates that

originally the period of the moon's motion was taken as 28 days, but later it was reduced to 27, the correct figure being 27.3 days. The Nakshatra system is specially peculiar to Indian culture alone. They were not known to any of the ancient nations—Egypt, Babylonia, Chaldea, Greece, etc. The Tamil word *Nal* (நல்) denoting a day means the Nakshatra of the day, the word *Kol* (கல்) means the planet, and the word *Kizhamai* (கிழமை) means the week day. This period of 28 days was divided into 2 equal halves, and these again into periods of 7 days each. This period of 7 days is called a week. This concept of the week is a Hindu contribution to the peoples of the world. †

According to the Vedanga Jyothisha, during the Pre Rasi period of *lagnas*, the *lagna* was the Nakshatra rising in the east at sun-set time, and the *Maha Nakshatra* was the Nakshatra in which the sun was seen [The *lagna* was the acronycally rising Nakshatra and the *Maha Nakshatra* was the heliacally rising Nakshatra] (27).

It was therefore noted that the sun stayed in each *lagna* for $365 \div 27$ days i.e., nearly 14 days. This was taken as a unit of time measure and half of that is a week. But when better methods were introduced, [i.e., *Thithi* and solar and lunar months], this system was dropped [Refer *Rig Vedanga Jyothisha* verse given later].

Note (1) Atharva Jyothisha Verse 13. "Aditya Somo Bhomacha thath Bhudha Brihaspathyl Bhargava Sanaichaiva ethe Saptha denathipaha ll [week days in order]."

Note (2) Ramayana Ayodhya Kanda Sarga 26.

Sita tells Rama on the first day of exile, "Today is Thursday combined with Pushya."

Note: I have heard from Vedic scholars that the Vedic verse sung as a blessing in auspicious functions, is only a string of 60 words, being the names of the 30 *thithis* (60 half *thithis*). The last word is *Kalyanaha* meaning *Amavasya* (new moon).

"Samgnanam, vignanam, pragnanam,.....sobano, sobamana, Kalyananaha" †

The week and the week days have been in use even from the Pre *Rig Vedic* period. They were not used for civil and legal purposes, but were used for astrological purposes.

CHAPTER III

The unit of time was the daily increase of the interval between sun set and moon set, easily measurable in the evenings. This is $\frac{1}{80}$ of a day. It is called a muhurta. Half of that is a Naligai (நலிசை) = $\frac{1}{160}$ of a day. †

Note 3. Table of time :

2 Parama Anus = 1 Anu. 3 Anus = 1 Thrasaranu
 3 T. A. = Thrithi, 100 T = 1 Vedha, 3V = 1 Lava
 3 Lavas = 1 Nimesha = (16200 Paramanus)
 15 Nimeshas = 1 Kashta, 30 K = 1 Kala,
 30 Kalas. = 1 Muhurta, 30 M = 1 Diva Ratra. (a complete day)

∴ 1 Nimesha = $\frac{16}{75}$ part of a modern second.

How such small intervals of time were measured is a mystery.

Measures of length : 6 feet = 1 danda,
 2000 dandas = 1 Krosa,
 4 Krosas = 1 Yojana
 ∴ 1 yojana = $9\frac{1}{11}$ modern mile.

CHAPTER IV

Seasons : During a year there are 3 seasons only in Bharat, (23) while there are 4 seasons in other lands. R. V. 1-154-41 "Felloes 12, wheel is one, and navels three and 360 spokes". There are many places in the Rig Veda where the 3 seasons are mentioned. They are (i) season of dry heat (ii) Moist or rainy season (iii) The season of cool weather. These 3 seasons were divided into 6 Rithus. Dakshinayana and Utharayana solstices cut the Grishma and Hemantha Rithus into 2 equal parts. Each half of a Rithu is called a solar month. Therefore, there are 12 solar months in a year. (The solar month, according to all ancients, refers to the 12th part of a solar year). The fixed path of the sun among the stars, the ecliptic, was accordingly divided into 12 equal parts and each part is termed a Rasi.

The Rithus and the corresponding months are (24, 25, 28, 29, 38, 39):

p. 26 —The names of the 15 muhurtas, according to the Puranas, from sunrise for the day and from sunset for the night are—1. Rowdra 2. Swetha 3. Maitra 4. Saara Bata, 5. Savitra 6. Vaisvedeva 7. Gandarva 8. Kuthapa 9. Rowhina 10. Tilaka 11. Vijaya or Vinda 12. Nairutha 13. Sambara 14. Varuna 15. Bhaga

1. Sarad	{ Isa	— Moisture
	{ Urja	— Force
2. Hemantha	{ Sahas	— Power
	{ Sahasya	— Powerful
3. Sisir	{ Tapas	— Penance
	{ Tapasya	— Pain
4. Vasanta	{ Madhu	— Honey
	{ Madhava	— Sweet
5. Grishma	{ Sucra	— Illuminating
	{ Suchi	— Burning
6. Varsha	{ Nabhas	— Cloud
	{ Nabhasya	— Cloudy

The 12 Rasis are: Kumbha, Meena, Mesha, Vrishabha, Mithuna, Kataka, Simha, Kanya, Thula, Vrichika, Dhanus and Makara.

2	3	4	5
1			6
12			7
11	10	9	8

+ .

The time taken by a rasi to rise is another unit of time. Half of it is termed a 'Hora', the modern hour. ✱

The periods of revolution of the planets among the 27 Nakshatras was carefully observed and recorded very accurately.

The sun keeps the same fixed course, but the planets move in a path extending to about 8° on either side of the sun's path, called ecliptic. The path of the planets is called the Zodiac or Rasi Chakram.

The periods of revolution of the planets among the fixed stars—(Nakshatras) are:

f. 27 —Tholkappium, the oldest Tamil work—Porul Adikaram, Kalaviyal, Sut 135:—"Marainda Ozhukkathu Horaiyum Nalum!
Thuranda Ozhukkang Kizhavorkkillai!!

1. Saturn (Sani) — 30 years nearly 10759.2 days
2. Jupiter (Guru) — 12 years „ = 4332.58 „
3. Mars (Angaraka)— 688 days „ = 687.98 „
4. Sun (Surya) — 365 „ „ = 365.26 „
5. Venus (Suckra) — 225 „ „ = 224.70 „
6. Mercury (Budha) — 88 „ „ = 87.97 „
7. Moon (Chandra) — 27 „ „ = 27.32 „
8. Rahu 18.6 years = 6793.47 „

Note: 6 The Rig Vedic Samhita X—55-4: “with 34 fold lights of one colour but different laws” meaning the sun, the moon, 5 planets and 27 Nakshatras. From sunrise to sunrise the day is divided into 24 Horas (Hours), and the horas or hours are assigned to the planets in the above order, e.g. Saturday begins with Sani’s hora (i.e., 1st Hour of Saturday is Sani’s). The next hour is that of guru, and so on. The 22nd hour is that of Sani again, and the 25th hour is that of Surya i. e. the 1st Hour of the next day is Surya’s. Hence that day is called Sun’s day or Sunday. Similarly the names of the other week days were obtained, in the order Sun, Moon, Angaraka, Budha, Brihaspathy, Sucra and Sani.

Sravishta (Dhanishta) being the first daughter of Daksha, and first wife of Chandra (Moon), the home Rasis of the planets were distributed symmetrically about this point as shown below.

J	Ma	V	Me
Sa			Mo
Sa			S
J	Ma	V	M

When this system was instituted the Sun and the Moon were in Sravishta and the exact opposite houses Simha and Karkataka were assigned to them. (Ref. (27) R. V. Jyotisha, verses 5, 17 and 31).

CHAPTER V

(a) The time taken by the sun to move from any point on the ecliptic back again to the same point is 365.256898. (Newcomb) days. This is called a sidereal year.

(b) The time taken by the Sun to complete one motion from Sarad Rruthu to Sarad Ruthu or from vasanta ruthu to vasanta ruthu is called a tropical year. It is now nearly 365.2422 days. The year was counted by the expiring Varsha Ruthus (i.e. as so many varshas) and sarad ruthu was the first ruthu of the year. The close of the rainy season initiated the new year. At the time of Sri Krishna, the year was counted from Sarad Ruthu, and Margasira was the first month. (Ref Lord Krishna's statement in the Bagavad Gita, and Maharishi Veda Vyasa's statement in the Srimad Bagavata Purana and the Mahabharata.)

If the Aryans were dwellers of central Asia, they would have divided the year into 4 seasons and not 3 as they have done. They could not have seen some of the stars of the southern region which are included in their observation. Therefore they lived at about 30° N, in the Saraswathy basin, which they claim as their homeland.

(c) The period of the moon's motion among the stars = 27.32166 days. This is divided equally into 27 parts and each is called a Nakshatra. This period is called the sidereal period of the moon.

(d) The period of one lunation or a lunar month is from new moon to new moon = 29.530588 days. This is divided into 30 thithis. This period is called the synodic period of the moon.

(e) The Vedic astronomers instituted a cycle of 5 years (L. C. M. of the sidereal and the synodic periods), so that at the end of the period the thithi and the nakshatra combination in a day may repeat.

67 sidereal periods of the moon	= 67 × 27.32166 = 1830.5512 days
62 synodic periods	= 62 × 29.530588 = 1830.8965 days
5 sidereal years	= 5 × 365.256898 = 1826.284 days
5 tropical years at present	= 5 × 365.2422 = 1826.2110 days

The five years of this cycle were named (i) Samvatsara (Agni) (ii) Parivatsara (Sun) (iii) Idavatsara (Moon) (iv) Anuvatsara (creator,

Prajapathy) and (v) Udavatsara (Rudra), The first, second, and fourth years of this cycle have 12 lunations (synodic periods), and the third and fifth years have 13 lunations. The lunations are termed luni-solar months. The luni-solar month is named after the nakshatra of the Full Moon during the month, as Chaitra, Visaka, etc. The extra month in the 3rd and 5th years is called the Inter calary month. The yuga beginning was always adjusted to maintain the position of the sun and the moon in Sravishta in the beginning of the luni-solar month of Magha.

Notè 8. (a) Refer Jyotisha Vedanga—(Ref. 27)

(b) Rig Samhita 1-158-6

Dirgathamas, sun of Mamatha, grew old in the 10th Yuga [Here Yuga refers to the five year period]

(c) The Yajur Veda mentions all the Nakshatras in order, with their presiding deities. All the Vedic rituals were observed according to Ruthus, Thithis and Nakshatras ! i.e., according to the position of the sun and moon among the nakshatras.

(d) Rig Veda 1-65. Veruna knew the 12 months and that which is supplementarily engendered (inter calary). R.V. 1—25—8 mentions the intercalary month. The deva of the 13th month is Anhasaspathi.

CHAPTER VI

Next to the cycle of 5 years, comes the cycle of 100 years, for according to the Vedas, the span of human life is 100 years. 20 five year cycles make up one 100 year cycle. The 100 year cycle was named after the Nakshatras Any one year of this cycle was named, as for example, 65th year of the Saptha Rishis in Rohini or the 23rd year of the Saptha Rishis in Moola.

At the beginning of Kali Yuga, the 75th year of the Saptha Rishis in Magha was running (22, 25, 26, 32, 35, 37, 39). The Saptha Rishi cycle is therefore one of 2,700 years (27x100). This cycle began with Magha as the first star period (Ref. Rig Vedanga Jyothisha Verse 17). All Puranas and Indian astronomers have mentioned the Saptha Rishi

cycle. Observatories were built to get at the exact moment of Dakshinayana. Garga had his observatory at Garga Srotra on the River Saraswathy. The Saptha Rishis had their observatory at the Vedic Triveni, the junction of Ila, Bharati and Saraswathy (the same Longitude as Avanti or Ujjain $75\frac{1}{2}$ E. of Greenwich).

Vishnu Purana IV - 24 - Verses 104, 112 etc. Bhagavata, IX and XII - 2 - Verses 26, 32 and Indian Astronomical texts quote the Saptha Rishi Cycle for the date of kings from Parikshit to Nanda (about 1,500 years).

Parasara fixed the Kali Yuga Era ^{on the Magha Sukla Purnama} ~~when the Sun and the Moon and~~ the planets were in Sravishta (according R. V. Jyothisha Verse 5) and then the Saptha Rishis were in their 76th year in Magha. It was a Sunday morning.

There is a general belief among western scholars, that this date was worked backwards by the Siddanta Astronomers of India (of the A. D. years) to have a starting point for their calculations. This view is not correct. Parasara, the great Astronomer, fixed the Kali Era even before it actually happened, and when it came to pass, Veda Vyasa, his son, celebrated it with a large number of Rishis, in his ashrama on the banks of the holy Saraswathy. The great Bharata war was fought about this time, and Yudhistira became the Samrat (Emperor). All Puranas give the same line of descent of kings and modern historians accept this line of kings (23) There are a few differing statements about the Kali Yuga. But the astronomical Kali Era is an accepted fact.

John Playfair A. M. F. R. S. Edinburgh 1789 has stated as follows in his book "Astronomy of the Brahmins". "Kali Yuga Era was not fixed by back dating as all calculations, according to all Siddantas, will not give the correct value given by modern astronomical calculations (re-position of planets). They were observed and noted and handed down by observation". "We shall be astonished at the magnitude of that body of sciences which must have enlightened the inhabitants of India in that remote age."

CHAPTER VII

CHRONOLOGY

Determination of the date of the Kaliyuga Era.

(a) According to Indian tradition and Puranas, the beginning of the Kali Yuga was on a Sunday, the first day of Pramadi, the 19th year of the 60 year cycle, when all the planets were together.

Professors of Indian chronology, both European and Indian, fixed the Kali yugadhi on Friday, 18th February 3102, B.C. Having fixed this they found that the day was not Sunday, and that the planets were not together that day. Immediately they started accusing the sages Parasara and Vyasa and began to condemn our tradition and our puranas. This they have been doing for the past 200 years. (Note A). (Ref 24, 25, 34, 35, 36, 38, 39, 40)

Herein, I propose to fix the correct day and date of Kali Yugadhi.

SECTION A

A reference to the Indian Panchangam (Indian almanac) shows three new year days.

The Magha Sukla prathama (the first day of the bright half of the month of Magha) is shown as Kali yugadhi. This is according to the Rig Vedanga Jyotisha verses (Note B). [Ref 27]. But the chronologists have taken Chaitra Sukla Prathama as the beginning of Kali Yuga, since the present panchangam gives Chaitra Sukla Prathama as the beginning of the year. This beginning was established by the Siddhanta School of astronomers about 500 A.D. Therefore the Surya siddhanta statement that the planets were together at Meshadi is an alteration of the original verse, which stated it was so at the beginning of the month of Magha.

This is the first error of 2 lunations

(2) Again it is an accepted fact of Vedic scholars that there were 2 kinds of years, during the Vedic age. The one was the pure astronomical year associated with the Magha Sukla Prathama. The second was the ritualistic year fixed according to the precession of the equinoxes. The beginning of this year was altered to enable Yagnas to be performed in the proper seasons. This alteration was done once in about 2000 years, during which period the seasons change by about one rasi (Note C). [Ref. 38] There were therefore two changes after Kali yugadhi i.e., two years were cut out in counting the years. Thus the year 5069

DETAILED STUDY OF THE REFERENCES TO PART II

21. Bentley (John)—*Hindu Astronomy—1825*

Page xv—Imaginary conversation regarding the fixing of the position of venus between an ancient and a modern astronomer.

Page 21—"In the first part of Treta yuga, the daughters of Daksha were born, and of these he gave 27 to chandra (Moon)...." Name "Visaka" was given to it because the equinoxial colure cut it.

Page 25—28 Lunar Mansion reduced to 27. (Mula was taken as the first for some time, then Jeyeshta was taken as the first) In 1181 B.C. Hindu Astronomy assumed regular form and "Sravishta" was taken as the first star.

Page 29. Dhanishta (Sravishta) was the first star.

22. Brennand (W)—*Hindu Astronomy*

23. Cunningham (Alexander). C.S.I., C.I.E., "Book of Indian Eras" 1883.

Page 3. The year was divided into 3 seasons .Dating was given as—"Samvatsara 83, Grishma 2, Sukla Divasa 10"—Mathura Inscription of Indo-scythians.

Page 4. Saptha Rishi Kal—the oldest of the eras—mounts up to 4077 B.C. or perhaps to 6777 B.C. In Alexander's time the Hindus did not claim a greater antiquity than 6777 B.C.

Page 6-17. Chap. I—Saptha Rishi kal or the cycle of the seven rishis. Criticism of the Siddanta Astronomers of period later than 500 A.D. in that they completely ignore the puranic tradition. Vishnu Purana IV C. 24-104 to 112, Bagavatha Purana XII-2-26 to 32, Varaha Mihira's quotation of Garga on the S. R. cycle. Further discussion affirming the reality of the S. R. Cycle.

24. Kaye (G. R.)—"A guide to the old observatories at Delhi, Jaipur, Ujjain, and Benares"—1920.

Avanti or Ujjain $23^{\circ} 10' 16''$ N, $75^{\circ} 46' 3''$ E. Height 1500 feet, local time: $26' 52''$ after I.S.T.

Page 63. Bailly, towards the end of the 18th centrry, considered Indian Astronomy had been founded on accurate observations made thousands of years before christian era. Lapalace decided that in 3000 B. C., the Indian Astronomers had recorded observations of planets correct to one second. Playfair supported Bailly's views. Sir William Jones

argued that correct observations must have been made as early as 1181 B C.

Page 71. The five year cycle appears to have commenced with the winter solstice and *Sravishta is said to have marked the beginning of this cycle*, and also the beginning of the Sun's progress, and also the winter solstice—all of which are in agreement. If *Sravishta* is to be identified with α , β , γ , δ , Delphini, then it marked the winter solstice of 1100 B.C. . . ."

25. *Kaye (G.R.)—"Memoirs of the Archaeological Survey of India"*
No. 18. "*Hindu Astronomy*"—1924

Page 1-9. Kali yugadhi discussed—the views of western and Indian scholars are given.

Page 17. "Winter solstice and new moon in *Sravishta* occurred in 1400 B.C.

Page 20. According to *Surya Prajnapti*, the cycle commences at Summer solstice with *Abijit*—modification of *Vedanga Jyotisha*.

Page 22. "Rig Veda gives no complete list but mentions, *Tishya*, *Aghas*, *Arjuni* etc, and there is a reference to 27 nakshatras in i.162"

"Mahabharata iii 230, mentions the legend of *Abijit* dropping out, and there is a discussion on 27 or 28 nakshatras".

Page 24. "The early lists of nakshatras all begin with *Krithika*, which marked the vernal equinox about 2300 B.C." *The Jyotisha Vedanga puts Sravishta first*" "*Tilak states that for purposes of calendar Sravishta was first, and for purposes of rituals Krithika was first*".
Mahabharata ix 35 — deals with *Nakshatras*.

Page 26. The list of months begins with *Sarad*.

Month	Season
<i>Urja</i>	<i>Sarad</i>
<i>Saha</i> }	<i>Hemantha</i>
<i>Tape</i> }	

Page 29. "According to *Vedanga Jyotisha* the 5 year cycle is said to begin with winter solstice in *Sravishta* or *Abijit* or the Summer solstice in *Punarvasu*."

Page 30. *Jyotisha Vedanga* makes what is possibly the earliest definite statement connecting the year with the nakshatras. The winter solstice is said to be marked by *Sravishta*."

Page 32. According to Tilak the Vedic age was from 4500 B.C. (i.e. r in Mriga) to 2500 B.C. (age of Brahmanas). Brihaspathy (Jupiter) occulted Tishya in 4650 B.C.

Page 34. R. V. iv. 50—"Brihaspathy when just being born from a great light or brightness in the highest heaven, seven mouthed of a powerful nature, seven rayed, with a deep sound blew away the darkness,"

Page 37. "The earliest known use of the week day in India is 484 A.D. It became common after 900 A.D."

Saptharishi cycle is described.

26. *Kuppanna Sastry (T. S.) and K. V. Sarma*

"The untenability of the postulated saka of 550 B.C." *Journal of Indian History* Vol. 37. p. 201-24. *University College, Trivandrum 1959.*

Page 202. Brihat Samhita of V. M. Ch. III. Verse 3 discussed.

"Asan Maghasu Munayah Sasati prithvim Yuddishtira nrpataul

Sad dvika pancha dvi Yutah, Sakakalas tasya rajnas call

"Puranas and V. Garga etc., say that at the junction of Dwapara and Kali Yugas, the sages were at Magha, and Yuddhistira was ruling. 25 years after the advent of Kali, the sags moved to the next asterism from Magha, and in that year Yuddishtira left this world for heaven" Discussion on Saka Era mentioned above.

Page 203. Brahmanda Purana, ch. 74. Verse 241.

Venkateswara Press edition. [Vayu, Vishnu, Matsya and Bagavatha Purana give the same reading]

"Yasmin Krishno divam yatah tasmin eva tadahani |
pratipannah Kaliyugah tasya sankyam nibodhata ||

Aryabhatiya } —"Gurudivasac ca bharatat purvam" explained by Para-
(Gitika 5) } meswara as "the day of Maha Prasthanam."

Page 210. Kamalakara—quotation from Siddhanta Tattva Viveka—
"Sage Sakalya has given the motion of the sages with their position in his time they cannot be sustained astronomically therefore the seven real sages who are the presiding deities are to be considered to be moving unobserved by men for the prediction of the fruits there of."

But the motion is accepted by puranas and there is the Saptha Rishi Era founded upon this theory—we do not know when this era was founded. The puranas says that 25 years after kali set in, the sages who had been at Magha for 100 years left it for the next asterism,

The dates of the dynasties of kings are given in terms of the situation of the sages in the different asterisms. The Laukika Era is the same as S.R. Era with the number of the year in each century being generally used and the centuries or the reference to the asterisms omitted. This is used in Raja Tarangini to give the dates of the dynasties of kings, and also the date of the work.

Page 216. According to Puranas the Saptha Rishis were in Magha during 3176—3076 B.C. Purva Phalguni...3076—2976 B.C. etc.

27. *Laghada—Jyothisha Vedanga. A few important verses :*

- (i) Veda hi yagnartham abhi pravritta Kalanupurvyā vihīta yajñah
tasmād idam kala vidāna castram yo jyotisham veda savēda yajnam||

The Jyothisha Vedanga was written by Mahatma. Laghada to help the Rishis to perform the Vedic rituals in the proper season. Since the yagnas and their details are mentioned in the Vedas, the Vedanga Jyotisha must have been codified during (or even earlier than) the Vedic period.

- (ii) Magha chukla prapannasya pausha krishna samapina
yugasya pance varshasya kala jnanam pracaxate.

The five year yuga begins with the bright half of Magha and ends with the dark half of Pausha.

- (iii) Svar akrameti somarkau yada sakam savasavau
syat tadadi yugam magastaya cuklo dinam thyajah

When the sun and the moon with the constellation Dhanishta will together occupy the sky, then there would be the first cycle, the month of magha, the bright half of the lunar month, and the abandonment of days. (Sudakara Dwrivedi)

- (iv) Prapadyete sravisht^{aride}asau surya chandra masov api
sravishtarde daksinarka magha sravanayoh sada.

The sun and the moon together reached the ^{middle} ~~beginning~~ of sravishta. From the middle of sravishta the sun was in the south during the months from magha to sravana.

During the Rig Vedic age there were no Dakshinayana and Utharayana. There were only Piturayana and Devayana, when the sun was in the southern half and northern half of the ecliptic respectively.

The names varsha and sarad for the year reveal that the elapsed years were counted by the Varsha Ruthu and the current years were counted by the Sarad Ruthu. (The year began with the Sarad Ruthu).

(v) Sravishtayam gunabhyasthan pragvilagnan vinirdhi coth ||

This verse gives the rule to determine the lagna. Lagna is the Nakshatra rising in the east at sunset time (acronically rising star). The heliacally rising star, i.e., the Nakshatra rising with the sun, is called the Maha Nakshatra. Herein is stated that Sravishta is the first of the Nakshatras from which lagnas should be determined. (This verse is interpreted in more than 8 different ways by vedic scholars of the west and the east.

28 (A) Lahiri (Dr. N. C.)—Govt. of India, Ministry of Information
“ Report of the Calendar Reform committee.

Page viii : The thithi-nakshatra is followed for all religious purposes.

Page 183. The Nakshatras were used to name the days in the earliest strata of Indian literature. Thus when the moon is expected to be found in Magha Nakshatra (∞ , Leonis) the day would be called Magha day. This is the oldest method of designating the day for it is found in the Rig Veda—...This system has continued to the present times.

Page 184. According to Vedanga Jyothisha, the Dhanishta star (∞ , Delphini) marked the beginning of the Dhanishta division; and also of the Varaha's Surya Siddanta that Regulus' (∞ , Leonis) is situated at the 6th degree of the Magha division.

Page 225. Kurushetra 29° 58' N and Gandhar 31° 32' N were centres of observatories during Vedic and post Vedic periods.

Page 226. Mahabarata Aswamedha chap 44, 2 “ Day comes first and then the night, months are known to commence with the bright half, the Nakshatras with Sravana and the seasons with Sisira.

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28. (B) Lahiri (Dr. N. C.)—Tables of the Sun

Ayanamsa expressed from Zero Ayanamsa 285 A.D. for “t” sidereal years

$$A = 49°. 9000 t + 1.1073 \left[\frac{t}{100} \right]^2 + .0001 \left[\frac{t}{100} \right]^3$$

p. 47 p. 241—For defining the year they took Vaisakha as the first month of the year...This is followed in N. India even now. According to Suryasiddhanta, Vaisakha is the first month of the year.

29. *Mahadevananda Giri (Swami)*—

“ Vedic culture ”—Calcutta University 1947.

page 1 - 44—Abode of the Rishis

Page 44 - 68—Civilisation and culture of the Vedic Age

Navigation : Ships with sails and oars, crossing the oceans—Yayathi's sons Yadu and Turvasu 9-112-1, 6-20-12, 1-36-18, 6-45-1 ; Tugre's son Bhujja's conquering the islands in the Indravana country—4-27-4 ; Merchant vessels 1-56-2, 1-25-7 Marine charts 1-25-7. Big Vessels in, docks and harbours 1-46-8.

Astronomy : Chitra and Magha 7-75-5 ; Mrigasira 3-32-2 (Gabasira); Bisaka (Manthi) 3-32-2 ; Venus 3-32-2 ; Tishya 5-54-13 : Magha Arjuni (phalguni) 10-85 ; Satabisha 24-9 : Riksha (Great Bear) 10th Mandala ; Sirius (Dog star) 1-161-13 (Svanam) ; 27 Nakshatras and 12 signs of the Zodiac 1-164-11, 1-164-48 ; Moon and planets 1-35-6. Solar eclipse observed through Turiya Brahma Yantra 5-40-5 and 6.

Page 115—(i) Age of the Rig Veda—6860 years ago.

(ii) Earliest part of Rig Veda with Star Aditi at the Vernal Equinox 8594 years ago. Taithriya Sambita — occultation of Jupiter and Tisya 6594 years ago. Zoraster lived 6000 years before the invasion of Greece by Xerxes, King of Persia i.e., 8424 years ago.

30. *Mankad (D. R.)—Puranic Chronology: Very good reference for the Saptha Rishi cycle.*

31. *Pargiter (F. E.) — “ Ancient Indian historical tradition ” and “ Dynasties of the Kali Age ”*

32. *Playfair (John) A. M. F. R. S.*

“ Astronomy of the Brahmins ” — 1789.

The empirical saros cycle for fixing eclipses must have existed in the beginning, but with better methods they vanished out of use in India.

Kali Era beginning — the position of sun, Moon, etc were observed and recorded and not back calculated.

33. *Saha (Prof M. N.) “ Calendar through the ages ” 1952*

Page 6. “ At present the succession of days is described by the various week days, constituting a cycle of seven ; but this practice came into vogue only about the first century A. D. The earliest system of reckoning the succession of days was every where by the Moon...”

Page 10. The seven day week, unlike the year or the month, is an entirely artificial cycle ; unconnected with any natural phenomena.

Page 11. The seven day week was introduced into the Roman world by Emperor Constantine after 323 A. D.

Page 12. The week day is unknown to early Hindus. It is not in the Vedas, Upanishads, or even in the Mahabharata. In the Mauriyan inscriptions the day's is mentioned by the nakshatra and this continued even to Gupta times."

Page 14. The initial day of the year should be only the four Cardinal Days. Utharayana, or winter solstice, 'was the initial day for the early Aryans, Persians, Chinese, North European Teutonic peoples etc.'" This was changed by Pope Gregory to Jan 1st [5th oct 1582 was changed to 15th oct 1582 A. D.]

34. *Sewell (Robert) M.R.A.S*

- (a) The Siddantas and the Indian Calendar
- (b) Indian Chronology

35. *Sewell and Dixit—The Indian Calendar*

36. *Swami Kannu Pillai (L.D.)—Indian Chronology.*

A very good reference for the Mesha Sankranti, Luni Solar year, beginning of the Kali Yuga in 18 Feb. 3102 B. C., and for the Sapta Rishi cycle of 100 years.

37. *Thibaut (G)—Indian Astronomy*

Page 89 mentions Prof. A. Weber's papers on the collection of Vedic hymns on Astronomy.

Page 319. Colebrooke — Indian Nakshatra system as the source for the Arab menazil system — He omits the sien of the chinese.

Biot (1837) — compares the 3 systems (sieu based on Gaubil's work—French missionary of the 18th century)

Thibaut after an elaborate discussion concludes that Sien system was not at all connected with the moon. They were 24 in the beginning for reckoning time. No body now accepts Biot's Theory of sien being the first and that it was borrowed by Indians and Arabs.

Page. 322-433. Chinese borrowed from India after 300 B. C. Max-Muller and Burgess advocate a purely Indian origin for Nakshatras.

Thibaut conclusively proves the Indian origin of the Nakshatras.

38. *Tilak (B. G.) : " Orion: " and " Arctic Home of the Vedas "*

" Orion " The oriental scholars Max Muller, Colebrooke, Bentleyy Weber, Whitney, Biot and their theories discussed. At different periods the beginning of the year was adjusted to begin with γ and the solstices.

Page. 83. Amara quoted " Seasons comprised 2 months beginning with Magha and 3 such seasons make an ayana " — " The months are enumerated from Margashirsha " p. 86 Bhagawatha Puranam XI-16-27 " I am Margashirsha of the months and Aditi of the Nakshatras ". This refers to a tradition of 20000 BC.

From internal evidence in R.V., Samhitas, Vedanga Jyothisha, and traditional statements B.G. Tilak fixes the periods as follows :

(i) pre—Orion period—6000 to 4000 B. C. (ii) Gerion period 4000—2000 B. C. (iii) Krittika period 2000—1400 B. C. (iv) pre-Buddhistic period 1400—500 B.C.

Page 202. During early days when Punarvasu (90° from Meshadi) coincided with γ , Abijit ($266^\circ 40'$) was 6° behind Vishuvan (Autumnal equinox). There was no star near γ then, hence they chose Abijit, even though it was far away from the ecliptic. But later when γ and γ moved further away, Abijit was dropped as unnecessary and 28 became 27 Nakshatras. Because Aditi, is the mother of gods, her star Punarvasu commenced the Devayana and separated the Pitiriyana.

Page 205. The oldest Vedic Calendar was sacrificial...The phases of the moon, the seasons, and the ayanas guided the ancient aryan in measuring time...Though the beginning of the year was altered a number of times to adjust for the changing seasons, it did not alter the sacrificial system, which still continued to be what it was in the oldest days...the two systems have continued to exist side by side upto the present day...Therefore the oldest period of Aryan civilisation may be called the Adithi period...

Page 208. I do not intend to say anything about the period which must have elapsed before the Vedic Aryans were able to fix their primitive Calendar in the Aditi period. The beginning of the Aryan civilisation must undoubtedly be placed a long time before the people were able to conceive and determine the Calendar.

Pages 209-213. Rig Vedic Hymns 213-17 Beginning of the year with different Nakshatras 217-19. Separation of Parsees....

39. *Varaha Mihira—Brihat Samhita*

[Translation by Pandit bhushanam V. Subramanya Sastri B.A. and Vidwan. M. Ramakrishna Bhat. M.A.]

He is the author of many works. He was Astronomer Royal at Ujjain. He quotes Parasara, Garga, Vridha Garga, Kasyapa, Narada, Paithamaha, Vishnu Gupta, Asita, Devala, Rishi Putra, Sukra, Maya, Brihaspathy, Saka, Garutman, Saptha Rishi, Badarayana, Nagnajit, Saraswata, Savitra, Shashtyabole, Manu, Viswakarman, Vajra, Bharadwaja, Kapila.....

Page 19. chap II. Verse 14. "The yavanas are of low origin. When this science has come to stay with them, and when such astrologers are worshipped as aages, how much more should an astrologer of the Brahmin origin be ? "

Page vi It is but right that we draw here the attention of the readers to the erroneous judgement of many a western orientalist regarding Astrology and Greek influence. On the other hand, it is the Greeks who freely borrowed or learnt the various scientific truths from the Aryans of India. Clement of Alexandria calls Pythagoras, the celebrated Greek, a pupil of the Brahmins. Swami Vivekananda, the great Spiritual and intellectual giant of Modern India, has ably refuted the false theories of the western orientalists. He says,— "There may be, it is true, some similarity between the Greek and Indian terms in astronomy, and so forth, but the westerners have ignored the direct sanskrit etymology and sought for some far fetched etymology from the Greek. That such shallow and biassed learning has been manifested by many orientalists in the west is deplorable. From a single sanskrit sloka that reads, "The yavanas are Mlechchas; in them this science is established. Therefore even they deserve worship like Rishis...", in the west they have gone so far as to declare that all Indian sciences are but echoes of the Greek; whereas a true reading of the sloka many show that the Mlechcha disciples of the Aryans are herein praised in order to encourage them to a further study of the Aryan sciences..."

Chap III. 1. "The sun's southward course began at one time from the latter half of Aslesha and the northern from the beginning of Dhanishta. This must indeed have been the case as it is so recorded in our ancient sastras. At present one course of the sun begins from the commencement of the Karkataka and the other from the beginning of Makara"

Chap. IV. Varaha Mitira fixed the sphere at the beginning of Aswini. The six stars Revati to Mrigasira conjoin with the Moon when she has not actually come to them; the 12 stars from Ardra, in the middle portion, and the 9 from Jyestha conjoin with the moon only after they have been completely passed by her.

Chap. XIII. 1 and 2. "According to the theory of sage Vriddha Garga, the course of the seven sages...—"

3—"The seven sages were in the lunar mansion Magha when King Yudhishtira was ruling over the earth, the period of that King being 2526 years before the commencement of the Saka Era."

4—"Sages in their course remain for a period of 100 years in each lunar mansion."

Chap. 104: Verses 14, 15, 16.

The months are enumerated from Margasira, Paushya.....Kritika. The dieties of the months are Kesava, Narayana ----Damodara. This is in accordance with Sri Krishna's statement in the Bagavad Gita and Sri Vyasa's in the Mahabharata.

40. Venkatesh Baluji Ketkar--1923 "Journal of the Bombay Branch of the Royal Asiatic Society" No. LXXV. A. Extra Number "Indian and foreign chronology"

Page. 50. The pillar inscription of king Budha Gupta at Eran (Lat 24°N, Long 78° 15 East, Central Provinces)—

"Ashada Sukla dwadashi, Thursday, in Kaliyuga year 3585 or Saka year 406". Verified correct as 21st June 484 A. D. It was Anuradha and Sukla yoga that day."

Page 73. The origin of the 60 year cycle is not known This cycle has been in use from remote antiquity through out India. ryabhatta says he was 23 years old when 60 × 60 years had expired in kali yuga. Indian and chinese 60 year cycles are the same.

Page 103. The rule for the names of the week days is given in Surya Siddanta. "From saturn downwards every fourth in the cyclic order is the lord of the day".

Vedic calendar--14 centuries before christ. Dhanishta Nakshatra, Sun, Moon and the equinox began the era.

Rig Vedanga Jyotisha verse "Swarakramedi.....*Ayanam hyudak (dinam thiajah)*".—12th intercalary month at the end of 30 years should be dropped. (The correct reading is explained by the author, with a quotation from Mahabharata, Virata purva Chapter 51).

Pages 107. Prof. Max Muller, Whitney, and others have in vain tried to reduce this impregnable strong hold of Indian Antiquity.

The longest day, according to Lagada, shows that he lived in 35° N. Lat.

"To me it had been a great puzzle to understand how the ancient Indian kings could have managed their state affairs for centuries without a well regulated calendar and an era for its basis".

Page 108-109. Bentley's table explained to show the calendar system in use from 1193 B.C. to 291 A.D. with cycles of 247½ tropical years [i.e. from Vedic Age to Surya Siddanta].

Page 110. A very good explanation for the loss of 7 days and its distribution over 3600 years and the consequent error in the length of the year [The original year must have been the same as modern sidereal year].

Page 110. Aryabhatta puts the planets in conjunction at Kali Yugadhi and empirically adds 35, 33, 12.-17, 20 to the longitudes of the planets beginning with mercury and makes corresponding changes in their motion.

Page 113. Proof that chaldeans and Egyptians borrowed the Indian Era (Kali Yugadhi) after 4 centuries from its beginning.

Chinese and Indian 60 year cycles agree. In 1919 A.D. the Chinese year was 56th and Indian 53rd (Siddartha) The Chinese cycle started in 2637 B.C. The first month of the chinese concurs with the Magha month of India. The chinese months are only numbered and not named.

Page 103. Rig Veda Jyotisha consists of 36 verses and Yajur Veda Jyotisha consists of 43 verses, but 30 are common. Most of them are very unintelligible. Messrs. J. B. Modak, S. B. Dixit, B. G. Tilak, Barhaspathya, and others have interpreted them in different ways". "The sun and moon turned north after reaching Danishta Nakshatra" (Note : i.e., r was in Kritika ie 1500 BC nearly). "The first year began with New moon in winter solstice"

Page 141. Kaliyuga began at Midnight at Lanka on Thursday 17. 75th Feb. 3102 BC.

Page 152. "The star Spica was the main Bench mark of the Sidereal tropical system of the Aryan chronology from BC 1193 to AD 291. The sidereal system started in 291 AD, when Spica was exactly 180° from Aswinyadhi".

Page 154. Date of Mahabharata and Bagavad Gita:—

Page 160. Assyrian origin of Suryasiddhanta

Page 165. Bhaskara lived at Bijjala-Bid near Godavari, in A.D. 1150-

41. Warren (J) "*Kala Sankalita*" 1826.

Page 74. Yoga Taras (or guiding stars) of the 28 Lunar Mansions.

Page 245 "In remote times the solar year was made to begin with the months Aswini, Kartika, Margasiras....."

Page 247. "Crantipatagathi"—precessional variation $54''$ per annum.

Page 353. Margasiras was named Agrahayana, when it was made to commence the year.

42. I Watkins : "*Time Counts*" 1954 (a calendar study)

Page 133. (i) French Revolution was proclaimed on the Autumnal Equinox day.

(ii) The year should begin on one of the four days — Solstices or Equinoxes. It is better to put back the 1st Jan. to 22nd Dec.

43. Whitney (William. D.)

Discussion on the Hindu and Chinese systems of Asterisms, origin of Nakshatras and their number 27 or 28

44. Whyte (Rev. Charles) L. L. D. FRAS FRSE—"*The constellations and their history* — 1928

Page. "Before Eudoxus arranged his star globe he travelled into Egypt about the year 380 B.C., and became a student of Astronomy there. The most ancient records of the constellations take us back to 400 BC., but their invention was known to the Egyptians, Chaldeans, Hindus, and Chinese, several thousands of years before that date."

Page, 4. He was followed by Thales, Hipparchus 125 BC and Ptolemy

Page. 99 From 1580 BC. to 500 BC. eight Grecian temples were oriented to Hamal (α , Arietis), because Zeus and his daughter Athene favoured this aspect.

Page 101 — Mythology of Rohini (Aldebaran). Its heliacal rising in spring in 4900 BC. in Babylonia, where it is considered the first star.

NAKSHATRAS

Parts 1 & 2

Prof. K. SRINIVASA RAGHAVAN

B.A. (Hons.) (Math.), L.T., Dip. Geog., Dip. Phy. Edu.

SRI AUROBINDO STUDY CIRCLE

119, BIG STREET, TRIPPLICANE

MADRAS-5

Saka 1893

At the feet of the Lord of Kurukshetra

P R E F A C E

When I was a young boy (1910), I was taught star gazing by my mother's paternal uncle. More of it I learnt from an old gentleman, who came to our village and settled there. He was a very good astrologer (1918)

In 1921, Sriraman V. V. S. Iyer (later of the Bharadwaja Ashram) organised a study circle and asked me to prepare lessons on both the Ancient Indian and the Modern Astronomy. From 1924 to 1961, I was a student of Dr. R. Vaidyanathaswamy Iyer, D.Sc., Professor of Mathematics. He and Dr. A. Narasinga Rao, D.Sc. have helped me a great deal in my pursuit of this subject.

In 1935 Sriraman Narayanaswami Iyer, B.A., B.L. of "Kalai Maghal" and Dr. U. V. Swaminatha Iyer encouraged me to write a few articles in Tamil on the Nakshatras for the Journal and later asked me to write a detailed book.

Sri Mahadeva Iyer B.Sc. (Ag.), Sri Srikantan of the Madras Astronomical Association, Sriraman Vidwan Melma Narasimha Thathacharya Swamigal and Sri N. Subba Narayanan B.A., of the Aurobindo Study Circle helped me to write this book. In all gratitude I bow at the holy feet of those gentleman.

I thank Sri S. Venkatraman, Manager of the Srigam Press for his help and kind co-operation.

In this little book, I have carefully and clearly described the Nakshatras, and I have clarified the doubts raised by European Scholars about the antiquity of Ancient Indian Astronomy. I have also shown the uniqueness of the Vedic Nakshatra system.

In Part II, I have fixed the first point of the Vedic Zodiac, and thereby I have astronomically determined the position of the Aswinyadi, which is the cause of wrangling by many modern Astrologers in fixed Ayanamsa. The Aswinyadi as fixed in the Calendar Reform Committee Report of the Govt. of Bharat (1957) is in error by $1^{\circ} 46'$, and the Aswinyadi adopted by the world famous astrologer, Dr. B. V. Raman is $0^{\circ} 17'$ short of the correct position.

I am sure my Nakshatra charts will be very helpful to the readers.

Triplicane }
Saka 1893 }

K. Srinivasa Raghavan

CONTENTS

Nakshatras

Part I

- Chap. 1. Introduction
- „ 2. Detailed description of the Nakshatras
- „ 3. Number of stars in each Nakshatra Group.
- „ 4. Form of the Nakshatra Group.
- „ 5. Position of the stars in the Nakshatra Group.
- „ 6. Devas or Regents of the Nakshatras.
- „ 7. Further General Information about Nakshatras.
- „ 8. Tara Gana: Star groups.
- „ 9. Time reckoning by Stars.

Part II

The First Point of the Vedic Zodiac.

Price Rs. 2-50

PART I

NAKSHATRAS

CHAPTER—1 INTRODUCTION

It is enchantingly delightful to watch a clear night sky, with its many varied configurations of about 7000 stars (visible), of different intensity and colour. It has been a source of inspiration to many poets, philosophers and astronomers.

Among the stars, there are seven moving lights called the planets. They are (1) The brilliant Sun, (2) The rarely visible tiny Mercury (3) The dazzling silvery Venus (4) The fiery red Mars (5) The bright golden Jupiter (6) The slow moving reddish Saturn and (7) The fastest of the seven, the gentle and pleasant Moon. Besides these, there are the comets, sunspots, rahu, ketu and other visible and invisible heavenly objects.

Men of all times and climes have had a strong belief that these heavenly bodies exert a powerful influence in the affairs of Men and Nations. Great thinkers and seers have codified this Knowledge into that great Science called Astrology. Astrology requires a good knowledge of Astronomy.

Nakshatra [Lunar mansion], Thithi [the phase of the moon], Vara [the week day], Masa [month—solar, lunar and luni solar], Ruthu [season], Ayana [northward and southward motion of the sun], and Varsha or Sarada [the year], are very important elements of Astronomy. Nakshatra is the most important of them all. The nakshatra system is a special feature of Indian Astronomy. There is a school of Indian Astrology that lays very great emphasis on the birth Nakshatra alone, to read the life according to the dasa, bukthi etc.

I. A careful observation of the planets reveal the following :—

(i) The sun moves along a fixed path, a great circle, among the fixed stars. This path is called the Ecliptic.

(ii) The sun has also an apparent motion from North to South for six months, and from South to North for the next six months. This motion of the sun is the cause of the seasons.

(iii) The moon and the other planets move on a wide path, extending to about eight degrees on either side of the ecliptic. This is called the Zodiac.

(iv) The moon always moves in the same direction as the sun, but the other planets wander about in the Zodiac, sometimes going forward (in the same direction as the sun and moon) and sometimes going back wards (retrograde).

(v) The periods of revolution of the planets among the fixed stars are as follows :—

(a) Moon	— 27.32 days	(e) Mars	— 686.98 days
(b) Mercury	— 87.97 ..	(f) Jupiter	— 4332.58 ..
(c) Venus	— 224.70 ..	(g) Saturn	— 10759.22 ..
(d) Sun	— 365.26 ..		

II. The ecliptic is divided into four equal parts at the following points :—

(i) The point where the sun crosses the celestial equator from south to north is called Uttara Vishu or Vernal Equinox, represented by the symbol, Υ . Υ [The celestial equator is the imaginary great circle in the sky, at 90° from the Pole, and passing through the east and west points of the horizon].

(ii) The point where the sun crosses the celestial equator from north to south is called the Dakshina Vishu or Autumnal Equinox, represented by the symbol ϖ .

(iii) The point on the ecliptic farthest from the equator ($23\frac{1}{2}^\circ$) on the Northern side of the equator is called Dakshinayana position or Summer Solstice.

(iv) The point on the ecliptic farthest from the equator ($23\frac{1}{2}^\circ$) on the southern side of the equator is called. Utharayana position or winter solstice.

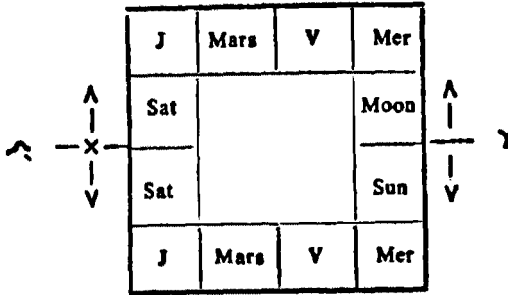
III. These four points are associated with the seasons. But they move slowly backwards along the ecliptic at about 1° for 72 years. But the Vedic Rishis of old desired to have a fixed point on the ecliptic as the Zero position for measuring the distances of stars and planets. They divided the ecliptic into 27 equal parts or Nakshatras. The space of each Nakshatra is $13\frac{1}{3}$ degrees along the Zodiac. The visible stars in the segment were grouped into a configuration termed a lunar mansion or Nakshatra. These are given names so that they may be identified. The name of the day is also that of the Nakshatra, as the moon stays a full day in each nakshatra. Since ocular observation was very important, the brightest star in the Nakshatra segment was named the Yoga Tara, and was given a distinguishing name. When the Nakshatra spaces were fixed Sravishta (or Danishta) [Tamil equivalent Avittam] was named the first nakshatra [Vedante Jyotisha].

The names of the 27 nakshatras with their Tamil equivalents are — (1) Sravishta = Avittam (2) Sata Bishag = Sathayam (3) Poorva Proshtapada = Poorattadi (4) Uthara Proshtapada = Utherattadi (5) Revati (6) Aswini (7) Bharani (8) Krittika (9) Rohini (10) Mrigashirsha (11) Arudhra = Tiru vadhirai (12) Punarvasu (13) Pushye (14) Aslesha = Ayilyam (15) Magha (16) Poorva Pnalguni = Pooram (17) Uthara Phalguni = Utharam (18) Hasta (19) Chitra (20) Swathi (21) Visakha (22) Anuradha = Anusham (23) Jyeshtha = Kettai (24) Moola (25) Poorva Ashada = Pooradam (26) Uthara Ashada = Utharadam (27) Sravana = Tiruvonam.

IV. Again with the midpoint of Sravishta, as the initial point, the Zodiac was divided into 12 equal parts, each of 30° . These parts are called Rasis. They are presently named as—

(1) Kumbha, (2) Meena (3) Mesha (4) Vrishabha (5) Mithuna (6) Kataka (7) Simha (8) Kanni (9) Tbula (10) Vrichika (11) Dhanus (12) Makara

The planets were given 2 Rasis each symmetrically about mid Sravishta. But the sun and the moon were given only one rasi each, since they have direct motion only



I have shown in my book on "First Almanac" that at the time the Zodiac was framed α was at Midshravishtha and γ was at the beginning of Magha.

V. The names of the 27 Yoga Taras are :—

- (1) Subha (2) Sukra (3) Brahman (4) Maha Indra (5) Vaidrithi
 (6) Viscomba (7) Priti (8) Ayushman (9) Sowbhagya (10) Sobhana
 (11) Atiganda (12) Sucarman (13) Driti (14) Sula (15) Ganda (16) Vyagata
 (19) Harshana (20) Vajri (21) Siddhi (22) Vyathipatha (23) Variyas
 (24) Parigha (25) Siva (26) Siddha (27) Sadya

VI. Because of the precession of the equinoxes, γ and α have retrograde motion along the ecliptic. Therefore the solar year was made to commence with the α , Autumnal equinox or γ , the Vernal Equinox. The 12 solar months commencing from γ are Madhu, Madhava, Sucra, Suchi, Nabhas, Nabhasya, Isa, Urja, Sahas, Sahasya, Tapas and Tapasya.

Thus there are 3 kinds of years (i) The astronomical year beginning with Amavasya in Sravishta. (ii) The Ritualistic year beginning with the New Moon very closely associated with γ or α (iii) The civil year or solar year beginning with the sun entering γ or α . The present Panchang gives these as (i) Kaliyugadhi (ii) Telugu New Year Day and (iii) Tamil New Year Day.

NOTE :—Since the Panchang writers (at present) are not taking precession into account, they are about 23½ days late regarding the beginning of Seasons.

VII. About 285 A. D. γ coincided with Spica, the Yoga Tara of Chitra Nakshatra. It was then that γ , 180° from α , was fixed as the first point of Zodiac. This is Meshadi or Aswinyadi, according to one school of Siddhanta Astronomers called the chaitra Paksha group. The present Govt. of India has adopted it, as per the Calendar Reform Committee Report. The present position of γ (1968 A. D.) is about 24° 23' away back into Meena Rasi, from the Meshadi of 285 A. D.

During Vedic Age, the Aswinyadi fixed by Vedanga Jyotisha, was 1° 46' back of the Aswinyadi of the Govt. of India Zodiac with Spica at 181° 46' of the Zodiac. It must be remembered that the Vedic Zodiac was a fixed one and unalterable, unlike the Zodiac of the Siddhanta Astronomers (This is dealt with in detail in a separate essay).

CHAPTER—2

Detailed description of the Nakshatras and their Yoga Taras :

Explanation of the meaning of the symbols and technical terms used.

(i) λ is the distance of the star from Meshadi of 285 A. D. along the ecliptic—celestial longitude.

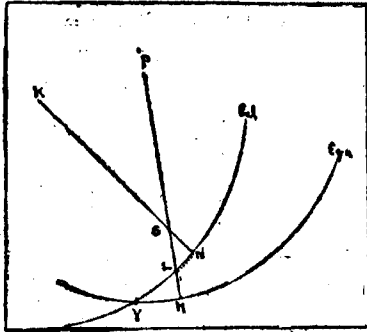
(ii) B, its distance north (+), or south (-) of the ecliptic—latitude.

(iii) ∞ — sidereal time in Hours and minutes. This is the difference in time between the transit of γ and the star—as per 1950 A. D. Right Ascension

(iv) δ —distance of the star north (+) or south (-) of the equator—as per 1950 A. D.—declination.

(v) D the meshadi distance of the beginning of the Nakshatra segment.

(vi) M—magnitude of the star i.e. its brilliance



$$\gamma N = \lambda, \quad SN = B$$

$$\gamma M = \infty, \quad SM = \delta$$

P is the pole of the equator, at 90° from it.

K is the pole of the ecliptic, at 90° from it.

S is a star. P S M and K S N are perpendiculars to the Equator and Ecliptic respectively.

In the following tabular form, the names of the Nakshatras etc. are given, almost according to the Report of the Calendar Reform Committee of the Govt. of India.

Nakshatras

No.	Name	D	Yoga Tara Names		M	Yoga Tara (Govt. of India—Epoch 1950)				Deva
						° λ ' "	β	H = M	° δ ' "	
1.	Sravishta அவிட்டம்	293° 20'	Subha	Alpha Delphini	4	293°.20'	33.2'	20.38	15.47	Vasu Indra
2.	Sata Bhishag சதயம்	306° 40'	Sucra	Alpha Lamda Aquarii	4	317°.43'	0.23	22.46	—7.55	Varuna
3.	Poorva Proshta Pada பூரட்டாதி	320°	Brahman	Alpha Pegasi "Markab"	2	329.38	19.24	23.03	15.01	Ajakabad
4.	Uthra Proshta Pada உத்திரட்டாதி	333° 20'	Maha Indra	Gamma Pegasi "Algenib"	2	345.18	12.36	0.10	14.50	Ahirbudnya
5.	Revathi ரேவதி	346° 40'	Vaidhriti	Zeta Pescium	6	356.1	—0.13	1.12	7.23	Pusa
6.	Aswini அசுவினி	0°	Vishcumba	Beta Arietis	3	10.7	8.29	1.53	20.38	Aswins
7.	Bharani பரணி	13° 20'	Priti	35 Arietis	4	24.21	16.27	2.41	27.25	Yama.
8.	Krittika கிருத்திகை	26° 40'	Ayushman	Eta Tauri "Alcyone"	3	36.8	4.3	3.45	23.56	Agni
9.	Rohini ரேவதி	40° 0'	Sowbhagya	Alpha Tauri "Aldebaran	1	45.56	—5.28	4.34	16.24	Prajapathy
10.	Mrigasira மிருகசீரம்	53° 20'	Sobhana	Lamda Orionis	6	59.51	—13.23	5.18	16.34	Soma
11.	Ardra திருவாரதி	66° 40'	Atiganda	Alpha Orionis "Betelguese"	.5 to 1.1	64.54	—16.2	5.53	7.24	Rudra
12.	Punarvasu புனர்வசு	80° 0'	Sucarman	Beta Geminoram "Pollux"	2	89.22	6.41	7.42	28.11	Aditi
13.	Pushya புஷ்யம்	93° 20'	Driti	Delta Cancri	4.5	104.52	0.5	8.41	18.25	Brihaspathy
14.	Aslesha ஆஸிஸ்யம்	106° 40'	Sula	81 Cancri	6	109.47	—5.5	9.15	18.00	Sarpa
15.	Magna மகம்	120° 0'	Ganda	Alpha Leonis "Regulus"	1.3	125.58	0.28	10.7	12.21	Pitris

No.	Name	D	Yoga Tara Names		(Govt. of India—Epoch 1950)					Deva
			M	α	β	H	M	δ		
16.	Poorva Phalguni பூர்வ புல்குனி	133° 20'	Vridhhi	Theta Leonis	3	137.27	14.20	11.11	15.47	Aryama
17.	Uthara Phalguni உத்திரம் புல்குனி	146° 40'	Druva	Beta Leonis "Denebola"	2.5	147.46	12.16	11.46	14.56	Bhaga
18.	Hasta ஹஸ்தம்	160° 0'	Vyagata	Delta Corvi	3	169.36	-12.12	12.27	-15.03	Savita
19.	Chitra சித்திரை	173° 20'	Hershana	Alpha Virginis "Spica"	1.2	180.00	-2.3	13.23	-10.59	Indra Twashta
20.	Swathi சுவாதி	186° 40'	Vajra	Alpha Bootes "Arcturus"	0.25	180.24	30.46	14.14	19.35	Vayu
21.	Visakha விசாகம்	200° 0'	Siddhi	Iota Libra	5.6	201.13	0.20	15.09	-18.46	Indra Agni
22.	Anuradha அனுராதம்	213° 20'	Vyathipatha	Beta Scorpii "Graffias"	2	218.43	-1.59	16.02	-19.03	Mitra
23.	Jyeshtha ஜெஸ்தை	226° 40'	Variyas	Alpha Scorpii Antares	1.2	225.54	-4.34	16.27	-26.21	Indra
24.	Moola மூலம்	240° 0'	Parigha	Lamda Scorpii "Shaula"	1.7	240.44	-13.47	17.31	-37.06	Nirrti
25.	Poorva Ashada பூர்வாடம்	253° 20'	Siva	Delta Sagittarii	3.4	250.43	-6.28	18.17	-29.55	Apah
26.	Uthara Ashada உத்திராடம்	266° 40'	Sidda	Phi Sagittarii	4.5	258.32	-3.27	18.42	-27.14	Visve Deva
●	Abijt. அபிஜித்	—	Abijt	Alpha Lyrae "VEGA"	.1			18.37	38.43	Brahma
27.	Sravana திருவோணம்	280° 0'	Sadya	Alpha Aquilae "Altair"	.9	277.58	29.18	19.49	8.46	Vishnu

CHAPTER—3

Number of Stars in the Nakshatra Group

No.	Name	Govt. of India	Tamil Tradition	Siddanta Siromani	Brahmana
1.	Sravishta	5	6	4	3
2.	Sata Bhishag	Many	Many	100	2
3.	P. Proshatapada	2	2	1	3
4.	U. Proshatapada	2	2	2	2
5.	Revathi	1	12	32	2
6.	Aswini	2	6	3	3
7.	Barani	3	3	3	3
8.	Krittika	6	6	6	—
9.	Rohini	5	12	5	3
10.	Mrigasira	3	3	3	3
11.	Ardara	1	1	1	3
12.	Punarvasu	2	6	4	3
13.	Pushya	3	1	3	2
14.	Asleṣha	6	4	5	2
15.	Magha	6	4	5	4
16.	P. Phalguni	2	2	2	2
17.	U. Phalguni	2	2	2	2
18.	Hasta	5	5	5	5
19.	Chitra	1	2	1	3
20.	Swathi	1	1	1	3
21.	Visakha	4	6	4	3
22.	Anuradha	3	6	4	3
23.	Jyeshtha	3	4	3	3
24.	Moola	2	4	11	2
25.	P. Ashada	2	2	2	4
26.	U. Ashada	4	2	2	3
27.	Abijit	4	—	3	3
28.	Shravana	3	3	3	3

CHAPTER—4

Form of the Nakshtra Group
according Siddharta Siromani and Tamil Tradition

No.	Name		Form
1.	Sravishta	Mardalam	சக்கரம்
2.	Sata Bhishag	Varthulam	தவிட்டுக் கூட்டம்
3.	P. Proshtapada	Bham	} கட்டில்
4.	U. „	Yama	
5.	Revati	Mardalam	படகு
6.	Aswini	Aswa Mukham	குதிரைத் தலை
7.	Barani	Yoni	அடுப்பு
8.	Krittika	Kshura	தீபம்
9.	Rohini	Chakata	ஊற்று
10.	Mrigasira	Hasti Mukha	தேங்காய் கண்
11.	Ardra	Mani	ஒரு மணி
12.	Punarvasu	Guha	ஓடம்
13.	Pushya	Sara	புடலம்பூ
14.	Aslesha	Chakram	அம்பி
15.	Magha	Griha	மூடநகம்
16.	P. Phalguni	Katwa	} கட்டில்
17.	U. „	Saiya	
18.	Hasta	Halam	கைத்தடம்
19.	Chitra	Mouthikam	இரு கண்
20.	Swathi	Pravalam	ஒரு மணி
21.	Visakha	Thorana	பாழ்துறவு
22.	Anuradha	Baghta	முடைப்பனை
23.	Jyeshtha	Kundam	சட்டி
24.	Moola	Sipu	காளம்
25.	P. Ashada	Gatai	} கட்டில்
26.	U. „	Manch	
27.	Sravana	Vama	முழக்கோல்

CHAPTER—5

Position of the stars in the Nakshatra Group—as in 1944 AD.

No.	Name	Stars	R.A.	δ	Mag.
1.	Sravishta Delphini	Alpha	20.37.02	15.42.48	3.86
		Beta	20.32.57		
		Gamma	20.44.24	15.55.17	4.49
		Delta	20.40.51	14.52.21	4.53
		Epsilon	20.30.32	11.06.43	3.98
2.	Satabhishag Aquarius	Lamda	22.49.42	—7.52.49	3.84
3.	P. Proshtapada Pegasi	Beta	23.01.03	27.46.43	2.61
		Alpha	23.01.58	14.54.13	2.57
4.	U. Proshtapada Andromeda	Alpha	0.05.29	28.46.53	2.15
		Gamma	0.10.21	14.52.21	2.87
5.	Revati Piscium	Zeta	1.10.48	7.16.47	2.57
		Beta	1.51.32	20.32.07	2.72
6.	Aswini Arietis	Gamma	...	...	...
		Alpha	2.04.01	23.11.55	2.23
		35	2.40.10	27.28.13	4.58
7.	Barani Arietis	41	2.46.41	27.01.51	3.65
		Yeta	3.44.09	23.56.01	2.96
9.	Rohini Taurii	Gamma	4.16.36	15.29.39	3.86
		Delta	4.19.42	17.24.46	3.93
		Epsilon	4.25.21	19.03.29	3.63
		Alpha	4.32.42	16.23.54	1.06
		Theta	...	...	...
10.	Mrigasira Orionis	Lamda	5.18.	9.24.	6.
11.	Ardra Orionis	Alpha	5.52.08	7.23.54	V.
12.	Punarvasu Geminorum	Alpha	7.31.02	32.00.47	1.58
		Beta	7.41.53	28.09.47	1.21
13.	Pushya Cancri	Gamma	8.40.03	21.40.17	4.73
		Delta	8.41.30	18.21.41	4.17
14.	Aslesha Hydrae	50 Cancri	8.44.	12.22.	6.0
		Eta	8.45.	6.30.	
		Iksie	11.30.15	—31.32.51	3.72
15.	Magha Leonis	Alpha	10. 5.23	12.14 30	1.34
		Eta	10. 4.17	17. 2.12	3.58
		Gamma	...	...	...
		Zeta	10.13.35	23.41.50	3.65
		Mew	9.49.35	26.16.18	4.10
Epsilon	9.42.41	24. 1.59	3.12		

No.	Name	Stars	R.A.	δ	Mag.
16.	P. Phalguni Leonis	Delta	11.11.07	20.49.51	2.58
		Theta	11.11.18	15.44.09	3.41
17.	U. Phalguni Leonis	Beta	11.46.12	14.53.07	2.23
		93	11.45.06	20.31.49	4.54
18.	Hasta Corvii	Epsilon	12.07.14	-22.18.30	3.21
		Gamma	12.12.55	-17.13.52	2.78
		Delta	12.26.58	-16.12.14	3.11
		Beta	12.31.26	-23.5.14	2.84
		Alpha	...	...	...
19.	Chitra Virginis	Alpha "Spica"	13.22.14	-10.52.11	1.21
20.	Swathi Bootes	Alpha "Arcturus"	14.13.06	19.28.23	0.24
21.	Visakha Libra	Alpha ₁	14.47.35	-15.45.56	5.33
		Alpha ₂	14.47.47	-15.48.37	2.90
		i	15.09.01	-19.34.52	4.66
		Beta	15.13.59	-9.10.39	2.74
		Gamma	15.32.23	-14.36.15	4.02
22.	Anuradha Scorpii	Beta	16.02.21	-19.39.13	2.90
		Delta	15.57.01	-22.27.50	2.54
		Pie	15.55.28	-25.57.16	3.00
23.	Jyeshtha Scorpii	Sigma	16.11.47	-25.27.36	3.10
		Alpha	16.25.58	-26.18.34	1.22
		To	16.32.23	-28.06.06	2.91
24.	Moola Scorpii	New	17.26.57	-37.15.11	2.80
		Lamda	17.29.48	-37.03.54	1.71
25.	P. Ashada Sagitt	Delta	18.17.25	-29.51.14	2.84
		Epsilon	18.20.27	-34.24.47	1.95
26.	U. Ashada Sagitt	Theta	19.55	-35.20	...
		To	19.03.27	-27.45.15	3.42
		Sigma	18.51.58	-26.22.05	2.14
		Pie	18.42.09	-27.03.01	3.30
—	Abijit Lyrae	Alpha	18.35.03	38.43.50	0.14
		Gamma	18.56.51	32.36.42	3.30
27.	Sravana Aquillae	Gamma	19.43.36	10.28.32	2.80
		Alpha	19.48.03	8.43.09	0.89
		Beta	19.52.34	6.15.56	3.90

CHAPTER—6

The Devas or Regents of the Nakshatras

(A) The Nakshatras are usually named by their presiding Devas e.g. Krittika is named Agni Daivatam

There are many references to the Nakshatras in the Rig Veda. Detailed description is given in the Taitreya Brahmana I Ashtaka 5th Prasna First Anuvaka—

Again Maitreya upanishad and Satapatha Brahmana deal with Nakshatras. There are many references to them in the Maha Bharata.

- (i) In the Brahmana, with every Yoga Tara, two more stars, one in front and one behind are given e.g. Agni Krittikaha, Sukram Parasthath Jyotir Avasthath
- (ii) Each Nakshatra is mentioned with a certain number of stars eg (a) chathasro devi Rajara Shravishtaha (b) Treda Vishnu Rurugayo vichakrame Maheem divam anthariksham (c) Proshtapadaso abirakshante chathvara ekam abikarma devaha etc.
- (iii) A number of devas are associated with the stars of a Nakshatra—

e.g. Rohini :

Prajapathaye Swaha (Masculine)
Rohinyai Swaha (Feminine)—Red
Rohamayai Swaha (Feminine)—bright
Prajabyai Swaha (Feminine)

(B) The 2 stars associated with the Yoga Taras

1. Agni Krittikaha Sukram Parasthath, Jyotir Avasthath
2. Prajapathaye Rohini, Apap parasthath, Oshadayo Avasthath
3. Somscevakavithathani Parasthath, Vayamtho Avasthath
4. Rudrasya Bahuvrighayava Parasthath, Viksharo Avasthath
5. Adithai Punarvasu Vatha Parasthath, Ardram Avasthath
6. Brihaspathae Tishyaha, Juhvatha Parasthath, Yajamanaha Avasthath
7. Sarupanam Asleshaha, Abyagachanthaha parasthath, Abya Nrithyamtho Avasthath
8. Pithrunam Maghana, Rudhantam Parasthath, Apabrihamso Avasthath
9. Aryamanaha Poorvae Phalguni Jyaya Parasthath Rishabo Avasthath
10. Bhagsyo utharae Vahathavaha Parasthath Vahamana Avasthath
11. Devasya Savithuhu Hastaha Parasvaha Parasthath Sani Avasthath
12. Indraya Chitro, Ritham Parasthath Satyam Avasthath

13. Vayor Nishtyaha Varathathihi Parasthath Asiddhihi Avasthath
14. Indra Agniyor Visakae, Yugani Parasthath Krishnamana Avasthath
15. Mithrasya Anuradhaha Abyaroha Parasthath Abyaroodam Avasthath
16. Indrasya Rohini Srina Parasthath Prathi Srina Avasthath.
17. Niririthyai Moola Barihini Prathi Bhanjantha Parasthath, Prathi Srinath Avasthath
18. Apam Poorva Ashada, Varcha Parasthath Samithir Avasthath
19. Visvesham Devanam utharaha Abijayath Parasthath, Abijitham Avasthath.
20. Vishno Srona Prachchamanaha Parasthath Pantha Avasthath
21. Vasunam Srairshataha Bootham Parasthath Boothir Avasthath
22. Indrasya Satabhishag, visvavyachaha Parasthath. Visvashithi Avasthath
23. Ajasaiika Padaha Poorvae Proshitapadaha Vaisvanaram Parasthathi Vaisvava savam Avasthath
24. Ahae Budhni esyotharae Abishinchamthaha Parasthath Abishinvantho Avasthath
25. Pooshno Revathi gava Parasthath Vatsa Avasthath
26. Asvino rasvayujo gava Parasthath Sena Avasthath
27. Yamasye Apabarani Apakarshantha Parasthatho, Apavahantho Avasthath

(C) All the stars associated with a Nakshatra

- | | |
|---|--|
| <p>1. Krittika
 Agnaye Swaha
 Krittikabhiya Swaha
 Ambayai Swaha
 Dhulayai Swaha
 Nithathniyai Swaha
 Abayanthyai Swaha
 Varshayanthyai Swaha
 Chupuncekayai Swaha</p> | <p>4. Ardra
 Rudraya Swaha (Mas)
 Ardayai Swaha (Fem)—wet
 Pinvamanayai Swaha (Fem)
 Pasubhiyaha Swaha (Mas) plural</p> |
| <p>2. Rohini
 Prajapathaya Swahe (masculine)
 Rohinyai Swaha (Feminine)—Red
 Rohamayai Swaha (Fem, bright)
 Prajabyai Swaha (Feminine)</p> | <p>5. Punarvasu
 Adithyai Swaha (Fem)
 Punarvasubyam Swaha (Fem)
 Boothyai Swaha (Fem)
 Prachathyai Swaha (Fem)</p> |
| <p>3. Mrigashirsha
 Somayas Swahe (Masculine)
 Mrigashirseyaya Swaha (Masculine)
 Invakabhyai Swaha (Fem, plural)
 Oushadeebhayai Swaha
 (Femplural)</p> | <p>6. Pushya
 Brihaspathayae Swaha
 Tishyaha Swaha
 Brahma Varehasaya Swaha</p> |
| | <p>7. Asleshe
 Saipaebya Swaha
 Asleshabhya Swaha
 Ganda Sookaebya Swaha</p> |

8. **Magha**
Pithrabya Swaha
Mahabya Swaha
Anagabya Swaha
Agadhabya Swaha
Arundathibya Swaha
9. **P. Phalguni**
Aryamme Swaha
Phalgunibyam Swaha
Pasubya Swaha
10. **U. Phalguni**
Bhagaye Swaha
Phalgunibyam Swaha
Sraishtyaye Swaha
11. **Hasta**
Savitre Swahaha
Hastaye Swahaha
Dadathe Swaha
Pranathae Swahaha
Prayachchayathe Swahaha
Prathigribnathae Swahaha
12. **Chitra**
Twashtre Swahaha
Chitrayai Swahaha
Chaitrayai Swahaha
Prajayai Swahaha
13. **Swati**
Vayave Swahaha
Nishtyayai Swahaha
Kamecharayai Swahaha
Abijityai Swahaha
14. **Visake**
Indra Agnibyam Swahaha
Visakabyam Swahaha
Sraishtyaya Swahaha
Abijitay
15. **Anuradha**
Mitraye Swahaha
Anuradhabyam Swahaha
Mitra Deyaye Swahaha
Abijityai Swahaha
16. **Jyeshtha**
Indraya Swahaha
Jyeshhtayai Swahaha
Jyaishtayayai Swahaha
Abijityai Swahaha
17. **Moola**
Prajapathaye Swahaha
Moolaye Swahaha
Prajayai Swahaha
18. **P. Ashada**
Adbiya Swahaha
Ashadabyas Swahaha
Samudraya Swahaha
Kamayay Swahaha
Abijityai Swahaha
19. **U. Ashada**
Visvebyo devabyo Swahaha
Ashadabya Swahaha
Anapajaiyayai Swahaha
Jithyai Swahaha
20. **Abijit**
Brahmanae Swahaha
Abijites Swahaha
Brahma lokayae Swahaha
Abijityai Swahaha
21. **Sravana**
Vishnavae Swahaha
Sronayai Swahaha
Slokayai Swahaha
Sruthayai Swahaha

22. Sravishta

Vasubhya Swahaha
Sraushtabya Swahaha
Agraya Swahaha
Pareithyai Swahaha

Note : "Vavova Akamayantha
Agram devanan Pariyamethi" — This
refers to Vasus, who wished to lead
the devas, hence Sravishta is the first
Nakshatra

23. Sata Bishag

Varunaya Swaha
Satabishage Swaha
Beshajebye Swaha

24. P. Proshtapada

Ajayaika Padae Swaha
Proshtapadaebya Swaha
Tejasae Swaha
Brahma Varchasaya Swaha

25. U. † roshtapada

Ahayae budniyaya Swaha
Proshtapadaebya Swaha
Prathishtadai Swaha

26. Revati

Pooshnae Swaha
Revathyai Swaha
Pasubhaya Swaha

27. Aswini

Aswinibyam Swaha
Aswayugyam Swaha
Srothaaya Swaha
Sruthyai Swaha

28. Barani

Yamaya Swaha
Apa baranibye Swaha
Rajyaya Swaha
Abijityai Swaha

Note There is an interesting legend about Nakshatras.

At first Brahma divided the Zodiac into 28 equal parts, and each part was named a Nakshatra. They are called the 28 daughters of Prajapathy. They were married to Chandra (Moon). The eldest is Shravishta and the youngest is Abijit. After some time Abijit went away to perform tapas, and so Chandra had only 27 wives left with him. [The reason for reducing 28 to 27 is quite clear]

It must be remembered that between 10000 B.C. and 8000 B.C. Vega or Abijit was the Polestar.

All the 27 Nakshatras were at first mainly fixed for convenient observation from the region of River Saraswathy. But after a long time, during the days of Emperor Trisanku, there was a great demand for an alteration of the Nakshatra system by the many Aryan sailors. For to them the southern ocean became a mere lake and their ships went far to the east and to the west of Bharat Varsba. These navigators demanded a change in the Nakshatras, as many of them were not clearly visible in the southern ocean, even the important Northern Pole star. These were headed by Rishi Viswamitra, who said, "Anyamindram karishyami" i.e. I shall create another Pole star (Indra Padam = Home of Indra) with its Indra and his ministers, the Rishis. He was opposed by the conservatives headed by Rishi Vasishtha. But finally they came to a compromise and Rishi Viswamithra's suggestions were accepted. i. The

Southern Cross was named Trisanku and he was made Indra of the south. The southern Pole was considered equivalent to the Northern pole. (ii) The Saptha Rishis, ministers of Indra, protect him in the north; similarly α , β Centaurus and others, form the Saptha Rishis (of Trisanku) headed by Rishi Viswamitra (α , Centaurus). (iii) 5 Nakshatras of the old Zodiac were replaced by 5 new Nakshatras, prominently visible in the Southern hemisphere. They are the 22nd, 23rd, 24th 25th and 26th of the old Zodiac. The names are Anuradha, Jyeshtha, Moola Poorva and uthara Ashadas. Viswamitra made Sravana the first Nakshatra, instead of Sravishta. The 5 new Nakshatras are far low in the southern sky for an observer in N. India, but they are high up in the heavens for observers in the southern ocean (Indian ocean), and are helpful for navigators in the southern regions. Rishi Veda Vyasa mentions a number of times in the Maha Bharata that the present Zodiac is the one altered by Viswamitra. Al Biruni has written about this legend.

CHAPTER—7

Further general information about Nakshatras from various sources :

1. **Aswini** : Alpha, Beta, Gamma Arietis constitute this Nakshatra. Beta is the junction star, gamma is called the first star in Aries. There are 3 stars in this lunar mansion.

2. **Barani** : Musca Borealis (Northern fly) with Fl. Nos. 41, 33, 35 and 39 of Aries. Barani means bearer. Yama, the ruler of the spirit world is the presiding deity. Fl. 35 is the junction star. It consists of 3 stars.

3. **Krittika** : Chinese annals of 2357 B. C. give this as the first star. It is the first in the Hindu lunar Zodiac. Karthikeya was the general of the celestial armies, ie before 1730 B.C. when the equinoxial point coincided with it. Al Biruni, referring to this, states " This statement must have been made about 3000 years before Alexander " The Krittikas are the six nurses of Skanda, the infant God of war. The Hindus pictured it as a flame, typical of Agni, God of fire, and the presiding deity of the Nakshatra. It gave birth to the festival of lamps, and Diwali in India and the Feast of lanterns in Japan.

Alcyone is the junction star, representing Amba, the mother—Some say that it represents Arundhathi, wife of Vasishta. The names of the seven stars are Amba, Thula, Nidadri, Abayanthi, Megayanthi, Varshayanthi, Supuneeka.

4. **Rohini** : The three graces or charities (of early Greeks) represent 3 nude figures hand in hand, standing on the head of the Bull, one pointing to the seven stars in line over the back. They were the Vedic Harits associated with the sun, stars and seasons. Hindu Rohini is the Red deer from its ruddy hue.

Aldebaran is the junction star. It is figured as a temple or wagon. Rohini consists of 5 stars.

Mrigasirsha : Lamda, fie one and fie two constitute the head of a deer. Lamda is the junction star. Prof. Whitney wrote, " It is not a little strange that the framers of the system should have chosen this faint group to the neglect of the brilliant and conspicuous Beta and Zeta Tauri, the tips of the Bull's horns. This is hardly another case where we have so much reason to find fault with their selection." But they were influenced by the fact that the vernal equinox lay here in 4500 B.C. Weber mentions Andaka, the blind, from its dimness, Aryika, the worthy, and Invaka of doubtful meaning. It consists of 3 stars.

6. **Ardra** : The Hindu Brahmanas refer to Orion as Prajapathy, in the form of a deer, Alpha, Beta, Gamma and Kappa marking the feet. Since he wanted to commit incest with his own daughter, Rohini, he was transfixed by the hunter Sirius (Siva), by the three jointed arrow, the belt of Orion.

Praiapathy is the father of the 27 Nakshatras, who were married to King Soma (moon).

Alpha Orionis or Betelgeuse, constitutes Ardra (moist), whose presiding deity is Rudra, the storm God. It has only one star.

7. Punarvasu : Alpha and Beta gemini constitute the Nakshatra. Aditi is the presiding deity. Beta is the junction star.

8. Pushya : The flower or Tishya is auspicious, with Brihaspathy, the priest and teacher of the Gods as presiding deity. It was some times figured as a crescent and again as an arrow head. But Amara Simha, the sanskrit author of 56 B.C. called it Sidhaya, the prosperous.

9. Aslesha : The embracer, figured as a wheel with Sarpas. The serpents are the presiding deities. Epsilon is the junction star. The constellation has five stars.

10. Magha : Mighty or generous—made up of all the components of the sickle. Pitris or Fathers are the presiding deities of the Nakshatra, which is figured as a house. Regulus is very close to the ecliptic. According to Persian legend, it is one of the four royal stars, making the 4 cardinal points. Fomalhant, Aldebaran, Regulus and Antares are the most powerful royal stars. Their right ascension differ by about 6 Hours. Regulus was probably very near the Summer solstiee at that time.

11 & 12 : Purva and uthara Phalguni : The regents are Aryaman and Bagha. The four stars are considered as a conch. Delta Leonis and β Leonis (Denebola) are the junction stars. Al Biruni states that the Hindu astronomers pointed a star in coma Berenices as part of the lunar station. The great attainments of Varaha Mihira were due to his birth Nakshatra being Uthara Phalguni. Denebola is called the weather changer—the heat turns away when it rises and the cold turns away when it sets.

13. Hasta : The five stars of Corvus constitute the Nakshatra. It looks like a hand and Savita is the presiding deity. δ is the junction star.

The immense Prajapathy (Maha Prajapathy) is a human form made up of stars. Its hand is considered to be Hasta. Chitra or spica, its head, the 2 Visakhas its thighs, Antares, β δ π forming its pedestal. There is a mistaken notion that Arcturus is its heart. Arcturus is far from the ecliptic, so Prof. Whitney and others consider it a mistake and suggest iota, Kappa, and Lamda Virginis as Swathi.

14. Chitra : Virgo, Kanya or Virgin—sitting before a fire. Varaha Mihira changed the greek name Parthena (Partina) into Puthana of Indian Puranas. Spica or chitra means bright, figured as a lamp or pearl. Twashtra, the artificer is its deity, Delta Virgius is called Apas or waters. Theeta

Virginis has no modern name. Surya siddhanta calls it Apami atsa—child of the waters.

15. Swathy : Good giver or sword, figured as a coral head gem or pearl. Known also as Nishtya (outcaste), possibly because of its remote position from the ecliptic.

16. Visaka : The stars in Libra $\alpha, \mu, \lambda, \delta, \beta, \xi, \nu$ from a circular altar. Varaha Mihira calls it fire, and also by its Greek name "The scales" α Libra is Visakha, Indra Agni are the deities. It is considered as a decorated gate way, Iota is the junction star. The two alphas lie s. w. of Beta close to the ecliptic.

17. Anuradha : propitious or successful, Mitra is the presiding deity. Astrologers call Vrichika as the accursed constellation, source of war and discord, the house of Mars.

18. Jyeshtha : α, γ, τ Scorpii form the Nakshatra. It is also known as Rohini (Red). Indra, the sky God, is its deity. It is figured as a pendant, ear jewel.

19. Moola : λ, ϵ Scorpii—The two releasers, from the Vedic opinion that they brought relief from lingering disease. Some call it Moola, the root. Nirriti (calamity) is its deity. It is figured as a lion's tail.

20 & 21. Poorva and uthera Ashada : Sagittarius was known in India 3000 years ago as a house or house's head or horseman. Many Indian and Greek legends are attached to it.

Ashadas—unconquered. Apas (waters) and Viswa devas are the deities. Figured as elephant's tusk individually, and as a bed, the four together. Sigma is the junction star.

22. Abijit : α, ϵ, μ , of Lyrae. Though far from the ecliptic, it was included because of its brightness. It is called Abijit, because the Gods vanquished the Asuras with its influence. It is figured as a triangle.

23. Sravana :—Aquillae $\alpha \beta \gamma$ form the Nakshatra. α Aquilla is called Altair. It is figured as a ear. It is also known as Srona (lame), Aswatha or Fig tree. Its regent is Vishnu. Capricornus—There are many variations about its figure—goat, fish, antelope, goat cum hippo, crocodile, etc. This is the last of the Zodiacal signs of India.

24. Sravishta : Delphina, Sravishta means most favourable and Danishta means the richest, Vasus are the presiding deities. β is the junction star.

25. Sata Bishag : Aquarius—began the Zodiacal circle in Ancient India. Kumbha resembles the Elamite divinity $\kappa \sigma' \mu \beta \eta$ or storm God of

Hasychios. Sata Bishag— λ Aquarius with 100 stars surrounding it forms the Nakshatra, meaning 100 Physicians. Varuna is its deity. λ is an intensely red star.

26 & 27. Poorva and uthara Bhadrapada: α Pegasi is the junction star. The great square of Pegasus is formed of the 2 Nakshatras, Bhadra Pada means the beautiful, Auspicious or happy feet. It is also called Proshta Pada meaning the feet of an ox. It is also figured as a stand, table, bedstead, Ravana's bed, etc. The regents are Aja Ekapat (one footed goat) and Ahibudonya (the bithom snake) — “the two mythical figures of obscure significance from the Vedic times” α , Andromeda, β , cassiopic, γ , pegasi, from the present equinoctial colure.

28. Revati: Varaha Mihira calls it Ittha from the greek name. It was called Anta jitu. Revati means abundant or wealthy. 32 stars from γ northwards, figured as a drum or tabor. γ was prominent in Hindu Astronomy, marking the initial point of the celestial sphere, about the year 572 A.D., when it coincided with the Vernal Equinox.

CHAPTER—8

Other Star Groups—"Tara Gana"

[Prof. Whitney in "Century Dictionary" and others]

1. **Ursa Major—Great Bear** : The Saptha Rishis, sons of Brahma. It is circumpolar above 41st parallel of latitude. It has "great extent and an excellent figure of seven beautiful stars. It was called Riksha in Sanskrit meaning a bright star group. Riksha in Sanskrit has another meaning "bear". Thus was it translated by foreigners. The seven stars are associated with seven Rishis, seven wise men of Greece, the seven sleepers of Ephesus, seven champions of Christendom etc. Hewitt, Al Biruni and others have written elaborately on this Constellation. Al Biruni's story of the Hindu legend that Viswamitra created a southern pole with Rishis is interesting reading.

2. **Ursa Minor** : In India it was known as graha Dhara (the pivot of the planets), the great God Dhruva.

3. **Milky Way** : According to Al Biruni, it was called Akash Ganga in India. It was also called "the court of the Gods", "the dove of Paradise", "the Nagaveedhi" etc.

4. **Sirius** : Mriga Vyadha (deer slayer). Lubdka, the hunter, shot an arrow (the belt of Orion) at the infamous Prajapathy (represented as a deer—Orion). In Vedic times it was called Sarama, one of the twin watch dogs of the Milky Way or as Sukra, the rain god.

5. **Procyon** : It was known to the ancient Hindus and was associated with many legends.

6. **Canopus** : Agastya, one of the great inspired Rishis of India—son of Varuna, the god of waters in the Regent. There are many allusions to him in Sanskrit literature. Its heliacal rising is associated with certain religious ceremonies (described in detail by Varaha Mihira). His appearance in the sky makes turbid waters clear.

7. **Ophichus and Serpens** : In ancient India it was the adjutant bird, ciconia urgala, prominent in the worship of Moon God—Soma.

8. **Capella or α Aurigae** : In ancient India, it was called Brahma Hridayam, the heart of Brahma. Hewitt considers it to be the Aryaman of the Rig Veda.

9. **δ Aurigae** : 4.1 Magnitude, yellow in colour. It is inconspicuous. It is unnamed in modern astronomy—but the ancient Hindus called it "Prajapathy, the lord of created beings". The Surya Siddhanta devotes considerable space to it, but "Why so faint and inconspicuous a star should be found among the few of which Hindu astronomers have taken considerable notice is not easy to discover"

10. **Crux : Southern Cross**—Different writers have written about it. It has a long and interesting legend: It represents the great King, Trisanku, for whom Rishi Viswamitra created a second heaven in the South. Rishi Viswamitra fixed many stars and helped the Aryan Navigators of the Indian ocean. The Hindus called the South Pole, Dramasa.

11. **Equalaus** : To the Hindus it represented another of the Aswins.

12. **Cepheus** : To the ancient Hindus it was Kapi, the Ape—God. Its stars Alpha and Gamma were the pole stars of 21000 B. C. and 19000 B. C. Later Hindus and Greeks called it Capraja and Cepheus. Set is a general name for all circumpolar stars. Hewitt states that Kapi was called Set.

13. **Mons Maenalus** : obsolete constellation. Landseer and Hewitt have written the legends associated with it in "the Ruling Races of Prehistoric times." Vega was the Pole—star from 10000 B. C. to 8000 B. C.

CHAPTER—9

Time reckning by Nakshatras

I The Ancient Tamil Verse gives the following method :—

“சித்திரைக்குப் பூசம் முதல் சீரனுஷம் ஆவணியாம்
அத்தனுசுக் குத்திரட்டாதியே—நித்த நித்தம்
ஏதுச்சமானாலும் இரண்டேகாவிற்பெருக்கி
மாதம் ஐந்து தள்ளி மதி.”

Explanation :

சித்திரை முதல் ஆடிய முடிய—பூசம்
ஆவணி முதல் கார்த்திகை முடிய—அனுஷம்
மாரகழி முதல் பங்குனி முடிய—உத்திரட்டாதி

என்று வெண்பா கூறுகிறது.

கேள்வி :

- (1) வைகாசி மாதம் 10ம் தேதி, விசாகம் உச்சம், நேரம் என்ன ?
வைகாசி வருவது சித்திரைக்குப் பின்
ஆக பூசம் முதல் விசாகம் வரை எண்ண—8
 $8 \times 2\frac{1}{2} = 18$ நாழிகை
வைகாசி 10ம் தேதிக்குத் தள்ளுபடி

$$= \frac{40}{30} \times 5 = 6\frac{2}{3} \text{ நாழிகை}$$

$$\text{ஆக மீதி நாழிகை} = 18 - 6\frac{2}{3} = 11\frac{1}{3} \text{ (இரவு)}$$

- (2) கார்த்திகை மாதம் 8ம் தேதி, ரேவதி உச்சம், நேரம் என்ன ?
கார்த்திகை வருவது ஆவணிக்குப் பின்
ஆக அனுஷம் முதல் ரேவதிவரை எண்ண—10

$$\therefore 10 \times 2\frac{1}{4} = 22\frac{1}{2} \text{ நாழிகை}$$

$$\text{தள்ளுபடி} = 3\frac{8}{30} \times 6 = 16\frac{1}{3} \text{ நாழிகை}$$

$$\text{ஆக நேரம்} = 22\frac{1}{2} - 16\frac{1}{3} = 5\frac{1}{6} \text{ நாழிகை (இரவு)}$$

II On a Given date of the Christian Calendar :—

The longitude of the sun on the following days is—

- (a) March 21st = Zero
- (b) June 22nd = 90°
- (c) September 22nd = 180°
- (d) December 22nd = 270°

In between the longitude increases at $\frac{360^\circ}{365}$ per day. Hence find the longitude of the Sun on the given date. Convert this into Hour angle at 1 hour for 15° . (or 4 minutes per degree). Find the difference between the Hour angle of the star that transits and that of the sun. The difference gives the time after the previous noon. To be more accurate the midday difference in time between the actual sun and the mean sun (termed equation of time) should be added.

Example :

Find the time on May 12th, when Antares transits ? Longitude of sun from Vernal Equinox = number of days from March 21st to May 12th $\times \frac{72^\circ}{73}$

$$= 53 \times \frac{72^\circ}{73} = 52^\circ. 3$$

\therefore Hour angle of the sun = 3. 49 Hours = 3 Hrs 30 min

Hour angle of Antares = 16 Hrs 27 min

\therefore Difference = 12 Hrs 57 min

i. e. Time is 12 Hrs 57 min P. M.

BOOKS BY THE SAME AUTHOR

1. The Cradle of Man and
the First Almanac Rs. 2-50
2. Date of the Maha Bharata war
and Kaliyugadhi Rs. 2-50
3. Nakshatras parts 1 & 2. Rs. 2-50

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NAKSHATRAS

Part II

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MADRAS - 5

Saka. 1894

AT THE FEET OF THE LORD OF KURUKSHETRA

This booklet gives the correct astronomical solution of the vexed question of Ayanamsa.

I must thank Dr. V. N. Sharma Ph. D., and the MANASA Press for their earnest help in bringing out this booklet.

K. SRINIVASA RAGHAVAN

Srinivasa Nagar, Tambaram
20th April, 1972 A.D.

1, Madhava Month, Pareedhavi
Saka 1894

NAKSHATRAS

**THE DETERMINATION OF THE ZERO - POINT OF THE INDIAN NAKSHATRA
ZODIAC to THE AYANAMSA OF ASWINYADI.**

This problem is called the problem of Ayanamsa by modern Indian astronomers and astrologers. A number of articles on this "vexed question of Ayanamsa" was written in the Astrological magazine of Dr. B. V. Raman, of Bangalore from 1962 for a number of years, by many eminent scholars. All the writers have dealt with it from the historical and the Astrological point of view. No one seems to recognise the authors of the two systems: i the Nakshatras (Lunar) and ii the Rasis (Solar). The fixed Nakshatra segments of the zodiac and the moving seasons amongst them were clearly understood by the Vedic Rishis, who therefore gave two sets of names to them. The internal evidence of the Vedanga Jyotisha reveals it was written (in 8576 B. C.) for the correct performance of the rituals mentioned in the Vedas. The Egyptian, Sumerian, Chaldean and Greek Cultures were not born at that time. There were other cultures like those of the Druids (of Stonehenge) of England and the Pacific Islanders (with their huge stone statues). We do not know anything about them, except that they were sun worshippers, and that they knew the determination of the seasons.

In this essay it is proposed to determine the Aswinyadi of the Vedanga Jyotisha, and show that a correction of $+ 1^{\circ}46'$ is to be made to the longitudes of the stars given by the Calendar Reform Committee of the Govt. of India. Dr. B. V. Raman takes this correction as $1^{\circ}29'$.

(A) There are two important systems in Indian Astronomy: the one based on the 27 Nakshatras of the Zodiac and the other on the 12 divisions termed Rasis. The former is lunar in nature and the later was originally solar in nature. Again in the solar study, there are two subschools i Sayana and ii Nirayana. According to the Sayana school, the first point of the Zodiac is the position occupied by the Vernal Equinox, γ , but according to the Nirayana school, it is a fixed point on the Zodiac, fixed by ancient Indian astronomers. This beginning should agree with the beginning of the Nakshatra system.

But there have been many changes in the initial point of the Zodiac, and many different almanacs are published. It is therefore necessary that the correct position of the beginning of the Zodiac should be determined.

(B) With regard to this, there are three distinct schools of Indian astronomers i the first school has for its initial point of the Zodiac, the position occupied by the Vernal Equinox, γ in 285 A. D. This is termed the Surya Siddhanta school. It is now adopted by the Calendar Reform Committee of the Government of India. It is popularly known as the Chaitra Paksha system, because Chitra Nakshatra (Spica) is exactly at 180° from the Zero-point of the Zodiac. ii the second school has for its initial point, the position of γ , in 499 A. D. This is said to be the Zodiac of Varaha Mihira, and his followers. Most of the European scholars who studied Indian Astronomy from 1750 to

1900 A. D. assumed this as the standard Indian Zodiac iii The third school has zeta Piscium, as the end star of Revati, and the Zero point of the Zodiac. This is popularly known as the Raivatha Paksha system, IV In addition to these G. R. Kaye in his book on "Indian Astronomy" has taken the position of Y in 560 A. D. as the Zero point of his Zodiac. The relative Ayanamsas of these positions are as follows—

285 A. D. = - 23°25'
 499 A. D. = - 20°36'
 560 A. D. = - 19°35'
 570 A. D. = - 19°26'
 1968 A. D. = - 0 0'

Note 411 A. D. = - 21°39'

This differs from that of 285 A. D. by 1°46'

The Law of the precession of the equinoxes and the method of calculating it for any given year are given in my book "The first Almanac".

(C) The ancient Rishis who framed the rules of Astronomy and formed the Zodiac, as detailed in the Vedanga Jyotisha, fixed the Nakshatra segments of the ecliptic, and their Yoga Taras. They were careful to see that the Yoga Taras selected were distinctly inside the Nakshatra segments, and close to the ecliptic. It is for this reason that some bright stars were left out, and less bright ones were taken as Yoga Taras. (There are other interesting astronomical reasons for the choice of the Yoga Taras)

The positions of the Yoga Taras in the Nakshatra segments, according to the Report of the Calendar Reform Committee of the Govt. of India, for the Zodiac of 285 A. D. are as follows :—

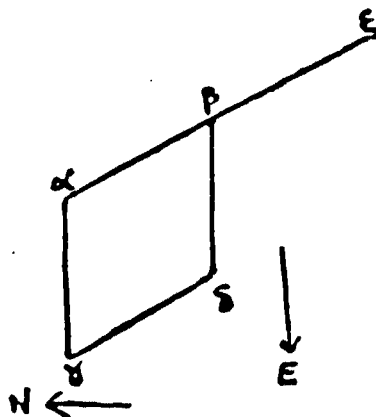
Name of Nakshatra	Extent of segment	Yoga Tara	Position of Yoga Tara
1. Aswini	0- 13°20'	Beta Arietis	10° 7'
2. Bharani	13°20'- 26°40'	35 "	24° 28'
3. Krithika	26°40'- 40° 0'	Yeeta Tauri	36° 8'
4. Rohini	40°00'- 53°20'	Alpha Tauri	45° 56'
5. Mrigasira	53°20'- 66°40'	Lamda Orionis	59° 51'
6. Ardra	66°40'- 80°00'	Alpha Orionis	64° 54'
7. Punarvasu	80°00'- 93°20'	Beta Geminoram	89° 22'
8. Pushya	93°20'-106°40'	Delta Cancri	104° 52'
9. Aslesha	106°40'-120°00'	Epsilon Hydra	109° 47'
10. Magha	120°00'-133°20'	Alpha Leonis	125° 58'
11. P. Phalguni	133°20'-146°40'	Theeta Leonis	137° 27'
12. U. Phalguni	146°40'-160°00'	Beta Leonis	147° 46'
13. Hasta	160°00'-173°20'	Delta Corvi	169° 36'

14. Chitra	173°20'-186°40'	Alpha Virginis	180° 0'	
15. Swathi	185°40'-200°00'	Alpha Bootes	180° 24'	*
16. Visakha	200°00'-213°20'	Iota Libra	201° 13'	
17. Anuradha	213°20'-226°40'	Beta Scorpii	218° 43'	
18. Jyeshtha	226°40'-240°00'	Alpha Scorpii	225° 54'	*
19. Moola	240°00'-253°20'	Lamda ..	240° 44'	
20. Poorva Ashada	253°20'-266°40'	Delta Sagittari	250° 43'	*
21. U. ..	266°40'-280°00'	Fie ..	258°3 2'	*
22. Sravana	280°00'-293°20'	Alpha Aquilae	277° 58'	*
23. Sravishta	293°20'-306°40'	Alpha Delphini	293° 20'	*
24. Sata Bhishag	306°40'-320°00'	Lamda Aquarii	317° 43'	
25. P. Proshatpada	320°00'-333°20'	Alpha Pegasi	329° 33'	
26. U. ..	333°20'-346°40'	Gamma Pegasi	345° 18'	*
27. Revathi	346°40'-360°-00'	Zeta Piscium	356° 1'	

The following Yoga Taras fall in the earlier segment, (the error is shown), and no Yoga Tara falls in the next segment. This mistake would not have been committed by the Rishis, who framed the Nakshatra system:

- | | |
|-----------------------|-------------------------------------|
| (a) Ardra - 1°46' | (e) U Ashada - 8°8' |
| (b) Swathi - 6°16' | (f) Sravan - 2°2' |
| (c) Jyeshtha - 0°48' | (g) B. Delphini of Sravishta - 1°2' |
| (d) P. Ashada - 2°37' | |

i The Yoga Taras of Swathi and Uttara Ashada are clearly misfits. The Yoga Tara of Uttara Ashada is truly that of Poorva Ashada. ii Now the Calendar Reform Committee puts Alpha Delphini as the star beginning Shravishta, while others put Beta Delphini at the beginning of Shravishta. It is an attempt to satisfy the Rig Vedanga Jyotisha statement that Shravishta is the first of the Nakshatras. In that case all the stars of the group should be in the proper segment. Therefore G. R. Kaye and others put Beta Delphini at the beginning of the Nakshatra,

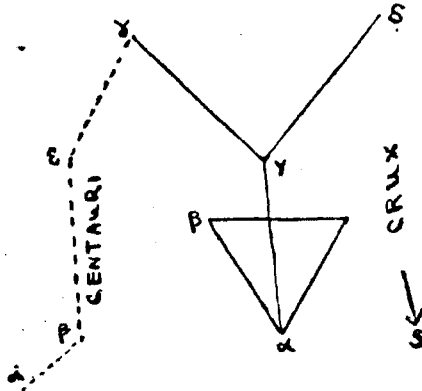


Delphinus :- East Horizon at Rising

In this connection we should note the statement from the Mahabharata quoted by G. R. Kaye in his "Hindu Astronomy - Maha Bharata iii 230 :-

"Time was arranged by Brahma to begin in Dhanishta (Sravishta) But the Nakshatras begin with Sravana x 144 and this change was made by Viswamitra i. 71 . The story of Trisanku, the Southern cross, is very interesting. When the mariners of the Vedic age moved over the Southern Indian Ocean, they wished to have a new system of Nakshatras for easy Navigation of the Southern Ocean, as the Pole star and many other stars were not visible there. This school was supported by Rishi Viswamitra, while it was opposed by the conservatives headed by Rishi Vasishta. At last as a compromise, Viswamitra was allowed to effect a change and begin the Zodiac with Sravana. The last five Nakshatras are well known as the 5 Nakshatras fixed by Rishi Viswamitra. They are Anuradha, Jyeshtha, Moola, Poorva Ashada and Uttara Ashada. These have a great southern declination suitable for navigation in the southern Hemisphere.

In that case Alpha Aquilae begins the Sravana Nakshatra, as its Yoga Tara The Southern cross or Trisanku (Figure of a man with his head down wards and feet up wards for observers from the Northern latitude) serves as the guiding constellation, to determine the South Pole (the southern Dhruva) just as the great Bear of the Northern sky represents the Saptha Rishis, which determines the Northern Dhruva (Dhruva means fixed point), the Home of Indra of Rishi Viswamitra's statement "Anyam indram karishyami - I shall



Trisanku or Southern cross.

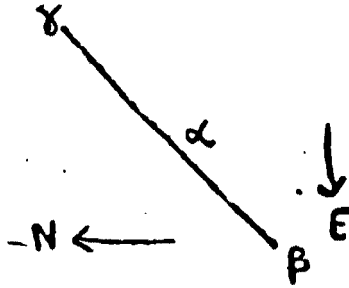
create another Indra. The Southern cross is named after the great Emperor Trisanku, who supported R. Viswamitra and faced the ire of his guru Rishi Vasishta. Alpha and Beta centauri, close to the Southern Cross, are called Viswamitra.

These above eight stars define the position of the South Pole, just as the seven stars of the great Bear fix the North Pole.

iii Now by increasing the longitudes of all the stars by $1^{\circ}46'$ i.e. shifting the Zero point by $-1^{\circ}46'$ to the position occupied by the vernal Equinox, γ , in 411 A. D. it is seen that all the Yoga Taras fall within their respective segments. Not only that, but many more important features are also seen by this adjustment. This is therefore the Zodiac of the Vedanga Jyotisha.

We shall now see the effect of this adjustment in the positions of the Yoga Taras:-

(a) all the stars of Shnavishta fall inside the Shnavishta Segment, with Eta Delphinus marking its beginning.



Aquillae - Eastern Horizon

The 3 stars Gamma, Alpha and Beta Aquillae represent the Sravana Nakshatra, and Beta marks the beginning of Sravana segment (β 16' short of celestial longitude) and the end of the Uttara Ashada segment.

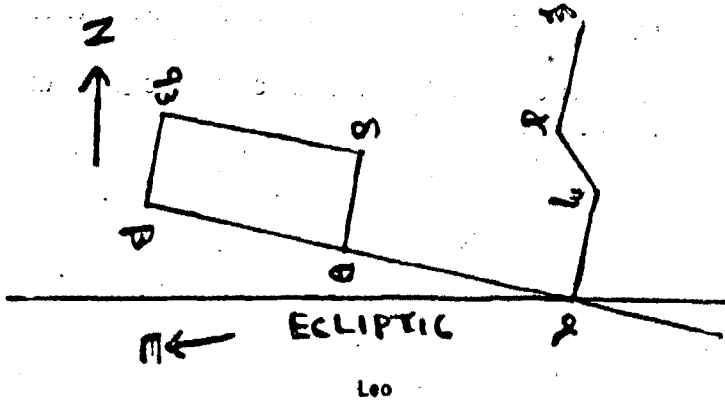
(c) Pushya, Delta cancri, which is on the ecliptic, marks the end of Pushya and the beginning of Aslesha. In this connection it may be noted that there is a statement in the Maha Bharata iii 190, Vishnu Purana, and Bhagavata Purana, that "Krita Yuga began with the Sun, Moon and Jupiter in Tishya (Pushya). Pushya has an unmistakable visible Nebula on the ecliptic. This also agrees with the opinion of the Vedic Scholars, that some of the earliest Riks of the Rig Veda belong to the Pushya period, when the Vernal Equinox was at Pushya.

(d) Ardra- It is of such a high religious importance that it should be in its own segment, and this alteration puts it right at the beginning of the Ardra segment, other wise it falls in the previous segment of Mrigasirisha.

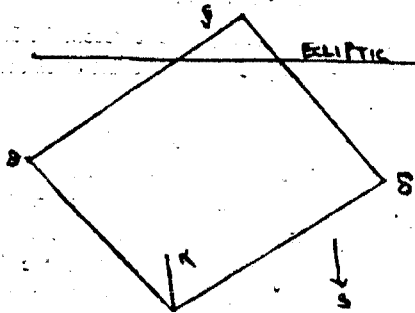
(e) Pie Piscium, the eastern most star of the Revati group, marks the end of Revati and the beginning of Aswini. According to tradition Revati is boat shaped.

(f) Arcturus (Alpha Bootes) can by no stretch of imagination be made the Yoga Tara of Swathi. Except that it is a very bright star, it has all the disqualifications. It is far inside the chitra segment, and is far from the ecliptic. All western scholars have unanimously stated that the present choice of Arcturus for Swathi is a gross mistake. Thibaut in his "Indian Astronomy on page 208, writes - "Nistya of the Brahmanas, equated to Arcturus by the Siddhantas is wrong, it must refer to some other star closer to the ecliptic. Since Swathy or Nistya, according to the Vedas, is the heart of Prajapathy Purusha, the corresponding star in Arab and Chinese systems is k-Virginis, which is properly in the position of the heart of Prajapathy. All the Yoga Taras of Nakshatras are quite close to the ecliptic, but Arcturus is far away from it. The star Lamda Virginis satisfies all the conditions for being the Yoga Tara of Swathi, situated on the ecliptic and almost in the middle of the Swathy segment on the ecliptic.

(g) According to ancient definitions, the four Phalgunis, the four Ashadas, and the four Proshatapadas form parallelograms. A look at the constellations of Leo, Sagittarius and Pegasus proves this. (Note the alterations made)

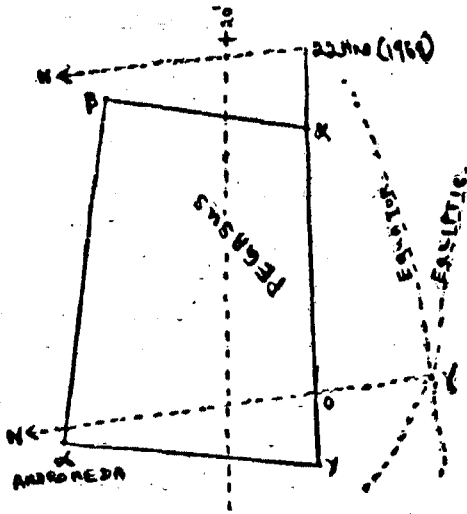


Alpha Leo is Magha, Theeta and delta form Poorva Phalguni and Beta and 93 are Uttara Phalguni.



Sagittarius

Iksie and delta form Poorva Ashada, and Theeta and Beta form Uttara Ashada, with Iksie and Theeta as the respective Yoga Taras (being closer to the ecliptic).



The Square of Pegasus - Eastern Horizon

Alpha and Beta Pegasi mark the Poorva Proshtapada, and Gamma Pegasi and Alpha Andromeda mark the Uttara Proshtapada. The respective Yoga Taras are Alpha Pegasi and Alpha Andromeda (not Gamma Pegasi), for this alone fits in very well when the correction is adopted, and Gamma Pegasi moves into Revati segment.

(h) Jyeshtha is a very important Nakshatra. It is Indra's. It is exactly opposite to Rohini. The Yoge Tara Alpha Scorpii should not be in the Anuradha segment. The altered longitude puts it in its proper place, at the beginning of Jyeshtha.

Thus it is seen that by this correction of $1^{\circ}46'$, all the Yoge Taras are put in their proper Nakshatra segments on the Vedanga Zodiac. Any other alteration will upset their correct positions. Hence this is the correct Zodiac.

(i) Since there is difference in time between this and the Zodiac of 285 A. D. for the planetary motions, the date of entry of planets into various rasas becomes widely different. The Indian sidereal month begins nearly $1\frac{1}{2}$ days earlier. The important celebration of Saturn's entry into a Rasi comes by about one month 22 days earlier. Again the dasa period in a person's horoscope is affected by about $\frac{1}{8}$ of its total duration. These are serious points to be considered by astrologers. Therefore the correct positions of the planets should be noted according to this standard Zodiac of the Vedanga Jyotisha system.



BOOKS BY THE SAME AUTHOR

1. The Cradle of Man and the First Almanac - Rs 2-50
2. The Date of the Maha Bharata and
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3. Nakshatras Parts I & II - Rs 2-50

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CHRONOLOGY OF ANCIENT BHARATH

PART 2

ELEMENTS OF THE ASTRONOMY OF BHARATH

SECTION A

Thithi, Vara, Yoga, Karana, Upagrahas

INTRODUCTION

The Hindu calendar or Panchang has the following five elements: Thithi, Yoga, Karana, Nakshatra, and Vara (week day).

1. **Thithi.** The sun and the moon are together at the end of the New Moon. Thereafter the moon gains over the sun and comes back to the sun at the end of the next New Moon. The interval is divided into 30 equal parts, and each is called a thithi. During each thithi, the moon gains over the sun $24/30$ hours = 48 minutes. The first fifteen thithis are the bright fortnight (Sukla Paksha), and they are named Prathama (first), dwithiya (second), thirtheya (third) and so on. The fifteenth is Poonnima (full moon). Again the thithis are counted as before, Prathama, dwithiya, and the fifteen thithis are the dark fortnight (Krishna Paksha). The fifteenth thithi is Amavasya (New Moon), •

2. **Yoga.** At any moment find the distance of the sun from Mid-Pushya and that of the moon from the beginning of Sravana (exactly 180° apart) in hours and minutes and add the two (if necessary remove 24 hours) and divide this by 8/9 hours. The quotient is the yoga. There are 27 yogas in one cycle ($24 \div 8/9 = 27$). The yogas are :- Vishkamba, Preethi, Ayushman, Sowbhagya, Sobana, Athikanta, Sukarma, Dhriti Soola, Kanta, Vriddhi, Dhruva, Vyagatha. Harshana, Vajra, Siddhi. Vyatheepatha, Vareeyan, Pariya, Siva, Chitta. Sadya, Subha, Subra, Pramya, Magaenthra, Vaidhriti.

It should be noted that these 27 names are given to the important star in the 27 Nakshatras and these stars are called the Yoga Taras of the Nakshtras.

3. **KARANA.** A karana is a half thithi. There are 60 karanas in one lunation i.e. from Sukla Prathama to Amavasya. But there are only eleven distinct names for the karanas. They are :- Sakuni, Chathushpada, Navaka, Kimsthugna, Bhava, Bhalava, Kowlava, Thaithila, Kara, Vanijai, Bhadra.

The first Karna—Sakuni—is the second half of the 14th thithi of the dark fortnight. The next two form the Amavasya thithi. The fourth Kimsthugna is the first half of Sukla Prathma. Thereafter there are 56 karanas. The next seven karanas (from Bhava) take 8 cycles ($8 \times 7 = 56$), and complete one cycle of 30 thithis.

4. **Nakshatras.** The moon's path is divided into 27 equal parts and they, are named Sravishta, Satabhishag, etc. Sravana. The nakshatra at any moment is the name of the segment in which the moon is at that moment.

5. **Vara or week day.** There are seven days in a week. They are:-

Bhanu vara, Indu vara, Bowma vara. Sowmya vara, Guru vara, Brighu vara, and Sthira vara (Sani vara).

These five elements are very important for the performance of vaidic ceremonies and for astrogical purposes.

* (i) The names of the fifteen thithis are:— Prathama, Dwitheeya, Thritheeya, Chaturthi, Panchami, Shashti, Sapthami, Ashtami, Navami, Dasams, Ekadasi, Dwadasi. Thirayodasi, Chathurdasi, Poornima (or Amavasya).

(ii) The names of the sixty years of the sixty year cycle :—

Prabhava, Vibhava, Sukla, Pramodhootha, Prajothpeththi, Angirasa, Srimuka, Bhava, Yuva, Dhathu, Easwari, Bhahudhanya, Pramadhi, Vikrama, Vishu, Chitrabhanu, Subhanu, Tharana, Parthipa, Viya, Sarvajith, Sarvadhari, Virodhi, Vikruthi, Kara, Nandana, Vijaya, Jaya, Manmatha, Dhurmukhi, Haevilambi, Vilambi, Vikari, Saarvari, Pilva, Subhkrithu, Sobhkrithu, Kurothi, Viswavasu, Parabhava, Pilavanga, Keelaka, Sowmya, Sadarana, Virodhikrithu, Pareethabi, Pramadeecha, Ananda, Rakshasha, Nala, Pingala, Kalayukthi, Siddharthi, Rowdhri, Dhurmathi, Dhundhubi, Rudrothkari, Raktakshi, Kurodhana, Akshaya—(60),

CHAPTER — I

THITHI, MUHURTA AND LAGNA

(A) During the vedic times, the thithies were named differently. In the Yayur Veda, Taitriya Brahmana, third Ashtaka, Kataka, they are fully described. The following is according to Sayana Bhashya. The day time parts of the 30 thithis and the night time part of the 30 thithis had distinct names.

(i) The day time parts of the 15 thithis of the bright fortnight were named as :—

Samgnyanam, Vigjnanam, Pragjnanam, Gjananath, Abigjananath, Sangkalpamanam, Prakalpamanam, Upakalpamanam, Upakliptham, Kliptham, Sreyaha, Vaseeyaha, Ayathu, Sambootham, Bootham (15).

(ii) Every one of these half thithis was divided into 15 muhurtas (each of about 48 minutes). Their names are—Chitra, Ketuhu, Prabhanu, Aban, Samban, Thapanu, Athithapannu, Rochanaha, Rochamanaha, Sobanaha, Sobhamanaha, Kalyanaha (15), *Yjetihman, Tejabwan, Athapan*

NOTE : The verse from Samgjanam to Kalyanaha is ordinarily sung as a blessing during auspicious ceremonies.

(iii) The names of the night half of the fifteen thithis of the bright fortnight are—Darsa, Drishta, Darsatha, Viswarupa, Sudarshana, Apyayamana, Piyayamana, Piyaya, Soonritha, Era, Apoorayamana, Pooryamana, Pooriyanthi, Poorna, Powrnamasi (15).

(iv) Each one of the above was divided into 15 muhurtas and named as follows :— Dhata, Pranata, Anandaha, Modaha, Pramodaha, Avesayan, Nirvesayan, Sambesanaha, Samsanthaha, Santhaha, Abavannu, Prabhavannu, Sambavannu, Samboothaha, Boothaha (15).

(v) Similarly the names of the day half of the 15 thithis of the dark fortnight are :— Prasthutham, Vishtutham, Samsthutham, Kalyanam, Viswaroopam, Sukram, Amritham, Tejasvi, Tejaha, Samiddham, Arunan, Bhanumathu, Marichimathu, Abhithapathu, Tapaswathu (15).

(vi) Each one of the above was divided into 15 muhurtas, and their names are :—

Savita, Prasavita, Deepthaha, Deepayannu, Deepyamanaha, Jvalannu, Jvalitha, Thapanu, Vithapannu, Santhapannu, Rochanaha, Rochamanaha, Sumboohu, Sumbamanaha, Vamaha (15).

(vii) The names of the night half of the 15 thithis of the dark fortnight are :—

Sutha, Sunvathi, Prasuthi, Sooyamana, Abisooyamana, Peethi, Prapa, Sampa, Thipthihi, Tharpayanthi, Kantha, Kamyaa, Kamajatha, Ayushmathi, Kamadbuga (15).

(viii) Their muhurtas are named as follows :—

Abisastha, Hanumantha, Anandaha, Modaha, Pramodaha, Asalayannu, Nishadayannu, Samsadhanaha, Samsamaha, Sannaha, Aboohu, Vibhoohu, Prabhoohu, Samboothu, Bhuvaha (15).

(ix) Now 60 different names have been given to the muhurtas (each of about 48 minutes). Each one of them is subdivided into 15 parts. These parts are called Shudra Muhurtas:— Each of duration = $1/15 \times 2 \times 60$ Vinadis = 8 Vinadis. (1 vinadi = $2/5$ of the modern minute) Their names are—Idaneem, Thathaneem, Etharhi, Shipram, Ajiram, Asuhu, Nimeshaha, Pancha, Dravannu, Athidravannu, Thvaram, Thvaramanaha, Asuhu, Aseeayan, Javaha (15).

(x) But nowadays a muhurta is of 90 minutes ($3\frac{1}{2}$ naligai) duration, and they are not named.

(xi) But during the days of the Ramayana and the Maha Bharatha, a muhurtha was of 48 minutes duration, and the 15 muhurtas of the day and the 15 muhurtas of the night had the same names. They were—Rowdra, Swetha, Maitra, Saarabata, Sairta, Vaisvedeva, Gandharva, Kuthppa, Rowhina, Tilaka, Sambara, Varuna Bhaga (15).

Ref: Ramayana, Aranya Kanda, Sarga, 68, Sloka 13, Commentary.

(B) Nowadays a lagna is of 120 minutes duration (5 Naligai) and there are 12 lagnas in a day, they are associated with the 12 houses of the Zodiac—Mesha, Vrishabha, Mithuna, Kataka, Simha, Kanni, Thula, Vrichika, Dhanus, Makara, Kumbha and Meena.

The rising sign is called Lagna.

(C) During Vedic days, the Nakshatra in which the sun was situated was called the Maha-Nakshatra, i.e. the heliacally rising Nakshatra. The Nakshatra exactly opposite to the sun was termed, the Lagna i.e. the acronically rising nakshatra.

(D) The names of the 12 bright fortnights of the 12 luni-solar months are—

(i) Pavithram, Pavaishyan, Poothaha, Medhyaha, Yasaha, Yasaswan, Ayuhu, Amrithaha, Jeevaha, Jeeshyannu, Swargaha, Lokaha.

(ii) The names of the 12 dark fortnights of the 12 luni-solar months are :-

Sahasvan, Saheeyan, Ojaswan, Sahamanaha, Jayannu, Abijayannu, Sudhravinaha, Dravinodaha, Ardra, Pavithraha, Harikesaha, Modhaha, Pramodaha.

(i i) The names of the 12 luni-solar months are :-

Arunaha, Arunarajaha, Pundareekaha, Viswajit, Abijit, Ardhraha, Pinvamanaha, Annavan, Prasavan, Eravan, Sarva Oushadaha. Sambaraha, Maghaswan (Adika masa).

(E) The sixty year cycle of years from Prabhava to Akshayya is given in the Taitreya Samhita :-

The names are :-

Prabhava, Vibhava.....

Akshayya. *

CHAPTER 2

VARA or WEEK DAY

(A) The week day is recognised at least as old as the Jewish religion because of the Sabbath Day or the 7th day of the week. The week days were named by the pagan Germanic people in the pre-Roman days by the names of their gods—Tues. Voden, Thor and Friya. When the Roman calendar was instituted the week tradition was very old and popular concepts were well established. So, the Christian framers of the calendar preserved the names of the pagan gods.

Again many milleniums before Christ, astrology was well developed in Western Asia by the Chaldeans. They framed the rules for the influence of the planets on man, and thereby spread the names of the week days. The influence Astrology spread all over the then known civilised world.

The cycle of seven days was not only very important for the soothsayers, but also useful for checking the results in Astronomical calculations. Is it not wonderful that people all over the world, with their different religions, and different histories, have the same day as Sunday.

In ancient India, astrology was associated with Nakshatras, as can be seen from the many references in the Rigveda, Ramayana, and Maha Bharata. But there are very few references to week days before 400 A.D.

(i) In the Valmiki Ramayana, Ayodhya Kanda, Sarga 26—Seetha says:

“Adhye Barhaspatha Sreeman Ukthae Pushyanu Raghava” “Oh, Rama, today is Thursday with Pushya nakshatra.” Barhaspatha Sreeman indicates, Thursday and Pushya indicates the Pushya nakshatra of the day. This interpretation is accepted by many scholars. But some scholars do not agree with this translation, their contention being that both are adjectives to Pushya nakshatra, since Brihaspathy is the deity of Pushya. We must remember Valmiki would not have used 2 words where one would suffice, unless there is a special significance to it. Valmiki is always careful and there is no other instance of this kind.

(ii) In the Maha Bharata, Aswamedika Parva it is clearly stated (in all the various texts) that the Pandavas commenced their journey in search of gold on Sunday.

(iii) The Atharva Veda has the following verse regarding the names of the week days :-

“Aditya Somo Baumchaha thatha Budha Brihaspathi Bhargava Sani-chacha Rachehai vaetho saptha dinadhipa.”

Sun, Moon, Mars, Mercury Jupiter, Venus and Saturn, are the deities of the week days.

(iv) At present it is only in India that the week days are named after the planets and that according to astronomical principles. It is well known that Indian professors taught Astronomy in all the Muslim universities from 500 to 800 A. D. and it is also well known that the European astronomers learnt astronomy only from the Arab professors during the middle ages. The tradition of Greek influence was only a later recapitulation by the Christian fanatics who wanted to hide the Muslim influence on European Astronomy. Thus was the week passed on to Baghdad and Barcelona, and thence to Europe both from the East and the West, as, clearly expressed by Arab Astronomers.

(v) **THE PRINCIPLE FOR NAMING THE WEEK DAYS.** The planets are arranged in the following order according to their sidereal periods of revolution :- Saturn, Jupiter, Mars, Sun, Venus, Mercury, Moon. The first hour of Sunday is Sun's hour. Every following hour is assigned to a Planet in the above order. The 25th hour is Moon's hour, i.e. the first hour of the next day is Moon's and hence it is Monday. In the same way the other days of the week are named. The astrological principle behind this is that every hour of every day is associated with a planet.

(B) Finding week days i.e. to find the week day corresponding to any given Christian date.

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Nautical Almanac gives continuous reckoning of days from the mid-day of Tuesday 1st January 4713 B.C., and it is called the Julian Day number of the date.

The method of calculating this number is as follows :-

(i) **FOR B. C. YEARS**

$$(4713 - \text{B.C. years}) \times 365 =$$

Integral part of $(4713 - \text{B.C. year} + 3) \div 4 =$ No. of days from 1st January excluding 1st January = Total =

Divide the total by 7, and count the remainder from Tuesday to get the week day.

EXAMPLE :- 18th February 3102 B.C.

$$(4713 - 3102) \times 365 = 588015$$

$$(\text{Integral part of } 4713 - 3102 + 3) \div 4 = 403$$

$$\begin{array}{r} \text{Number of days upto 18th February} \\ \text{excluding 1st January} \end{array} = 48$$

$$\begin{array}{r} \text{Total} \\ \hline = 588466 \end{array}$$

$$588466 \div 7, \text{ Remainder} = 4$$

\therefore Week day is FRIDAY.

(ii) FOR A. D. YEARS :-

$$(4712 + \text{A. D. year}) \times 365 =$$

$$\text{Integral part of } (4712 + \text{A. D. year}) \div 4 =$$

$$\text{Number of days from 1st January} =$$

$$\text{Total} =$$

Divide the total by 7, and count the remainder from Tuesday.

But due to the change introduced in it by Pope Gregory, it is divided into the following cases :-

CASE (A) EXAMPLE

A.D. Years upto 1700 A.D.

1st January 285 A.D.

$$(4712 + 285) \times 365 = 1823905$$

$$\text{I.P. of } (4712 + 285) \div 4 = 1249$$

$$\text{No. of days from 1st January} = 1$$

$$\text{Total} = \underline{\underline{1825155}}$$

$$1825155 \div 7, R = 3 \text{ i.e. THURSDAY.}$$

CASE (B)

For dates from 1700 A.D. to 1800 A.D. Calculate the number of days from 1700 A.D. and add it to the Julian Day of 1st January 1700 A.D., noting that 11 days were cut out from 2-9-1752 to 14-9-1752 A.D.

CASE (C) FOR DATES FROM 1800 TO 1899 A.D.

Find the Julian day according to Rule in B (i) and subtract 12 from it

EXAMPLE 1st January 1854 A.D.

$$(4712 + 1854) \times 365 = 2396590$$

$$\text{I.P. of } (4712 + 1854) \div 4 = 1641$$

$$\text{No of days from 1st January} = 1$$

$$\text{Total} = \underline{\underline{2398232}}$$

$$\text{Subtract} = \underline{\underline{12}}$$

$$\text{Julian day} = 2398220$$

$$2398220 \div 7, R = 6 \therefore \text{ Sunday.}$$

CASE (D)

For A.D. years January 1900 A.D. Calculate the number of days as above, and subtract 13.

EXAMPLE : 1st January 1968 A.D.

$$\text{Julian day} = 243987 - 13 = 243985$$

$$243985 \div 7, R = 1 \text{ i.e. MONDAY. Tuesday}$$

NOTE 1. To find Kali day [i.e. Ahargana from 18-2-3102 B.C.] Subtract 588465 from Julian Day number of the date, because the Julian Day number of 18—2—3102 B.C. is 588466.

NOTE 2. The number of days from one date to another can be obtained by taking the difference of the Julian Day numbers of the 2 dates.

There are many other methods of determining the week day of any given date.

CHAPTER 3

KETHUS OR UPAGRAHAS i.e. SUB-PLANETS

SECTION A.

DOOMATHI PANCHA GRAHA (KETHUS)

In addition to Sun, Moon, the five planets (Mercury, Venus, Mars, Jupiter and Saturn), Rahu and Kethu, there are five invisible kethus (sub-planets) associated with the motion of the Sun.

They are fixed according to the following rules :-

- i. Let the sun's longitude be s°
- ii. Then Dooman is at $s^\circ + 133^\circ 20' = x$
- iii. Vyatheepatham or Uthpathan = $360^\circ - x = y$
- iv. Parivesham = $180^\circ + y = z$
- v. Indra Dhanus = $360^\circ - z = w$
- vi. Dooma Ketu = $W + 16^\circ 40' = u$
- vii. Sun = $u^\circ + 30 = s$

As s° increases, y and z decrease, while x , w and u increase. Therefore the motion of Vyatheepatham and Parivesham is Vakra. or retrograde.

SECTION B.

KALANADHI, NINE SUB-PLANETS

These sub-planets are the sons of Sua, Moon, 5 planets, Rahu and Ketu. They are as follows :-

Sun	—	Kalan
Moon	—	Kalai gjanam
Mars	—	Karesan
Mercury	—	Artha Prakan
Jupiter	—	Yama Kandan
Venus	—	Visha Kadigai
Saturn	—	Gulikan
Rahu	—	Amritha Kadigai
Ketu	—	Ava Mrithyu

(a) The last two have no place in the week days since their fathers have no week days.

(i) DAY TIME ORDER

Kalan begins 2 Naligais ($2 \times 24'$) after sunrise on Sunday. Then in the reverse order of the week days, with an interval of 4 naligais i.e. on Saturday Kalan begins at 6 naligais after Sunrise etc.

(ii) The same law for the others, except that they begin on their father's days i.e. Kalaigjanan begins at 2 nalgais on Monday and 6 nalgais on Sunday etc.

(b) NIGHT TIME ORDER

(i) Kalan begins at 2 nalgais on the 4th day from Sunday i.e. 2 nalgais on Wednesday. Then at 6 nalgais on Tuesday etc. The same for others.

TIME IN NALIGAS AFTER SUNRISE FOR DAY TIME

	Kalan 1	Kalai- gjanan 2	Karesan 3	Artha Prakan 4	Yama kandan 5	Visha Kadigai 6	Gulikan 7
Sunday	2	6	10	14	18	22	26
Monday	26	2	6	10	14	18	22
Tuesday	22	26	2	6	10	14	18
Wednesday	18	22	26	2	6	10	14
Thursday	14	18	22	26	2	6	10
Friday	10	14	18	22	26	2	6
Saturday	6	10	14	18	22	26	2

TIME IN NALIGAI AFTER SUNSET FOR NIGHT TIME

Sunday	14	18	22	26	2	5	10
Monday	10	14	18	22	26	2	6
Tuesday	6	10	14	18	22	26	2
Wednesday	2	6	10	14	18	22	26
Thursday	26	2	6	10	14	18	22
Friday	22	26	2	6	10	14	18
Saturday	18	22	26	2	6	10	14

(c) (i) For day time the sputam for

$$\text{AMRITHAGATIKA} = \frac{1}{2} \text{ that of Raha}$$

For night time sputum is that of Rahu + that of Saturn (-12, if necessary).

(ii) For day time the sputam for

$$\text{AVA MRITHVU} = \frac{1}{2} \text{ that of Ketu.}$$

For night time the sputam = that of Ketu + that of Mars (-12 if necessary).

CHAPTER 4

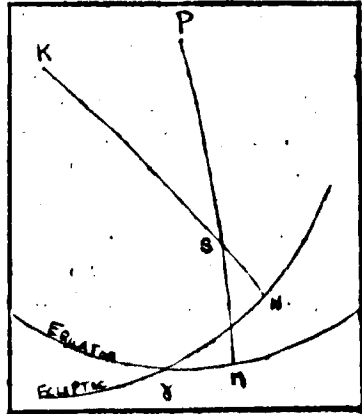
ERROR IN THE POSITION OF THE PLANETS *

There is a gross error in the position of the planets as given in the Drik Ganita Panchangs, which follow the Nautical Almanac of the European countries. This is a very bad error from the Astrologer's point of view.

What do we mean when we say that a planet enters a Nakshatra. Most of the Panchangs take it that the longitude of the planet, Lamda, should be the same as the longitude of the beginning of the Nakshatra segment on the ecliptic, and accordingly they fix the position of the planet (in the chart).

This method is apparently wrong. Only when the planet and the beginning of the Nakshatra segment are on the meridian at the same time, can it be said that the planet enters the beginning of the Nakshatra segment ie they should have the same Right Ascension (Alpha).

It is therefore that our ancient astrologers Varaha Mihira and others did not refer to the position of a planet in terms of Lamda and Beta or Alpha and Delta as modern astronomers do. But they fixed a planet by its polar longitude (Dhruvaka = L) and its polar latitude (Vikshepa = d) That this is the correct method can be verified even by naked eye observations. The error in taking Lamda instead of L is not something small to be neglected. The error is shown in a diagram drawn in the conventional method.



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page 1129, Dec. 1967 Vol. 56 — No. 12.

YN	=	Lamda	=	Celestial longitude	=	Bhoga
SN	=	Beta	=	Celestial latitude	=	Sara
YM	=	Alpha	=	Right Ascension	=	Vishuvamsa
SM	=	Delta	=	Declination	=	Kranti
YL	=	L	=	Polar longitude	=	Dhruvaka
SL	=	d	=	Polar latitude	=	Vikshepa

It is easily seen from the diagram, that the error committed by the Panchang is LN. This is a considerable quantity depending on SN, which varies from -8° to $+8^\circ$. This error (converted in time) may be more than a month in the case of Jupiter. Even the Moon is not exempt from this. The error in the case of the Moon may be a few hours. This will affect the Dasa Bukthi periods.

I, therefore, request the astrologers, to ponder over this and take the correct value of "L" instead of Lamda.

APPENDIX
THE GLORY OF THE HINDU ALMANAC

SRI SKANDANARAYANAN

To the ancients, Time was a subjective phenomenon and Space an objective reality. So they found a life-side back-ground for the objective form-side-Astronomy. This was their Science of Astrology. The Karmakshetra-the world was Bhogakshetra for the Man, the mental being. The Sukha and Duhkha Bhoga by him was only a reflection of his own reactions to the objective physical environment from his prebirth and preconceived mental and emotional experiences of his chitta or stored up memory of the past births. In the cosmic evolution, his can only be a spiritual evolution in a material world. To understand his own place in the world evolutionary set up, he has to discover the Purusha in him operating in his five kosas by self knowledge and world knowledge. The conception of the Virat Purusha and the guidance of the Kalapurusha is necessary to understand his own Swabhava and Swadharma. He is able to guide himself from falling into the pitfalls of the material world by knowing the laws of his own pranic body from seeing the rhythmic laws of the outside world of chaitanyu in the periodic revolutions of the planets in their orbits around the Sun, the symbol of superconscious energy. This is the Pranapratishtha of the ancients. For them nothing was insentient (Jada) but everything was moved by a chaitanya in an inscient way from the involved consciousness in their atoms constituting the things. The life side of astrology or Jyothisha throws light on the prana Jagath-the living universe. The Thejasa Purusha of the Subconscious and subliminal world throws its light on the Vaisvanara Jagath, or the form side of astrology. In this Vishnumaya Jagath, the five angas of light of the Thaejasa Purusha fall on the world in five different angles governing the entire life world. These are the Pancha Angas named Thithi, Vara, Nakshatra, Yoga and Karana as the Kalaprakasikadeclares.

*thithir vishnus thatha varaha nakshatram vishnureva cha
yogas cha karanam chaiva sarvam vishnumayam jagath.*

It is Vishnu the Supreme all-pervading, being the Eternal Being in time consciousness, who manifests himself as the above five fold significant divisions of time—the day, the week, the month and the intervening combinations. In this physical universe the Sun, Moon, rest of the major seven planets and the star groups are serving as physical indicators of the time consciousness by their existence and motion in space; they establish the consciousness of space also. Thus the timeless and spaceless being appears himself bound by time and space in this planetary logos in which the little human being is a very insignificant creature, but a highly potential force of the divine.

Of all the heavenly bodies or divine luminaries, man the mental being is very much attracted by the Moon with its delightful rays. He finds in its motion round the earth a replica of his own dual mental consciousness spinning around his physical or bodily consciousness. On the full-moon-day the Sun and the Moon are far apart, but on the new-moon day they are very close or rather together so far as their orbital motion in space is concerned. So also is the

mind of man or rather his mental consciousness. It can be at one time utterly materialistic and at another time highly spiritualistic. On other occasions it waxes or wanes between these two states of consciousness. The Moon too has its two fortnightly stages of growth and decay. The bright fortnight brightens the worldly objects enveloped in darkness. The dark-fortnight tries to hide them deeper. In other words the waxing Moon encourages the material outlook of man by enamouring him over the beauties of Nature. The waning moon discourages this outlook by throwing a veil over this temporal and phenomenal beauty. It is because of this silent influence of the Moon, man learnt the importance of the thithis, which indicate the distance of the Moon away from or towards the Sun and which psychologically determine the material or spiritual outlook and prosperity (Sreyas) of the entire humanity.

Next in importance, is the influence, that the seven major planets exercise over the seven days of the week, otherwise known as 'Vara' which term in Sanskrit means 'again and again' - Varam Varam. On Sunday, the first day of the week, the first hour after sun rise is governed by the planetary influence of the Sun or the Solar energy. This is followed by the hourly influence of the rest of the planets according to their sidereal periods, i.e. Saturn, Jupiter, Mars, Sun, Venus, Mercury and Moon. Therefore at the Eighth hour, again comes the Sun's lordship. By this rotation, Monday starts with Moon's influence, Tuesday with that of the Mars or Angaraka and so on every week. Stationed on earth, man finds himself flanked on one side by Mercury, Venus and Sun and on another side by Mars, Jupiter and Saturn. As regards the Moon it is found on both sides nearer and farther from the Sun. In this physical set up of the heavenly bodies their hourly influences swinging towards right and left, resemble the flow of breath through the right and left nostrils of man in periodic movements. As breath is the manifestation of life, the weekly influences of the planets over man have been found to control his span of life on earth. The Swara Sasthra explains in detail as to how one can retain longevity by the observation of the flow of breath in the nostrils at the time of day-break, when the planetary influence also changes. Hence by planning ones activities with a full knowledge of the significance of Vara and Vasaras (Week & Week days) one can be assured of long life.

Another interesting feature about the seven planets is the correlation of their influences with the composition of human body. Starting with the Sun, the orbits of the planets are in the order of Mercury, Venus, Moon, Mars, Jupiter and Saturn. So also in man, who, as a spark of the Divine effulgence (Sun) sees the truth of this state reflected in the mirror of his intelligence (Mercury) and has gained the most subtle Jeeva or Soul-in-evolutions (Sukra) about which his mind (Moon) functions inwardly and outwardly or rather spiritually and materially. These thoughts are appropriated by his ego-consciousness or Ahamkara (Angaraka) and stored up as vasanas or Samskaras in his Chiththa that is vast (Guru) and activated upon by the gross physical body of slow motion (Sani). It is in this knowledge the man on earth propitiates the Navagraha Devatas for long life and prosperity.

The daily influence of the lunar orb and the weekly influences of the sevenfold planetary logas having assured *sreyas* (Prosperity through divinity) and *Ayushya Vardhanam* (long life, integral in outlook) man is able to hitch his waggon to the star or in other words fulfil his life's mission in accordance with the *Daiva Sankalpam* (Divine will). He is helped in this task by the vast influence of the Stellar world surrounding the universe. Guided by destiny-divine law that upholds creation, the force of *Dharma-man* has to exercise his free will in establishing his *Purusathva* or manliness in accordance with the goal of life, outlined by Sri Aurobindo, "To fulfil God in man is man's manhood." So far as the guidance of the divine is concerned it is always there in the annual motion of the Sun with his attendant forces among the Stellar path. This is an unseen force recognisable by the occult forces of man brought to light by heightened consciousness. To supplement this by his will power man should analyse the strength of that acting concurrently in four planes of consciousness viz mind, intelligence, memory and ego (the four *anthakkaranas* *Manas*, *Buddhi*, *Chiththa* and *Ahamkara*). He has also to take into account the three-fold characteristics (*Gunas*) of this four-fold conscious levels. As a result his will or stern aspiration appears twelvefold, like the twelvefold divisions of time in every year or *Samvathsara*.

The year we observe is two fold, one Solar and the other Lunar. The Solar year has its twelve months commencing with the apparent entrance of the Sun into each of the 12 stellar divisions of the heavenly orbit. The lunar year also has its 12 months named after the star-group that is facing the full moon every month. Because of this, the influence of the Sun and Moon on these occasions could be felt by the soul and mind of man. Actions performed by the will-power under these two influences normally result in reactions known as *Karmapala* in the form of *Punya* and *Papa* or Virtue and Sin. A broad definition of *Punya* or *Papa* could be given by stating that any action that enhances the prestige of the *anthakkaranas* is virtuous and any action that brings down their prestige is sinful. Hence it has been ordained by *Rishis* that by doing certain noble actions on the occasions of stellar influence, one can get rid of his sins and acquire merit which leads him towards his destiny, the status of a divine life upon earth, an immortal living

Out of the five *angas* of Divine Light, we have seen how *Thithi*, *Vara* and *Nakshatra* guide the mental, physical and spiritual progress of mankind. The remaining two, *Yoga* and *Karana*, enable man to keep out ill health (*Roga Nivarana*) and to achieve success in efforts (*Karya Siddhi*). Before trying to establish this fact, we have to know what is 'Yoga' and 'Karana'. "Yoga is the period during which the joint motion in longitude of the Sun and Moon amounts to 13°20' There are 27 *yogas*, the same number as for the Star groups, *Yoga* represents conjunction of subtle influences which strengthen our bodies, remove the germs of disease and help us to enjoy health and life in its various phases". (Sri B. V. Raman)

It will be seen from the above statement of the eminent Astrologer and Scientist that in *Yoga* we notice a combined influence of Sun, Moon, & Stars

over the health of mortals on this earth. Out of the 360° cycle orbits of the planets, one 'Yoga' represents 1/27 of the total distance traversed jointly by the Sun and the Moon, -the distance of the Sun being reckoned with reference to Pushya Nakshatra and that of the Moon from Tiruvona Nakshatra.

For every individual there are two Nakshatras connected with his yoga at the time of his birth. In a full span of life of 120 years, the first star influences 60 years and the second one the next 60 years. By a knowledge of this, one can ward off his Roga or disease (dis+ease) which is of three types: Adhi (Mental), Vyadhi (Physical) and Bhava (Psychical or Causal). By the process of Yoga a man is able to establish inner communion with the Kala Purusha and through that understand the Supreme beyond Kala, Desa and Varthamana. The Vyadhi of the individual is brought about by the disharmony of the Pancha Bootha States with the Tri Dathu of the individual. The Adhi of the mind is coloured by the Rajasa and Tamasa temperaments of the nonpoised consciousness. The divine identification brought out by the influence of yoga gives a poised state of a sound mind in a sound body when the Bava roga of Samsara is not felt. An immortal life in a mortal tenement is a reality when Sukha Bhoga and Duhkaboga, both become Esavasya Boga through the influence of Yoga.

Lastly, the fifth anga, Karana, ensures success in human efforts. This is defined as "half of the Thithi or the time taken to complete the distance which should be the multiple of 6° between the Sun and Moon. "There are 11 karanas, the first 7 of which come by rotation 8 times in a lunar month and the last four which are permanent and occur in order. Being an aspect of Thithi, the influence of karana is felt in the form of an agency that brings forth success in efforts. Man's divided consciousness generally acts in an inferior way, humanly or clouded by animality. Every action done by the Ego is directed by the five sense organs and two antahkaranas Buddhi & Chitta. In another way, mind as the master of the five sense-organs and five organs of activity (Jnana and karma Indriyas) constitute an elevenfold instrument (karanam) in man's effort to achieve his goal. When this effort is ill-directed, these eleven forces bring misery and make the doer of works cry (Rodhanam) over his mistakes and thus compel him to learn by bitter experiences. This is the Ekadesa Rudra Sakthi (Rodaya-thithi Rudrah). Thus the eleven karanas of Astrology have a very important role to play in enabling a man to achieve success.

To sum up, the Pancha Angas of our sacred Almanac are, in essence, five sources of cosmic energy that decide the status of man's mental, physical, psychical, egocentric and creative energy. On the New year day, the first of Chitrai, we Hindus adore these cosmic forces by Panchanga Sravana. It is my humble wish that the glory of our Panchanga is kept up by all custodians of our sacred trust so that humanity gets the help badly needed by it in matters spiritual.

*thithes thu sriyam apnothi varath ayushya vardhanam
nakshathrath harathe papam yogath roga nivaranaum
karanath karya siddhi syath panchanga palamuchyathe.*

SKANDANARAYANAN.

A NOTE ON THE PANCHANGS

The year has 12 months named Mesha, Vrishaba, Mithuna.....
Meena. These correspond to the 12 fixed divisions of the Sun's course along its fixed path called the ecliptic. The present Indian year begins when the Sun enters Mesha. This year is termed a sidereal year.

There is another set of 12 months termed Chaitram, Vaisakham.....
Phalgunam. These are luni-solar months, each extending from the end of one New Moon to the next. Chaitram begins with the New Moon closest to Meshadi (beginning of Mesha).

Now a new set of months is introduced in the Panchangs. They are Meshayana masa, Vrishabhayana masa.....Meenayana masa. These are tropical months, and indicate the Ruthus or seasons, Meshayanam is really the beginning of the Vasanta Ruthu—spring season. These names are of recent origin. They do not have the sanction of the Vedas or Dharmasastras. They are misleading as Meshayanam and the new Chaitram come 23 days before the Sun enters Mesha, and similarly the other months. It will be clearer and saner to mark Meshayana etc., as the beginning of Vasanta Ruthu, Greeshma Ruthu, etc.

The Vedic seers knew the difference between the fixed sidereal year and the tropical year and they knew that the tropical year was aliding back over the sidereal year. They, therefore, had 12 distinct names for the tropical months—Madhu Madhava, Suera, Suchi..... Tapas and Tapasya. They used the fixed sidereal year for astronomical purposes, and used the tropical year and the luni-solar months for civil purpose. If thepanchang compilers adopt this ancient method it will save confusion and misunderstanding.

(i) Again there is a gross error is the Panchangs, wh ch makes even high school boys laugh at it — The error in the Dakshinayana and Utharayana dates. Utharayana begins on 22nd December and Dakshinayana on 22nd June, but the panchang continues to give the same Ayana for 23 days more.

(ii) The Dasara or Navarathri (the ancient name: Saradha Navarathri) should be celebrated at the beginning of the Sarad Ruthu ie. during the first bright fortnight after 22nd September. The Mahalaya fortnight is the dark fortnight before this. Deepavali comes with the Amavasya or New moon, that immediatly follows Dasara. All this because, during the Vedic times Varsha Ruthu was the last Ruthu of the year and Sarad Ruthu began the year.

(iii) The first point of Aswinyadi, of the fixed Indian Zodiac is now considered to be 180° from Spica (Chitra Nakshatra). This is in error by 1°46' (Refer : my book on Nakshatras).

(iv) It will be very useful if the Julian Day number for the first day of every month is given,

(v) Vaidic Karmas should be performed at the correct time according to Dharma Sastras, and the Panchang should be a good guide,

Date of the Astronomical Kali Era

A. From 1690 A.D. Bailey, Bentley, Burgess, Colebrooke, Cunningham, Davis, Delambre, Laplace, Playfair, Sewell, Thibaut, Wallis, Warren, Weber, Whyte and many western scholars took interest in the Indian systems of Astronomy and began to study them. Some of them ascribed great antiquity and originality to the Indian systems, while others maintained it was all borrowed from the Greeks.

The stalemate went on till 1800 A.D., when Bentley worked out the initial date of Kali Yuga Era, the starting point of Indian chronology. He fixed the date of Kali Yugadhi at 18th Feb. 3102 B.C. He then worked out the position of the planets on that day by modern astronomical methods. According to Indian Tradition Astronomical Kali Yuga began with the 5 planets together, at the initial point of the Zodiac. But Bentley showed that they were disposed as follows: Sun 351° , Moon 355° , Mercury 318° , Venus 24° , Mars 340° , Jupiter 8° and Saturn 332° [the Zero point of the Zodiac is at 180° from Spica, Chitra Nakshatra]. He also showed that the error decreased from 3102 B.C. to 500 A.D. Immediately all the western scholars joined to condemn Indian tradition and the Indians in a "vulgar and vituperative language".

Thus on this slender evidence they concluded that Kali Yugadhi was a myth and Veda Vyasa, a mythical person, and that Indian astronomers borrowed everything from the Greeks after 300 B.C. Thereafter it was easy for them to write the history of India from their own distorted vision of Indian antiquity.

I. Now a reference to Indian Panchang (Almanac) shows Kali Yugadhi marked on Magha Sukla Prathama day (the first day of the bright half of the lunar month, Magha). This is corroborated by the Vedanga Jyotisha verses, that state that the Vedic Yuga of 5 years should always begin with the year Samvatsara on Magha Sukla Prathama (Vide B. G. Tilak and others). But western chronologists took Meshadi as the beginning of the then Indian sidereal year, and therefore of Kali Yugadhi, not knowing that this was fixed by the Siddhanta Astronomers of the early A.D. years.

This was the first error they committed.

2. Again, the first year of the present Kali series (beginning on 18-2-3102 B.C.) is seen to be Anuvatsara, the 4th year of the 5 year Yuga of Vedanga Jyotisha. Therefore the Yuga began two years later with the Magha Sukla Prathama on Friday 28th Dec. 3101 B.C.

This was the second error they committed.

3. Moreover, the astronomical Kali Yuga began on Magha Sukla Prathama, Sunday 11th Jan. 3104 B.C. (26 lunations before 18-2-3102 B.C.), because at 5 P.M. on Saturday 10th Jan. 3104 B.C., the five planets Mercury, Venus, Mars, Jupiter and Saturn were at 300° (Mid Shravishta—the initial point of the Zodiac of Vedanga Jyotisha), with the sun and Moon at 314° .

Mr. Bentley who laboriously worked out the positions of the planets from 18.2. 3102 B. C. to 1800 A. D. to prove that Indian Tradition was false, failed to go back by 26 lunations. Had he done so, he would have recognised the truth and correctness of the Traditional statement.

Thus the theory of modern chronologists that Kali Yugadhi is a myth and extrapolated date is disproved, and the great antiquity of Hindu Astronomy is established.

I shall now enunciate a few convenient conventions before discussing the subject:—

(i) For fixing the position of celestial objects tropical longitudes and latitudes are usually employed. But this is very misleading for purpose of comparison. Hence I propose to adopt a fixed Zodiac. The present Indian Government Calendar was fixed on 21st March 1956 A.D. and the corresponding saka year : 1878 (78 plus expired saka years : A.D. years). The beginning of the Indian year now follows the precessional motion of the Vernal Equinox. But the Zodiac is a fixed one, with Spica (chitra Nakshatra) at 180° . It is with reference to this zodiac, that I propose to give the position of the celestial objects. The Vedic Rishis adopted the same method and their fixed zodiac began with the midpoint of Shravishta. I have shown in another paper that the Govt. of India is in error by $1^{\circ}46'$ as compared to Vedic Zodiac.

(ii) Since the mean position of the planets is meaningless and misleading, I propose to give their actual apparent positions.

(iii) According to the Rishis, there are only five planets: Mercury, Venus, Mars, Jupiter and Saturn. The sun and the Moon are not classified with them as they have no retrograde and lateral motion. Ref. (a) Valmiki Ramayana—Sundara Kanda Chap. 1 Verse 191. "Graha Nakshatra, Chandra, Arka, Taragana nishevite. (5 Planets, 27 Nakshatras, Moon Sun and the many constellations). (b) Rig Vedic Samhita X 55-4 "Indra, he filled the two worlds, and what is between in manifold ways. He looks at the 5 gods, with 34 fold lights of one colour but different laws", Vedic scholars Prof Hidebrandt, Prof Ludwing and others have interpreted it as the sun, the moon, the 5 planets and the 27 Nakshatras (c) R. S. I-105-10 (d) R.S. III 7-7, "Five Advaryus (planets) moving hither and thither in a Yagna"—(e) Taitriya Samhita—"Prajapthy giving 33 daughters in marriage to Soma"—Prof. Zimmerman interprets this as 5 planets, 27 Nakshatras and the divine being Surya.

(iv) The method used for calculating the positions of the planets is that of Sri L. Narayana Rao, M.A., given in his book "Perpetual Ephemeris of the planetary cycles". I have slightly altered it and improved it. It is a better method than the one given by Dewan Bahadur Swami Kannu Pillai in his "Indian Ephemeris" I give this method because it is easy to understand. I have verified the results by the difficult dynamical formula and the difference is not grater than 15'. The correctness of the method is as verified by calculating the positions of the planets on 21st March 499 A.D., 1st January 1800 A.D., 1st Jan, 1900 A.D. and 1st Jan. 1968 A.D.

(v) Calculations are made for midday position; but week days are reckoned from sunrise at Kurukshetra 30° N 77° E (i.e. 5 Hours 8' in advance of Greenwich). Ujjain (Avanti) is 23° N, $75^{\circ}45'$ E (i.e. 5 Hours 3' in advance of Greenwich).

(i) From the Vedic age up to the A.D. years, time was reckoned in terms of the luni solar months, the luni solar years and the yuga of 5 years defined by the Vedanga Jyotisha. The 27 Nakshatras marked the divisions of the zodiac. It was only after the influence of the pure solar reckoning of chaldeans and other western Asian cultures, the 12 Houses or Rasis of the zodiac were introduced. The Indian Nakshatra zodiac was a fixed one, beginning with Mid-Sravishta, while the other had its initial point fixed by the Vernal Equinox, and hence it was not a fixed zodiac. The Vedic Rishis had the 12 solar months differently named. Their civil year was based on the Rithus or seasons, while their astronomical year was based on the fixed zodiac.

(ii) The astronomical Kali Yugadhi of Veda Vyasa was associated with the Sravishta Nakshatra, MAGHA SUKLA PRATHAMA. In fixing the date Varaha Mihira used the Aharghana of Indian Astronomers i. e. the number of days expired from the beginning of KALI YUGA to his date. But in so doing, the length of the year taken by him was slightly in error, and consequently, the position of the sun and the moon on that day was slightly wrong. Bentley taking the same Aharghana fixed Kali Yugadhi with modern astronomical constants on Friday the 18th Feb. 3102 B.C., Dewan Bahadur Swami Kannu Pillai, the Calender Reform Committee of the Government of India, and other scholars of Europe and India have adopted the same method. But they all disagree about the moment and position of MESHA Sukla Prathama on Friday 18th Feb. 3102 B.C. But they all agree about the CHAITRA SUKLA PRATHAMA Thithi of Friday 18th Feb. 3102 B.C. The cause of the difference is due to the different values of the sidereal year taken by them.

Note: Sravishta ranges from $293\frac{1}{3}^{\circ}$ to $306\frac{2}{3}^{\circ}$

Magha Sukla Prathama begins from the moment the sun and the moon have the same longitude in the range 285° to 315° . Mesha Sukla Prathama begins when the New Moon ends in the range -15° to plus 15° .

Starting with the Vernal Equinox at 6 A.M. on 21st March 499 A.D. and the Aharghana of the day: 1314932, they used the following values for the length of the sidereal year—

1. Surya Siddhanta	365 days 15g 26k
2. Vakya Siddhanta	365 days 15g 31k 15 1/4 V.K.
3. Swami Kannu Pillai	365.258756484 days
4. Lalande's Value used by Bentley	365 days 6 hours 12' 9" 365.25636242 days
5. Nautical Almanac	365.25636242 days
6. Newcomb	365.2568984 days

Checking the error between Bentley and Varaha Mihira.

Difference in the length of the sidereal year: 0023182 days Dif. in 3600 years: $8^{\circ}23'$. This is Bentley's figure on the Varaha Mihira's Zodiac of 499 A.D. This is $-18^{\circ}21'$ on the Zodiac of 285 A.D. adopted by the Government of India.

This error accumulates negatively before 499 A.D. and positively after 499 A.D. It is about this that Bentley made a big fuss, and claimed it as a positive proof of Varaha Mihira borrowing everything from the Greeks. This error according to the Government of India is $-9^{\circ}40'$ on the zodiac of 285 A.D. This error according to S. K. Pillai is plus $2^{\circ}10'$ on the Zodiac of 499 A.D. or $-0^{\circ}48'$ on the zodiac of 285 A.D. One more point to be noted is that these astronomers have taken the mean position of the sun and the moon and not the actual apparent positions.

Working the same problem from the moment of New Moon nearest to (O Jan. 1854 A.D. or O Jan. 1900 A.D. or) O Jan. 1968 A.D. I have obtained the correct value as $-10^{\circ}37'$ on the Zodiac of 285 A.D.

	Zodiac of 499 A.D.	Zodiac of 285 A.D.
Bentley	$-8^{\circ}23'$	$-11^{\circ}21'$
Lahiri	$-9^{\circ}40'$	$-12^{\circ}38'$
S. K. Pillai	plus $2^{\circ}10'$	$-0^{\circ}48'$
K. Sri	$-7^{\circ}39'$	$-10^{\circ}37'$

III The following astronomical data are necessary for the calculation and verification of the detailed work given later.

(A) Christian Date	Julian Day	Kaliday from 18-2-3102	Week Day	Ayanamsa
1 Jan. 1968 A.D.	2439857	1851392	Monday	$23^{\circ} 24' 29''$
1 Jan. 1900 A.D.	2415021	1826556	Monday	$22^{\circ} 28'$
21 Mar. 499 A.D.	1903397	1314932	Sunday	$2^{\circ} 58' 4''$
22 Mar. 285 A.D.	1825235	1236770	Sunday	$0^{\circ} 0' 0''$
27 Dec. 3101 B.C.	589144		Thursday	—
18 Feb. 3102 B.C.	588466	1	Friday	$-46^{\circ} 34' 35''$
11 Jan. 3104 B.C.	587698	-768	Sunday	$-46^{\circ} 36' 34''$
13 Dec. 3105 B.C.	587669	-797	Saturday	
23 Dec. 3106 B.C.	587313	-1153	Sunday	$-46^{\circ} 38'$
21 Nov. 8576 B.C.			Friday	$-120^{\circ} 28'$

(B) Sidereal year : 365.2563624248 (N. A.) days,
 : 365.2568984 (Newcomb) days.

Lunation or the synodic period of the moon : 29.530587916 days.

Note: Newcomb's value of the sidereal year gives correct values for determining Magha Sukla Prathama, calculated for over 10000 years. It also agrees very well with 5476th year of S.R. Era.

Sidereal period in days of

Moon	: 27.3216615	Mars	: 686.979645
Mercury	: 87.967698	Jupiter	: 4332.58482
Venus	: 224.701786	Saturn	: 10759.219817

(C) Apparent position of the sun, moon and planets at Greenwich on Monday 0 Jan. 1968 A. D. at midnight: 2439857 Julian day: 1851592 Kaliday, on the Indian Zodiac.

Sun	256° 12' 13"	Venus	215° 27' 50"
Moon	267° 32' 18"	Saturn	542° 41' 56"
Mars	300° 01' 45"	Rahu	0° 35' 10"
Mercury	257° 59' 50"	Ayanamsa	25° 24' 29"
Jupiter	132° 17' 00"		

(D) Bentley and Lahiri have given the mean position, while the correct apparent positions at Kurukshetra are given here.

Position of the Sun and Moon at midnight on Thursday / Friday 17/18 Feb. 3102 B. C., and the exact time of New Moon on Thursday 17th Feb. 3102 B.C. and the then position of the sun and moon are given below:—

	Midnight Th/Fri 17/18 Feb. 3102 B.C.		Moment of New Moon on Th. 17 Feb. 3102 B.C.	Position of Sun and Moon at New Moon
	Sun	Moon		
Bentley	349° 10' 08"	355° 28' 15"	11h 35' 31" a.m.	348° 39' 34"
Lahiri	348° 14' 44"	352° 12' 49"	4h 11' 11" p.m.	347° 55' 29"
K. Sri	349° 31' 01"	351° 6' 11"	12h 14' 24" Midday	349° 23' 24"

(E) Ending moment of New Moon and the then position of the sun and moon on the following important days—

Date B. C.	Week days from Sunday Sunrise	Position of the Sun and the Moon	Remarks
17 Feb. 3102	Th. 4:26	349°.39	
10 Jan. 3104	Sat. 6:46	312°.61	26 lunations earlier : 767.80 days : 756°.78
11 Dec. 3105	Th. 4:93	283°.52	1 lunation earlier : 29.53 days : 29°.09
23 Dec. 3106	Sun. 0:57	294°.25	12 lunation earlier : 354.37 days : 349°.27
27 Dec. 3101	Th. 4:65	299°	62 lunations : 1830.8 days later

Special Note:

Sat. 15th Dec. 3105 B.C. and Sunday 11 Jan. 3104 B.C. are both Sukla Prathama Thithi with the Sun and Moon at 283°.52 and 312°.61. A number of friends pointed out that 11th Jan. 3104 B.C. is the Real Magha Sukla Prathama. I thank them for their suggestion. Hence Vyasa's Astronomical *Kali Yuga* began on Sunday 11 Jan. 3104 B.C.

(F) Position of the Planets at midnight Th/Fri, 17/18 Feb. 3102 B.C. at Kurukshatra.

Planet	Mean position according to		Correct apparent position — K. Sri
	Bentley	Lahiri	
Mer	313°58'50"	314°58'37"	335°33'
Venus	22° 0' 55"	21° 19' 25"	20°47'
Mars	337°42'30"	336°37'30"	345°37'
Jupiter	5°58'32"	5°14'21"	3°45'
Saturn	329° 0' 45"	328°58'50"	324°36'
Rahu	194° 2' 0"	195°54'50"	189°40'

According to Bentley and Lahiri, Mercury is about 35° from the Sun. This is not astronomically correct. This mistake is due to taking mean positions, which usually give very erroneous conclusions. The same is true of Venus and the other planets.

(G) Correct apparent position of the planets on the midnight of Sat/Sun, 10/11 Jan. 3104 B.C.

Mercury	298°58'	Jupiter	299°10'
Venus	298°16'	Saturn	299° 5'
Mars	299°25'	Rahu	230°22'

i.e. at 5 A.M. on the 10th Jan. 3104 B.C. the planets were seen rising clustered together at Mid Srawishta, with the crescent Moon. (The difference in longitude between the planets and the sun is about 15° or one hour). Hence Sunday, 11th Jan. 3104 B.C. the Magha Sukla Prathama of Veda Vyasa is the beginning of the astronomical Kali Yuga Era.

(H) Calculation of the positions of Rahu and the planets.

I. Rahu (i) Position of Rahu on 1st Kaliday i.e. at midnight of Th/Fri. 17/18 Feb. 3102 B.C.

(a) No. of Kalidays to 1st Jan. 1968 : 1851391 and position of Rahu on 1st Jan. 1968 : $0^\circ 35'10''$ ∴ position of Rahu on 1st Kaliday

$$: \frac{1851391}{67934664} \times 360^\circ \text{ plus } 0^\circ 35'10'' : 189^\circ 40'09''$$

Aliter: Re—Perpetual Ephemeris—Epoch position of Rahu on 1809755 Kaliday : $47^\circ 0' 39''$ Motion in 1809755 days

$$(b) : 360^\circ \times \frac{1809755}{679347} : 142^\circ 59'11'' \therefore \text{Position on Kaliday 1st} : 189^\circ 40'$$

(ii) Position of Rahu on—768 Kaliday at midnight on Sunday 11th Jan. 3104 B.C. Motion for 768 days : $40^\circ 41'53''$

$$\therefore \text{Position} : 189^\circ 40'09'' \text{ plus } 40^\circ 41'53'' : 230^\circ 22'02''$$

II. Saturn

(b) [i] Position of Saturn on 1st Kaliday at midnight 17/18 Feb. 3102 B.C.

169 sidereal periods of Saturn : 1818308.149073 days

4978Sun : 1818248.858244 days

Difference : 59.310829 days

$$\text{i.e. Saturn is behind the sun by } \frac{59.310829}{10759.219817} \times 360^\circ : 1^\circ 58' 59''$$

Key date for Perpetual Ephemeris : 1811248.84th Kaliday : Wednesday, 4th April 1877 A.D. Position of Saturn that day : $322^\circ 56'58''$

$$\therefore \text{Position on 1st Kali day} : 322^\circ 36'58'' \text{ plus } 1^\circ 58' 59'' : 324^\circ 56'$$

(b) [ii] Position of Saturn at midnight on—768 Kali day i.e. Sunday 11th Jan. 3104 B.C.

Key date : 1818249 - 768 : 1817481 Kali day: Friday 26th Feb. 1875 A.D.
 Position of Saturn on that day : $297^{\circ} 5' 30''$
 Hance.....11th Jan. 3101 B.C. : $299^{\circ} 5'$

III. Jupiter

(c) [i] Position of Jupiter on the midnight of 17/18 Feb. 3102 B.C.

420 sidereal periods of Jupiter : 1824092.6248 days

1964.....sun : 1824017.9507 days

Difference : 75.5259 days

i.e. Jupiter is in advance of the sun.

by $\frac{75.5259}{4552.58482} \times 360^{\circ} : 6^{\circ} 15' 32''$

Key date : 1824095 Kali day : Tuesday, 4th April 1895 A.D. Position
 of Jupiter that day : $9^{\circ} 58' 15''$ ∴ Position of Jupiter on 18 Feb. 3102
 B.C. : $9^{\circ} 58' 15'' - 6^{\circ} 15' 32'' : 3^{\circ} 42' 43'' : 3^{\circ} 43''$.

(c) [ii] Position of Jupiter on - 768 Kali day i.e. 11 Jan. 3104 B.C. Key date :

1824093 - 768 : 182335 Kali day : Thursday 26th Feb. 1891 A.D.

Position of Jupiter on that day : $305^{\circ} 25' 26''$

i.e. Position on 11 Jan. 3104 B.C. : $305^{\circ} 25' 26'' - 6^{\circ} 15' 32'' : 299^{\circ} 09' 54''$

IV Mars

(d) [i] Position of Mars on 18 Feb. 3102 B.C.

2643 sidereal periods of Mars : 1815687.201735 days

4971 sidereal periods of Sun : 1815691.5528 days

Difference : 4.3311 days. i.e. Mars is in advance of Sun by 4.3311 days

: $\frac{4.3311}{686.979645} \times 360^{\circ} : 2^{\circ} 16'$

Key date : 1815691 55 Kali day : Monday 4th April 1870 A.D.

Position of Mars that day : $347^{\circ} 53'$

∴ Position on 18 Feb. 3102 B.C. : $347^{\circ} 53' - 2^{\circ} 16' : 345^{\circ} 37'$

(d) [ii] Position of Mars on 11 Jan. 3104 B.C.

Key date : 1815691 55 - 768 : 1814923 55 Kali day : Wednesday, 26th
 Feb. 1858 A.D.

Position of Mars on that day : $502^{\circ} 41'$

∴ Position on 11th Jan. 3104 B.C. : $502^{\circ} 41' - 2^{\circ} 16' - 1^{\circ} : 299^{\circ} 25'$

Similarly position of Venus on 11th Jan. 3104 B.C. : $298^{\circ} 16'$ and
Position of Mercury on 11th Jan. 3104 B.C. : $298^{\circ} 58''$

These results have been verified with "the Indian Ephemeris" method of Dewan Bahadur Swami Kannu Pillai.

Conclusion

I thank all those friends who wrote their congratulations, opinions, and suggestions regarding my work. I hope this appendix will satisfy everyone of them, since it answers all the problems raised by them. I request the readers to go through the calculations and write to me if there are any further points to be clarified.

I. The Astronomical Kali Era began on Sunday, 11th Jan. 3104 B.C., with the New Moon ending on Saturday (6.46) with the Sun and Moon at 312.61 of the Zodiac and the planets together at 299° . For a day or two earlier, at about 5 A.M. all the planets were seen clustered together, with the crescent Moon. Hence the statement that at Kali Era beginning the planets were together at (Midshravishtha) the Zero point of the then Zodiac.

II. Therefore Kali Yuga, according to the Vedanga Jyothisba and Saptha Rishi Era definitions began with the 5476th year of the S.R. Era, on the Magha Sukla Prathama day of the year, "Samvatsara" on Friday, 28th Dec. 3101 B.C., with the Sun and Moon at 500° of the present Indian Zodiac, as they were at the beginning of the S.R. Era.

CHRONOLOGY OF ANCIENT BHARAT

PART IV

DATE OF SAPIHA RISHI ERA

INTRODUCTION

Having fixed Kali Yugadhi (according to Vedanga Jyotisha) on Friday, 28th December 3101 B. C. it is now proposed to determine the beginning of the Saptha Rishi Era. The two are related as follows :-

i. They began with Magha Sukla Prathama, with the sun and the moon at Mid Shrivishta (300° of the present Indian Zodiac).

ii. At the beginning of Kali Yuga, the Saptha Rishis were at the beginning of the 76th year of the Magha Nakshatra cycle of 100 years.

iii. The year was counted by the expiry of Varsha Ruthu, or Rainy season, as the name Varsha for the year shows, and the first ruthu of the year was Sarad, (Autumnal Equinox). Hence the S.R. Era began with Sarad, and therefore the Vernal Equinox was at the beginning of Magha Nakshatra (120° of the Zodiac).

iv. At the beginning of Kali Yuga, the Meshadi longitude of Vernal Equinox was $46^{\circ}34'$.
(Refer to the Notes 1 and 2 at the end of this chapter)

It will be seen that at the beginning of the S. R. Era, on 21st Nov 8576 B. C., it was the beginning of the Sarad Ruthu, the first year was Samvatsara, (the first of the Vedanga Jyotisha five year cycle, and also Akshayya (the first of the 60 year cycle, though it is now placed as the last). It was the first date of the month of Kumbha (Rasi), the Solar month Isa, and the Luni Solar month Magha. The day was Friday, Magha Sukla Prathama, Shrivishta Nakshatra, with the sun and the moon at Mid Shrivishta. The Kali Yuga began on the 1,999,782nd day of the S. R. Era.

Position of Mars on that day : $502^{\circ} 41'$

∴ Position on 11th Jan. 3104 B.C. : $502^{\circ} 41' - 2^{\circ} 16' - 1^{\circ} : 299^{\circ} 25'$

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ii. At the beginning of Kali Yuga, the Saptha Rishis were at the beginning of the 76th year of the Magha Nakshatra cycle of 100 years.

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THE VAIVASWATHA MANVANTRADI OR THE SAPTHA RISHI YUGADHI.

Long time back there was a great Emperor named Daksha Prajapathy. (Prajapathy - Emperor) He ruled over the whole of Aryavarta. His capital was Prathishtana (Prayag or Allahabad). His seven ministers, the great Saptha Rishis, were Atri, Brighu, Kutsa, Vasishta, Gautama, Kasyapa and Angirasa. The Rig Veda mentions them as "those ancient seers". With their help the emperor performed a magnificent Yagna (Sacrifice), at Dakshasila (Taxila). It is beautifully and elaborately described in the Yajur Veda, and all the Puranas. He had many daughters, but no son. So his grandson VAIVASWATHA MANU, son of Vivaswan, ascended the throne after him. He is called a Manu, because he began a new dynasty. More over he is the founder of the Solar and Lunar (Surya and Chandra) dynasties of the kings of Bharat.

As soon as he became the Emperor, he performed a great Aswamedha Yagna. It was celebrated at the beginning of Sarad Ruthu (Autumnal Equinox), on an Amavasya Day (New Moon day) when the Sun and the Moon were at Mid Sravishtha Nakshatra (Sarad Ruthu began the New Year in those days)

On this day the Saptha Rishis instituted an era called Saptha Rishi Era. All books on Indian chronology by European and Indian scholars give a good description of this Era. In our daily sankalpa' we mention this as "Vaivaswatha Manvantradi". The Puranas reckon time only in S.R. Era years. This era is still current in Kashmir, where it is termed the Laukika Era in which the century years are dropped out. The Kollam Andu of Kerala is a continuation of the S.R. Era says Quilon Gazetteer. Note: Varaha Mihira clearly understood that the Saptha Rishi Era has nothing to do with the Saptha Rishi Nakshatra Mandala of seven stars in the sky. The Saptha Rishi Mandala came into significance only a few millenniums ago when the axis of the earth began to point to the present Pole Star. Before that i.e. in the Vedic days, it had no astronomical significance. Moreover the names of the stars of the Mandala refer to the Prajapathis (Creators), before Swayambhu Manu, the first self created Man. The seven Rishis who instituted the Era came long after Swayambhuva Manu. They instituted the arts of culture, worship, Yagna and in fact were the progenitors of Human civilisation. Later commentators of Varaha created all sorts of confusion, which still persists in the writings of a few modern scholars, who try to relate precession to the S.R. cycle of 100 years and 2700 years. It must be clearly understood that it was intended only to reckon time, as many of the later Eras.

According to the Rishis, time was measured in Yugas of five sidereal years = 62 lunations = 67 sidereal periods of the moon. Twenty Yugas = 100 years, were taken as a measure of time, (All Vedic prayers mention this as the normal healthy span of human life) These periods of 100 years were named after the Nakshatras, from Magha in order. The first cycle was the Magha cycle of 100 years. This is why Magha is called Pitir Daivatham, in the Vedanga Jyotisha. The years of a cycle were named as the 42nd year of Chitra cycle and so on. The Magha cycle was followed by the Poorva Phalguni cycle and so on. It is mentioned in all the Puranas that Kali Yuga began with the 76th year of a Magha cycle, with the Sun and the Moon at the beginning of Magha Sukla Prathama

When were the Kali Yugadhi and Manvantradi instituted?

II

THE DATES OF KALI YOGADHI AND SAPTHA RISHI ERA

1. The ancient astronomers of Bharat divided the ecliptic, the fixed path of the sun among the stars, into 27 equal parts. They named them Nakshatras. Each segment or Nakshatra was identified by a Yoga Tara, an important and prominent star in this segment. The 27 Nakshatras are, Sravishtha, Sata Bishag, Poorva Bhadrpada, Uthara Bhadrpada, Revathi, Aswini, Bharani, Kritika, Rchini, Mriga-sira, Arudra, Punarvasu, Pushya, Aslasha, Magha, Poorva Phaiguni, Uthara Phaiguni, Hastha, Chitra, Swathi, Visakha, Anuradha, Jyeshtha, Moola, Poorva Ashada, Uthara Ashada and Sravana.

The days when the sun crosses the equator from South to North and North to South are called the beginnings of Vasantha Ruthu, and Sarad Ruthu. The solar year was divided into 6 Ruthus: Vasantha, Greeshma, Varsha, Sarad, Hemantha and Sisir. Each Ruthu is divided into two months: Madhu, Madhava, Sucra, Suchi, Nabhas, Nabhasya, Isa, Urja, Sahas, Sahasya, Tapas and Tapasya.

The luni-solar month begins with the first day of the bright fortnight (Sukla Paksha) and ends with Amavasya (New Moon). The dark fortnight is called Krishna Paksha. The full moon day is called Poornima. The fifteen days from Amavasya to Poornima and from Poornima to Amavasya are called Thithis, the fifteen thithis are: Pratham, Dwitheeya, Tritheeya, Chathurthi, Panchami, Shashti, Sapthami, Ashtami, Navami, Dasami, Ekadasi, Dwadasi, Trayodasi, Chathurdasi, Pocrnima, (or Amavasya).

The luni-solar months are named after the Nakshatra of the full moon day in that month. They are: Magha, Phalguna, Chaitra, Visakha, Jyeshtha, Ashada, Sravana, Bhadrpada, Aswina, Kartika, Margasira and Powshya.

The ecliptic is divided into 12 equal parts and each part is termed a Rasi. The Rasis beginning from Mid-Sravishtha are: Kumbha, Meena, Vrishaba, Mithuna, Kataka, Simha, Kanya, Thula, Vrichika, Dhanus and Makara.

The moon completes one revolution of the ecliptic in 27.32 days and the Sun in 335.25 days. The period from Amavasya to next Amavasya i.e. from one conjunction of the Sun and the Moon to the next is termed a lunation or synodic period = 29.53 days.

The Vedanga Jyotisha Yuga = 62 lunations = 67 sidereal periods of the Moon = five sidereal years (nearly); for 62 lunations = 1830.8965 days and 67 sid. periods of Moon = 1830.5512

Note 1. Bhavan's Journal - Divali Number - October 1971

Article on Mahalakshmi by Brahma Sri Veda Vachaspathy, Daivaratha, one of the greatest of the living Indian Vedic Scholars, author of Chando-Darsana (Revelation). Born in Gokaran in 1891 A.D. disciple of Vasishtha Ganapathy Muni, disciple of Sri Ramana Maharishi.

Page 39- "According to the Yajur Veda, the New year began in Vedic times in the month of Krithika (October-November), when Divali is observed. This month synchronises with the onset of Autumn (Sarad), when the season is at its glorious best with bounteous nature smiling in all her charm. This season when Nature is in full bloom is the cornucopia of plenty. All these inject a festive mood in the hearts of people, who celebrate Saradotsavam - Autumn festival - (Navarathri)".

days and 5 sidereal years = 1826.282 days. Therefore, the Yuga is the interval in time between consecutive conjunctions of the Sun and the Moon in the month of Magha. The day after the conjunction (Amavasya) begins the Yuga on Magha Sukla Prathama. The names of the five years of the Yuga are: Samvatsara (Agni), Parivatsara (Sun), Idavatsara (Moon), Anuvatsara (Prajapathy or Creator) and Udavatsara (Rudra).

Magha sukla prapanasya
Powsha krishna samapina
Yugasya pancha varshasya
Kala gyanam prachakshathae (R.V.J.)

ii. The five planets Mercury, Venus, Mars, Jupiter and Saturn were together at Mid Sravishta, with the Sun and Moon in conjunction at Mid Satabishag at 5.30 p.m. on Saturday, 10th January 3104 B.C. (Vide Kali Yugadhi by Prof. K. Srinivasa Raghavan). This is the date of the beginning of the Astronomical Kali Yuga.

At the beginning of the Astronomical Kali Yuga, it was the beginning of Parivatsara, the second year of the Vedanga Jyotisha Yuga of five years. The beginning of the next Yuga or Yugadhi, was on Friday, 28th December 3101 B. C. as the conjunction of the Sun and the Moon at Mid Sravishta was on Thursday (4.65), 27th December 3101 B. C.

Now there are two ancient statements to be considered in fixing this date: (a) Kali yuga began on Friday, with the 76th year of the Magha cycle of 100 years of the S. R. era. (b) The Loukika Era of Kashmir is the same as the S. R. era, dropping out the century years.

According to all Indian chronologists, December 3101 B. C. or January 3100 B. C., corresponds to the 76th year of the Loukika Era of Kashmir. Therefore the first day of Kali Yuga was Friday 28th December 3101 B. C. Magha Sukla Prathama, with the Sun and the Moon at 299° of the Zodiac, i. e. Mid Sravishta, the initial point of the Zodiac of the Vedanga Jyotisha.

iii. Again the Saptha Rishi Era began with the Magha Sukla Prathama, with the Sun and the Moon at Mid Sravishta, in the first year of the Magha cycle of 100 years. Therefore the interval in time brings back the Sun and the Moon to the initial point of the Zodiac, and it is a multiple of 2700 years + 75 years. This problem has only one solution = $2X2700 + 75 = 5475$ years; For 5475 sidereal years = $5475 \times 365.256898 = 1,999,781.52$ days. 67719 lunations = $67719 \times 29.530588 = 1,999,781.89$ days, and 73194 sid. periods of moon = $73194 \times 27.321662 = 1,999,781.73$ days Therefore, the Saptha Rishi Era began on the Magha Sukla Prathama Day, 5475 years before Kali Yugadhi i. e. 1,999,781.89 days before Kali Yugadhi i. e. on Magha Sukla Prathama day in 8576 B. C. Friday 21st November 8576 B. C.

Note 2. "The Aryan Ecliptic cycle" by H.S. Spencer. The learned author has made a deep and careful study of the Vendidad and the Ancient Indian Religious books. He has brought in a good deal of mystic, mythological, and occult references to the study of the subject. He had fixed the age of Yima Vivanghao (Yima Vivaswat or Vaivaswatha Manu) as 10028 - 9789 B.C. I have fixed the date of Vaivaswatha Manu as 21st Nov. 8576 B. C. The difference is due to the fact that the learned author has taken the rate of precession of the equinoxes as 72 years per degree, while it has been changing from 75 years per degree at the time of Manu to 72 years per degree at present.

Prapadyate Sravishtardhe
Surya Chandra masov api
Sravishtaroh dakshinarka
Magha Sravanayoh sada

(R. V. J.)

"The Sun and the Moon reached Mid Sravishta and from the middle of Sravishta the Sun was in the South during the months from Magha to Sravana".

The above is verified by the law of the Precession of the equinoxes : (From Tables of Sun by Sri N. C. Lahiri) Ayanamsa expressed from Zero Ayanamsa of 285 A. D. for 't' sidereal year is:

$$A = 49''.9000 t + 1.1073 \frac{(t)^2}{(100)} + .0001 \frac{(t)^3}{(100)}$$

The position of the Sun among the fixed stars at the beginning of the Vasantha Ruthu, when he crosses the equator from South to North, moves slowly backwards. This is called the precession of the equinoxes. The present rate of precession is about 72 years per degree of the ecliptic. But during the Vedic days, it was 75 years per degree. Again the position of the Vernal Equinox in 8578 B. C. (at the beginning of the S. R. era) was at $120^{\circ}28'$ of the Zodiac i.e. at the beginning of the Magha Nakshatra. The Autumnal Equinox or Sarad Ruthu began with the Sun at $300^{\circ}28'$ or at Mid Sravishta or at the beginning of Kumbha Rasi. Hence the Sun was in the South of the equator during the months from Magha to Sravana, Sarad Ruthu was the first Ruthu of the year, and Isa the first solar month during Vedic days.

[[THE SHIFT IN THE NEW YEAR DAY, BECAUSE OF THE PRECESSION OF THE EQUINOXES.

During the days of the Saptha Rishis, the climate of Northern Siberia was very favourable for a large number of Rishis of Aryavarta to establish Asramas there (vide: Cradle of Man by Prof. K. Srinivasa Raghavan). This is clear from the description of the Northern sky by Rishi Dirgathama Lokamaya B.G Tilak, Prof. R.V. Vaidya and others have written interesting essays about this.

In that the precession of the equinoxes must have been very easily observed by the disappearance of known stars on the ecliptic and the emergence of new stars on the opposite side on the ecliptic. At the time of the Saptha Rishis, when the Sun sank below the horizon for the long night of six months, the first star to rise above the horizon was Sravishta. According to the Vedanga Jyotisha, Lagna was the Nakshatra opposite to the Nakshatra with which the Sun was in conjunction. Sravishta was therefore termed the first lagna i.e. the lagna at the time of sunrise, at the beginning of Vernal Equinox which began the long day of six months. This shows the Vernal equinox was at Magha. On the first full moon after the disappearance of the Sun below the horizon the Moon was with Regulus - the Yoga Tara of Magha. Even now religious tradition imposes the rule that Magha Full Moon should be observed by one and all for health and longevity. But this state of affairs did not last long. Veda Vyasa reportedly states in the Maha Bharata that at the time of Viswamitra, Sravana was made the first star of the Zodiac (as Sravishta by then began to disappear below the horizon.) The rate of precession at that time was $43''$ per year or 75 years per degree (Refer: First Almanac by Prof. K. Srinivasa Raghavan). Therefore, the precessional period for one Nakshatra was $75 \times 40.3 = 1,000$ years. This shows that Viswamitra came 1,500 years after the Saptha Rishis (this is verified in the Puranic chronology). Again the total period for one cycle of 27 Nakshatras was 27,000 years (The Siddhanta

Astronomers have a cycle of $27,000 \times 16 = 4,32,000$ years). This cycle of 27,000 years was divided into sub periods of 100 years each, and they were named after a nakshatra, beginning with Magha, which is styled the nakshatra of the Pitirs.

At the time of Sri Krishna and Veda Vyasa (as explicitly stated in the Maha Bharata), Jyeshtha was the first Nakshatra. This shows that from the days of Saptha Rishis to those of Sri Krishna, the Autumnal Equinox moved back from Mid Sravishtha to the beginning of Jyeshtha i.e. over a segment of $5\frac{1}{2}$ Nakshatras or $11/2 \times 40/3 = \frac{220^\circ}{3} = 73\frac{1}{3}$ degrees. The corresponding period = 5,475 sidereal

years. Thus it is seen that the Saptha Rishis framed the Vedanga Jyotisha in the year 8576 B. C

The following table shows the probable dates when the beginning of the Luni solar ritualistic year was changed :-

	Beginning of the year	Remarks	Reference
1.	Autumnal Equinox at Shrivishtha-3	Age of Saptha Rishis - 8600 BC.	Lokamanya Bala Gangadhar Tilak and others.
2.	Autumnal Equinox at Sravana 1	Age of Viswamitra 7100 BC.	Maha Bharata
3.	Autumnal Equinox at Moola-1	Age of Parasara 4100 BC.	Gita. Maha Bharata and others
4.	Autumnal Equinox at Jyeshtha-1	Age of Veda Vyasa, 3100 BC.	Maha Bharata
5.	Autumnal Equinox at Visaka-2	Age of Vriddha Garga 1400 BC.	Vriddha Garga
6.	Vernal Equinox at Aswini-1	Age of Surya Siddhanta 300 AD.	Suryasiddhanta

IV

SAPTHA RISHI ERA AND THE RELATED ERAS OF INDIAN CHRONOLOGY

There are six related eras in Indian Chronology.

- i. The Vedanga Jyotisha Yuga of five sidereal years, where the years are named - Samvatsara etc.
- ii. The Saptha Rishi Era, reckoned in cycles of 100 years, each cycle, named after a Nakshatra beginning with Magha, the Nakshatra of Pitirs or Saptha Rishis.
- iii. The Loukika Era of Kashmir, the same as the Saptha Rishi Era but in which the centuries are dropped out.
- iv. The Prabhavati cycle of 60 years. Where the 60 years are named. Akshaya is now counted as the last of the 60 years. But as its name implies, it must have been the first year of the cycle of 60 years. Even now it is customary to start counting with Akshaya and then count two, three etc.

- v. Kali Yugadhi Era of Friday, the 28th December 3101 B. C.
- vi Kollam Ardu of Kerala of 826 A. D.
- vii. The Forgotten Era of the Pataliputra Empire of Satavahanas - 555 B. C.
- viii. The Vikrama Era of Ujjain, Avanti Rashtra of Vikramaditya Empire - 55 B. C. Note: Where true Kali Yugadhi of 28th December 3101 B. C. was shifted to 17/18 February 3102 B. C., the English Historians fixed these two eras at 557 B. C. and 57 B. C. respectively.
- ix. The cycle of 7 days week, where the days are named after the planets, according to the law of Horas.

It must be noted that all India Eras begin with the year Samvatsara, the first of the Vedanga Jyotisha cycle of five years. Nos. i, ii, iii, iv, and ix were instituted on the same day by the Saptha Rishis, on the Magha Sukla Prathama Day, at the beginning of Sarad Ruthu, on the day Vaivaswatha Manu performed the Aswamedha Yagna. The other cycles and eras were fixed in relation to the S. R. cycle of 100 years, and the Vedanga Jyotisha cycle of 5 years.

The five planets were together at 5 p. m. on Saturday 10th January 3104 B. C. Magha Sukla Prathama beginning. But this was not the beginning of the year Samvatsara, the first year of the cycle of 5 years. Hence at the very next Samvatsara beginning the reckoning of Kali Yuga Era was instituted. It was an Magha Sukla Prathama day, Friday 28th December 3101 B. C. as Amavasya ended on Thursday (4.65) 27th December 3101 B. C. with the Sun and Moon at 299 of the Zodiac.

The Saptha Rishi Era was instituted 5475 sidereal years before Kali Yugadhi on the Magha Sukla Prathama Day, Friday 21st November 8576 B. C.

VERIFICATION

Now consider the current Kali year 5068, Parabhava, reckoned from 17/18th February 3126 B. C. (a date fixed by Bentley and adopted by all English and Indian chronologists, even though there was opposition from a few English and many European chronologists). Parabhava is the 40th year of the Prabhavati cycle of 60 years. This year 5068 current Kali begins with the month of Mesha, April 1965 (to April 1967). Therefore true Kali year number for this year is $5038 - 2 = 5066$, beginning with the Magha Sukla Prathama of February 1966, and ending with Pousha Krishna Amavasya of February 1967.

- i. Therefore the S. R. year of this year from February 1966 to February 1967 is $5068 + 5475 = 10541$ i. e. the Saptha Rishis in the 41st year of Ardra.
- ii. Dividing 10541 by 5, remainder is 1. The name of the year is Samvatsara of the Vedanga Jyotisha cycle of 5 years.
- iii. Dropping out multiples of 100, the remainder is 41 - corresponding to the Loukika Era of Kashmir.
- iv. Again dividing 10541 by 60, remainder is 41. Hence this year is the 41st year of 60 years beginning from Akshaya - as is easily seen from reference to Panchang.

- v. The Kollam Andu of 826 A. D. The corresponding S. R. year $5475 + 3100 + 826 = 9401$. Dividing this by 100, remainder 1. Hence it was the first year of the Loukika Era of Kashmir and also Samvatsara of the Vedanga Jyotisha Yuga. The Quilon Gazeteer gives a short history of the determination of this era.
- vi. The week cycle is very important for astronomers and astrologers to rectify the calculations. It is as old as the institution of the S. R. era. The first day of the S. R. era was named as Friday - Brighu Vara, since Brighu the greatest of the Saptha Rishis was responsible for the institution of the Era. The interval between S. R. era and Kali Yuga Era is 1999781.58 days and hence both Eras began on Friday.
- The week day is very important for Jews, Christians and Moslems.
- Note : According to European scholars, the Chinese cycle of 60 years was instituted more than 4500 years ago. The current Chinese year corresponding to 1966-67 is the 41st year of their cycle. This is a very important coincidence that should be noted by chronologists.
- vii. The Forgotten Era of 555 B. C. (currently recognised by some scholars as that of 557 B. C.) Udhishtira performed Raja Suyas and was crowned Samrat in 3082 B. C. (Refer - Date of Maha Bharata War by Prof. K. Srinivasa Raghavan). The Magha cycle of the Saptha Rishis extended from December 3176 B. C. to 3075 B. C. Therefore when Udhishtira was crowned in New 3082 B. C., the Saptha Rishis were in Magha, as clearly stated by Varaha Mihira and others. Again according to him it was 2526 years before the Saka Era current in his time. Hence the beginning of the Saka Era is $3081 - 2526 = 555$ B. C. at the beginning of the Sarad Ruthu (Autumnal Equinox). This is seen to be correct - Samvatsara.
- viii. Vikrama Era of 55 B. C. The Vikrama Saka was established at the beginning of the Sarad Ruthu in 55 B. C. The corresponding S. R. Era is 8521 - Samvatsara and the first year of the 60 year cycle (Akashaya).
- ix. The Salivahana Saka (currently fixed at 78 A. D.) must have been instituted in 76 A. D. corresponding to 8651 of the S. R. years and Samvatsara of the Vedanga Jyotisha.



A NOTE ON THE RIG VEDANGA JYOTISHA

According to Tradition, Adi Sesa was the first teacher of Jyotisha. In Tiruvai Mozhi (the sacred 4000 verses of Sri Vaishnavas), Narayan Mugan Tiru Andadi, Saint Thirumazhisai Alwar states, in verse 63 that

தரித்திருந்தேனாகவே, தாராகணப்போர் விரித்துரைத்த வெந்நாகத்துன்னை.

Again Alavandar, a later saint, in his famous Stotra Ratna expresses the same idea.

Then Mahatma Lagada wrote down the Vedanga Jyotisha. The object of the Vedanga Jyotisha was to fix the correct Tithi and Nakshatra, and kuthu on any given day. The technique used is the Yuga of five sidereal years.

“Maghe Sukla Prapannasya Powsha Krishna Samapina Yugasya Pancha Varshasya Kala gnar an
prachakshathae”

62 lunations = 1830.8965 days

67 sidereal periods of the moon = 1830.5512 days

5 sidereal years = 1826.284 days.

At the end of 1830.8965 days, Amavasya comes back. The Yuga of 62 lunations is 461 days longer than five sidereal years. The Vedanga Jyotisha year is therefore $1830 \div 5 = 366$ days

ii. The number of accumulated excess days at the end of 7 Yugas = 323 days. Hence the seventh Yuga was allotted only 61 lunations. Shyama Shastri and others have clearly explained this, while explaining the meaning of the Rig Vedanga Jyotisha verse :

Svar akrameti somerkau yada sakam savasau

Syat tedati yugam magastaya suklo dinam thiyajah

The Vedanga Jyotisha year was repeatedly rectified by observation of the conjunction of the full moon with the Yuga tara of Magha Nakshatra (Regulus)

At the end of 160 years or 32 yugas :

160 sidereal years = 58441.104 days.

1979 lunations = 58441.034 days.

2139 sidereal periods of the moon = 58441.085 days.

iii. Why was Sravishta chosen as the first Nakshatra ?

When the Saptha Rishi Era was instituted; the Sarad Ruthu began with mid Sravishta and the year began with Sarad Ruthu and ended with Varsha Ruthu. of Pasyema Sarada satham, Jeevema Sarada satham. —

Maha Bharata states that Margasira was the first month of the year of. Bagawat Gita. Many authorities state the same, and it is easily seen that 5000 years ago, Margasira was the first month of Sarad Ruthu. The names of the twelve Adityas corresponding to the months is even now reckoned from the month of Margasira, as Kesava, Narayana, Madhava ... Varaha Mihira also states the same sequence.

The original Vedanga Jyotisha of Mahatma Lagada was modified and altered, first by Rishi Suchi, and then by Vriddha Garga (1600 B C) according to Bhatotpala, the commentator of Varaha M.hira, (to suit the climatic conditions of their times) (Refer ; The first and third verses of V. J.). Hence the words Dakshinayana and Utharayana were interchanged by him. Again according to B. G.

Tilak and others, Utharayana (according to Vedic Rishis) referred to the period when the Sun was north of the equator and Dakshinayana was the period when the Sun was south of the equator. The present meaning was given to the words by Varaha Mihira, as it suited the circumstances of his times. If the V. J. is read with just this reading, its true interpretation of the knowledge of astronomy of the R. V. J. can be easily understood.

R. V. J. Verse :

Prapadyete Sravishtarde Surya chandra masov api

Sravishtarde Dakshinarka Magha Sravanayoh sada

In this reading of the verse, the metre is correct. There is no meaning-less extra syllable, and the words Magha and Sravana refer only to months as everywhere in the R. V. J. and not to Nakshatras. The slight alteration must have been made by Vriddha Garga to suit the change in the seasons in his time (1600 B. C.)

iv: The Vedanga Jyotisha year and its rules were taken as the astronomical basis for the fixing of the tithi and Nakshatras. This is an easy and correct method even now, but not very accurate. As the precession of the equinoxes was known to them, they adjusted the beginning of the year (Sarad Ruthu) to the exact day by observations of winter and summer solstices and the equinoctical days (The same method was later adopted by Varaha Mihira). According to Veda Vyasa (Maha Bharata), Viswamitra was the first to change the beginning of the year to the beginning of Sravana Nakshatra (i. e. $40/3 \times 3/2 \times 75 = 1,500$ years) about 1,500 years after the beginning of the Saptha Rishi Era. This is beautifully corroborated by Puranic chronology from Vaivaswatha Manu to Maha Bharata war. This was again changed to the beginning of Mula by Rishi Parasara 3,000 years after Rishi Viswamitra i. e. about 4,500 years of the S. R. Era. This was then fixed at the beginning of Jyeshtha Nakshatra by Veda Vyasa about 1,000 years later i. e. 5476th year of the S. R. Era, otherwise named as the beginning of Kali Yuga (18 great Rishis are mentioned as exponents of Jyotisha Sastra:)

Since Yagnas have to be performed according to the seasons the tropical year was divided, (R. V. J.) into 12 solar months - Isa, Urja, ^{Sahas} Sahasya, Tapas, Tapasya, ^{Madhava} Madhu, Sucra, Suchi, Nabhas, Nabhasya. The seasons from Autumnal Equinox are Sarad, Hemantha, Sisir, Vasanta, Greeshma, and Varsha. The Astronomical year was divided into 12 permanent luni solar months: Magha, Phalguna, Chaitra, Visagha Margasira (or Agrahayana) and Pousha.

Therefore during the V. J. times, the six months from Magha to Sravana was Pitrayana (the Sun was south of the equator) and from Bhadrapada to Pushya was Devayana (the Sun was north of the equator) & Magha Sukla Prapannasya, Pousha Krishna Samapina, Yugasya pancha varshasya kala gnanam prachakshatha.

CHRONOLOGY OF ANCIENT BHARATH

PART V

DATE OF THE MAHA BHARATHA WAR

by:

Prof. K. SRINIVASA RAGHAVAN
B. A. (HONS) L. T. DIP. GEOG. DIP. P. ED.

P R E F A C E [First Edition]

With the name of the Lord of Kurukshetra on my lips and my head at his feet, I humbly present this to the earnest reader.

Sriman Vidwan Melma Narasimha Thathacharya Swamigal and Prof. R. S. Chakravarthy M. A. advised me and guided me in the presentation of the subject matter. Sri. N. Subba Narayanan, B. A. has kindly borne the entire cost of the publication of this book. I must thank them for their affection and their unstinted help.

I must thank the press for their kind co-operation.

Saka 1891, Sowmya }
Sarad Ruthu, 1st Isa month }
Badra Sukla Dwadasi } Prof. K. SRINIVASARAGHAVAN
Pravishtha Nakshatra }
Tuesday, 23 Sep. 1969 }

SRI AUROBINDO STUDY CIRCLE

119, BIG STREET, TRIPPLICANE, MADRAS-5.

Saka 1896

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(Revised)

At the feet of the Lord of Kurukshetra

CONTENTS

	Introduction
Chapt	1. Date of birth of Sri Krishna
	2. Dates of the birth days of the Pandavas
	3. Date of Bheeshma's death
	4. Date of the Mahabharata War
	5. Date of the Rajasuya and the Beginning of the Yudhishtira Era
	6. Dates of exile and return of the Pandavas .
	7. Date of the Yadava Civil War, and the Date of birth of Sri Satagopa
	8. A few important events given in the Maha Bharata
	9. Table of a few important events of the Maha Bharata

APPENDIX

THE DATE OF THE MAHA BHARATA WAR

INTRODUCTION

I have gone carefully through all the essays of the occidental and oriental scholars in determining the date of the Maha Bharata War. Those scholars have variously fixed the date ranging from 1919 B.C. to 315 B.C. Most of their ideas are empirical and not a few of them are the product of fanciful imagination or pre-conceived notions. It is now possible dispassionately to determine the correct date with a high degree of accuracy, and this is based on astronomical data and the internal evidence of the Maha Bharata alone. We may in fact justly and properly style the date of the Maha Bharata war, which the science of astronomy has now incontrovertibly fixed on 22 Nov. 3067 B.C., as the true anchor sheet of Indian chronology and history, as every date indicated by Indian astronomy and supported by Ancient Indian Puranic history depends on it.

1. In fixing the date of the Maha Bharata war, the first step is to determine the date of birth of Sri Krishna, as his horoscope is well known.

2. Since Maha Rishi Veda Vyasa gives the positions of the Sun, Moon, Rahu, Saturn, Jupiter, Mars and Venus at the time of the Maha Bharata war, also the positions of the Sun and Moon and the winter solstice at the time of Bheeshma's death, a few days after the M.B. war, the exact date of the beginning of the M.B. war is next determined.

3. Sri Krishna left the world 35 years after the M.B. war. Since the positions of the sun and moon at that time are known, the date of his death is fixed.

4. Rajasuya was performed 15 years before the M.B. war, and the positions of the Sun and Moon on that day are given. Therefore the date of the Rajasuya is fixed. The Yudhishtira Era began the next day on Margasira Sukla Prathama. Therefore its date is fixed.

5. In the course of the paper it is proposed to show that all the astronomical data given by Sri Veda Vyasa are completely consistent.

6. During the days of the Maha Bharata war, the Vedanga Jyotisha alone was in vogue. The Zodiac was divided by the nakshatra segments, and Sravishta was the first Nakshatra. The months were luni solar. Five sidereal years constituted a yuga of 62 lunations. The Yuga began with the Sun and Moon at Sravishta i.e. Magha Sukla Prathama. One month was added at the end of the

third year and another at the end of the fifth year of the Yuga. The tropical year was divided into six Ruthus=twelve solar months. The twelve monthi beginning with Sarad Ruthu were Jsa, Urja, Sahas, Sahasya, Tapas, Tapasya, Madhu, Madhava, Sucra, Suchi, Nabhas, Nabhasya. The presiding deities of the months are Kesava, Narayana, Madhava, Govinda, Vishnu, Madhusudana, Trivikrama, Vamana, Sridhara, Hrishikesa, Padmanabha, and Damodara. The first month began with the Sarad Ruthu i.e. Autumnal Equinox, which was therefore the beginning of the year. During Sri Krishna's time, Margasira was the first month of the year, and the year began with the Durga Puja and Sarada Navarathri at the beginning of the Sarad Ruthu. The twelve Rasis and the related twelve months were then not very much in use. They were introduced into practice by the Siddhanta Astronomers of the A. D. years.

7. The present standard Zodiac of the Govt. of India was fixed in 1956 A. D. Spica or Chitra Nakshatra is at the 180th degree of this Zodiac. This is different from the Zodiac of the Vedanga Jyotisha. The difference is $1^{\circ} 46'$ i.e. to obtain the longitude on the Vedanga Jyotisha Zodiac, $1^{\circ} 46'$ should be added to the longitude of the zodiac of the Govt. of India.

Moreover the Vedic Rishis used only Polar longitudes, and not the celestial longitude, which is given nowadays in all the Indian Panchangs (Almanacs), and this is evidently not the correct one to determine the position of the planets.

8. The method adopted by me to determine the longitude of the planets on any given date, is a slightly modified and improved one of that given by Sri L. Narayana Rao M.A., in his Perpetual Ephemeris. A similar method is given by Dewan Bahadur Swami Kannu Pillai in his "Indian Ephemeris". This is also used for verifying the results. The longitudes given are the visible longitudes at Kurukshetra, and not the mean longitudes. The time of day is from sunrise at Kurukshetra (or Ujjain).

CHAPTER-I

The Date of birth of Sri Krishna

According to accepted tradition, Sri Krishna was born in the Bhadrapada month, Krishna Ashtami, Rohini Nakshatra, at about midnight, when five planets were in exaltation and the other two in their own houses.

The chart of the horoscope is as follows :—

	Rahu	L Moon	
	Rasi		Jup
Mars			Sun
		Venus Sat	Mer

European scholars who could not imagine of the hoary tradition of Bharat, searched for this combination of planetary positions from 1000 B. C. to 500 A. D. When they found that they could not fix the date, the only other alternative for them was to say that Krishna is a mythical person, and the puranas false stories. Poor scholars! They should have searched for his date of birth near the beginning of the Kali Yuga Era i.e about 3100 B. C. Then they would have found out that he was born at 11.40 P. M. on Friday 27th July 3112 B. C., when the planets were disposed as followg:—

- (i) Lagna and Moon 52° 15' Rohini (4)
- (ii) Jupiter 91° 16' Punarvasu (4)
- (iii) Sun 148° 15' Uthara Phalguni (1)
- (iv) Mercury 172° 33' Hasta (4)
- (v) Venus 180° 15' Chitra (3)
- (iv) Saturn 209° 57' Visaka (3)
- (vii) Mars 270° 1' Uthara Ashada (2)
- (viii) Rahu 16° 1' Bharani (1)

A close look at the positions of the planets reveals that Jupiter, Venus, and Mars just rushed into their positions for the sake of Lord Krishna, while the Moon, Sun, Mercury and Saturn lingered a little longer to be there at the time of the birth of the Lord. Most wonderful! Rahu in the 12th. place made him an invincible warrior

For fixing the position of the planets, the method adopted is that given by Sri L. Narayana Rao M. A., in his "Perpetual Ephemeris", and by Dewan Bahadur Swami Kannu Pillai in his Indian Ephemeris. But I have slightly improved the technique, and I use the sidereal periods of the planets as accepted by modern astronomers.

(i) Sun and Moon.

On Saturday, 10th Jan. 3104 B. C. at 5 P.M. the sun and the moon were together at 312.61 .

92 Lunations = 2716.814 days

7 Sidereal years = 2556.798

Difference = 160.016 days = $157^{\circ}.826$ of the Zodiac. i.e. New Moon occurred 7 years 160.016 days before 5 P.M. on 10th Jan 3104 B.C., and at New Moon the sun and moon were at $312^{\circ} 61 - 157^{\circ}.826 = 154.78$

Therefore the previous Krishna Saphthami ended at

$$\text{or } \left. \begin{array}{l} \text{(a) } 154.78 - 7.74 = 147.04 \\ \text{(b) } 154.78 - 8.10 = 146.68 \end{array} \right\} \text{Range}$$

$$\text{ie } \left. \begin{array}{l} \text{(a) } 2716.814 + 7.872 = 2724.686 \text{ days} \\ \text{(b) } 2716.814 \div 8.21 = 2725.024 \text{ days} \end{array} \right\} \text{Range}$$

before 5 P.M. on 10th Jan. 3104 B. C.

The corresponding Julian Day reckoned from sunrise at Kurukshetra is

$$\text{or } \left. \begin{array}{l} \text{(a) } 587691.46 - 2724.686 = 584972.774 \text{ days} \\ \text{(b) } 587691.46 - 2725.024 = 584972.436 \text{ days} \end{array} \right\} \text{Range}$$

The position of the Moon at that time was

$$\left. \begin{array}{l} \text{(a) } 147.04 - 96 = 51.05 \\ \text{(b) } 146.68 - 96 = 50.68 \end{array} \right\} \text{Range} - \text{Last quarter of Rohini}$$

Converting to the Zodiac of Vedanga Jyotisha, by adding $1^{\circ} 15'$, the sun was at $148^{\circ} 15'$ and the Moon at $52^{\circ} 15'$.

Hence it was just at 11,40 P.M. on Friday, 584973rd Julian day, Bhadrpada month, Krishna Ashtami, Rohini Nakshatra, Lord Krishna was born, with the Sun at $148^{\circ} 15'$ and the Moon $52^{\circ} 15'$. The corresponding date is Friday, 27 July 3112 B. C.

$$\text{(ii) Position of Rahu} = 230^{\circ} 22' + 144^{\circ} 24' + 1^{\circ} 15' = 376^{\circ} 01' = 16^{\circ} 01'$$

(iii) Saturn :

170 cycles of saturn = 1829067.37 days

5008 cycles of sun = 1829206.55 days

∴ Saturn is ahead of sun by $4^{\circ} 39'$.

The corresponding Kali Day is $1829206.55 - 3493 = 1825713.55$
= 11 Sep 1897 A. D.

$$\text{∴ Position of Saturn} = 213^{\circ} 21' - 4^{\circ} 39' + 1^{\circ} 15' = 209^{\circ} 57'$$

(iv) Jupiter :

412 cycle of Jupiter = 1815353.0396 days

4970 cycles of sun = 1815326.74 days

∴ Jupiter is behind sun by $2^{\circ} 15'$. The corresponding Kali Day = $1815326.74 - 3493 = 1811833.74 = 11 \text{ Sep } 1859 \text{ A. D.}$

$$\text{∴ Position of Jupiter} = 87^{\circ} 46' + 2^{\circ} 15' + 1^{\circ} 15' = 91^{\circ} 16'$$

(v) Mars :

2643 cycles of Mars — 1815687.2017 days

4971 cycles of Sun — 1815691.5528 days

∴ Mars is ahead of sun by 2° 16'. The corresponding Kali Day —
1812198.5528 — 10th Sep 1860 A.D.

∴ Position of Mars — 271° 02' — 2° 16' + 1° 15' — 270° 01'

(vi) Venus :

8074 cycles of Venue — 1814242,219 days

4969 cycles of sun — 1814230.5256 days

∴ Venus is behind the sun by 18° 15'. The corresponding Kali Day —
1810738 = 10 Sep 1856 A. D.

∴ Position of Venus — 160° 15' + 18° 45' + 1° 15' — 180° 15'

(vii) Mercury :

20628 cycles of Mercury — 1814595.8587 days

4968 cycles of sun — 1814596.2713 days

∴ Mercury is a head of sun by 1° 35'.

The corresponding Kali Day — 1811103.27 — 11 Sep 1857 A. D.

∴ Position of Mercury — 172° 23' — 1° 35' + 1° 15' — 172° 33'

Note: The positions obtained by referring to Swami Kannu Pillai's "Indian Ephemeris" are as follows:—(i) Saturn 208° 59'. (ii) Jupiter 90° 23' (iii) Mars 271° 36' (iv) Venue 180 14' (v) Mercury 171° 04'

The two results are practically the same.

CHAPTER II

Dates of the birth days of the Pandavas

(from the astronomical data supplied by Maha Rishi Veda Vyasa in the
Adi Parvan of the Maha Bharata.)

(i) Yudhishtira was born on Sukla Panchami, Jyeshtha Nakshatra Day in the Abijit Muhurta—(8th Muhurta of the day; I Muhurta—48 minutes): Adi Parvan—7 Sambava Parva— ch 129—sl 21.

(ii) Almost a year later Bheemasena was born on Krishna Trayodasi, Magha Nakshatra Day, in the Pitiriyam or Rohini Muhurta (9th of the day), chap 130—sl.66.

(iii) Arjuna was born on the day with Poorva and Uthara Phalguni Nakshatras. His fourteenth birthday was on the first day of the month of Madhava. Sri Krishna was born in the third month after Arjuna—Ch. 132-17 and Ch. 134-9.

(iv) Ch. 133-24:—The children were born at one per year, like the 5 years of a Yuga.

(v) Ch. 134-9:—Krishna was junior to Bala Rama by one year and 3 months.

(vi) These data, together with the date of birth of Sri Krishna, fix the birth days of the three Pandavas. Let us consider Arjuna first. Since Sri Krishna was born in the month of *Suchi*, he was born in the month of Madhava [months in order are Madhu, *Madhava*, Sucra, Suehi, Nabhas, Nabhasya...]. On the new moon day following Sri Krishna's birth the sun was at 154.8 Two lunations before, the new moon was with the sun at 96.8, 3 3/4 days later the sun was at 100.6, and the moon at 146.8 i. e. Sukla Chaturthi, Uthara Phalguni Nakshatra. The corresponding Julian Day is 584927, Monday. This is again verified by the next statement regarding the 14th Birth day.

13 years later the corresponding New Moon was with the sun at $96,5-22.0=74,5$,
3 3/4 days later the sun was at 78,3

Note : The month of Madhu was from 48' to 78' and the month of Madhava was from 79 to 109 etc. Hence it is seen that the 14th birth day of Arjuna fell on the first day of the month of Madhava !!

(vii) 24 lunation before Sri Krishna's birth, i. e. 708.9 days before, the new moon was with the sun at 176.1. 4.5 days later, the sun was at 180.6 and the moon at 236.1 i.e. Sukla Panchami, Jyeshtha Nakshatra.

This is the birth day of Yudhishtira, Julian Day 584277, Tuesday [3114B.C.]

(viii) 12 lunations or 354.43 days after Yudhishtira's birth, the New Moon was with the sun at 165.4. Three days before the sun was at 162.4 and the Moon was at 125.4 i. e. Krishna Trayodasi, Magha Nakshatra. This is the birth day of Bheemasena, Julian Day 584624, Saturday (3113 B. C.)

(ix) Bala Rama was younger than Yudhishtira and older than Bheemasena. The sun was at Rohini (47°) at his birth. Therefore he was 229 days younger than Yudhishtira—Julian Day 584506, Sunday.

Birth days of the Pandavas, Balarama, and Sri Krishna

Name	Position of Sun	Position of Moon	Thithi	Muhurta	Difference in days	Birth date Julian day
Yudhishtira	181 Chitra	236 Jyeshtha	Sukla Panchami	Abijit 8th-Day	0	31 Aug. 3114 B. C. 584277 Tuesday
Bala Rama	47 Rohini	—	—	—	229	584506 Sunday
Bheemasena	162 Hasta	125 Magha	Krishna Trayodasi	Pitiryam 9th-Day	347	584624 Saturday
Arjuna	101 Pushya	147 Uthara Phalguni	Sukla chathurthi	—	650	584927 Monday
Sri Krishna	147 Uthara Phalguni	52 Rohini	Krishna Ashtami	Abijit 8th-Night	696	584973 Friday 27 July 3112 B. C.

CHAPTER III

Bheeshma's death

1. Yudhishtira celebrated the Raja Suya on the Amavasya day with Jyeshtha and Moola Nakshatras. Hence, 15 years later at the time of the Mahabharata war, the Amavasya was at the beginning of Jyeshtha i.e. with the Sun at, $224^{\circ}.75$

2. In the Udyoga Parva Ch. 142, Sri Krishna tells Karna just before leaving Hastinapura, that Amavasya comes on Jyeshtha Day. Hence this Amavasya was with the sun at $224^{\circ}.75$.

3. Santi Parva Ch. 46, Anusasani Parva Ch. 272-274. It is stated that Bheeshma died at Midday on Magha Sukla Ashtami, Rohini Nakshatra. Therefore, the position of the sun on that day was $224^{\circ}.75 + 87^{\circ}.3$ (3 lunations) + $6^{\circ} 80$ Ashtami = $318^{\circ}.85$

4. Again, it is stated that Bheeshma died as soon as the sun's chariot turned north. Therefore, Utharayana or winter solstice was with the sun at 317° .

5. It is also stated that Bheeshma died on Sukla Ashtami Day i.e. when the Moon was 90° , i.e. at 49° from the sun. This is in complete agreement with the statement that it was Rohini Nakshatra.

6. Because winter solstice was with the sun at 317° , the Vernal Equinox was with the sun at 47°

7. By the law of the precession of the equinoxes, it is well known that in 3100 B. C., the Vernal Equinox (τ) was at 47° . The time of Bheeshma's death and the Maha Bharata War was about 3100 B. C.

CHAPTER IV

Date of the Mahabharata War

Introduction

The date of the Mahabharata is quite important to Indian History. The whole of Indian History entirely depends upon the date of the Mahabharata war, for the dates of accession of kings of the various Hindu dynasties are invariably calculated in all our Puranas and other works of authority from the time of Mahabharata War.

—T. S. Narayana Sastri, B.A.B.I.

If we wish to adopt the three fold chronological classification of history in relation to the progress of civilisation and of human events in India also, the date of the Mahabharata war acquires a characteristic importance. A comprehensive view of Indian civilisation as unfolded by Indian Literature shows distinctly that what may be called the Ancient History of India was really at an end by the time of this war which was thus chronologically coincident with the commencement of the Mediaeval History of India.

—Prof. M. Rangacharya, M.A.

Section. 1. Let us now consider the references to the Mahabharata War, the Yudhishtira Era, Kali Era, and Saptha Rishi Era.

(i) Varaha Mihira—Brihat Samhita XIII-3. The sages (Saptha Rishis) were in Magha in Yudhishtira's time.

(ii) Vriddha Garga quoted by Bhattotpala—At the Junction of Dwapara and Kali, the Saptha Rishis were in Magha.

(iii) Vishnu, Bhagavata etc., Puranas state that Kali Yuga began with the 70th year of Magha cycle of Saptha Rishi Era.

(iv) When 35 years were over after the Mahabharata War at the time indicated by the curse of Gandhari, the Yadavas saw bad omens portending their destruction—Mousala Parva.

(v) Yudhishtira ruled for 35 years after the Mahabharata War and then left the world—Mahabharata, Swargarohana Parva.

(vi) The Yudhishtira Era was started 25 years after Kali Era i.e with the beginning of the Poorva Phalguni cycle of the Saptha Rishi Era,

—Sri V. Thiru Venkatacharya—Popular Astronomy.

(vii) The inscription in the temple of Hanuman at Jaisalmer, Rajaputana, states that the commencement of Yudhishtira Era was from the coronation of Yudhishtira at Indraprastha.

(viii) Maha Bharata, Adi Parva—7, Sambava Parva, Ch 76 (Kumbakonam Edition) and Ch 137 [Calcutta Edition]—“Vyasa told his mother, 2 months after Pandu's death, that— “Dharma is dying and Adharma is getting powerful” He then took her away from Hastinapura.”

(ix) Vana Parva, chap 151. Hanuman Says “Kali Yuga has already come.

(x) Salya Parva —Ch. 61—Krishna states that the unfair fight was due to Kali's influence.

(xi) Udyoga Parva—Ch 142—Krishna, during his conversation with Karna, stated repeatedly that Kali Yuga had come.

(xii) Mousala Parva—Ch.1.

“Though Kali has come, it was like Krita Yuga because of Sri Krishna”

(xiii) Mousala Parva—Ch, 3

Sahadeva tells Yudhishtira that “Kali has come because of the departure of Sri Krishna.” Immediately, they prepare for Maha Prasthanā.

(xiv) Arya Bhatiya—Gitika 5

“Kali began from the Maha Prasthanā of the Pandavas.”

(xv) Vishnu, Bagavata and other Puranas—

“Kali Yuga began on the day Sri Krishna left the world.”

(xvi) Bagavata Purana—

Yudhishtira states that “even after seven months Arjuna has not returned from Dwaraka.” Then his preparation for Maha Prasthanā on Arjuna's return shows that it was 7 months after the Yadava slaughter, Yudhishtira gave up his kingdom, and went away after crowning Parikshit.

Moreover, it is usual for Vanaprasthas and Sanyasins to move out after the rainy season. Dritharashtra left Hastinapura for the forest in the month of Margasira, and so did Yudhishtira—on the Vijaya Dasami Day.

Hence, the conclusion is that Kali Yuga began during the life time of Sri Krishna, and it was there at the time of the Mahabharata War. But Kali reckoning started after the Pandavas left on Maha Prasthanā, and Parikshit began to rule, i.e. exactly 36 years after the beginning of the Mahabharata War.

All the puranas reckon time only in Saptā Rishi Era. Apparently Pure Kali Era. reckning started only after about 500A.D.

Section 2

The Maha Bharata is teeming with plenty of astronomical information regarding its own age. It is proposed to arrange them in order and determine the exact date of the Maha Bharata war. This paper is based entirely on the many astronomical data supplied by Sri Veda Vyasa, which are all consistent.

(A) The following statements are seen in the Maha Bharata—Udyoga Parva :—

(i) Sri Krishna left Upaplaviya for Hastinapura on the mission of peace in the Maithra Muhurta (2rd muhurta of the morning, from 7.36 A.M. to 8.24 A.M.) on Sukla Dwadasi, Kevathi Day, in the mooth of Krithika. En route he halted for a day at a town called Vrikasthala—Chap. 82, 83, 85.

(ii) He reached Hastinapura on Bharani Day, ch. 89.

(iii) He met various persons to discuss the conditions for averting a War. The meetings went on up to Pushya day—ch. 90 and 91.

(iv) On Pushya Day (Krishna Panchami), Duryodana finally refused all conditions for peace, and ordered his men to prepare the battlefield of Kurukshetra—ch. 180.

(v) Sri Krishna left Hastinapura on Uthara Phalguni Day with Karna in his chariot. Their conversation is very interesting and illuminating. Sri Krishna told Karna that the seventh day from then, Jyesta Day was Amavasya, and asked him to advise Duryouana to begin the war preparations on that Day—ch. 142.

(vi) He returns to Upaplaviya on Chitra day. Three days later i. e. on Anuradha Day, Sri Bala Rama comes to Upaplaviya to know the result of Sri Krishna's mission, and coming to know of its failure, he decides to go on a pilgrimage, and leaves the place for Dwaraka with Pradyumna and others—ch. 157.

(vii) On the following Pushya Day, Sri Krishna with the Pandavas moved towards Kurukshetra (stated twice in the Salya Parva—ch. 35).

(viii) 17 days after his return from Upaplaviya, on Punarvasu day, Balarama started on his pilgrimage from Prabhasa, at the mouth of the River Saraswathy—Salya Parva ch. 34. A number of chapters following ch. 34, describe the pilgrimage of Bala Rama along the course of the River Saraswathy, dotted with many holy Rishi Ashramas. 42 days after starting on his pilgrimage i.e. on Sravana Day, he comes to Kurukshetra, on the evening of the 18th Day of the Maha Bharata War. The 19th morning, when Duryodana died was Krishna Paksha Chathurdasi, Sravana Nakshatre i.e. 59th day from the Jyesta Amavasya.

(ix) 2 days after Bala Rama left Upaplaviya i.e. on Moola Day, Rukmani, the great warrior and brother of Rukmani came to the Pandava camp and offered his help. It was refused and he went away—Udyoga Parva chap. 158.

This disproves the conjecture of many scholars who state that the Maha Bharata war began on Jyesta Amavasya day.

(B).

(i) Udyoga Parva, ch. 142 and 143, give the following information (astronomical).

(a) The day was Uthara Phalguni day, when Sri Krishna left Hastinapura after the failure of his peace mission.

(b) Seven days later, it was Jyeshtha Amavasya day.

(c) Saturn was very bright and was with *Rohini Nakshatra*.

(d) Rahu was approaching the sun.

(e) The moon was approaching the Amavasya.

(ii) Bheeshma Parva—A number of astronomical observations are given here. They are considered separately in an appendix.

(iii) Mousala Parva chap. 3 :—

“When Amavasya came on the 13th day, Sri Krishna said,” Again Rahu has caused Poornima on Chathurdasi day. Such a thing happened at the approach of the Maha Bharata War. It has now come for our destruction. “He then found it was the 36th year after the Maha Bharata War, and was reminded of the curse of Gandhari.”

(iv) Sri Vaishnava Guruparampara and “Eedu” Commentary of Nammalwar’s Thiruvoimozhi—“Sri Krishna left the world in the beginning of Kali Yuga on Friday, Chaitra Sukla, Prathama, Uttharaproshtapada Nakshatra, and Sri Satagopa was born 43 days later in the month of Vaisakha, on Friday, Sukla Chathurdasi day, Poornima Thithi and Visakha Nakshatra.

(C) The night battle of Drona on the 14th night of the M. B. War is very graphically described by Maha Rishi Veda Vyasa [Drona Parva ch. 185—:81]. At about midnight Gatothkacha was killed by Karna: The fury of the battle was tremendous, but the warriors on both sides were very tired. Just then, at about 1 A. M., Arjuna declared a short truce for one muhurtha (48 minutes), till moonrise. The moon rose at about 2 A. M. “when 1/3 of the night was still left”. The description of the moonrise is excellent, and the battle that followed it was terrible. Drona became mad with fury and killed Virata and Drupada at about 5 A.M. The Sun rose on the 15th morning to give a short respite for both parties for Sandyopasana. Therefore it was Krishna Paksha Dasami on the 15 morning, and hence it was Krishna Chathurdasi on the 19th morning.

(D) On Jyeshtha Day both sides went to Kurukshetra which was still wet and slushy. The Pandavas chose the western side on the bank of the Hiranya Nadi, while Duryodana chose the eastern side (Udyoga Parva). They started cutting canals, building comfortable camps, houses and palaces, laid beautiful roads, etc. Duryodana's camp was like another Hastinapura, connecting it by well laid chariot roads. The camps were well provided with plenty of good water, food, medicines and armoury. There were plenty of doctors, nurses, attendants etc. All this took just only one month. The next amavasya (30 days after Jyeshtha amavasya) came on Poorva Ashada Day. This was the first Amavasya of the month of Margasira [at the beginning of Sarad Ruthu, which began the year in Sri Krishna's time]. Hence Navarathri or Durga Pooja began the next day + [Just 2 years before on a similar holyday, Yudhishtira performed Durga Pooja, and on the Vijaya Dasami day, he performed Ayudha Puja and then entered Virata Nagar]. On the 10th day i.e. Vijayadasami day, Ayudha puja was performed (U, Parva ch, 160 and 161),

+This Navarathri is termed *Sarada Navarathri* in the Dharma Sastras. There is another called *Vasanta Navarathri* celebrated at the beginning of Vasanta Ruthu. Our present Navarathri is celebrated at the beginning of Sarad Ruthu.

That evening Duryodana sent Uluka, son of Sakuni to the Pandavas. His message and its delivery by Uluka are very interesting reading. He told Sri Krishna and the Pandavas that "Ayudha Puja is over today, Kurukshetra is now dry and there is no reason for further delay in starting the War". He demanded a straight reply from them. The Pandavas, on the advice of Sri Krishna, agreed to begin the war the next morning at sunrise. It was Sukula Ekadasi, Kritika Nakshatra of the month of Margasira, that the Bhagavad Gita was revealed by the Lord and Teacher of the three worlds. The War started at 6.30 A.M. (on Friday). Hence the 19th morning was Krishna Chathurdasi Thithi with Sravana Nakshatra.

(R) Bheeshma died at Midday on Magha Sukla Ashtami, Rohini Nakshatra. Reckoning from Jyeshtha Amavasya, the number of days $29.53 \times 3 + 8 = 97$. The number of days from Jyeshtha Amavasya to the beginning of the M. B. War = $29.53 + 10 = 40$ days. Therefore the number of days from the beginning of M. B. War to Bheeshma's death both days including = 58 days. This is referred to in the Santi Parva ch. 46 and the Anusasani Parva ch. 272, 273 and 274, where in it is stated that "Bheeshma, who was in the bed of arrows, said, I have not slept for 58 days." [As translated by Sriman Vidwan Melma Narasimha Thathacharya swamigal avl.] from the day he was made the General of the Kaurava Army.

(F) (i) It is seen from the positions of the planets that the M. B. War was fought 38 years after the Astronomical Kali era.

(i) The positions of the planets Sun, Moon and Rahu are now verified.

On the 10th Jan. 3104 B.C. at about 5 P.M. the planets were as follows :—

Sun 312°61' Moon 312°61' Mercury 298°58'

Venus 298°16', Mars 299°25' Jupiter 299°10'

Saturn 299°5' and Rahu 230°22'

(iii)

	Date B. C.	Julian Day	Week day	Sun	Rahu
New Moon	13-10-3 5	587608	M 1-87	225 - 27	235-25
Full Moon	28-10-3105	587623	Tu 2-64	239 - 83	234-45
New Moon	12-11-3105	587638	W 3-40	254 - 39	233-64
New Moon	10- 1-3104	587697	S 6-46	312 - 61	230-22

13 Oct. 3105 B.C. was Amavasya with Jyeshtha Nakshatra, on Tuesday early morning. This is than *Ritualistic Kali Yugadi Day* (கேட்டை, மூட்டை, செவ்வாய் இழமை) Jyeshtha Amavasya, on the early morning of Tuesday is considered very inauspicious, and it was with this that Kali Yuga began. On the next Full Moon day there was lunar eclipse visible in the early part of the night. (At 5 A.M. on 10.1.3104 B.C. the Astronomical Kali Yugadhi, the five planets were seen clustered together with the crescent Moon at Mid Shravishta)

(iv) 38 years after the beginning of the Astronomical Kali Era, i.e. at the time of the Maha Bharata War, the position of the planets were as follows :

(a) Saturn :

168 cycles of saturn = $168 \times 10759.2198 = 1807642$ days.

4949 cycles of sun = $4949 \times 365.25.689 = 180765$ days,

∴ Saturn is behind sun by 0 .47.

15th oct 3067 B. C. is 13023 Kaliday of L. N. Rao's Ephemeris i.e. from 18-2-3102 B.C.

∴ The corresponding Kaliday = $1807656 + 13023 = 1820679$ i.e. Thurs 29 Nov, 1883 A.D.

Hence Position of Saturn = $44.4 + 0.5 = 44.9$ (Rohini) Since Saturn was in opposition, it was very bright.

(b) Sun and Moon :—

38 sidereal years = $38 \times 365.25689 = 13879.7584$ days.

470 lunations = $470 \times 29.5306 = 13879.3764$ days.

Difference = 382 day = 0.377 .

∴ The position of Sun and Moon at New Moon was $225.27 - 0.377 = 224.89$.

Note: The difference between the Zodiac of the Vedanga Jyotisha and that of the present Indian Government = $1^{\circ}46' = 1.77$. Therefore the correct position of the Amavasya was 226.66 i.e. beginning point of Jyeshtha Nakshatra and also of the *Yoga Tara, Antares of Scorpio*.

The corresponding week day was 1.87 plus $5.38 = 0.26$ —Sunday.

The newmoon thithi extended from the midday of Saturday to the midday of Sunday. Confusion was caused as to which day is Amavasya. This is revealed in the traditional story, that Sri Krishna made Saturday, the Amavasya day, while Duryodana thought Sunday, as Amavasya day. Many interesting religio—social and astronomical features are revealed by this story.

(c) Rahu :

Motion of Rahu in 38 years = $38 \times 19.35548 = 15^{\circ}.509$

Therefore position of Rahu = $235^{\circ}.25 - 15^{\circ}.51 = 219^{\circ}.74$

On the day when Sri Krishna conversed with Karna, the Sun was at 218° , Rahu at 220° , (approaching the sun) and the Moon was coming from behind to overtake the Sun. Veda Vyasa's words are wonderfully true. It is also seen to be a solar eclipse day on Jyeshtha Day.

Again tradition is that this Amavasya was a long thithi and so the Poonnima before was a short thithi. On that day (28—9—3067 B.C.) full moon ended at 0.25 plus $14.74 = 0.99$ i.e. there were three thithis that Sunday. The day began with a Chaturdasi and ended with Krishna Prathama. This is the full moon before the Maha Bharata war, (referred to by Sri Krishna in the Mousala Parva.) with lunar Eclipse on Kritika day.

(d) On the Jyeshtha day (13—10—3067 B.C.) mentioned by Sri Krishna, in his conversation with Karna, the sun and the moon were at 225° . So on the Uthara Phalguni Day, the day of the conversation, the sun was at 218° and Rahu at 220° was approaching the sun, and the moon was approaching the sun from behind.

(e) Again during this time Mars was in Anuradha and Jyeshtha. Thus the cruel planets Saturn, Mars, and Rahu were aspecting the sun and the moon, indicating a great war—Bheeshuna Parva.

(f) Jupiter was at Rohini with Saturn—Bheeshma Parva.

(g) Solar eclipse is indicated on both the occasions just before the Maha Bharata War and before the Yadava civil war, 35 years after the M.B. war. It is stated that both amavasyas came on the 13th day. Again three thithis in a day is indicated by the words "Chathurdasi was made Poornima." These conditions are satisfied on the dates shown below. This proves the correctness of the statements of Sri Veda Vyasa and the correct date of the M.B. War.

	Date B.C.	Julian Day	Week Day	Sun	Rahu
Full Moon	28—9—3067	601473	Sat 6-51	210-32	220-55
New Moon	13—10—3067	601488	Sun 0-25	224-89	219-74
Full Moon	27—10—3067	601502	Sun 0-99	239-16	218-93
New Moon	11—11—3067	601517	Mon 1-78	254-02	218-13
New Moon	11—12—3067	601547	Wed 3-31	283-15	216-52

Special Note: The day following the Amavasya of 11 Nov. 3067 B.C. is the first Sukla Prathama of the year, at the beginning of Margasira month and Sarad Ruthu [in Sri Krishna's time, Margasira was the first month of the year]. Therefore Durga Pooja or Navarathri started on Tuesday 12th Nov. 3067 B.C. The tenth day was Vijaya Dasami Day i.e. Ayudha Puja day. This is the day on which Duryodana sent Uluka to the Pandavas, asking them to start the war the next day. On the advice of Sri Krishna, the Pandavas agreed to it. Hence the Maha Bharata War was started on Friday, Margasira month, Sukla Ekadasi Thithi, Krittika Nakshatra, 22 Nov. 3067 B.C.—601528 Julian Day, Ekadasi ending at Fri. 5-60 and the moon at 37-74 or Krittika on Friday morning. This is in complete accord with tradition.

Bheeshma's death took place, on the 58th day from the beginning of the M.B. war i.e. on Sat. 18 Jan 3068 B.C. Magha Sukla Ashtami, Rohini Nakshatra, Julian Day 601585, with the sun at 319° and the moon at 49°.

CHAPTER V

The Date of the Rajasuya and The Beginning of the Yudhishtira Era

1. The Maha Bharata states that the Raja Suya was completed on the New Moon day with Jyeshtha and Moola Nakshatras—Fifteen years before the M.B. War.

2. The Kala Bali or Field Sacrificial offering on the battle field of Kurukshetra was performed fifteen years after the Raja Suya.

3. The Field Sacrifice of the M.B. war was fixed on 13 Oct. 3067 B.C. Julian day 601488. Sunday, 25, New Moon Day with the sun at 224°89, But Sri Krishna had it done the previous midday.

4. 15 sidereal years	=	5478·8520 days.
185 lunations	=	5463·1610 days.
Difference	=	15·69 days = 15 ^o .47

Therefore the position of Sun and Moon on the Raja Suya Day was 240°36.

The corresponding weekday = 7·25—3·16 = 4·09.
i.e. Thursday, early morning.

The Julian Day = 6014·88—5463·16 = 596024·84 = 596025—Thursday.

This day is Margasira Sukla Prathama, Moola Nakshatra, when the Yudhishtira Era was begun. i.e. 26 Oct. 3082 B.C.

5. Rajasuya coronation was the day before i.e. on Amavasya Day, with Jyeshtha and Moola Nakshatras. Wednesday, Julian Day 596024, 25 Oct. 3082 B.C.

6. The Yudhishtira Era began on 26th Oct. 3082 B.C.

CHAPTER VI

Dates of exile and return of Pandavas

From a combined study of Sabha Parva and Virata Parva, it is easy to determine the dates of exile and return of the Pandavas.

(i) From the Sabha Parva, we learn that the game of dice was played about one year after the Rajasuya. The Pandavas were defeated, and sent out on condition that they should live in the forest for 12 years, and then in hiding for one more year. They accordingly left the place.

From the Virata, Parva chap 32, we learn that at the end of 13 years, in the month of Margasira (a) the Trigartas attacked the city of Virata, from the north, on Krishna Ashtami day, and (b) the Kaurava army attacked the city from the south on Krishna Navami day.

It was on this day that Arjuna revealed himself to the Kauravas. Immediately Duryodana, asked Bheeshma, if he had not come out earlier than the stipulated time, to which he replied that the Pandavas were in exile for 13 lunar years, five lunar months and 12 days (=4766·42 days) [13 sidereal years=4748·34 days, and so the Pandavas were in exile for 18 days more than the stipulated period, according to solar reckoning.]

Now the Pandavas were in exile for 13 lunar years, five lunar months and 12 days. Arjuna revealed himself on Krishna Navami. Therefore the exile began on Sukla Trayodasi day.

Let us now verify Veda Vyasa's reckoning of time.

(i) Rajasuya—Margasira Amavasya day with the sun at 241° Julian day 596024.

(ii) Next year—date of exile—Sukla Triyodasi day with the sun at $230 + 12 = 242^\circ$, and Julian day $596024 + 29 \cdot 53 \times 12 + 12 = 596390 \cdot 36 = \underline{596391}$.

(iii) 13 years later—Margasira Krishna Navami i.e. 4766·42 days later, with the sun at 260° , Julian Day = $596390 \cdot 36 + 4766 \cdot 42 = 601156 \cdot 78 = \underline{601157}$.

The exile began with the sun at 242° . Therefore the Pandavas were in exile for 13 sidereal years+18 days.

(iv) One year later, at the beginning of the Maha Bharata war, on Margasira Sukla Ekadasi day i.e. $29 \cdot 53 \times 12 + 17$ days later = 371·36 days later, the sun was at 265° , and Julian day $601156 \cdot 78 + 371 \cdot 36 = 601528 \cdot 14 = \underline{601528}$ th day.

This is the day already determined from other independent data. Thus is revealed the truth of Veda Vyasa's astronomical data. Hence the date of exile was Julian day 596391 and the date of return = 601157 and the total period of exile = 4766 days = 13 sidereal years + 18 days.

CHAPTER VII

The date of the Yadava Civil War, and the date of birth of Sri Satagopa :

(i) 35 years after the Maha Bharata War i.e. at the time of the Yadava Civil War:—

35 sidereal years	=	12783·988 days
433 lunations	=	12786·645 days
Difference	=	2·757 days = 2°·719
Motion of Rahu	=	35 × 19·35548 = 317·44
∴ Position of Rahu	=	219·74—317·44 = 360 = <u>262°·30</u>

	Date B.C.	Julian Day	Week Day	Sun	Rahu
New Moon	15—10—3032	614274	Thu 4-695	227-61	262-30
New Moon	14—11—3032	614304	Sat 6-225	256-74	260-69
Full Moon	29—11—3032	614319	Sat 6-995	271-31	259-89
New Moon	13—12—3032	614333	Sun 0-765	285-87	259-08

(a) Solar eclipse on 14th Nov. 3032 B.C.

(b) Lunar eclipse on 29th Nov. 3032 B.C., a day of three thithis, mentioned by Sri Krishna.

(c) Note the similarity in the two cases mentioned by Sri Krishna. Rahu makes a solar eclipse and long thithis at the New Moon. The following full moon is a short thithi merged in between Sukla Chathurdasi and Krishna Prathama, on which day there are three thithis. The two phenomenon occurring together is a rare feature, and its repetition in 35 years is again very rare.

(ii) 5 months after the New Moon at 227·61 of this year.

	Date B.C.	Julian Day	Week Day	Sun
New Moon	15-10-3032	614274	Thu 4-695	227-61
New Moon	12- 2-3031	614393	Thu 4-215	344-13
New Moon	12- 3-3031	614422	Fri 5-345	13-26
Full Moon	27- 3-3031	614437	Sat 6-115	27-83

(a) In the afternoon of 13 Feb. 3031 B.C. Julian Day 614394, Friday, Chaitra Sukla Prathama, Uthara Proshatapada Nakshatra Sri Krishna ascended to Heaven. The Yadava destruction was on the previous day, Amavasya day.

(b) The morning of 614436 Julian Day was Friday, 26 March 3031 B.C., Sukla Chathurdasi upto about 9 A.M. and Poornima later. The moon was at Visakha (200° to $213\frac{1}{2}$). Hence it was on this day that Sri Satagopa (Nammalwar) was born exactly the 43rd day after Sri Krishna's departure.

(c) The month of Vaisakh began on Saturday, 13th March 3031 B.C., i.e. 614423 Julian Day. The month of Chaitra began on Friday 12th Feb. 3031 B.C. i.e. 614394 Julian Day. Sri Satagopa was born on Friday, 26th March 3031 B.C. i.e. 614436 Julian Day. i.e. he was born on the 43rd day of the year, from Chaitra Sukla Prathama. Thus it is true to the statement of "Edu", the famous commentary of the 1000 verses of Sri Satagopa.

Thus it is seen that these events agree entirely with traditional statements.

CHAPTER VIII

A few important events given in the Maha Bharata

See A.

1. Pandu died on the 14th birth day of Arjuna, at the beginning of the month of Madhava.
2. Just after Drona's war with Drupada, Yudhishtira was crowned Yuva Raja.
3. One year after Drona's war, Drowpathy was born.
4. The Pandavas went to Varanavatha in the month of Phalguna, Sukla Ashtami, Rohini Nakshatra. They entered the waxen palace 10 days later. Exactly one year later, the palace was set fire to on Krishna Chathurdasi night. After the fire incident, the Pandavas lived in hiding for 6 months in the Ashrama of Rishi Sali Hotra. Then they lived in Ekachakrapura for 7 months. Drowpathy's marriage follows.
5. A few months after the marriage, Yudhishtira was crowned king at Hastinapura. He rebuilt the city of Indraprastha and made it his Capital.
6. Nine years later, Rajasuya was celebrated on the New Moon day with Jyeshta and Moola Nakshatras.
7. Fifteen years later, the Field Sacrifice of the Maha Bharata war was performed on the New Moon Day with Jyeshta Nakshatra.
8. During the first day's battle of the M. B. War it is stated that the oldest warrior Bheeshma met the youngest warrior Abimanyu, who showed himself equal to the greatest warriors.
9. Abimanya died just after completing his 16th year. His divine father Chandra, sent his son Varchas to be born as Abimanyu, with the express understanding that he should return on completing his 16th year.

10. Note on Subhadra's marriage and the birth of Abimanyu :—

In 3085 B.C. Arjuna had to go out on pilgrimage for 12 months. At the end of the period, when a few days were still left, he went to Dwaraka in the garb of a sanyasi and married Subhadra secretly with the help of Sri Krishna. The Yadava chiefs were asked by Sri Krishna to go to the Island and perform pujas to propitiate the Nava Grahas. 3084 B.C. is one of those very rare years, when the three planets Saturn, Jupiter and Mars are together and retrograde [203, 200 and 179° resp'tly with the sun at 41°]—Refer Swami Kannu Pillai—Indian Ephemeris for this particular combination of planets in the year 3084 B.C.

Again the Gandharva Vivaha of Subhadra—Arjuna took place in the month of Vaisakha Utharayana, Sukla Paksha *Thritheeya* (—10) Hasta Nakshatra, Baya Karana, Makara Lugna. This clearly shows that Arjuna married Subhadra in the month of Vaisakha of 3084 B.C. and Abimanyu was born in the month of *Magha* of 3083 B.C. On completing 16 years he died in the month of *Powshya* (or Makara) in the year 3067 B.C. during the M. B. War.

Dates of a few important Events of the Maha Bharata :—

Event	Sri Krishna's Age	Date B.C.
	Yrs—mth.	
1. Birthday of Sri Krishna	0-0	27 July 3112
2. Astronomical Kali Era	7-168	11 Jan. 3104
3. Beginning of Kali Era according to Vekanga Jyotisha	11-5	28 Dec. 3101
4. Pandavas entered Hastinapura	12-10 $\frac{1}{2}$	July 3099
5. Drona's War with Drupatha—Yudhishtira's Yuva Raiyabishekam	18-3	Nov. 3094
6. Drowpathy's marriage	20-8	Ap. 3091
7. Yudhishtira's Rajyabishekam Re-building Indraprastha	21-3	Nov. 3091
8. Arjuna's Theertha Yatra begins	26-9	May 3085
9. Note: For 5 $\frac{1}{2}$ years from Nov. 3011 B.C., Arjuna conquered and annexed all the adjacent Kingdoms and expanded the Kingdom of Yudhishtira. He earned the name of the greatest warrior of his times next to Sri Krishna.		
10. Subhadra's marriage	27-8	Ap. 3084
11. Burning of Gandava forest	27-11	July 3084
12. Birth of Abimanyu	28-6	Feb. 3083
13. Beginning of Rajasuya	29-3	Nov. 3083
14. End of Rajasuya and the crowning of Yudhishtira as Samrat	30-3	Wed. 25 Oct. 3082
15. Yudhishtira Era began	30-3	Thursday 26 Oct. 3082
16. Beginning of Vana Vasa	31-3	Nov. 3081
17. Maha Bharata War	45-4	Friday 22 Nov. 3067
18. Yadava Civil War ends on New Moon day, Sri Krishna went to Heaven on Chaitra Sukla Panchama	89-9	Friday 13 Ap. 3031
19. Maha Prasthana of Pandavas		Nov. 3011

APPENDIX

DEWAN BHADUR SWAMIKANNU PILLAI, M.A.,B.L.
AND THE MAHABHARATA

Mr. Pillai has made a number of unwarranted remarks about the Maha Bharata and Sri Veda Vyasa, with regard to the many astronomical references found in the Maha Bharata. Herein I quote a few of them, and then show that Sri Veda Vyasa was perfectly correct in all his observations.

(1) Indian Ephemeris Vol. I Part I by D. B. S. K. Pillai Page 8:

"In this connection reference may be made to the hallucination that a lunar fortnight with only 13 days does not occur except once in 1000 years. In the Maha Bharata, Bheeshma Parva (3—32), it is recounted by Vyasa in the course of his conversation with Dhritarashtra, that he has known of lunar fortnights consisting of 14, 15 or 16 days. but never of one consisting of 13 days, but since such a one is in prospect or has occurred, there will be a great slaughter of human beings. Other sastras quoted by Dr. Fleet in Indian Antiquary Vol XIV for March 1887, reiterate this omen, and it is stated in one of the quotations (commentary of Muhurta Ganapathi) that the phenomenon occurs only once in 1000 years. But it is not true that the phenomenon takes place only once in a 1000 years..." Comment is needless.

Again referring to the same sloka, he makes the following remarks in page 483—"2 eclipses one solar and the next lunar succeeding each other within a fortnight is quite an ordinary phenomenon"

The concerned verse is—

"Chaturdas'im, panchadas'im, bhuta purvam cha shodas'im/
Imantu na bijanami amavasyam trayodasim". Bheeshma Parva—3—32

"Chandra surya vuphau grasta vekahne hi trayodas'imi
aparvani graha vetau praja samshaya yishyatah" Bheeshma Parva—3—33

Meaning :

"A lunar fortnight has hitherto consisted of 14 days or 15 days or 16 days. Up to now I have not known of Amavasya coming on the 13th day"—

"But on the 13th day and in the course of the same month two eclipses have taken place, So there will be a great slaughter of human beings."

Now we easily understand what Sri Veda Vyasa said to Dritarashtra and we can see how Mr. Pillai has cut the sloka. It is true that 13 days fortnights are not rare, and 2 eclipses in a fortnight are also not rare. But can any one point out a 13 day fortnight with 2 eclipses in a month.

Moreover a month means a lunar month, and amavasya is the last day of the month. Hence the eclipses must be lunar followed by solar, and not the other way as Mr. Pillai understands.

This one is therefore an extra—ordinarily rare phenomenon. Such a one occurred in the month of Krittika, just before the Maha Bharata war with a lunar eclipse followed by a solar eclipse.

The language and tone of Mr. Pillai's expression show his arrogance and reveal a sense of scoffing at Veda Vyasa.

(2) Indian Ephemeris Vol I Part I by Sri S. K. Pillai Page 99:

"When exactly the people of this country became acquainted with the names of the other planets (for the sun and the moon are also planets in the Indian system) or began to observe their motions is a moot point. On the one hand it seems apriori probable, from the intercourse of this country with the western nations from very ancient times, that Greek if not Phoenician, Chaldean, and Egyptian astronomy and astrology must have found their way into this country at a very early time. It seems difficult to suppose that Chaldean astrology in particular, which was practised in the Grecian and Roman states for some centuries before A.D.I., did not find its way into India in the wake of Alexander's conquest or of the Graeco-Bactrian civilisation. Indeed in an account of the life of Apollonius of Tyana, who lived in the first century A.D. it is stated that he became acquainted with the names of the planets and of the week-days from an Indian Prince whom he visited, but there is reason to believe that the extant semi-mythic accounts of the life of Apollonius of Tyana were composed considerably later than the first century A.D.

All the historical, as distinguished from the presumptive evidence that has come down to us points to the probability of western influence on Indian planetary astronomy not having been anterior to the fourth or fifth century A.D. when the great Greek astronomer and astrologer Klaudios Ptolemy and his successors Paulus Alexandrinus and Firmicus Maternus were first introduced into this country during the Gupta Period. Some mention is made of planet names in the Puranas, but the date of composition of the Puranas is itself a matter of critical speculation. On the whole it may be safe to presume that the Hindus in some way became acquainted with the names of the planets, and possibly of the planetary week days, a century or two before the christian era, but that they did not make any practical use of this knowledge until they were brought face to face with its results in Ptolemy's works in the fourth or fifth century A.D. It seems also exceedingly probable that the practice of calculating horoscopes or the positions of the planets at given moments, came into vogue in India, a century or two after the fifth A.D...."

At the time of the Maha Bharata war, [whatever date the western scholars may fix for it] the Greeks were a wild nude tribe roaming the forests of Eastern Europe. The many accurate astronomical references to planets in the Maha Bharata show the difference in stature between these wild tribes and the highly cultured Aryas of Bharat Varsha—

Mr. Pillai thinks that Hindus classified the sun and Moon as planets—what ignorance! Valmiki—Sundarakanda—"Graha, Naksha'ra, Chandra, Arka, Tara gana" meaning "planets, lunar mansions, moon, sun, and constellations." There are many references in the Rig Veda to this effect.

Again Mr. Pillai assumes the names of the planets came to India in early A.D. years. What about the innumerable references to planets in the M. B. Mr. Pillai seems to outwit even Max Muller.

(3) Indian Ephemeris Vol I Part 1. by Mr. Pillai

(i) Page 100, para 246 :—"The obvious inaccuracies in the M.B. references to planets will be commented on in an Appendix (Paper No. 5)"

(ii) Pages 479 and 480 :—"The popular impression concerning these references is that the observations in question were made at the time of occurrence of the events described in the M.B., while the pious hope of even the well informed portion of readers and hearers of the M.B. is that it may be possible by means of these references, to determine the date of those events or atleast of the composition of the poem.....There is absolutely no scientific or historic warrant for either the popular impression or the pious hope. The astronomical details given in the Maha Bharata differ in one respect from those in the Ramayana...: where as the Maha Bharata cannot possibly yield a date because (i) they are mutually repugnant as has been stated already at page 100 of the text (ii) they are the evildent result of interpolation by subsequent writers and (iii) they seem to have interpolated at different times and in different centuries A.D.

(iii) Page 481 :—"Some of the Maha Bharata references to astronomy afford an even better illustration of *reckless astrological statements made without due regard to astronomical possibilities*"

The author then continues to discuss the retrograde motion of Mars, Saturn and Jupiter. He suggests that Mars Jup. and Saturn were retrograde near Visakha. He then proceeds to give possible dates for this. How is this possible in Margasira month, well known as the month of the Mahabharata War?

The above are the remarks of the anglicised outlook of an Indian Christian. It would have been better if he had confined himself to chronology, and not meddled with the sacred literature of the Hindus eg the Ramayana, the Mahabharata, the Guruparampara of the Alwars, etc.

The purpose of this paper is to show that Sri Veda Vyasa wrote down what he saw, and that all the astronomical references in the Maha Bharata are consistent and true, and the remarks of Sri S. K. Pillai are unwarranted.

Before reviewing Mr. Pillai's remarks on the Maha Bharata Verses, a few important points regarding Indian Jyotisha must be clearly understood.

(i) There are 3 sections in Jyotisha Sastra

(3) Samhita (b) Hora (c) Ganita.

(a) In the Samhita, the effects of planets and other celestial phenomena on countries and peoples are given in detail.

(b) In the Hora, the effects on individuals is discussed, based on their time of birth.

(c) In the Ganita is given the methods of calculation to fix the position of the planets etc.

Veda Vyasa and his father Maha Rishi Parasara are considered very great scholars in Jyotisha, and so these three aspects are indicated here, and Veda Vyasa gives his reading of the planets, comets, etc.

(ii) Again according to Indian Jyotisha, there are many Ketu. A reference to Brihat Samhita by Varaha Mihira will clarify this point. Therefore when Veda Vyasa mentions a Ketu, we should know what he refers to. It should not be assumed that Ketu is the 180th degree position of Rahu. This kind of ketu is not at all mentioned by Veda Vyasa any where in the Maha Bharata.

(iii) Mr. Pillai does not seem to understand the meaning of the words "Peedyathe" and "Vakra". Though an Indian, he does not seem to understand what every Hindu knows.

When an eclipse occurs in the Rohini Nakshatra, the Panchang clearly states that Peeda Parihara (ceremonies to avert peeda) must be performed by those whose Nakshatras are Rohini, Hasta and Saravana, and the Nakshatras adjacent to those 3 Nakshatras. The Nakshatras were grouped in threes eg Aswin, Magha, Moola; Barani, Poorva Phalguni, Poorva Ashada;...A malefic planet or comet, in any one of the Nakshatras is said to have malefic aspect on the other two of the triad, directly on one and retrogradely on the other. This retrograde malefic aspect is named "Vakra Peedyathe"

(iv) On the Kala Bali (Field sacrifice) day i.e. 13 Oct. 3067 B.C. The planets were in the following positions:—Sun, Moon, Mars, Venus, Rahu and Autumnal Equinox in *Jyeshtha*, Jupiter, Saturn and Vernal Equinox, in *Rohini*.

Doomadhi Paneha Grahas—Dooman 358°20', Vyatheepathan—Vakra 1°40'

Pari Vesham 181°40' (Vakra)	| Chitra and Swathi
Indra Dhanus 178°20'	
Dooma Ketu 195°	

(v) At the beginning of the Maha Bharata War i.e. on 22 Nov. 3067 B.C., the planets were in the following positions:

Sun	:	Poorva Ashada.
Moon	:	Krittika.
Mer	:	Jyeshtha.
Venus	:	End of Anuradha
Mars	:	Moola.
Jupiter	:	Rohini.
Saturn	:	Rohini.
Rahu	:	Jyeshtha.
Vernal Equinox	:	Rohini.
Autumnal Equinox	:	Jyeshtha.

(vi) Mr. Pillai is assertive when he says that many interpolations have been made at different times. But so far as the astronomical details are concerned they are consistent and no one seems to have meddled with Veda Vyasa's verses. It is his unwillingness to understand them properly that is the cause of his statement.

(vii) In the light of the above basic ideas, let us now study Mr. Pillai's translations and remarks on the Maha Bharata verses:—

(4) Indian Ephemeris Vol I part I Appendix V page 479 Astronomical references in the M.B.

(1) Bheeshma Parva—ch. 2 Verse 23

Alakshe prabaya hinam purnamasimcha Kartikim
Chandro bhudogni varnascha padme vernenabhastale ॥

Even in the night of the Kartika full moon, the moon having lost all its splendour became invisible (or looked like fire), the sky looking like lotus.

(2) Bheeshma Parva ch. 2. Verse 32

Rohanim pidayan-mesha sthito rajan Sanais'charah!
Vyavrittam lakshma somasya bhavishyati mahabhayam ॥

O! King, the planet Sani oppresses Rohini. *The sign of the deer in the moon* has shifted from its position. A great evil is foreboded by all this.

(3) Bheeshma Parva chap 3, verse 12

Sveto grahastatha *chitram* samatikramya tishthathi!
abhavam hi viseshena Kurunam tatra pasyati ॥

Ketu, the white planet stops on passing beyond the constellation *chitra*. All this forebodes total destruction of the Kurus.

(4) Bheeshma Parva chap. 3 Verse 13

Dhumaketuh maha ghorah pushyam chakramya tishthathi!
Senayorasivam ghoram karishyati maha ghorahah ॥

A fearful comet is rising and is distressing Pushya; this great planet will cause great havoc to both armies.

(5) Bheeshma parva—chap 3 verses 14 to 16.

Maghasvangarako vakkrah sravanecha brihaspatih |
Bhagam nakshatra makramya suryaputrena pidyate ॥

Sukra proshta pada purve samaruhyo virochate |
uttaretu parikramya sahitah samudikshyate ॥

Sveto grahah prajvalitah saduma iva pavakah |
endram tejasvi nakshatram jyeshtam akramya tishtathi ॥

Mars is retrograde in Magha, and Brihaspathy in Sravana. The sun's off spring Sani advances towards Bhaga and afflicts | The planet sukra rises towards Purva Bhadra (Dutt's translation) | *Keta* blazing like smoky fire, stops and afflicts the effulgent constellation of Indra |

(6) Bheeshma parva—ch 3 verse 17

Dhruvah prajvalitho ghoramapasaviyam pravartate |
Rohinim pidayantau tauabhau cha Sasi bhakrau ॥
chitra svatyantare chaiva dhishthatah parusha grahah |

The constellation Dhruva, fearfully blazing advances towards the right. Both the sun and the moon distress Rohini. A terrible planet (Rahu) has taken up its position between Chitra and Swathi.

(7) Bheeshma Parva—ch 3—verse 18.

Vakranuwakram Kritvacha Sravanam Pavaka prabhah |
brahma rasim samavriya lohitango vyavasthitah ||

The red bodied planet, effulgent like fire passing in a round and round way stops encircling Sravana over ridden by Brihaspathy ||

(8) Bheeshma Parva—ch 3—verse 27.

Samvatsara sthayrnau cha grahau prajvalita vubhau |
[vis'akhayah sami pasthau] brihaspati's'anais-charau ||

The two burning planets Briharpati and S'ani have become fixed for a year.

(9) Bheeshma Parva—ch 3—verse 29.

Krittikam pidayanstikshnaih nakshatram prithvipate |
abhikshnavata vayante dhumaketu mavasthitah ||

O king! Rahu of terrible deeds afflicts krittika, Rough winds, foreboding terrible danger, are continually blowing.

(10) Bheeshma Parva—ch 3—verse 32.

Chathurdasim panchadasim bhutapurvam che shodasimi |
imamtu nabhi janami amavasyam trayodasim ||

(11) Bheeshma Parva—ch 3—verse 33.

Chandras surya vubhau grastavekahne hi trayodasim |
aparvani graha vetau praja samkshaya yishyatah ||

A lunar fortnight has hitherto consisted of 14 days or 15 days or 16 days. But on the 13th day and in the course of the same month two eclipses have taken place.

(12) Udyoga Parva—chap 142—verse 18.

Saptamaccapi divasat amavasya bhavishy ati |
sangramo yujyatham tasyam tamabuh sakra devatam ||

In seven days there will be *full moon*, and on that day let us engage in fight, for that is the day favourite to Sakra.

(13) Udyoga Parva—ch 143—verse 8.

Prajapatyam hi nakshatram grahastikshmo maha dyratih |
Sanaischarah pidayati pidayan pranino adhika ||

That active planet of great effulgence, Sani, troubles the star Prajapatya, indicating greater trouble to living creatures.

(14) Udyoga Parva—ch. 143.

Krikva changarako vakram Jyeshthayam Madusudana |
anuradham prarthayate maitram sangamayanniva

The planet Angaraka travels retrograde to the constellation Jyeshtha, O! slayer of Madhu, and goes towards Anuradha as if seeking its friendship.

(15) Nunam mahad bhayam Krishna Kurunam, samupasthi tham |
Viseshena hi Varshneya chitram pidayate grahah ||

Surely O! Krishna, a great calamity for the Kurus is at hand, especially as the planets go against Chitra.

(16) Somasya lakshma vya vrittam Raturarka mupaiticha |
divas' cholkah patantyetah sanirghata sakanpanah |

Rahu comes to the sun which has covered the path of the moon, and from the heavens fall down meteors with loud noise and making the earth shake.

(first line is not translated)

1. Correct interpretation of the above verses :

This is a beautiful description of the lunar eclipse in the month of Krittika. Immediately after the rains, the sky is clear and usually the full moon is beautiful. In the words of Kalidasa—"Mahi shacha sarach chandra chandrika davalam dadhi"—the moonlight is white and dense like buffalo curd.

Mr. Pillai assumes that the lunar eclipse followed the solar eclipse in the month of Margasira. It is not so.

The field sacrifice at Kurushetra was on 13 Oct. 3067 B.C. New Moon—601488 Julian day—Sunday 0.25, with the sun and moon at 224.89 and Rahu at 219.74. It was a solar eclipse day with the eclipse at Midday.

The previous full moon was on 28 Sep. 3067 B.C. 601473 Julian day—Saturday 6.51 with the sun at 210°.32 and Moon at 30°.32 and Rahu at 220°.55. It was a lunar eclipse day, with the eclipse immediately after sun set (moonrise),

Hence the description is that the moon lost its usual brilliance of a Krittika full moon and became invisible and the evening sky looked like red lotus. Maha Rishi Veda Vyasa's words are not mere poetic fancy, but a fact of observation.

In the Udyoga Parva it is said that Sri Krishna left for Hastinapura on his peace mission on the Revati day Kartika month. He was therefore in Hastinapura on the full moon Krittika day, and returned to the Pandavas on Chitra Day.

2. Saturn in Rokini :

(i) It is already shown that Saturn was in Rohini at the time of the M.B. War. Saturn in Rohini is considered very inauspicious for the whole country. (This is seen in the Saneeswara sthouthra of Emperor Dasaratha.) It is no wonder that Veda Vyasa recalls this ancient tradition here.

(ii) The translation here is not correct. Even a layman knows that the sign of the Deer in the Moon is fixed. To assume that Veda Vyasa did not know this is nothing short of nonsense.

"Lakshma" means "the special and characteristic beauty of the Moon's lustre"
"Vyavrittam" means "is not as it should be."

In this sloka Veda Vyasa does not give the reason for this change. But in the 16th verse quoted by Mr. Pillai, the same line occurs again—"Somasya lakshma vyavrittnm". Here in Vyasa gives the reasons—"The Sun and Rahu approach the Moon and there is a good meteoric shower". In this not enough to prove the translation is incorrect? The astrological reading is "bhavishyati Maha bhayam."

(3) Here again the translation is wrong—"Sveto graha" can never mean "Ketu". In books of Astrology "Ketu" is described as "dhumravarne" i.e. smoky in colour. Again at the time of Veda Vyasa there was no planet "Ketu" as we mean today.

The South Indian reading is "Budho graha". This reading is correct. A reference to "Budha", the first parent of the Lunar Race, changing his direct motion to retrograde and back again to direct motion while passing Chitra Nakshatra is very interesting. Chitra Nakshatra is associated with the Lunar Race in a number of 9 places in the Maha Bharata. This motion of Budha in Chitra foreboded the total destruction of the Kurus,

(4) "Dhuma Ketu maha gorah"—Any one who saw the Halley's comet in 1910, can easily recognise this "maha gorah" can mean only the great Dhuma Ketu, Halley's Comet.

It appeared in the following years (according to text books of astronomy) 1066, 1145, 1301, 1456, 1531, 1607, 1682, 1759, 1835 and 1910 A.D. Its period is 75 years 5 months. 66 revolutions before 1910 A.D. it was 3067 B.C. Hence at the time of the Maha Bharata war Halley's comet was in the sky. The appearance of this comet usually forebodes the death of a great king and a great war.

The Comet being close to the Sun (and slightly ahead of it) was in opposition to Pushya, [Sun at 267 and Comet at 275 to 285 was in opposition to Pushya 93° to 106°]. Veda Vyasa's observation was correct. The Comet was shining fiercely in the evening sky.

(5) Not understanding the correct meaning of the words "Vakra" and "Peedyathe", the entire verse was wrongly translated and has caused confusion in the mind of Mr. Pillai. The verse is about the aspect called Vedhai [வேததை].

The correct meaning is as follows :—

(i) Maghasvargarako Vakrah peedyathe—Angaraka (from Moola) malefically aspects Magha in the retrograde aspect.

(ii) Sravanecna Brihaspathi. vakra peedyathe—Jupiter (from Rohini) malefically aspects Sravana in the retrograde aspect.

(iii) Bagham nakshatra makramya Surya putreaa peedyathe—Saturn (from Rohini) directly aspects Uthara Phalguni.

(iv) Sukra—Venus—was at the end of Anuradha. Hence it was at its greatest elongation, and so shining brilliantly in the eastern sky before sunrise. From Anuradha it was afflicting Poorva Proshtapada and moving to Jyeshtha it was aspecting Uthara Proshtapada.

(v) Sveto graha—is Badha and not Ketu. It was in Jyeshtha, Indra's Nakshatra, which was shining brilliantly.

(6) Both Venus and Mercury were shining brilliantly in the Eastern sky before sunrise and they were at Jyeshtha with Rahu. The word "Dhruvah" meaning "stationery" refers to Mercury, the Sveto graha of the previous verse, which was moving in the retrograde direction (near the stationary position) and which was shining brilliantly because of its maximum elongation. The next line refers to Budha which was stationary between chitra and swathi (vide verse 3) a few months before.

(7) The Red bodied planet—Saturn—was aspecting Sravana Nakshatra, retrograde aspect from Rohini. The same sravana was also aspected by Brihaspathy (Jupiter) from Roh'ni.

(8) It is correct to say the Jupiter and Saturn would stay together (at Rohini) for a year.

(9) Rahu at 218° directly respects $218-189=30$ i.e. Kritika. The effect of this is described as foreboding rough wind.

(10) and (II) Mr. Pillai wastes his energy by pointing out a number of years when a fortnight was of 13 days. But that is not the point. He should not cite the sloka. Veda Vyasa states *2e eclipses have occurred at an interval of 13 days in the course of the same month*. This is a very rare phenomenon. It may be difficult to find a parallel.—Refer essay on M.B. war).

(12) Sri Krishna while leaving Hastinapura had a private conversation with Karna (on the Uthara phalguni day). Therein he states, "on the 7th day (Jyeshtha) Amavasya is coming". This is discussed in detail in the main essay. The translation *full moon is wrong*.

(13) Saturn in Rohini—fully discussed earlier.

(14) Angaraka at Moola aspects Jyeshtha (in retrograde). This is the correct meaning, and has his malefic influence at Anuradha.

(15) When Karna made this statement, three of the five Doomdhi Pancha grahas were at Chitra as shown in 3) and Badha was stationary at chitra: Sun 225° , Dooman $358^{\circ}20'$ Vyathepatham (Vakra) $1^{\circ}40'$ Pari Vasha (Vakra) at $181^{\circ}40'$. Indra Denuls $178^{\circ}20'$. Dooma Ketu 195° , the three last ones at Chitra and Swathi.

(16) On the day mentioned by Sri Krishna. Rahu was moving towards the sun in front and the moon was moving towards the sun from behind. This is fully discussed in the main essay. cf. sl. 2 discussed already.

As the earth was moving in the region of the meteoric Radiant, there was a heavy downpour of meteorites. Possibly at that time, it was the densest part of the Meteoric showers.

CHRONOLOGY OF ANCIENT BHARATH

PART - VI

PURANIC CHRONOLOGY

By

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AT THE FEET OF THE LORD OF KURUKSHETRA

CONTENTS

- Chap. 1. Vedic and Puranic History of the Royal Dynasties from Vaiwaswatha Manu to Maha Bharata war
- Chap. 2. Puranic History of Bharat from the Maha Bharata war to Salivahana.
- Chap. 3. Early History of the Tamils according to Puranic and early Tamil Literature.

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CHAPTER I

THE ROYAL DYNASTIES FROM VAIVASWATHA MANU TO THE MAHA BHARATA WAR

SECTION I

INTRODUCTION

Daksha Prajapathy (Prajapathy = Emperor) was a great emperor. His name stands famous, sung in the Vedas. He had many daughters, but no son. So after him, his grandson, Vaivaswatha, son of Vivaswan, was crowned emperor. He is called a Manu, as he is the father of the Royal dynasties. On the day he performed the Aswamedha Sacrifice, the Saptha Rishis instituted Vaivaswatha Manvantara, otherwise known as the Saptha Rishi Era.

Manu built the city of Ayodhya (unconquered) for his son Ikshwaku. He is the first of the Solar Dynasty of kings. Vasishta was his Acharya, priest and chief minister. Manu's daughter "Ila" married Budha Rishi (of Rig Vedic fame), son of Chandra Rishi (of Rig Vedic fame), the second son of Maha Rishi Atri. To her was born the famous Pururavas, the first of the Lunar dynasty of kings. Manu divided his kingdom between his son Ikshwaku and his grandson Pururavas. Pururavas is also called Sowdaminya. It, therefore, seems he was adopted by Manu's son Sudyumna, who had no son. Pururavas ruled from Prathishtana (Allahabad or Prayaga, the ancient capital of Manu). The kings of these two dynasties had to fight with Dasyus, cousins of their own race, but who did not adopt the Aryan way of life, the main features of which were (1) Soma Yagna, (2) Idol worship, (3) Caste system and (4) Belief in Karma. This struggle went on for a long time till Athithigva Divodasa, the 37th from Manu, of the Tritsu group of Bharatas, completely annihilated them or drove them out or converted them to his way of life (2,000 years from Vaivaswatha Manu).

SECTION II

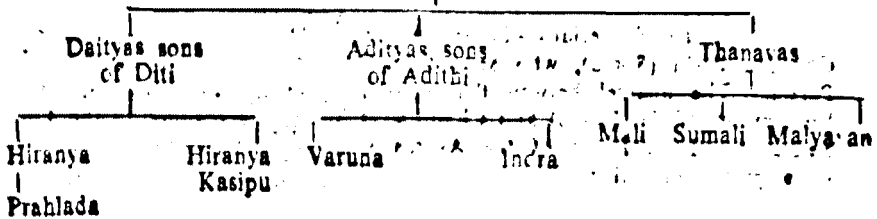
KINGS IN THE RIG VEDA

From the days of Manu to Dasaratha (Sri Rama's father), the 71st king of the Solar Dynasty, it is the first Vedic Age, when the Vedas were classified and codified as Rig, Yajus and Saman and Yagna became the dominant activity of kings and Brahmins. This age was followed by that of the Ramayana, Brahmanas, and Aranyakas, which were finally arranged in their present form by Veda Vyasa about 3,100 B.C.

When Yagna, idolworship, and caste system became special features of the Aryan way of life, there were many groups who did not accept these. They were termed as follows:—

- i Dasyu - a person who made no offerings to God - R.V. 1-51-5.
- ii Aurat - one who did not perform sacrifices.
- iii Adeva - those who had no gods - R.V. 1-51-8.
- iv Dasa - persons of the lowest social order, fit only to serve others, as they were intellectually and culturally the most backward.
- v Panis were traders, who did not conform to the social laws of the cultured Aryans. They traded on land and on the Sindhu, evaded tax payments, and were very often thieves of cows and men, as they were interested in slave trade. These acts of the Panis were condemned by the Aryans. When they were driven out, they settled and prospered in the countries of Western Asia, and the Mediterranean Coast. They are called Phani in Latin and Pnoecian in English.
- iv Those that did not partake of Sura-Soma juice, in Yagna etc., are Asuras.

KASYAPA



These people were not Non-Aryans, as western scholars want us to believe. They were part and parcel of the general Aryan people—the children of Bharat. All these Aryan people had the same pattern of social life, with a crude form of caste system, with Kshatriya, as a dominant class. There were many fortified cities, extensive agricultural lands, irrigated and non-irrigated, garden lands. The cow (bull) and the horse were bred in large numbers on the banks of the Yamuna and the Sindhu respectively. The Aryan warrior was a well armed powerful fighter. He had a coat of mail, chariots and horses. When religious differences separated the groups, and the influence of the Rishis over the Kshatriyas became pronounced, the result was many battles all over Aryavarta. Many non-conformists (Dasyus) were killed in battles and many ran away in waves to the North, South, East and West to the Trans-Himalayan regions, Persian wilds, Assam Hills and the forests of Deccan. They were driven still further by the later emigrants. It is the spread of these mixed groups that gave rise to the many types of races and cultures in the lands surrounding Arya Varta.

Note 1. Muir - O.S.T. Vol. II Page 387 of 1871 edition :

“I have gone over the names of the Dasyus or Asuras mentioned in the Rig Veda, with a view of discovering whether any of them could be regarded as of Non-Aryan origin; but I have not observed any that appeared to be of this character”.

Note 2. Rig Veda : 10—2—22,8. The Dasyus are called

- (a) —Akarma Dasya—those who do not perform Vedic rites.
- (b) —Anya Vrith—those who follow a different creed.
- (c) Amanusha - those who are inhuman.

The various groups of these people are :

(i) JEWS: They have one god and a crude form of Yagna. They are anti-idol worshippers. When the early Aryan settlers built cities and kingdoms in Western Asia, they were still roaming in the wilds as shepherds. These early settlers of Central Asia grew into the Semetic Race.

(ii) Sumerians - Soma Aryans. They were the followers of Chandra Rishi (Soma), who settled in the far west of Aryavarta, close to Persia. The quarrel between Brihaspathy (the son of Angiras, and the high priest of the Devas) and Chandra is interesting reading in the Puranas. Sukra, the High Priest of the Asuras sided with Chandra. This was due to a great cultural rift.

The Jews and Sumerians had a pure lunar calendar. The Chinese who migrated to the North East of Pamir, belong to these two groups. They built many beautiful temples to the various (Vedic) Gods. These began about 10,000 years ago and continued till about 300 B.C

(iii) The Parsees went out Westwards and then Northwards. They followed the Aryan way of life, and called themselves Aryans. They were Anti-Indra worship and Anti-Soma Yagna, Anti-Idol:worship and Anti-Caste system. They worshipped Agni and other Vedic Gods. Their supreme God was Vritra (the Ahi of the Vedas) called Abura Mazda (the great Asura), the enemy of Indra in the Vedas. Their great teacher Zara Thushtira, was Twashtra of the Vedas, who became the inveterate enemy of Indra, who killed his son Thrisiras. The Panis (another group of Anti-Indra worship) worshipped Twashtra as Berosus.

It was after the famous battle of the ten kings described in the Rig Veda, that the followers of the sons of Yayathi (Yudu, Thurvasu, Dhryhu, Anu, and Turu) fled westwards, northwards, and southwards and established many kingdoms in the lands bordering Arya Varta.

During the first phase of the development of Aryan culture, kings were the protectors of Aryans and destroyers of Dasyus. The exploits of important kings are given in the Rig Veda as follows:

(A) Rjisvan, son of ViJathi (No 24 of the Bharata clan): He destroyed the two towns of Vangrā 1-53-8. Massacre of black people (a) by Angirasa Kusa 1-101-1 (b) by Agastya 1-174-8 (c) 4-16-13, 5-29-11, 60-20-7, 8-44-10, 10-99-11, 10-138-3 and 1-51-5. Rjisvan destroyed the towns of Pipru, Mrgaya, Susuvan and massacred 5,00,000 black people.

Note: The word black is used in the same sense as in the black magic x white magic. Black people therefore meant anti-Vedic and cruel. Again the word Mukha does not mean nose. Its real sanskrit meaning is mouth. Therefore it means men who could not talk good grammatical language.

(B) Kutsa, son of Arjuni—His name is mentioned 35 times in the Rig Veda. He destroyed the fortified towns of Ilibis, killed Susna, with the head dress of horns 1-33-12. He in company with Athithigva Divodasa, and Arju, invaded the kingdom of young Susravas of the branch of Turus, but was defeated by Indra -153-10 and 1-63-384. Large numbers of Dasyus were killed 1-121-9. Kutsa was well armed.

2-14-7 Dasyus were defeated in hundreds and thousands of places.

4-16-12 Susna, Kuvaya and thousands of Dasyus were killed.

5-19-10 One of the two wheels of the chariot of Surya was separated to help Kutsa to defeat Dasyus.

Kutsa conquered the territories of Vecasu, Tugra and Smadibha.

(C) Atithigva Divodasa (No. 37 - of Tritsu of the Bharata clan). River of Saraswathi is praised in 6-61-1 for giving a son, Divodasa, to Vadhrayaava. He killed many niggardly traders who would not make offerings to the River Saraswathi. He was a ceaseless conqueror, won

many victories, sacked many towns, massacred a large number of Dasyus, destroyed the hundred towns of Sambar, son of Kulitar (built of stone) 2-14-7 and 4-30-20. Sambar hid himself in the mountains, but was pursued for four years, and killed with thousands of his followers 6-26-6 and 2-12-11. He thereby got countless riches 1-116-18, 1-130-7. He killed Varachi with his 50,000 black and powerful followers 2-14-6, 4-30-15, 7-99-5 and 6-47-21. He defeated Karanja and Parnava 1-53-8. Many enemies were defeated 2-14-7. He defeated the powerful Atbuda.

The second phase details the great battles among the powerful Aryan kings, who were impelled by power and land hunger, to fight with one another.

(D) Sudas, son of Pijavan and grandson of Divodass, is the most historical person. His name comes 28 times in the Rig Veda. With the help of the Tritsus, he won a victory over ten united kings (Five of them were Aryans, sons of Yayathi and the rest were Dasyus). Turvas invaded the kingdom of Sudas for his wealth, but was defeated with his allies Druhyus and Brighus 7-18-6. Tritsus defeated the five allies (Paktha, Dhalanas, Alin, Visanin and Siva) of Turvas 7-18-7. This is the famous battle of 10 kings often quoted and wrongly interpreted by many western scholars. The enemies broke the bunds of Parusni (Kavi) to drown Sudas, but were themselves drowned. Kavasa, son of Chayaman was killed in the confusion 7-18-8 and 9. Then seven towns were sacked by Sudas. The palace of Anus was given to Tritsus 7-18-13. 6,666 men of Anu and Dhruhyu was killed by Sudas in this battle 7-18-14. Then Sudas fought the second great battle with Bheda and defeated him 7-33-3 and 7-83-4. Aja, Sigru, Yaksu, of the tribes on the banks of Yamuna ruled by Bheda, accepted the suzerainty of Tritsus (priests of Sudas) and delivered the toll of horses. Bheda was not a non-Aryan (as many scholars opine), but he was a worshipper of Indra 7-18-18 and 19. In the early days of Sudas, Viswamitra and his Kusika followers guarded him. They conquered Kitaka, Pramangad and Naichasaka. Later Sudas changed his priest, and chose Vasishta as his priest. He with Tritsus gave victory to Sudas against the 10 kings, Bheda etc., 7-83-4. He is not described as an enemy of Dasyus, as was his grandfather, Divodasa. He had to fight with Aryan enemies: He killed Purukutsa in the battle of the 10 kings.

(E) Purukutsa (Ikshwaku clan No. 24) was a contemporary of Sudas. He sacked seven fortified towns 1-63-7, 6-20-10, 1-174-2. He lost his life in the battle of the 10 kings, and these cities fell to Sudas 7-18-13.

(F) Trasadasyu was the posthumous son of Purukutsa. Brighus removed the pregnant wife of Purukutsa to a far off place 4-42-7. He is described as a half god 4-42-9. Three sukthas 38, 39 and 40 of the 4th Mandala praise him as a great fighter and conqueror and destroyer of Dasyus. He gave plenty to Aryans.

SECTION III

PARSEES, DASYUS and PANIS

A-i. The Zoroastrian religious text is Avesta. It has five divisions. The gathas (5th group) are like Rig Veda. The Vendidad (3rd group) is mere abuse of Indra and Devas; e.g., "Ye Devas, sprung out of the evil spirit, who takes possession of you by intoxication (Soma), teaching you manifold arts to deceive and destroy mankind for which arts you are notorious everywhere".

ii. Gath Spertamainue (Yasua 4)—50 and 48-10. "Oh, Ye, great ones! destroyers of Yagnas! when will ye appear! when will ye destroy this intoxicating Soma? This devilish draught of Soma gives intolerable insensibility to their idolatrous Devatas. The bloody pride of this fiendish race rages in those countries" (collected from various authors).

iii. The Aryans were forced to destroy the Dasyus in self defence. R.V. 1-51-8-1. "O! Indra! Discriminate Aryans from Dasyus, punish the Dasyus and befriend the Aryans. R.V. 3-30-15. O! Indra! Those wicked enemies of ours must be slain. R.V. 4-24-26. Which Indra would save us from this Aryan born people of Saptha Sindhu Desa, who molest us in many ways. R.V. 30-30-16 & 17. O! Maghavan! Kill these wicked people, yield them to us. Let your burning bolts kill these haters of Brahmins R.V. 3-4-53 & 54. O! Indra! These sons of Bharata (Dasyus) never know amity; they pursue only enmity. They urge their horses as on born enemies. They carry bows and arrows.

iv. Gatha Ustavaiti: 12-44-15. In the battle between the 2 hosts, the yagna loving Aryans defeated the yagna hating Aryans; 4-46-1. "Lament of Zarathushtra"—"whither shall I go? Where shall I hide my head? Alas! which country will shelter our leader? My retainers ceased to honour me and the kings of this land of Bharata have renounced us" 4-46-2 "Now I have become homeless. Cast one glance at me, who wander with a meagre retinue. My followers have given me up. O! Lord Ahura Mazada (The Great Asura)! with tears do I think of thee".

4-6-11. "These priests, these worshippers of idols have taken reins of authority in their lands, and by their cruel deeds destroy mankind";

Herodotus and other Greek writers state that Zoroaster was a great Prophet who lived 5000 years before the battle of Troy, 1,200 B.C. i.e. 6,200 B.C. (cf. The Saptha Rishi Era of Bharat, began when Vaiwaswatha Manu was crowned Emperor in 8576 B.C. It was long after Manu that the great battles were fought between the various Aryan groups. This tallies very well with the Puranic chronology, details of which are given in the following Chapters).

(B) PANIS:

R.V. 4-25-7—Rich traders.

R.V. 1-93-5 and 6-61-3. They lived on the banks of Indus. The word Pani comes 38 times in R.V. meaning a trader (equivalent to Bania and Vaniga).

- R.V. 1-56-2. They made much money.
- R.V. 8-66-10. They were sea traders and followed usury (early Sumerians and later Phoenicians).
- R.V. 1-61-3. They were great builders.
- R.V. 1-93-4 and 1-61-35. They were children of Brsaya (Twashta of the Aryans), the great architect
- R.V. 7-21-5 and 10-99-3. They were Phallic worshippers.
- R.V. 10-99-6. Trita, son of Apta killed the 3 headed Viswarupa, son of Twashta (3 headed god with head dress of horns).
- R.V. 2-11-9, 10-8-7, 10-8-8 and 10-8-9. These verses connect the Panis with Dasyus.
- R.V. 10-2-7, 10-18-6, 1-189-9, 2-3-9, 3-55-9. Twashta is described as Sujanima i.e. of good generative organ.
- R.V. 7-99-4. Dasa with head dress of horns.
- R.V. 6-4-31, 32 and 33. Panis who later became aryanised.
- R.V. 2-3-9, 3-4-9 and 7-2-9. Twashta (or Brsaya) meaning sprinkler of semen.

SECTION IV

PURANIC HISTORY OF BHARAT

Many very learned scholars have come to the conclusion that there is complete agreement between the Vedic History of Bharat and the Puranic History of Bharat. Some of them have equated the two for the synchronism in the names of Dynasties, Kings, Rishis and battles (Refer "India in the Vedic Age" by Prof. Purushottam Lal Bhargava, M.A., Phd., Sastri, Maharaja's College, Jaipur).

The following is not a complete treatment of the Subject. Those who are interested in it, may pursue studying the subject in great detail.

Most young men of Bharat do not know anything about Puranas and Vedas, and even those who know a little have a feeling that it is all mythological and not true. Therefore, the purpose of this paper is to bring home to the minds of our educated young men that the Vedic and Puranic names, historical legends and the long lists of kings are not mythological but quite consistent and real.

The Ancient History is divided into five periods:—

(i) From Swaymbhu Manu who established his capital at Hardwar to Vaiswatha Manu (8576 B.C.), the father of the solar and lunar dynasties of Bharat, who established his capital at Prathishtana (Prayag or Allahabad).

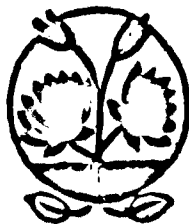
(ii) From Vaiwaswatha Manu to Dasaratha (4500 S.C.). This is the first vedic period, when vedic rishis lived and the vedas were codified as Rig, Yajus and Saman. Yagna was an important ritual of the Aryans. Manu's code of Dharma was strictly followed and caste system was firmly established. Those who did not conform to the Aryan way of life were driven out of Bharat, and they settled in the lands bordering Arya Varta. Even the Kshatriyas who did not fully follow the Dharmic ideals were liquidated (Story of Parasurama).

(iii) From Sri Rama to Yudhishtira of 3067 B.C. This is age of the Ramayana, Brahmanas and Aranyakas. Many Raja Vamsas were established. "Rama Rajya" is a common expression, indicating a period of prosperity, when Dharma was strictly followed all over the country and no non-aryan lived in Bharat.

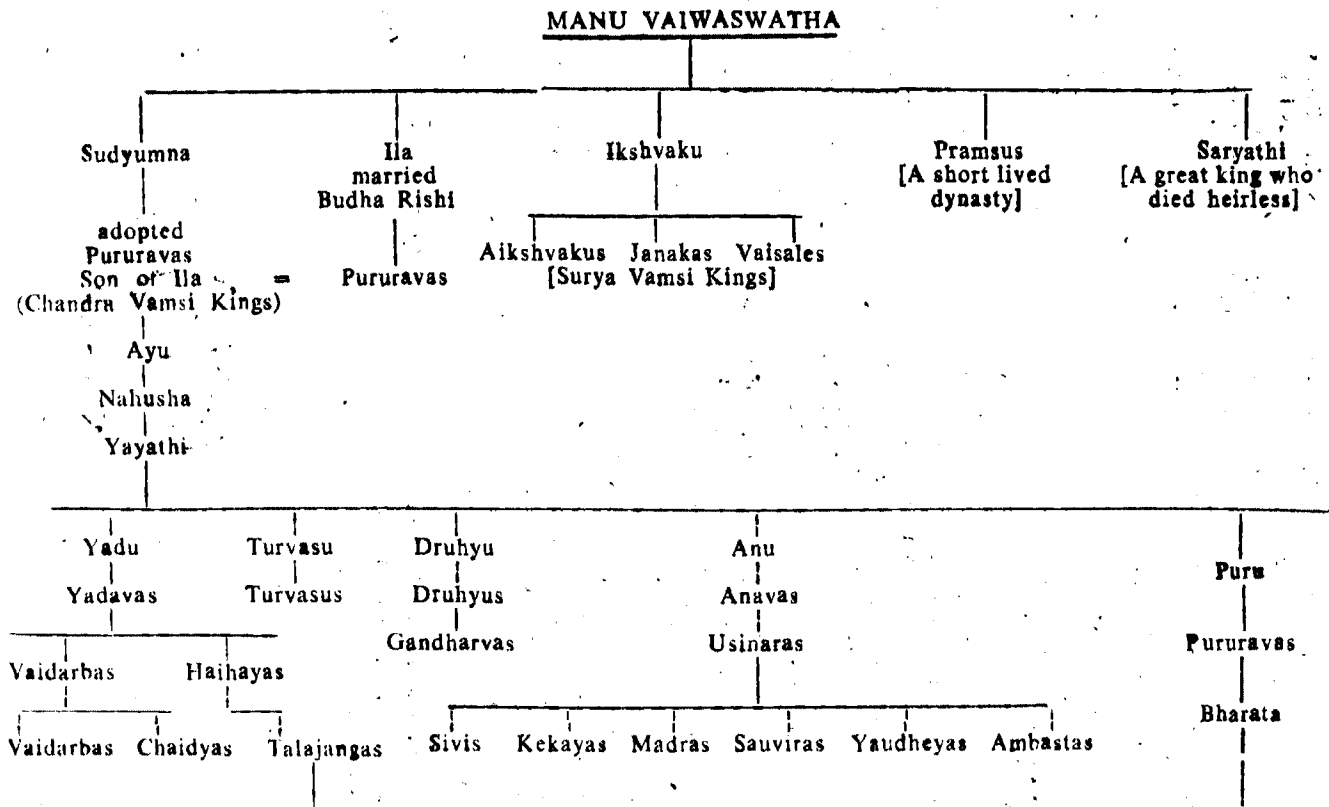
Then followed a period of constant struggle between the Kshatriya groups, who were impelled by the desire for political power. Political, social and religious power slowly passed from the hands of the Brahmins to the Rulers. Adharma became very common. This resulted in the birth of Sri Krishna at the end of the period, and a wholesale destruction of the Kshatriya race in the great Bharata war. It was now that Sri Veda Vyasa gave his Brahma Sutra, and Sri Krishna his Bhagawad Gita for the good of mankind.

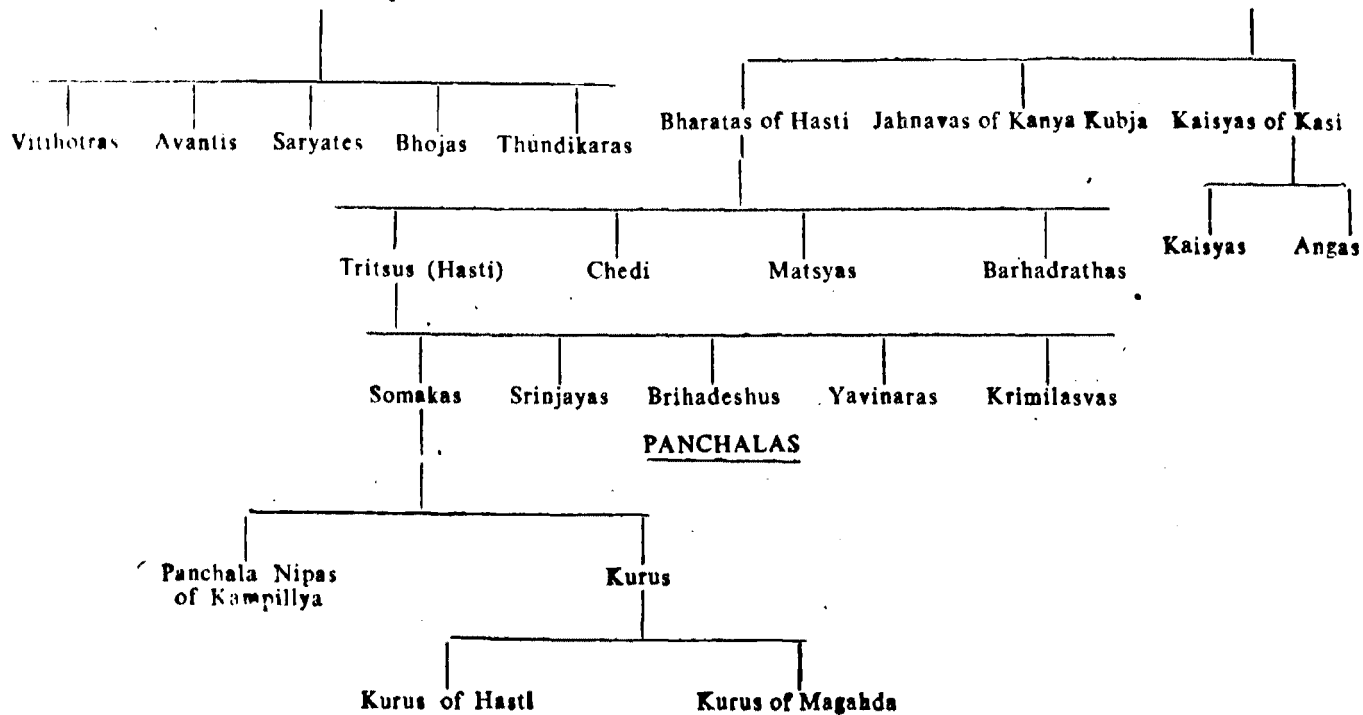
(iv) From the Maha Bharata war of 3067 B.C. to Salivahana of 78 A.D. New Royal lines were established after the Maha Bharata war and for over 1500 years there was peace and plenty in the land. This was followed by deterioration in the moral standard of the rulers. Sense of Dharma slowly decreased and new forms of social life came into vogue. From about 500 B.C. the country was repeatedly invaded by central Asian tribes, who had no established culture of their own. They were slowly assimilated by the Aryan mass, but it had its weakness also. Vikramaditya of 57 B.C. and his grandson, Salivahana (one who rode on the lion) of 78 A.D. were great conquerors, and they established Dharma on a strong foundation. Many great reformers, teachers and scholars were born in this period and a new turn was given to Hindu Dharma.

In the words of Sri Aurobindo, it may be said that the last three periods of Aryan History may be styled the periods of Valmiki, Veda Vyasa and Kalidasa.



SOME OF THE IMPORTANT DYNASTIES ARE AS BELOW:





SECTION V

THE SURYA VAMSI KINGS FROM VAIVAŚWATHA MANU TO THE MAHA BHARATA WAR

Many scholars have studied the stories of the kings of the Rig Veda and have beautifully equated them with those of the Puranas. The puranas describe the exploits of kings and other important events in the social life of the early Aryans with a flair and a gusto. It is clear that there is an unbroken tradition even from pre-vedic time. One important feature to be noted is that there is complete agreement among the puranas in almost all the IMPORTANT events and names described.

Some of the important dynasties are given in appended chart.

THE JANAKAS OF NIDEHA DYNASSY

Nimi was the founder Gautam was his parohit and minister and Jayantha was his capital. Nimi's son Janaka built the city of Mithila, and the family got the name Janakas, alternately called Videhas or Matihilis. Nimi's time can be equated to that of Bhagiratha's time, as the families run parallel, but details about Nimi are not known.

SURYA VAMSI KINGS OF KOSALA

1	Manu	18	Akrisava	35	Trivrisshan
2	Ikshavaku	19	Prasenajit	36	Tryaruma
3	Vikukshi	20	Yuvasasva II	37	Trisanku
4	Kskustha	21	Mandhatri	38	Harischandra
5	Anenas	22	Durgaha	39	Rohita
6	Prithu	23	Girikshit	40	Harita
7	Vishatarasva	24	PURUKUTSA *	41	Chanclu
8	Ardra	25	TRASADASYU *	42	Vijaya
9	Yuvasasva I	26	.....	43	Ruruka
10	Sravasta	27	Sambhuha	44	Vrika
11	Brihadasva	28	Vishnu Vridha	45	Bahu
12	Kuvalasva	29	Anaranya	46	Sagara
13	Dridhasva	30	Trasadasva	47	Asamanjas
14	Pramoda	31	Haryasva II	48	Amsumant
15	Haryasva	32	Hasta	49	Dilipa
16	Nikrumba	33	Rohidasva	50	Bhagiratha
17	Samhatasve	34	Vasumanas	51	Suhotra

SURYA VAMSI KINGS

KOSALAS		JANAKAS	VAISALAS	
50	Bagiratha	Nimi Mathava	...	
51	Suhotra	Mithi Janaka	...	
52	Sruta	Udavasu	...	
53	Nabhaga	Nandi Vardana	...	
54	Ambarisha	Suketu	...	
55	Sindu dwipa	Devantha	...	
56	Ayutayus	Brihaduktha	...	
57	Rituparna	Maha Virya	...	
58	Sarva Kama	Sudhriti	...	
59	Sudas	Dhrishtaketu	...	
60	Mitrasaha	Hariyasva	...	
61	Asmaka	Maru	Trinabindu	
62	Mulaka	Pratindaka	Visala	
63	Sataratha	Kirthiratha	Hemachandra	
64	Idavida	Devamidha	Suchandra	
65	Vridha Sarman	Vibhuda	Dhumrasva	
66	Visvasa I	Maha driti	Srinjaya	
67	Dilipa Katvanga	Kirthi Ratha	Sahadeva	
68	Dirgabhahu	Maha Roman	Krisasva	
69	Rgahu	Swana Roman	Somadatta	
70	Aja	Hrasva Roman	Janamejaya	
71	Dasaratha	Siradwaja	Sumathi	
KOSALAS		JANAKAS	KOSALAS	JANAKAS
72	Rama	Bhanumant	87 Vyushitasva	Satyaratha
73	Kusa	Pradyuma	88 Visvasaha II	Upa guru
74	Athithi	Muni	89 Hiranya Nabha	Upa guptha
75	Nishada	Urjavaha	90 Pushya	Svagatha
76	Nala	Sandwaja	91 Dhruvasandhi	Suvarathas
77	Nabhas	Sikeni	92 Sudarsana	Suarutha
78	Pundarika	Anjana	93 Agni Varna	Jaya
79	Kshemadhanvan	Ritujit	94 Sighra	Vijaya
80	Devanika	Arishtanemi	95 Maru	Rita
81	Ahinagu	Scrutayus	96 Prasusrutha	Sunaye
82	Pariyatra	Suparsva	97 Susandhi	Vitabhava
83	Sala	Sanjaya	98 Sahasvant	Driti
84	Ukta	Kshemari	99 Visruvant	Bahulasva
85	Vajranabha	Anenas	100 Brihadbala	Kritakshaya
86	Sankhana	Minaraiha		

SECTION VI

CHANDRA VAMSI KINGS FROM MANU TO
MAHA BHARATA WAR

(REFER TO THE TABLE OF KINGS FROM MANU TO YAYATHI).

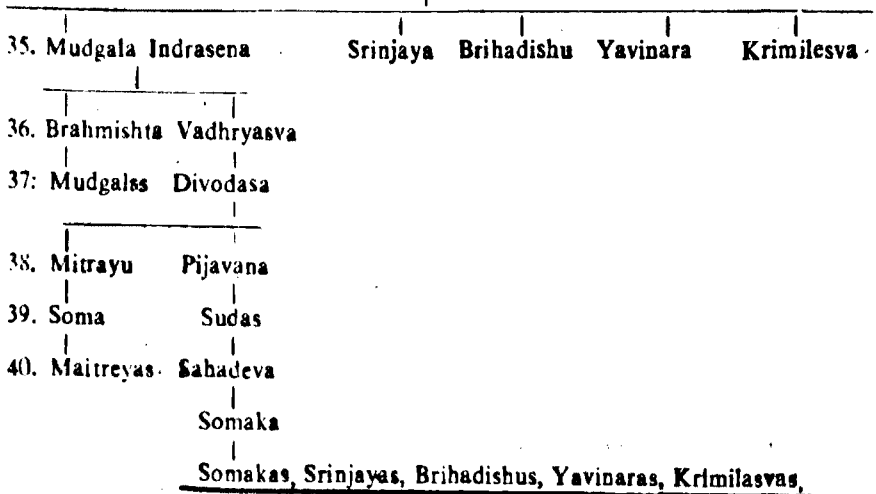
YADAVAS		HAIHAYAS	PAURAVAS		
7.	Yadu		Puru		
8.	Kroshtu	Sahasrajit	Janamejaya		
9.	---		Prachinvant		
10.	...		Pravira		
11.	Vrijinivant	....	Manasyu		
12.	---	Satajit	Abayada		
13.	...		Sudanvas		
14.	Svati		Bahugave		
15.	---		Samyati		
16.		Haihaya	Ahamyati		
17.	Rusadgu	---	Raudrasva		
18.			Richaya		
19.	Chtraratha	Dharma	Matimara		
20.	Sasabindu		Tamsu		
21.	Prithustuvaa		Dharmanetra		
22.	Antara	Dharmanetra	Dushyanta		
23.	...		Bharata	Varutha	
24.	Sujajna		Vidathin		
25.	...	Kunti	Bhuvamanyu		
26.	Usanas		Brihatkshatra		
27.	...		Suhotra		
28.	Sinayu	Sabanja	Tristus of Hasti	Jahnus of Kanya Kubja Bharatas	Kasis of Kasi
YADAVAS	HAIHAYAS	TRISTUS	JAHNUS	KASEES	
28.	Sinayu	Brihat	Jahnu	Kasa	
29.	---	Ajamda	Sunaha	Dhiringatapaa	
30.	Marutta	Nila	Ajaka	Dhanvantari	
31.	...	Mahimat	Balakasva	Ketumant I	
32.	KambalaBarhis	Purijanu	Kusa	Bhimasena	
33.	...	Bhadrasrenya	Kusamba	Divodasa	
34.	Rukma Kavaeha	Durdana	Ishiratha	Pratardana	

	YADAVAS	HAIHAYAS	TRITUSES	JAHNUS	KASEES
35.	Paravrit	Kanaka	Mudgala	Kusika	Yatsa
36.	Jyamegha	Kritavirya	<i>Vadhryasa</i>	Gathin	Alarka
37.	Vidarba	Arjuna	<i>Divodasa</i>	—	
38.		Jayadwaja	<i>Pijavana</i>	Viswamitra	Sannti
39.		Talajangha	<i>Sudas</i>		
40.	Bhima I	Vitahavya	Sahadeva	—	Sunita
41.			Somaka	...	...
42.	Kunti	Ananta	Somakas		Kshema
43.				—	
44.	Drishta	Durjaya	...	...	Ketumant
45.			—	...	...
46.	Nirvritti	Suprathaka	—	...	Suketn
47.			...	—	
48.	Vidhuratha	...	...	...	Dharmaketu
49.	Vidarbas	...	—	...	Kasis

NOTE : 28. Brihat, the father of Ajameda (Tritsus) built the city, Asandivant (Vedic name), later called Hastinapura.

30. Riksha succeeded to his ancestral kingdom (Asandivant), while his younger brother, Nila built a city of his own. The family of Riksha dwindled in power, while that of Nila became powerful. After a long time Kuru, (named after the Kuru Country)—Samvaran's son, Parikshit, revived the glory of the line. The Kuru—Panchalas were united for a long time and it was only under Parikshit I, they became separated.

34. Bhrimyasva (Tritsu-Bharat)



PANCHALAS

PANCHALAS

	VIDARBAS	KASIS		VIDARBAS	KASIS
50	Dasaratha	Sathiyaketu	61	Ekadasa Ratha	---
51	...	..	62	Sakuni	Bharga
52	Vyomen	Vibhu	63	Karamba	...
53			64	Devaratha	Bharga Bhumi
54	Jimuta	Sukumara	65	Devakshatra	
54	---	---	66	Devana	
56	Vikruthi	Sukumara	97	Madhu	
57	Bhima II		68	Puruvasa	
58	Rathavara	Drishtaketu	69	Purudvant	
59	Nava Ratha		70	Purdhavaha	
60	Dasa Ratha	Venuhotra	71	Satva	

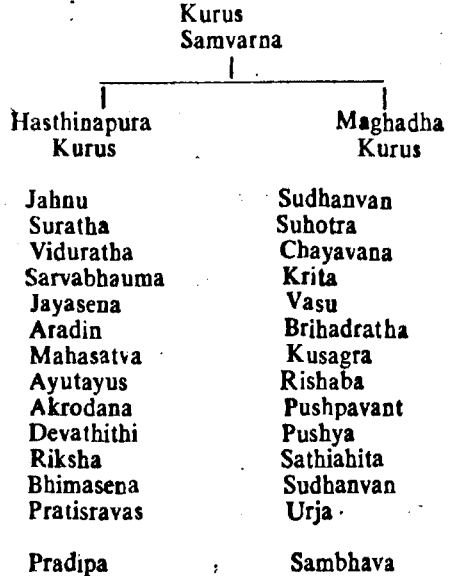
SOMAKAS

72	Brihadvasu
73	Brihadishu
74	Brihadhdhanus
75	Brihad Karman
76	Jayadratha
77	Viswaji
78	Somajit
79	Ruchisrava
80	Prithushana
81	Para
82	Nipa

83	Samara
	King of Kampillya
	Panchala Nipas
84	---
85	Para
86	---
87	Prithu
88	
89	Sukriti
90	---
91	Vibhraj
92	Anuhu
93	Brahmadatta
94	Vishvaksena
95	Udaksena
96	Bhaliata
	(killed in battle)
97	Janamcjaya

PANCHALA SOMAKAS

98	Nila	Santanu	---
99	Prishta	Vichitravirya	Jarasauda
100	Drupada	Dritarashtra	Sahadeva.



CHAPTER II

PURANIC HISTORY FROM MAHA BHARAT TO SALIVAHANA

SECTION I

From 1690 to 1800 A.D. European scholars evinced great interest in Indian Literature, Mathematics and Astronomy, and wrote many papers with conflicting theories. A few maintained they were original, independent and far advanced than Greece, while others held the view that everything Indian was borrowed from the Greeks after the 2nd century A.D. It was then about 1800 A.D. Mr. Bentley wrote his book, "Hindu Astronomy", a good fat book, full of "vituperative vulgar abuse", that the Hindus were a thankless nation, that they borrowed everything from the Greeks, but modified them to show they were independent discoveries of long ago and so on. The fundamental basis for his criticism was the statement of Ancient Indian Astronomers that at the beginning of Kaliyuga, the planets were together at the beginning of the Indian Zodiac. With the help of Mr. Laland he fixed 17/18 Feb. 3102 B.C. as the date of Kaliyugadhi, and showed that on that day the planets were not together. Not only that, he made Mr. Laland work out the positions of the planets for the beginning of every century from 3102 B.C. to 1800 A.D. and showed that the error in the positions of the planets decreased up to 500 A.D. and then increased in the other direction, clearly indicating that (i) some astronomer of 500 A.D. made that statement (ii) it was an assumed date and not a real one and (iii) the date was back-worked on the basis of the assumed astronomical constants, which were not correct. This challenged the truth of the ancient history of Bharat as given in the Puranas,

This was enough for all the others to join together and rewrite the history of India in their own fashion. The first and great historian of India was Sir William Jones who published "The chronology of the Hindus" in 1778 A.D. From his day, the datum line of Indian History is taken as 320 B.C., the date of the so-called invasion of India by Alexander, the Greek vandal, an earlier edition of Jengiskhan and Tamerlane, whose invading army was completely routed, leaving only a very few to go back to Greece. Another abominable crime these historians have done is to swallow wholesale more than 1000 years of ancient Indian History as narrated in the Puranas.

Alexander's contemporary was Chandragupta, of Andhra Britya Surya Vamsi Kings of Pataliputra, who were good friends of Cyrus the great of Persia who had an elephant regiment and a big battalion of very good Indian warriors. Cyrus conquered all the lands to the West, South west, and North of Persia, but he did not extend his empire Eastwards, His son Darius was also a good friend of Pataliputra). It was the great Pataliputra army at Kurukshetra, poised for a war, that made the Greek generals of Alexander refuse to move forward beyond the Sutlej. This ultimately led to the destruction of the Greek army, and made Alexander retreat along the Makron Coast and get murdered at the hands of the wild tribes in an unknown place. His dead body was thrown to the wolves and vultures.

Instead of this Chandragupta, they equated the Emperor, Nanda Vamsi Chandragupta, founder of the Maurya (Mayura) dynasty, who ruled at Pataliputra, more than 1000 years earlier. His grandfather Nanda, conquered the whole of Bharat, and performed Aswamedha sacrifices and erected a great number of Jayastambas, now called Asokan Pillars. (It must be noted that this pillar has become our present national symbol, and the peacock of Chandragupta our national bird). Instead of accepting the fact that Chandragupta's throne, flag and seal were of peacock emblem, and hence he was called "Mayura" (Pronounced Morva in prakrit), they concocted an ingenious lie that he was born to a low class woman named Mura, which has no historical or traditional support. Sanskrit scholars maintain that Sanskrit grammar does not approve this derivation. Moreover, if the Greeks came to India and had political and social contact with Pataliputra at the time of Chandragupta and later, what about their silence about his grandson, Asoka, who sent Buddhist missions to every civilised country of those days. The truth is the Greeks of Asokan times, were a semi-naked wild tribe roaming in the forests of Northern Balkan Peninsula. The British historians allowed their mad imagination to run riot, and allowed their scissors to distort the Puranic History into a pattern which they present as "Ancient Hindu History".

One more interesting thing:- The British conquerors wanted to claim a right to conquer India, and so they used the double edged weapon, the creation of the Aryan and the Dravidian Races in India. There is no reference to a Dravidian Race in any ancient book, Indian or Foreign. The word Dravidian came into political usage only after 1800 A. D. It was the creation of the fertile imagination of that German Sanskrit scholar, Max Muller, who was bought and paid to teach at Oxford. His main duty

was to train the young British ruling class, to feel confident that their mission in India was to civilise the semi-civilised people of India (contrast this with the report of the first envoy of Britain to the court of the great Moghul, Jehangir). Accordingly he invented the theory of the central Asian Home of the Aryans. If one branch of the Aryans invaded India and destroyed the then inhabitants of India (now named Dravidians), why not another branch of the same Aryans now coming from the west destroy the the culture, heritage, and freedom of the present inhabitants of India. It was "in an unholy hour the word Dravidian Race was coined" and now we see the havoc caused by the creation of races by their languages, all over the world.

Thus in one direction, they partly accepted the Puranic tradition (as modified by their vandalism), that the great Maha Bharata war was fought about 2100 B.C., yet they invented the theory that the Aryans came into India only about 1000 B.C. "The Aryan conquerors were horsemen, semi-civilised, rude and crude and worshippers of Nature gods, and their sagas were the Vedas", (Any reader of the Vedas can easily see that this statement is a base lie, and that the Vedas are the production of a very highly advanced culture. It was Manu Vaivasvata who first wrote the code of conduct for man, social, political and religious). It was therefore easy to create a new hypothesis that the Ramayana and the Maha Bharata are fictions that were written during the early A. D. years. Rama, Krishna, Veda Vyasa and Sankara are all mythological persons, and not historical personages. How can their imagination go back to the age of Manu, Zoraster, Viswamitra and Valmiki? But these ancients have left clear foot prints in the sands of time, discernible only to the humble and earnest scholars. These foot prints are the innumerable astronomical data, which are self consistent.

Therefore the historians wished to wipe out this evidence. They very soon found a good number of intelligent christian believers, who began to prove that such planetary combinations, as described in these ancient works, never existed during the last 2000 years. This is just like the story of the man, who having eaten too much could not bend down to find his chappals and asked his disciple to find out where they were. The smart reply of the disciple was "Sir, I have searched the whole sky as far as I could see, and I do not find your chappals normine".

During this period when the British History of India was written, the learned scholars of Bharat were very orthodox and would not even approach a christian foreigner. Only inferior and third rate dubashis were

consulted by Mr. Bentley, and from the data he got from them, he established Kaliyugadhi on 17/18 Feb. 3102 B.C. Being very anxious to disprove the ancient definition of Kaliyugadhi, his mind was obsessed and would not allow him to look back a few months. The amount of labour spent to work out for 5000 years, was a waste. 26 lunisolar months before 17/18 Feb. 3102 B.C. (i.e. 5 A.M. on Saturday 10 Jan. 3104 B.C.) all the 5 planets were seen together with the crescent moon at Mid Shrawishta, the first point of the Zodiac of Vedanga Jyotishha. The end of the New moon that day was at 5 P.M. But this was not at the beginning of the Yuga of Vedanga Jyotishha, according to which, the Yuga of 5 sidereal years began with Maghasukla Prathama and SRAVISHTA Nakshatra. The Saptha Rishis started the Vaivaswatha Manvantra Yugadhi, (which we repeat every day in our Sankalpa), called the Saptha Rishi Era, in the Puranas, 5475 sidereal years before Kaliyugadhi, because both the eras began with the sun and the moon at Mid Shrawishta. Hence the date of Kali Era is Friday, 28 Dec., 3101 B.C. and that of Saptha Rishi Era is Friday 21 Nov 8576 B.C. On both these days it was Magha Sukla Prathama with the sun and the moon at Midsrawishta, the first point of the Zodiac of the Vedanga Jyotishha.

The Maha Bharata is teeming with a good number of self consistent astronomical data and therefore its date is easily fixed (by modern astronomical laws) as Friday, 22 Nov. 3067 B.C. Consistent with this the well known horoscope of Sri Krishna gives his date of birth as Friday, 27 July 3112 B.C. (Sri Krishna was 45 years old at the time of the M.B. war).

The Puranas give a list of 100 kings from Manu to M.B. war and Sri Rama is the 71st King of the solar line of kings. His horoscope gives his date of birth as Wednesday, 10 Jan. 4439 B.C., which agrees very well with the Puranic chronology.

The Puranic chronology after the M.B. war is clear and correct and according to it, the Surya Vamsi dynasty ruled in Kosala for 1504 years (3067-1563 B.C.). There were 30 kings in the dynasty. The 22nd to 25th kings were Sakyn, Suddhodana, Siddharta (Buddha) and Rahula. So Buddha was born about 1259 years after the M.B. war i.e. in 1816 B.C.

Again the Sisunaga dynasty ruled for 360 years (1923-1563 B.C.) at Giri Vraja. There were 10 kings of the dynasty and the last was Maha Nandin. Vidisara or Bimbisara was the 5th of the line. He was 5 years junior to Buddha and as already mentioned Buddha was born in 1816 B.C. Mana Nandin was the last and 10th king of the dynasty.

His son Maha Padma Nanda (or Nanda) ascended the throne in 1563 B.C. He was called Dana Nanda. The ancient Tamil book Paripadal, mentions his name a number of times and states that he hoarded gold in the bed of the Ganges. The 9 Nandas of the dynasty ruled for 100 years.

Chandragupta, a grandson of Nanda, was placed on the throne by Vishnugupta (or Chanakya or Kautilya). He was a great conqueror and he ruled the entire Bharat from Hindukush to Cape Comerin. His grandson was Asoka, who sent Buddhist Missions to all countries of the world. This dynasty is called Mayura dynasty (1460-1147 B.C.) (misspelt Maurya). This Chandragupta was a great and saintly person, who ruled his vast empire according to the codes of Manu. He maintained "eka pathni vrata" (vow of only one wife) like Sri Rama of old, and refused to marry a second wife and looked all other women as his own sisters. So says tradition: But British historians give him a bad birth because they are envious of the tradition of a great and noble emperor who ruled the whole of Bharat, with peace and plenty 3500 years ago. But they believe the tradition that when he grew old, and his son was of age to rule the vast empire, he took to sanyas and spent the last years of his life as a recluse in an ashrama in Mysore State.

Twenty seven years have gone by, after the British slipped out of this ancient holy mother-land of ours and children are studying the distorted history of Bharat written by the British historians, and their true Indian disciples. Is it not time we put an end to this concocted bundle of lies which is called Ancient Indian History?

SECTION II

The important references are :

1. Maha Bharata
2. Vishnu Purana
3. Raja Tarangini of Kalhana — edited by Sir A. Stein.
4. Vamsavalis of Neol — Bhagavan Lal Indraji, M.R.A.S.
5. Annals of Rajasthan — Col Todd.
6. Inscriptions on Pillars, Rocks, Coins, Copper plates, etc.

NOTE: Varaha Mihira in his Brihat Samhita has two verses, regarding the Ancient History of Bharat.

Adhyaya 3 — Vol. I p. 22 (Mysore Edition).

“The sun’s southern course began at one time from the latter half of Aslesha, and the northern from the beginning of Dhanista This must indeed have been the case as it is so recorded in the Sastras”—According to the law of the precession of the equinoxes, the age of Vriddha Garge, referred to herein, is 1400 years before that of Varshs Mihira

The second verse is in Adhyaya 13 sloka 13; page 156—“The seven sageh were in the lunar mansion Magha when King Yudhistira was ruling over the earths the period of that King being 2526 years before the commencement of the Saka Era”—

There are now only two eras in use—the Vikrama Era of 57 B.C. in North India and the Salivahana Era of 78 A.D. all over Bharat. Whatever be the age of Varasha Mihira, and whatever be the age of the Saka referred to by him, it is clear that Yudhistira lived earlier than 2526—78 : 2448 B.C.

Since we now know by correct astronomical determination, the dates of birth of Sri Krishna, the Maha Bharatha war and Rajasuya to be 27 July 3112 B.C., 22 November 3067 B.C. and 26th October 3082 B.C. respectively, it is easily seen that the era referred to by Varaha Mihira is the forgotten Era of Pataliputra of 556 B.C.

SECTION III

Let us now study the Puranas impartially. The important Puranas are Vishnu, Vayu, Bhāgavata, Matsya, Brahmaṇḍa and Bṛhaspati. These give consistent lists of kings with their regnal years, from the date of the Maha Bharata War. Though there are slight differences in detail, the periods of the dynasties are almost the same. We shall now study the dynasties in the following order :

1. Hastinapura
2. Surya Vamsi Kosala
3. Magadha with Girivraja and later with Pataliputra as capitals
4. Avanti Rashtra with Ujjaini as capital.

I HASTINAPURA DYNASTY—1504 Years (3067—1563 B.C.)

Yudhishthira ruled for 36 years. He was followed by Parikshit, the grandson of Arjuna. There were 29 kings in the Dynasty. They ruled for 1504 years. The last king Kshemaka died childless. The Magadha Emperor annexed the Hastinapura Kingdom and became the founder of the Imperial dynasty of Magadha (Girivraja).

II SURYA VAMSI DYNASTY OF KOSALA—1504 Years (3067—1563 B.C.).

Brihad Bala was killed in the M.B. War. His son Brihadshana was crowned King of Ayodhya. There were 30 kings in the dynasty, and they ruled for 1504 years. The last king Sumitra died childless, and the Magadha Emperor annexed Kosala and became the founder of the Imperial Dynasty of Girivraja

The 22nd to 25th Kings of this Dynasty were Sakya, Siddhodana, Siddhartha (Buddha) and Rahula. So Buddha was born about 1251 years after the Maha Bharata war i.e., about 1816 B.C.).

III MAGADHA EMPIRE (Girivraja as Capital) BARHADRADA DYNASTY 1006 Years (3067—2061 B.C.).

Sabadeva, son of Jarasanda died in the M.B. War. His son Somadhi (or Marjari) was crowned king at Girivraja. There were 22 kings in this Dynasty, and the last of them was Ripunjaya. They ruled for 1006 years.

IV PRADYOTA DYNASTY OR BALAKA DYNASTY—138 Years (2061—1923 B.C.).

Munika, the minister of Ripunjaya, got the only daughter of the king married to his son Pradyota and installed him on the throne of Magadha.

Munika was a great warrior, and he baffled all the Kshatriyas of his time like another Parasurama, and made his son the emperor of the whole of North India. He annexed Avanti after putting an end to the Dynasty of Vitihotras. There were 5 kings in this dynasty and they ruled for 138 years. Nandi Vardana was the last of the dynasty.

V SISUNAGA DYNASTY—360 years (1251 - 1563 B.C.)

Sisunaga, the King of Benaras, conquered Magadha and ruled as emperor from Girivraja as Capital. His son was placed on the throne of Benaras. He reigned for 40 years. After him, his son Kakavarna became the emperor. There were ten kings in the Dynasty, and they ruled for 360 years. The last of the dynasty was Mahe Nandin.

Vidisara or Bimbisara was the fifth king of the dynasty. He was five years junior to Buddha, who therefore was born in the 1251st year from M. B. War (1816 B.C.). He attained Nirvana in the 80th year during the reign of Ajatasatru, son of Bimbisara. The eighth king of the dynasty, Udayana, built Kusumapura or Pataliputra in the fourth year of his reign.

VI NANDA DYNASTY - 100 years (1563—1463 B. C.)

Maha Padma (or Nanda) the son of Maha Nandin, ascended the throne after his father. He was a veritable enemy of the Kshatriyas, and subjected all of them. He became the mightiest and most powerful emperor of all Aryavarta. He was called Dana Nanda. He built safe rooms under the bed of the Ganges and hoarded large quantities of gold in them. He was followed by his eight sons. The Nine Nandas ruled for 100 years.

VII The MAURYA DYNASTY (MAYURA)—316 years (1463—1147 B.C.)

The Nandas were exterminated by a Brahmin called Chanakya (Vishnu Gupta or Kautilya). He placed Chandra Gupta, a grandson of Nanda on the throne of Magada.

Chandragupta was followed by his son Bindhusara. After him his son Asoka, became the Emperor. He was a great warrior. He ruled the whole of Bharat Varsha, and was a great patron of the Buddhist religion. There were twelve kings in the dynasty and they ruled for 316 years. The last one of the line Brahadrada was killed by his Brahmin General Pushya Mitra Sunga.

VIII SUNGA DYNASTY : 300 years (1147 - 847 B.C.)

Pushyamitra ruled for 60 years. His son Agni Mitra came to the throne after him. There were 10 kings in the dynasty and they ruled for 300 years. The last of them was Devabhuti (or Kshema Bhumi).

IX KANVA DYNASTY—60 years (847 - 787 B.C.)

Vasudeva, the Brahmin minister of Devabhuti, ruled as emperor from Giri Vraja and allowed the sons of Devabhuti to rule as vassals at Vidisa. He was a great ruler. Justice and peace ruled during his time. He was succeeded by his son Bhumi Mitra. There were four kings in the dynasty. They ruled for 60 years. The last of them, Susarman, was killed by his Brahmin General, Srimukha (an Andhra Brahmin), who then became the emperor at Girivraja.

X ANDHRA DYNASTY — 456 years (787 - 331 B.C.)

Srimukha Saata Karni was the first of the line. There were 32 kings in the dynasty, and everyone had the surname Saata Karni. They ruled for 456 years. The 21st king of the dynasty was Pulindra Sena. He ruled for 21 years. In the 8th year of his rule began the first year of the Nakshatra cycle of 100 years of the Saptha Rishi Era, and with the end of the rule of Puloma II, the 26th king, ended the Magha cycle and the Poorva Phalguni cycle began.

It must be remembered that Kali Yuga began on 28 December 3101 B.C. with the 76th year of the Saptha Rishi Era. Since the Maha Bharata war was fought in Nov. 3067 B.C., the eighth year of Pulindra Sena was the 2591st year after the M.B. war i.e. 476 B.C. Thus the first 18 kings ruled for 204 years, the next two for 99 years (27+72), the next six for 108 years and the last six for 45 years, bringing the total for 32 kings to 456 years.

Sri Adi Sankarachariar was born in 608 B.C. during the reign of the 18th king Arishtanemi. He was a contemporary of the 19th king Hala. This tallies with the information given in his biographies. Emperor Hala and his son Mandalika established the Pataliputra Era of 55 B.C. in the 28th year of Emperor Hala's reign.

Again Cyrus, the great Persian Emperor, began his rule in 599 B.C. He extended his empire far and wide to the north, west and southwest. He did not even contemplate crossing the Indus. This is a point to be noted by historians. He was a good friend of the great Emperor of Pataliputra, who gave him his elephant regiment and his special battalion of Maghada warriors, with which he was able to subdue the whole of Western Asia. His son Darius, the great, maintained this cordial relation. Some historians say that Cyrus established an era in 55 B.C. (which became current in North West India. It is easier and safer to assume the era of 555 B.C. as the Pataliputra Era. This was surpassed by the Vikrama Era of 55 B.C. which in turn was surpassed by the Salivahana Era of 78 A.D.

XI. ANDHRA BRITYA - GUPTA DYNASTY OF PATALIPUTRA— 245 years (331—86 B.C.)

The Guptas belonged to the Surya Vamsi Kshatriya Caste. Sri Gupta and his son Ghatokacha Gupta entered the service of the 27th king of the Andhra Dynasty, Siva Sri Saata Karani. They were great warriors and were in great power in the state. Chandragupta, the grandson of Sri Gupta, became the Commander-in-chief under the Andhra kings. He married Kumara Devi, the daughter of the king of Nepal. Chandragupta usurped the throne and ruled for seven years from 331 - 324 B.C. After him, his son Samudragupta became the greatest of the emperors of India.

It was in the year 326 B.C. when Chandragupta, was ruling and his son Samudragupta was in command of the western army at Kurukshetra, that Alexander the great of Greece ravaged the whole of Persia and crossed the Indus. Then he heard of the huge army of Magadha under Prince Samudragupta at Kurukshetra and retired quietly. Now Samudragupta advanced westwards and conquered the North Western area of Bharat. He ruled the great empire for 51 years.

There were seven kings in the dynasty and they ruled for 245 years.

XII. KINGS OF PANWAR (PARAMARA) DYNASTY IN AVANTI RASHTRA WITH UJJAIN (AMBAVATI) AS CAPITAL.

Paramara, Mahamara, and others slowly built up the kingdom of Avanti from 380 B.C. to 275 B.C. But the Sakas and Mlechhas drove them out and sacked the city. Therefore they hid in Deccan for sometime and came back in 180 B.C., under the leadership of Gandharva Sena. His second son Vikramaditya (born 101 B.C. and crowned in 82 B.C.) conquered the whole land and drove out the sakas beyond the Sindhu and established the Vikrama Era of 55 B.C.

Again 120 years later, the Sakas and Mlechhas gave trouble. This time, Salivahana, the great grandson of Vikramaditya drove them out far beyond the limits of Bharat Varsha and completely broke their power and destroyed most of the tribes. He established the Era called the Salivahana Era in 78 A.D. He was a great administrator. During his reign, there was peace and plenty in the land. He established the Hindu religion on a strong foundation and made the laws of Manu greatly respected. He was loved and respected by all people.

MAGADHA EMPIRE AT GIRI VRAJA

1.	22 Kings ruled for	1006 years
2.	5 Kings ruled for	138 years
3.	10 Kings ruled for	360 years
4.	9 Kings ruled for	100 years
5.	12 Kings ruled for	316 years
6.	10 Kings ruled for	300 years
7.	4 Kings ruled for	60 years
8.	32 Kings ruled for	456 years
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Total :	104 Kings ruled for	2,736 years
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PATALIPUTRA GUPTAS FROM 331 B. C. — 86 B. C.

9.	Chaudra Gupta I	331 — 324 B.C.
	Samudra Gupta	324 — 213 B.C.
	and 5 more kings	213 — 86 B.C.

Total :		245 years

AVATI RASHTRA AT UJJAIN

10.	Vikkramaditya	82 B.C.	Vikramasaka	55 B.C.
	Salivahana		Salivahanasaka	78 A.D.

Note: Classical writers Justin, Arrian, Diodorus Siculus, Strabo, Quintus Curtius and Plutarch have written that in Alexander's time, there was on the Ganges a powerful king of the name of Xandramas, and soon after a new empire was founded there, by Sandrocottus or Samdrocyptus:

But the sheet anchor of Max Muller's History of India (1869) which is now adopted by all British and Indian historians, is the false identification of Sandrocottus with Chandra Gupta Maurya. He knows and states, that he is not able to follow the Brahmin and Jain Traditional books in coming to this conclusion, which is based on no evidence or authority.

Let us look at the false identification:

(i) Xandramas (Agrames, Andrames and Agramen) In simple Sanskrit this name become Chandramas, the 31st and last emperor of the Magadha Andhra Satavahana Dynasty of Pataliputra. But it is translated as Nanda (who ruled at Giri Vraja before Chandra Gupta Maurya of 1463 B.C.

(ii) Sandrocottus — The sanskrit equivalent of this name is Chandra Gupta of 331 B.C. of the Andhra Briya Gupta Dynasty of Pataliputra. This is misiinterpreted as Chandra Gupta Maurya of Giri Vraja of 1463 B.C.

(iii) Sandrocyptus — is simply amudra Gupta in Sanskrit, the son of Pataliputra Chandra Gupta. He is wrongly named Bindusara, son of Chandra Gupta Maurya of Giri Vraja of 1463 B.C. It is easily seen how the English Historians have mistranslated the Greak names to suit their pre-conceived notion of Indian History.

SECTION IV

APPENDIX

LIST OF KINGS AFTER MAHA BHARATA WAR OF 3067 B.C.

I HASTHINAPURA DYNASTY

- 1 Yudhishtira
- 2 Parikshit
- 3 Janamejaya
- 4 Satanika I
- 5 Aswamebat
- 6 Adhiscema Krishna
- 7 Nichaknu
- 8 Ushna
- 9 Cbitrarada
- 10 Suchirada
- 11 Vrishnimanta
- 12 Sushana
- 13 Suneedha
- 14 Nrupegakshu
- 15 Sukibala
- 16 Pariplava
- 17 Sunaya
- 18 Medhavi
- 19 Ripunjaya
- 20 Urva
- 21 Thigma
- 22 Bhruchadradha
- 23 Kasudana
- 24 Sataneeka II

I. HASTHINAPURA DYNASTY

- 25 Udayana
- 26 Kihinara
- 27 Dandapani
- 28 Niramitra
- 29 Kshemaka

1504 years from 3067 B. C. to
1563 B. C.

II KOSALA DYNASTY

- 1 Brihatkshana
- 2 Uruyaksha
- 3 Vassavyuha
- 4 Prativyoma
- 5 Divakara
- 6 Sahadeva
- 7 Brihadasya
- 8 Bhanuradha
- 9 Pratitasya
- 10 SuPratika
- 11 Marudeva
- 12 Sunakshatra
- 13 Kinnara
- 14 Ananda raksh

II. KOSALA DYNASTY

- 15 Suprana
- 16 Amitrajit
- 17 Brihat Bhaja
- 18 Dharmi
- 19 Krutra Jaya
- 20 Rananjaya
- 21 Sanjaya
- 22 Sakya
- 23 *Suddhodhana*
- 24 *Siddharta*
- 25 *Rahula*
- 26 Praesnajit
- 27 Kshudraka
- 28 Kundaka
- 29 Suradha
- 30 Sumitra

1504 years from 3067 B. C. to
1563 B. C.

III THE BAKHADRADA DYNASTY
OF MAGADA

- 1 Somadhi or Marjari
- 2 Sruatasravas
- 3 Aparatipin
- 4 Niramitra
- 5 Sukurita
- 6 Brihatkarman
- 7 Senajit or Senajit
- 8 Srujanjaya
- 9 Mahaabala
- 10 Suchi
- 11 Kshema
- 12 Amurvata
- 13 Dharmanetra
- 14 Nirvriti
- 15 Suorata
- 16 Dridhasena
- 17 Sumathi
- 18 Suchala

III (Cont'd)

- 19 Sunetra
- 20 Satyajit
- 21 Virajit
- 22 Ripunjaya

1006 years from 3067 5061 B. C.

IV PRADYOTA DYNASTY

- 1 Pradyota
- 2 Paalaka
- 3 Vishaakhyupa
- 4 Janaka
- 5 Nandi Vardhana

138 years from 2061—1923 B. C.

V SISUNAGA DYNASTY

- 1 Sisunaga
- 2 Kaakavarna
- 3 Kshamadharmān
- 4 Kshathrawjas
- 5 Vidhisara
- 6 Ajatasatru
- 7 Darbaka
- 8 Udayana
- 9 Nandi Vardhana
- 10 Maha Nandin

360 years from 1923—1563 B. C.

VI NANDA DYNASTY

- 1—Maha Padma
- 2 Sumalya and his seven brothers

100 years from 1563—1463 B. C.

VII MAURYA DYNASTY or
MAYURA DYNASTY

- 1 Chandra Gupta
- 2 Bindusara
- 3 Asoka
- 4 Suyasas

- 5 Dasara tha
- 6 Indrapalitha
- 7 Harsha
- 8 Sangata
- 9 Salisuka
- 10 Somasarma
- 11 Satadhanvan
- 12 Brihadradha

316 years from 1463 to 1147 B.C.

VIII SUNGA DYNASTY

- 1 Pushyamitra
- 2 Agnimitra
- 3 Vasumitra
- 4 Sujyestha
- 5 Bhadraka
- 6 Ghoshavasu
- 7 Pulindaka
- 8 Vajramitra
- 9 Bhayavata
- 10 Deva Bhutti or Kshemabhumi

300 years from 1147 to 847 B.C.

IX KANWA DYNASTY

- 1 Vasudeva Kanwa
- 2 Bhumimitra
- 3 Narayana
- 4 Susarma

60 years from 847—787 B.C.

X ANDHRA DYNASTY

- 1 Sri Mukha Saatakarni
- 2 Sri Krishna Saatakarni
- 3 Sri Malla Saatakarni
- 4 Sri Purnothesanya Saatakarni
- 5 Sri Saatakarni
- 6 Skanda Saatakarni

- 7 Lambodara
- 8 Apitatoa
- 9 Meghaswathi
- 10 Sataswathi
- 11 Skanda Saatakarni
- 12 Murugendra Saatakarni
- 13 Kuntala Saatakarni
- 14 Soumya Saatakarni
- 15 Sata Saatakarni
- 16 Puloma Saatakarni I
- 17 Megha Saatakarni
- 18 Arishta Saatakarni
- 19 Hala
- 20 Mandalaka
- 21 Pulindrasena
- 22 Sundara Saatakarni
- 23 Chagkore Saatakarni
- 24 Siva Saatakarni
- 25 Goutami Putra Sri Saatakarni
- 26 Puloma Saatakarni
- 27 Siva Sri Saatakarni
- 28 Sivaskanda Saatakarni
- 29 Yajan Sri Saatakarni
- 30 Vijaya Sri Saatakarni
- 31 Chandra Sri Saatakarni
- 32 Puloma (Minor) III

456 years from 787—331 B.C.

XI ANDHRA BRITYA GUPTA DYNASTY OF PATALIPUTRA

- 1 Chandra Gupta I
- 2 Samudra Gupta
- 3 Chandra Gupta II
- 4 Kumara Gupta
- 5 Skanda Gupta
- 6 Narasimha Gupta
- 7 Kumara Gupta II

245 years from 331—86 B.C.

XII PRAMARA DYNASTY OF UJJAIN	
1 Pramara	3 Gandarvasena
2 Mahamara	4 Vikramaditya-57 B.C.
3 Devagi	5 Devabakta
4 Devadutta	6 (not known)
	7 Salivahana-78 A.D.
	8 Sali Hotra
<hr/>	
1 Gandarvasena	523 years from 86 B.C. to 137 A.D.
2 Sanka Maha Raja	
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NOTE : This paper was contributed to the conference of the Archaeological Department of Tamil Nadu Government, held at Madura on 19th January 1970 A.D.

APPENDIX

I AGE OF GAUTAMA BUDDHA

Buddha is the name of a long line of teachers, like the Jain Theerthankaras or the Advaita school of Sankarachariars. These Buddhas have existed from the Vedic times to the present day. During every age a great Buddha was born. They were anti-yagna teachers. Whenever the system of sacrifices took a bad turn and caused inordinate slaughter and cruelty to animals, these Buddhas were born to save humanity from the left handed and adharmic practices, which creep into the Vedic and the right handed path of Dharma, as enunciated and practised by the Vedic Rishis. In general, selfishness, cruelty and ahankara are the mark of Asuric forces. It is to save Dharma from the clutches of Asuras that Buddhas were born in every age. Vishnu, the Lord of Yagnas, himself came down as the first Buddha to preach against the Adharmic practices to the Asuras of Tripuras. It is an interesting Vedic story.

The Asuras of the Tripuras became extraordinarily mighty and caused terrible misery to the Devas and the good people of the world. The Devas decided to have a straight fight with them. They gathered a very good array, built a powerful chariot and requested Brahma to be the charioteer, and Vishnu himself promised to be the powerful weapon of destruction. But who was to wield the mighty bow and discharge the powerful weapon of destruction?

All the Devas and Rishis agreed that Rudra, the greatest Yogi was the fittest person to lead the Deva host. But he was not a strict follower of the Vedic rituals, and to a great extent was himself an anti-ritualist. He was considered an unholy person, who moved about with matted locks, besmeared with the ashes of the burning ghat. What else could be done? Brahma, the ordainer of rituals, himself begged Rudra to become Mahadeva, the Deva senapathy to fight the Asuras of Tripuras. Rudra agreed on one condition, that he should be called Pasupati and the Devas agreed. The Deva host moved forward towards the Tripuras

The Asuras of the Tripuras were very mighty because of the strict practice of Yagna, which they followed. So Vishnu said, that he would mislead them to lose the benefit of the acquisition of power, obtained by performing Yagnas. He took the form of a tall, well-built, dark complexioned person, with a clean shaven head without the holy thread (Yagna Upavitha) and approached the Asuras and told them that by their performing Yagnas they were increasing the strength of the Devas. Many more arguments he put forth and finally dissuaded them from wearing the holy thread and performing the rituals. The result was a collapse on the battle field, even before the battle began. So is it stated in the Taitreeya, 6th Kanda, 2nd Prasna, 3rd Anuvaka, and the commentary on the text.

This story is repeated in the Thiruvaimozhi, 5th ten, tenth chapter, 4th stanza etc.

The famous commentary Edu of the Thiruvaimozhi gives the story in a very interesting way.—“கள்ள வேடத்தைக் கொண்டு போய், புரம்புக்கவாறும், கலந்து ஆசுரரை உள்ளம் பேதம் செய்திடு”

In the Ramayana, Ayodhya Kanda, while Rama was discoursing with Bharata in the Chitrakuta hill, mention is made of the *ancient Buddha* who preached against Dharma. Again in Maha Bharatha, Karna Parva, Duryodhana while requesting Salya to be the charioteer of Karna, alludes to the Vedic story. So from the days of Tripura Samhara, Buddhas were born again and again to mislead Asuric power from the path of Yagna, so that their strength may be reduced.

In this long line of Buddhas was born Siddartha, the Sakya Muni, the Gauthama Buddha, about whom historians write many volumes.

Why and when was he born ?

The mantras and yagnas well organised by Sri Veda Vyasa in the Mahabharata period of 3100 B.C. were admirably followed for the benefit of mankind by his disciples and their successors, and for some time every thing went alright. After a few centuries, the Asuras who died in the Maha Bharata age, were reborn to enjoy the fruits of their good deeds. The left handed and Asuric way of life predominated. In a short time Vama Marga (Lefthanded path) Sakthas and Kapalikas roamed about the country, established many centres of sacrifice for malefic goddesses and gods, and cruelty to animals and even mankind, increased in tempo, and no man with a sense of love for humanity could bear it. All goodmen appealed to Lord Vishnu to be born again to destroy the inhuman practices of the Sakthas and the Kapalikas. By now their influence was very great in all the countries around Aryavarta. Even in far off lands of the Mediterranean sea, human sacrifices became common. Most of the great temples of Egypt, Western Asia and Sumeria were nothing but slaughter houses (Read the Bible). The protector of the three worlds came down again in Aryavarta to preach of human love and brotherhood of man. His disciples carried the torch all over the world. Jesus and Mohamed were trained in the same school, one to revive Dharmic ideals in a non-violent way, and the other to suppress Adharma in a violent way, with sword and fire. That is why these religions even in their heyday did not come to Aryavarta.

In all puranas we find in the long line of Kosala kings, the 22nd to 25th kings after the Maha Bharata war, were Sakya, Suddhodana, Siddhartha, and Rahula. This Siddhartha became a disciple of Rishi Gautama and hence is named Gautama Buddha. He was born 1251 years after the Maha Bharata war of 3067 B.C. (i.e. he was born in 1816 B.C.). Vidi-sara or Bimbisara, the 5th king of the Sisunaga Dynesty of Maghada, was five years junior to Gautama Buddha. A confusion in names-Bimbisara and Bindusara-has made the English historians state the Buddha was a contemporary of Bindusara, the son of Great Chandra Gupta Maurya of 1463-1433 B.C. of the lunar line of kings. Again by another error, they have identified Chandra Gupta Maurya with Chandra Gupta Vikramaditya of solar line, of the Andhra Britya Dynasty of Magadha, of 331-324 B.C. So the date of birth of Gautama Buddha was brought down from 1816 B.C. to 301 B.C.

Gautama Buddha lived a full and active life of 80 years. He organised a big band of Bikshus and Bikshunis, laid emphasis on a strictly moral life, blended with love for men and animals. His followers concentrated more in the lands outside Bharata Varsha, where slave trade, gladiator fights, human sacrifices and animal passions ruled supreme in the mind of men and women. The long line of Buddhas from Sakya Muni, Gautama

Buddha, travelled all over the then known world and established centres of culture and civilisation.

About 400 years after his birth (i.e. about 1400 B.C.) Asoka Nanda Vardhana, the grand son of Chandra Gupta Maurya, ruled over the entire Bharata Varsha from Kumari to Kailas and Gandhara to Kamarupa. He established Buddha Viharas not only all over India, but in all the countries of the world and spread the teachings of Buddha, among the semi-civilised, rude and crude peoples of Central Asia, Mongolia, and Eastern Europe, where we find, even today, remains of the ancient Buddha Viharas. Moses, Jesus, Mahommed and the many great teachers of Egypt, Greece, and Rome have built up their tenets from the teachings of the Buddhist monks.

Asoka's teachings were not very essential for the upper classes of Bharat Varsha. He had great respect for the Brahmins, as can be seen from his edicts. Many of his ministers and senapathies were Brahmins. The Buddhist monks went among the poor and downtrodden, and lifted them up, which work the Hindu sanyasis neglected, as their sole aim was individual salvation. This aspect of Hindu Dharma was re-modified, and a strong and well-knit Hindu society was built by incorporating the essentials of Buddhism, by Adi Sankara of 608 B.C. (1200 years after the birth of Gautama Buddha). The next great reformer of Hindu Dharma, Ramanuja, was born in 1017 A.D. Thus we find that the great teachers of Bharata Varsha were born as follows: Vyasa about 3168 B.C., Gautama Buddha in 1816 B.C. Sankara in 608 B.C. and Ramanuja in 1017 A.D.

Note: The following dates are important in the Chronology of Ancient Bharat.

- (i) Date of Aswamedha of Vaivaswatha Manu - The beginning of Manvantra, the beginning of Saptha Rishi Era — Friday 21st November 8576 B.C.
- (ii) The Date of birth of Sri Rama - Wednesday, 10th January 4439 B.C.
- (iii) The Date of birth of Sri Krishna - Friday, 27th July 3112 B.C.
- (iv) The date of Kaliyugadhi - Friday, 28th December 3101 B.C.
- (v) The date of Maha Bharata war - Friday, 22nd November 3067 B.C.
- (vi) The date of birth of Adi Sankara - Friday, 18th April 608 B.C.

II. DATE OF BIRTH OF SRI ADI SANKARACHARIYAR

[Published in Tapoban Prasad, June 1970]

Many essays have been written by many scholars on this subject, and every one has fixed his own date. But in none of these do we find the planets located as in his horoscope of tradition. Some have therefore changed the horoscope, and some have elaborately discussed and stated that such a horoscope is impossible but only mythological. Dr. B. V. Raman Ph. D. in his "Notable horoscopes" has given the traditional horoscope, but he has fixed the date of birth on a day when the planets are not distributed according to the horoscope. Dewan Bahadur Swami Kannu Pillai has discussed this elaborately in his "Indian Ephemeris" and has fixed a date in the 9th century A.D. when the planets are not as they should be.

Sri Sukhacharya in his Brihat Sankara Vijaya and Sri Chitvilasa in his Sankara Vijaya have given the traditional horoscope as follows:— (1) Adi Sankara was born in Kali 2593 Vaisakha Sukla Panchami, Punarvasu Nakshatra, Forenoon (ii) at that time the Sun was in Aries, Moon in the 4th part of Punarvasu, Guru, Sani and Mars were in Kaudra, Uchcha and Swasthethra, with Venus in Uchcha position and Mercury with the Sun in Mesha .

I wish to make one little alteration in the above statement. Instead of Kali 2593, it must be 2433 years after the Kali Exa. This error in the original should have crept in by mistake of the scribe.

Thus correcting the mistake., it is possible to find the day when the planets were disposed as in his traditional horoscope. Sri Sankara was born at 10-25 A. M. on the Julian Day 1499460, 18th April 608 B.C. Friday 30th day of the month of Mesha in the year Brahmaheecha, Vaisakha Sukla Panchami, Punarvasu 4th part. At that time the planets were disposed as follows:

(1) According to the Ephemeris of Sri L. Narayana Rao M.A.:—Sun 29·41' Moon 90·32' Mars 11·28' Mercury 15·3' Jupiter 90·32' Venus 357·8', Saturn 209·37,' Lagna 92 and Rahu 155·28'.

(2) According to the Ephemeris of Sri D. B. Swamikannu Pillai Sun:—29·7', Moon 90·5' Mars 21·6' Mer 22·5', Guru 98·3' Venus 358·1' Saturn 208·7'. In both cases the horoscope is the same as shown below.

(The initial point of the Zodiac in the position of the vernal equinox of 78 A.D. beginning of Salivahana Era.)

Venus	Sun Mars Mercury		
			Lagna Moon Jupiter
		Sat.	Rahu

There are a few important points to be noted about this horoscope.

(1) The planets are disposed according to the ancient famous biographies; Jupiter in Kendra, Saturn in Uchcha, Mars in Swashetra, Venus in Uchcha, Sun in Uchcha, and Mercury is with the sun, the Moon with Jupiter in Lagna i.e., four planets in Uchcha position and 2 in Swashetra. This is a very rare and wonderful horoscope. Saturn is in retrograde motion.

(2) Sri Rama's Horoscope:—At the time of the birth of Sri Rama it was Sukla Navami, Punarvasu 4th part. Many have questioned Sri Valmiki's statement, and have categorically stated that such a thing is impossible. But it is easily seen by astronomical equations, that it is possible. This is an extraordinarily very rare possibility, but Sri Valmiki has stated that, and therefore this rare combination did occur at that time.

Similarly in the case of Sri Sankara, Sukla Panchami with the Sun in Mesha and the Moon in Punarvasu 4th part, is not an ordinary phenomenon. It is a rare and unique combination. For great personalities alone-avatars, such rare combination of planets is possible.

(3) Sri Krishna's Horoscope:—In the case of both Sri Krishna and Sri Sankara, we find that Saturn lingers a little longer in Thula and Jupiter rushes into Karkataka. The other Planets also exhibit similar features. [If anyone doubts the correctness of my calculations I request him to consult a good modern Astronomer, and have the calculations verified.]

Let us now consider Puranic and Historic evidence:—Many historians have stated that Sankara was a contemporary of Emperor Vikramaditya of Avanti (Ujjaini) of 57 B.C. It is not correct. There were many Vikramadityas in the Puranic history of India. The one that ruled at Patalipura in 608 B.C. should be taken as his contemporary for the following reasons.

(i) Chituskha's Brihad Sankara Vijaya and Sadasivendra's Jagad Guru Rathnamala state that Adi Sankara was a contemporary of Hala of Patalipura, son of the great conqueror Arishta Nemi, the 18th in the line of Satakarnis of Patalipura. It is again stated that during the reign of the 21st king of the line, Purandara Sena, the Sapta Rishis came back to Magha Nakshatra i.e. 3180-2700: 480 B.C.

(ii) It is probable that Sri Sankara's Guru, a Bengali Brahmin (Gauda Pada) lived in a suburb of Patalipura and not at Avanti. It is well known that Nalanda, a suburb of Patalipura was a great centre of learning and religion.

(iii) Kumarilla Bhatta, a great contemporary of Sankara is well known to have been a student at Nalanda.

IV. Sri Sankara mentions Patalipura in his sutra Bhasya and no where is Avanti mentioned

V. In the biographies of Sri Sankara, a number of places on the Gangetic basin is mentioned and Avanti is not mentioned even casually. So Sri Sankara was born in the glorious days of Patalipura and long before Avanti became an important centre of power and culture.

VI. There is a forgotten era of 556 B.C. referred to by Varahmihira. So much is written about it. Some say it is the era of Cyrus the great of Persia. It is true that Cyrus was a great conqueror who lived about that time. He conquered all the countries to the North, West and South of Persia and became a great emperor. Can historians say why he did not think of crossing Gandhara to the East? Moreover his army had elephants trained in India, and a battalion

of Indian warriors. His son Darius sent ambassadors to the court of Patalipura. What does it show? At the time of Cyrus, a great Vikramaditya ruled over the whole of India and he established an era in his name. This was later replaced by the Era of 57 B.C. of the Vikramaditya of Ujjain. Therefore Sri Sankara was born 52 years before this era of 556 B.C. was started. According to tradition this Vikramaditya was a close cousin of Sri Sankracharya's Acharya and so it is possible that Sri Sankara was held in esteem and regard by this emperor.

Hence it can be clearly stated that *the date of birth of Sri Sankara is Friday, 18th April 608 B.C.*

Let us now refer to the findings of the various scholars.

- i. Baskarachariar. ...2300 B.C.
- ii. Since Sri Sankara was a disciple of Sri Suka's disciple he must have lived within 300 years of M.B. war.
- iii. Sri Krishnananda Saraswathi:—Since Sankara was a contemporary of king Sudhanva he must have lived about 1432 B.C.
- iv. Vyasa's Skanda Purana, Siva Rahasya Kanda:—Sankara Avatara after 1100 B.C.
- v. In the Brahma Sutra Bhashya, the names of the following kings are seen—Bala Varman, Jayasimhan, and Krishna Gupta. Therefore his date of birth should be about 1100 B.C.
- vi. Jaina Vijaya—958 B.C.
- vii. Janardhana Panditha's Mahodhadi—602 B.C.
- viii. Pandit Bhagavanlal Indra—554 B.C.
- ix. Palmleaves from Dwaraka Mutt—484 B.C.
- x. Bandarkar—Rama Bhadra Kavi—109 B.C.
- xi. Kathali Brahmins—100 B.C.
- xii. Sringeri Mutt—330 A.D.
- xiii. Gaudapada's Vyakhyana of Iswara Krishna's Karikai 570 to 590 A.D.
- xiv. Poorna Varma's name occurs in the Bhashya—616 to 645 A.D.
- xv. Dr. Burnell—650 to 700 A.D.
- xvi. Destruction of Patalipura by floods before 756 A.D.
- xvii. Pandit Parthan's Bharata—788 A.D.
- xviii. Sadananda Pandit—788 A.D.
- xix. Origin of Malayalam in Malayalam Language, 807 A.D.
- xx. Kasinath Pandit—820 A.D.
- xxi. Sayana (Vidyaranya) Chitvilasa, Sukhacharya, Sadasivendra have given Sri Sankara's Horoscope in their biographies. On this basis I have determined the date as 608 B.C.

xxii Indian Ephemeris by Dewan Bahadur Swami Kannupillai : After a long and confused argument he comes to the conclusion that the date of birth is 18th day of the Indian solar year of 805 A.D according to the Horoscope. But he himself states that the planets are not satisfactorily situated on this date. He is very free with his pen in criticising orthodox Hindus and Hindu scriptures. It was his outright condemnation of Hindu scriptures, Ancient Hindu scholars and Hindu Tradition, that prompted me to find the correct date of birth assuming the same Horoscope which he describes as an impossibility.

xxiii Sri. S.K. Swamy of Mylapore in his Sankara Vijayam in Tamil published in 1966 A.D. has shown that all the dates fixed by various scholars are wrong, and that given by the ancient biographers alone is right. But he has given a slightly altered horoscope: which is not true to the original biography. According to him the date is 509 B.C.

xxiv of ix Balakrishna Dixhit—"Bharateeya Jyotisham"—Lucknow, Edition—1968 A.D.

P 536. Lela has the original copy of the written statement given by Sarada Mutt, Dwarka Peeta, Jagad Guru Sankarachariar at Gwalior Camp, dated Saturday, Phalguna Krishna Ashtami, 2362nd year of Sankara Era, equivalent to 1949 Vikrama Samva sara 1892 A. D. He also said that the mutt accounts are maintained only according to Sankara Era. Thus according to him Sankara Era began in 470 B.C. i.e. the year of birth of Sankara is 501 B.C.

ASTRONOMICAL CALCULATIONS FOR DETERMINING THE DATE OF BIRTH OF SRI ADI SANKARACHARYAR

Working from either

(a) Astronomical Kali Era 10th Jan 3104 B.C. Saturday 6.46 with Sun and Moon at 312.61 on Julian day, 587697

(b) Sri Krishna's birth day 27th July 3112 B.C. Friday with sun at 148.15 and Moon at 52.25 on Julian day 584973.

It is seen that, 18th April 608 B.C. (i.e. 2504 years after Sri Krishna's birth) is Julian day 1499459.25 Friday 10.25 A.M. Vaisaka Sukla Panchami, Punarvasu 4th part with the sun at 29.69 and Moon at 90.53 (on the Zodiac of 78 A. D. i.e. Salivahana Era) The corresponding Kaliday from 18-2-3102 B.C. — 910994.25.

(i) Position of Sun and Moon.

The position of Sun and Moon on the Amavasya day following Sri Krishna's Birth — 155.7

° 5 lunations earlier it was 155.7 — 145.6 : 10.1.

Again 365.2563×2504 : 914603.25256

: $29.530588 \times 30971 + 11.411641$

i. e. 2504 years later, the longitude of the Sun on Meshu Amavasya : 10.1 — 11.4 : — 1.3

° Position of sun on Vaisaka month beginning : 29.13 — 1.3 : 27.83 i. e. position of sun on Vaisaka Sukla Panchami ending : 27.83 + 4.86 : 32.69

On the Zodian of 78 A. D. : 32.69 — 3 : 29.69

Position of Moon 29.69 plus 60.84 : 90.53

Therefore it was the 30th day of the month of Chittrai, Sukla Panchami Punarvasu 4th part at 10-25 A.M.

Aliter: 30875 lunar months after 5 P.M. on 10-1-3104 B. C Sat 6.46, the same results as above are obtained.

(ii) Position of Saturn

84 cycles of Sat — 903774.46 days

2664 -do- Sun — 903645.55 days

Difference—Saturn behind Sun by 128.9 days—4.18 degrees, corresponding day in Perpetual Ephemeris of Sri L. N. Rao.

: $903645.55 + 910994.23$: 1814639.80 — Sat 18th May 1867 - A.D.

Position of Saturn: $208.19 + 4.18 - 3.00$; 209.37

(iii) Position of Jupiter

208 cycles of J — 901177.638 days

2467 do Sun — 901087.767 days

Difference : Jupiter behind sun by 89.87 days : 7.30 degrees.

Corresponding day in P. E. of Sri L. N. Rao—901087.77 plus 910994.25 : 1812081.92 Wednesday 14th May 1860 A.D.

Position of Jupiter— $88.31 + 7.30 - 3.00$: 34.01

(iv) Position of Mars.

1310 cycles of Mars. — 899942.33495 days

2464 Sun — 899992.7552 days

Difference—Mars ahead of Sun by 50.42 days : 26.24 degree.

Corresponding day— $899992.76 + 910994.25 - 1810987.01$, Monday 18th May 1857 A.D.

Position of Mars — $40.52 - 26.24 - 3.00$: 11.2

Similarly working for the rest, we get

(v) Venus — 357

(vi) Mereury — 15

(vii) Lagna — (Kataka) — 92 at 10-25 A.M.

**III HISTORICITY OF SRI RAMA, SRI KRISHNA,
SRI SANKARA SRI RAMANUJA AND THE
11th VERSE OF PARIPADAL
(a very ancient Tamil work).**

It has become a fashion for English educated Indians to imitate the European scholars, in whose opinion the great Indian Epics, the Ramayana and the Maha Bharata are mere mythologies. They also think that Valmiki Maha Rishi, Maha Rishi Veda Vyasa, Sri Rama and Sri Krishna are only creations of later writers. But tradition is consistent and we worship the great heroes as divine and the authors of the epics as god born men. Since even the imagination of these people cannot go back to 3,000 B. C., they honestly believe that a highly civilised nation could not have lived in that distant past. Religious bigotry holds the Gita and the Vedas as fictions of the post christian era, but should impartial scholars accept their baseless verdict as gospel? Most of their findings are based on comparative philology and archaeology. But archaeologists are digging hard at Kurukshetra, Old Delhi and Meerut (Hastinapur), and there find evidence enough of the past cities in those places. Prof. V. B. Athavale — "Prabhudda Bharata" Spt. Oct. Nov. 1957 and May 1958 "Articles on the Historicity of Maha Bharata" identifies the places mentioned in it etc. When it comes to the Astronomical data in these books, they coolly conclude in their half baked knowledge of ancient Indian Astronomy, that the ancients did not know correct astronomical calculations, and were crude in their methods and conclusions.

They even assert that the Astronomical reference are all wrong and were merely concocted out of imagination. But one who reads them cannot but feel that they are narratives of true events, of great historical importance, and land-marks in the ancient history of Bharat. The heroes and the authors are held in veneration and persistent tradition has been confirming the above facts. Ref. Venkatesa Baluji Kethkar, 1923 J.R.A.S. Bombay Vol. LXXV— "Indian and Foreign chronology" page 107 shows Prof. Max Muller, Whitney and others have in vain tried to reduce this impregnable strong-hold of Indian Antiquity".

It is well known that some of the greatest sons of Bharat like Swami Vivekananda, Lokamanya Bala Gangadhar Tilak, Sri Aurobindo Ghosh, T.S. Narayana Sastri, B.A. B.L., Prof. M. Rangacharya M.L., Kota Venkatachalam, Kanchi Kama Koti Sankaracharya, Swami Chinmayananda and others, have asserted the historicity of the Ramayana and the Maha Bharata.

The purpose of this essay is to show clearly that the Astronomical references by the ancients are all consistent and correct.

(i) Tradition holds that nearly 5000 years ago, about the beginning of Kali Yuga, the five planets Mercury, Venus, Mars, Jupiter and Saturn were seen together at the first point of the Zodiac of Vedanga Jyotisha. What about the large number of vituperations and abuses levelled against ancient Indian Astronomers and Brahmins by Mr. Bentley and others (1800 A.D.) down to Dewan Babadur Swami Kannu Pillai (1920 A.D.)? A little patient study by astronomers would have revealed the fact that at 5-30 P.M. on Saturday 10th January, 3104 B.C. the five planets were together at Mid-Shravishta, the Zero point of the Vedanga Jyotisha, (300th degree of the present Indian Zodiac). At that moment the Sun and the Moon were together at the 313th degree of the Zodiac. At 5-30 A.M. on the same day these 5 planets and the crescent Moon were seen together in the Eastern Horizon.

(ii) But according to Vedanga Jyotisha, the year Samvatsara, the first of the 5 years of the Yuga of the Vedanga Jyotisha, should begin with the sun and moon in Shravishta Nakshatra (i.e., Maghasukla Prathama). But the conjunction of the five planets took place in the beginning of the second year of the Yuga. The immediately next beginning of the Yuga was on Friday 28th Dec. 3101 B.C., as it was New Moon ending at 9-30 P.M. on Thursday 27 December 3101 B.C. with the Sun and Moon at Mid Shravishta. This is the beginning of the Kali Era according to Vedanga Jyotisha, but the Kali Era was never used for reckoning time till the early years of the christian calendar. This was because the previous methods of reckoning time, in Saptha Rishi Era, continued for many many milleniums

(iii) The Saptha Rishi Era was started at the time of Vaivaswatha Manu, the great Emperor and codifier of social, political and religious laws. We mention that Era in our daily religious ceremonies. It was inaugurated at the beginning of the then New Year, the beginning of Sarad Ruthu, (Autumnal Equinox), with the Sun and the Moon at Mid Shravishta. The years were counted in cycles of 100 years and each cycle was named after a Nakshatra.

The first cycle started with Magha Nakshatra, whose presiding deities are the Pitris (Saptha Rishis) Ref Saptha Rishis are named Pitris Rig. Veda X - 15 - 8 and 11. Again at the time of the beginning of the Kali Era, it was the beginning of the 76th year of the Magha Nakshatra cycle of 100 years, with the Sun and the Moon at Midshravishta. Therefore the interval in time between these two eras can be easily seen to be $2 \times 27 \times 100 + 75$ sidereal years. Verifying this, we find that it is the nearest interval, given the correct Thithi, Nakshatra and beginning of Magha Sukla Prathama. Therefore the Saptha Rishi Era was started on Friday 21 November 8576 B.C. According to Zendavesta, the date of Yima Vvangaho (Vaivaswatha Manu) agrees with this conclusion.

In modern astronomy, 1st January 4713 B.C. is taken as the 1st Julian Day. It is used for continuous reckoning of days for Astronomical calculations. According to it Kali Yuga Era began on 589145th Julian Day.

The Maha Bharata is teeming with a number of astronomical details, and they are consistent. Just before the Maha Bharata war Jupiter and Saturn were at Rohini Nakshatra, Sun, Moon, Mars and Rahu were at Jyeshtha and the Autumnal Equinox was at the beginning of Jyeshtha. It was a solar Eclipse day. With these data the date of this event is fixed as 13 October, 3067 B.C. Julian Day 601488. A few days later, the day after Vijaya Dasami Day on Margasira Sukla Ekadasi Krithiga Nakshatra, Friday 22 November 3067 B.C. the Maha Bharata war began at 6-30 A.M. The corresponding Julian Day is 601528. Jaya Bharata Samvatsara Era began on this day. (Kalhana in his Raja Tarangini states that Harsha of Kashmir died on Bhadrapada Sukla Panchami, Lowkika Era 4177 (i.e., 1101 A.C.) Therefore the Kashmir Era began with 3067 B.C. i.e., it is the Jaya Bharata Samvatsara).

(vi) Therefore the interval in time between Vaivaswatha Manu and Brihad Bala of the Solar Line, who died in the Maha Bharata war is 5509 years. According to all the Puranas Brihad Bala was the 100th King of the Solar Line and Sri Rama was the 71st King of the same line. Hence the Age of Sri Rama is seen to be 4600 B.C. (Assuming an average rule of 55 years for king).

From the days of Maha Rishi Valmiki, a contemporary of Sri Rama, tradition has maintained the exact position of the planets at the time of Sri Rama's birth. Working back by modern astronomical methods the date of birth is seen to be Wednesday, 10th January 4439 A.C. This is a confirmatory information. At the time of Sri Rama's birth, at 12:13 Midday

on Wednesday 10th January 4439 B.C. 100088th Julian Day, the planets were disposed as follows :

Kataka Lagna 93°16', Sun 1°12', Moon 93°5' Mars 28°6', Jupiter 118°19'.
Saturn 187°12', Venus 354°13', Mercury 4°10', Rahu 15°15' and Vernal
Equinox 66°8'—Mesha Sukla Navami Punarvasu Day.

(vii) The Horoscope of Sri Krishna is well known. Many scholars (including late Sri Sengupta) hold that it is only an ideal horoscope and that the planets were never disposed as given in the Horoscope. Hence Sri Krishna also becomes an ideal and mythological man, according to him. At 11-40 P.M. on Friday 27 July 3112 B.C. Julian Day 584973. Simha Krishna Ashtami, Rohini day, the planets were disposed as given in the Traditional Horoscope:— Vrishabha Lagna 52°15', Sun 148°15', Rahu 16°1', Mars 27°01', Jupiter 91°16', Saturn 209°57' & Venus 130°15', Mer 172°33', Vernal Equinox 46°34'.

NOTE: Shri B.V. Raman, in his "Notable Horoscopes" has given the traditional horoscopes as foot-notes. Refer to my detailed essays on these two horoscopes.

(viii) The horoscope of Sri Adi Sankara is clubbed with those of Sri Rama and Sri Krishna, in the general vituperative abuses. It is because even Indian scholars and many of the successors of Sri Adi Sankara do not believe the three standard biographies of Sri Adi Sankaracharya, which are held in veneration. Though time has added many accretions to it and loaded it with many useless stuff, the essentials stand undisputed. Of these the horoscope is one, and it is that which is assailed, to disprove the very existence of Sankaracharya. The eternal Vedic religion required a strong intellect to silence the many, who assailed its greatness, some 2500 years ago. Sankara, a greater intellect than whom the world has not produced, was born to weed out all the nasty growth that wished to suppress the glory of the Vedic Religion.

The three accepted biographies of Sri Sankara are

- i. Brihat Sankara Vijaya by Sri Sukhacharya
- ii. Sankara Vijaya by Chitvilasa
- iii. Sankara Vijaya by Sayana (Vidyaranya).

These three books are very ancient and give the same horoscope. This horoscope is accepted by Dr. B.V. Raman of Bangalore in his "Notable Horoscopes". Those that have not been able to fix the date of the horoscope

have written pages of nonsense to disprove the reality of Sri Sankara, in the hope that the strong faith of the Hindus in Sankara and his Sutra Bhasya may be shaken a little.

The date of the horoscope as fixed by the rules of modern astronomy is 10-25 A.M. on Friday, 18th April 608 B.C., 30th day of the month of Mesha, Vaisaka Sukla Panchami, Punarvasu Nakshatra, Julian Day 1499450. At that time the planets were disposed as follows; Lagna 92, Sun 2941, Moon 90 32; Mars 11 28, Mercury 15 3 Jupiter 90 32, Venus 357.8, Saturn 209 37. (According to D.B. Swami Kannu Pillai's Ephemeris they were as follows:— Sun 21.7, Moon 91.5, Mars 21.6, Mer 22.5, Jup. 98.3, Venus 58.1, Sat 208.7 The same Rasis are indicated.

ix. In the case of Sri Ramanuja, the date of birth is very well known. But his horoscope is not known to many. Ref. "Horoscope of Sri Ramanuja" by Vidwan Melma Narasimha Thathachariar of Triplicane in NRISIMHA PRIYA, April 1969. He was born in 4119 Kali (current), Pingala year 13th day of Mesha month, Thursday (4—4—1017 A.D.) Chaitra Sukla Pancham. Ardra Nakshatra Lagna Karkataka, Sun 12 6, Moon 72 0, Mars 118 18, Mercury 357 10, Jupiter 63 27, Venus 25 42, Saturn, 260 18 Rahu 41 54. His biography is well known and every incident of his life, with date is recorded clearly. He lived for over 120 years and 91 months and then went to Vaikunta in Kali 4229 (current), Pingala year, 29th day of Makara month, Saturday (22-1-1138 A. D.) Magha Sukla Desami, Ardra Nakshatra, midday (Refi Guruparampara) Dr. B. V. Raman, in his "Notable Horoscopes" gives the position of the planets as follows for the same time of birth. (According to Dr. M Venkatachar), Lagna 111 41, Sun 19 48, Moon 85 48, Mars 141 41, Mercury 31 42, Jupiter 72 48, Venus 24, Saturn 269 24, Rahu 52 6. (The moon at 85 48, cannot be Ardra, but is Punarvasu and the Sun at 19 48 cannot be Panchami, but is Shashti) In Katapayathi notation the date of birth and the date of leaving the world are given (in Salivahana Saka) as Dheer Labdha (939) and Dharmo Nashta (1059).

DATE OF COMPOSITION OF THE 11TH VERSE OF PARIPADAL

There is another interesting similar subject for us to understand clearly Paripadal is one of the most ancient anthologies in Tamil. It is a collection of 18 verses of a particular type, by poets, some of whom lived long before the dates ascribed to them, by modern critics. These verses give us a clear picture of the culture of the people who lived in the basin of River Vaigai, ruled by the Pandyas of Madurai.

The eleventh verse of Paripadal gives a beautiful description of the planets in their own houses at the time of a lunar eclipse. Modern critics wish to show that it is all a fancy with no astronomical truth behind it.

The eleventh verse of Paripadal is:—

விரிகதிர் மதியமொடு வியல் விகம்பு புணர்ப்ப
 எரிசடை எழில் வேழம் தலையெனக் கீழிருந்து
 தெருவிடைப்படுத்த மூன்றூன் பதிற்றிருக்கையுள்
 உருகெழு வெள்ளிவந் தேற்றியல் சேர
 வருடையைப்படிமகன் வாய்ப்ப பொருள்தேறி
 புந்தி மிதுனம் பொருந்தப் புலர்விடியல்
 ஆங்கி உயர்நிற்ப அந்தணன் பங்குலின்
 இல்லத் துணைக்கப்பால் எய்த இறையமன்
 வில்லிற் கடைமகரம் மேவப் பாம் பொல்லை
 மதியம் மறைய வரு நாளில் வாய்ந்த
 பொதியில் முனிவன் புரவரைக் கீறி
 மிதுனம் ஆடைய விரி கதிர் வேனில்
 எதிர் வரவு மாரி இயைகென இவ்வாற்றால்
 நெரி தருஉம் வையைப் புணல்.

This verse is misconstrued and purposely wrongly annotated to show that no astronomer poet sang this verse, and the astronomical details given in this verse are purely imaginary, and do not point to any particular date, when the planets were in their own houses in the Zodiac, as described in the verse. Dewan Bahadur Swamikannu Pillai in his "Indian Chronology" has devoted a few pages to abuse these ancient poets and the Hindus who have kept alive this ancient tradition of Puranic chronology.

Now we shall consider the extraordinary genius of Diwan Bahadur Swamikannu Pillai in drawing untenable conclusions from such a simple verse. Here is given a simple translation of the verse for the readers to understand it clearly.

“At the turn of the South West Monsoon, the river Vaigai was swollen with the freshes. It was a delightfully beautiful full moon night, and early in the morning, just before sun-rise, the moon came out of the grasp of Rahu (ascending Node-indicating the close of the lunar eclipse), and was shining with extraordinary brilliance”. This must be the beginning of the month of Adi (Cancer) when all the South Indian rivers are swollen with freshes by the South West Monsoon. In spite of the explicit statement about the position of the Moon and Rahu on this full moon night, the translators state that this happened in the month of Simha (Leo). The reason for drawing this conclusion is the phrase “Angi” meaning (Agni — Krittika) that Krittika was at the Zenith. But Angi should be taken as Mars “Angaraka” as that is his name in Indian Astronomy. The entire verse is beautifully consistent.

I do not understand how Dewan Bahadur Swamikannu Pillai assumed the translation that the sun was in Leo with the full moon at Capricorn. Having accepted the translation, he starts his vituperative abuses about Indian Astronomers in general and about the Hindus in particular. As Buda (Mercury) cannot be more than 23, from the Sun and as Sukra (Venus) cannot be more than 45, from the Sun, the Sun cannot at all be in simha, if Budha and Sukra, should be in their own houses.

Again he decides that such a combination of planets did not exist at all (having searched from 1 A.D. to 1900 A.D.) and hence the poem is only a poet's fancy.

I have to state humbly that when the search is made in the proper century, it is fruitful.

On Wednesday, 25th June 540 B.C., Julian Day 1524364, just before sunrise, the full moon was eclipsed and all the planets were in their own houses; the sun was at 95 of the present Indian Standard Zodiac, the Moon and Rahu at 275. This can very easily be verified by any astronomer.

Thus it proves that the whole trouble with the critics of the type of Dewan Bahadur is that they assume that the Hindus learnt everything about the planets only from the Greeks in the early Christian centuries. But this verse makes it clear that when the half-naked nomadic Greeks were roaming in the forests of the Balkan Peninsula, the Hindus were well advanced in the study of Astronomy.

NOTE:—In Julian Day 1524364, the planets were as follows in the Indian Standard Zodiac:—Sun 95, Moon 275, Mars 15, Venus 55, Jupiters 353, Saturn 298, Rahu 275. [Refer D.B.S. Pillai's Ephemeris].

IV SRI RAMA'S HOROSCOPE

There is a good deal of confusion in the minds of scholars regarding Sri Rama's horoscope. Some assert that he is a mythical person and others state that he lived many millions of years ago. Maha Rishi Valmiki has clearly stated even in the very first stanza that Sri Rama was his contemporary "kown Asmin Sampratham lokae" Maha Rishi has repeatedly affirmed the human reality of Sri Rama. Again Sita lived in Valmiki Ashram during the last 12 years of her life, the period when Maharishi composed the Ramayana. It was sung by Sri Rama's sons in the presence of Maha Rishis, and Sri Rama during the Aswamedha Sacrifice performed by Sri Rama. In the introduction Valmiki states that every word of his Ramayana is true and accepted by all the learned Tapasvins of his day. So those that have faith in the words of Maha Rishis and believe in the hoary tradition, need not have any doubt about the personality of Sri Rama.

Again the huge astronomical cycles for Yugas were introduced by the astronomers of India after 300 A D, for astronomical calculations. There is no reference to any such huge cycle in any of the ancient books like the Ramayana or the Maha Bharatha. These cycles should not be introduced into Puranic chronology. According to all the Puranas there were only 100 kings of the Solar line from Vaivaswatha Manu to Brihadbala who died in the Maha Bharata war. We know the interval to be (8576—3067) : 5509 years only. Sri Rama was the 71st king of the Solar line. His age can therefore be taken as about 4700 B.C. But by astronomical determination of the planetary positions as given in his horoscope it is seen to be Wednesday, Meshasukla Navami Punarvasu day, 10th January 4439 B.C.

There is another mis-translation that has added to the confusion of thoughts. It is said that Emperor Dasaratha ruled for 60000 years. In Sanskrit language there are distinct words for unit, ten, hundred, thousand, tenthousand, lakh etc. Therefore Valmiki would have used the word Ayutha for ten thousand and not dasa Sahasra, which is against all rules of

Sanskrit grammar. *Sahasra* means "with happiness". Therefore what Valmiki Maharishi said was that Emperor Dasaratha ruled happily for 60 years and only then he felt sorry for not having a son to succeed him. (This explanation was given to me by Vidwan Melma Narasimha Thathachariar Swamigal avl). Thus we find Dasaratha lived for 60 plus 25 : 85 years. Similarly Sri Rama ruled happily for 11 years before he sent away Sita to Maharishi Valmiki's Ashram. He therefore lived for, 25 + 14 + 11 + 12 : 62 years, as it is well known that Sri Rama performed the Aswamedha Sacrifice in the 12th year of Sita's exile.

Not believing in the reality of Maharishi Valmiki or his words, but believing in the horoscope of Sri Rama, Dewan Bahadur Swami Kannu Pillai and others have searched for the date corresponding to his horoscope in the 7th to 9th century A.D., and failing, to get a correct date have boldly stated that the horoscope is a fake. They are just like men who search for a black cat in a dark room with many pillars, the reward being many bumps. Sri Anjaneya has beautifully said that a search must be made in the most possible place and time, as stated by elders.

Similar confusion of thought has given birth to very vile vituperations in the case of the horoscopes of Sri Krishna and Sri Adi Sankara, whose dates of birth can be very easily worked from the position of the planets given in their horoscopes.

There are some who have a strong faith in the historicity of the Ramayana, and yet have a few doubts here and there. These are made much of by those who have no faith in the truth of the words of Maha Rishi Valmiki. One or two of them are clarified here:—

It is contended that *Mesha Sukla Navami* and *Puunarvasu Nakshatra* cannot come together. Ordinarily this is true. From the beginning of *Mesha* to the end of *Puunarvasu* it is 93½°. The interval for eight thithies between the Sun and Moon is $8 \times 12 = 96$. Therefore *Navami* should ordinarily begin at 96. In the case of rare Avatars, such rules should be carefully worked out. As is shown in the case of the horoscope of Sri Krishna, the planetary combination remains as such only for a very few minutes, and thereafter they break up in different ways.

It is seen by reference to any Panchang (Ephemeris) that the duration of thithis and Nakshatras vary from 22½ hours to 25½ hours. This is due to the changing rate of movement of the sun and the Moon

along their paths and also due to the inclinations of their orbits to the equator,, etc. The calculations of this rare situation in the case of Sri Rama's Horoscope is shown here. One Nakshatra segment = 13½'. Let us consider the case when the period of a Nakshatra is 64 Naligais. Therefore the moon goes in 1 day $\frac{40}{3} \times \frac{60}{64} = 12.5$. The average rate of the sun = 1 degree per day. Consider the case when Amavasya (New Moon) occurred x* before Aswinyadi and the sun was ¾* from the beginning of Aswini when the moon was at 93' (Punarvasu).



$$\text{Number of days for the sun to move from O to A} = \frac{x + \frac{3}{4}}{1} = \frac{4x + 3}{4}$$

$$\text{Number of days for the Moon to move from O to R} = \frac{x + 93}{12.5} = \frac{2x + 186}{25}$$

$$\text{But both are equal i.e. } \frac{4x + 3}{4} = \frac{2x + 186}{25}$$

$$\therefore 92x = 66 \cdot 9 \text{ or } x = 7 \cdot 27$$

i.e. the sun has moved from Amavasya for $7 \cdot 27 + \cdot 75 = 8 \cdot 02$

i.e. on the 9th day from Amavasya, the sun is at 0.75 from Aswinyadi and the Moon is at 93' (or Punarvasu)

A similar difficulty is felt in the case of Sankara's horoscope, but it is in the reverse. Vaisaka Sukla Panchami, with the sun in Mesha and the Moon in Punarvasu. Rama was born on the second day of the month of Mesha, with the moon almost at the end of Punarvasu and it was Sukla Navami. Sri Sankara was born on the last day of the month of Mesha, with the moon at the end of Punarvasu and it was Sukla Panchami. These are rare combinations of planets, and they indicate that the horoscopes are those of Avatars.

ii. Again that astute poet Valmiki has mentioned the birth Nakshatras of Bharata, and the twins. He has not mentioned the Thithi, as he has done in the case of Sri Rama. It is because, they were all born in the same Thithi, Sukla Navami. Sri Rama was born at about 12 Noon, the following night before Sun rise Bharata was born. Since Rama was

born almost at the end of Punarvasu and the beginning of Navami, Bharata was born in Pushya Nakshatra and Navami thithi. Then the next day just before Noon Pushya had gone by, and Aslesha was there, but Navami was a long thithi and so when the twins were born it was Aslesha Nakshatra and still Sukla Navami. That is why the Rishi has not mentioned the thithies for the brothers, but carefully given their time of birth.

In this connection it must be pointed out that in the year (1924-25) Raktakshi, in the month of Mesha, the long thithi Sukla Navami began in Punarvasu Nakshatra and ended in Aslesha Nakshatra.

The laws of astronomy are complicated, and we normally take only approximate results. Details like, latitude of the place, season of the year, position of Vernal Equinox amongst the Nakshatras, etc., should be taken into consideration for very accurate results. At the time of Sri Rama's birth, the Vernal Equinox was at $66^{\circ}.8'$ of the present Indian Zodiac, i.e. almost at the end of Mrigasira Nakshatra ($53^{\circ}20'$ to $66^{\circ}40'$) at or the beginning of Ardra Nakshatra. (The present position of summer solstice is $66^{\circ}30'$)

Many interesting combinations of Planets, Thithi, Nakshatra etc., are given in the Ramayana and Maha Bharata. Where we are not able to understand or appreciate the combination we should at least respect the greatness of the authors of the Epics. If these epics were written at a later date, such rare and true combinations could not be introduced into the Epics. Look at Emperor Dasaratha lying in his private chamber after the decision of the people to make Sri Rama the Yuva Raja. He sent for Sri Rama, asked him to sit by his side and told him of his dreams and planetary combinations that forbode death in a week. We shall now verify the statement of the Emperor.

In Sri Rama's horoscope of 10 January 4419 B.C., the position of the planets were as follows—Lagna $93^{\circ}16'$, Sun $1^{\circ}12'$, Moon $93^{\circ}5'$, Jupiter $118^{\circ}12'$, Sat $187^{\circ}12'$, Mars 286° , Venus $354^{\circ}13'$, Mercury $4^{\circ}10'$, Rahu $151^{\circ}5'$, vernal Equinox $66^{\circ}8'$ (Govt of India Zodiac in which Spica (chitra is at 180°). After 25 years and 22 days, the planets as follows:—

25 sidereal years + 22 days = 9153rd day.

- i The Nakshatra that day was Punarvasu. The next day, when Sri Rama and Sita started on their exile, Sita states it was Pushya Nakshatra.

- ii It was Sukla Sashti (6th day from New Moon). The day that Sri Rama started on his exile was Saphthami. It is therefore that at the end of the exile Sri Rama hurries to be back at Ayodhya on Saphthami day.
- iii Sun is at Mid Bharani.
- iv Mars is at Mid Bharani.
- v Rahu is at Mid Bharani (Rahu in the 10th place in Sri Rama's horoscope indicated Dasaratha's death)
- vi Saturn in Poorva Phalguni - Janma Anujanma of Bharani - Saturn has retrograde Vedai aspect on Bharani. Veda Vyasa in his Maha Bharata has mentioned such vedai aspect. Moreover it was the end of Saturn's 7½ years period for Sri Rama, again indicating a great domestic calamity for Sri Rama.
- vii Mercury (malefic) in Mesha with the Sun.
- viii Venus in Mesha with the Sun.
- ix Jupiter in utara Phalguni, Kanya Rasi, is in the 6th house from Bharani. Thus Maha Rishi Valmiki's statement is seen to be astronomically true. This again proves the correctness of Sri Rama's horoscope. It is seen that Sri Rama went on exile when he was 25 sidercal years and 22 days old.

ERRATA PAGE 44

Line	for	read
3	Mars 2°86'	Mars 286°
4	Ragu 15°15'	Ragu 151°5'
12	Legna 52°15'	Lagna and Moon 52°·15'
12	Mars 27°41'	Mars 270°·4'
13	Venus 18°15'	Venus 180°·15'

A NOTE ON THE ANCIENT ASTRONOMY OF BHARAT

A few of the great ancient astronomers of Bharat from the Vedic times are Adi Seshha, Lagada, Suchi, Brighu, Pulaha, Chyavana, Vasishta Marichi, Narada. Angirasa, Garga and Lomasa. Some of the famous astronomers of later days are Vridda Garga, Vararuehi, Vishnu Gupta (or Kautilya), Aryabhata, Brahma Gupta (598 A.D.), Manjula (932 A.D.) Bhaskara II (1150 A.D.)

In Bharat, the study of Astronomy has had a continuous tradition from Vedic times to the present day. The Yadavas and Panis of Vedic times were great navigators and their ships roamed over all the oceans and important inland waters of the world. Ref, Rig Veda ix 112-1, vi 20 12, i 36-18, vi 45-1. The post Vedic Yadavas, Kalingas, and Pandyas maintained large merchant fleets and had an active and thriving sea-trade. Navigation depended on a good knowledge of astronomy, then as now. During the days of Emperor Trisanku of Puranic fame, the Aryan merchants who ploughed the southern ocean, required a new system of Astronomy to help them navigate their ships in those distant waters. Maha Rishi Viswamitra advocated their cause and brought in new innovations in the then current system of navigation.

Again the great Emperor Ruruka of Ayodhya built the famous port of Rourika, named after him, at the mouth of the River Sindhu (Indus) and the Rajaputana Sea. It is now called Mohenjadaro (the mound of the dead) by modern archaeologists. It was a thriving port during many milleniums. A royal highway connected it with the great cities of Northern India, as far as Paraliputra (Patna). It was the capital of the Kingdom of Sauveera, where Jaydratha ruled during the Maha Bharata days. The city and the port were again and again improved, till atlast the Rajaputana sea dried up, and the Indus changed its course and the city was drowned by sand storms from the desert to its east, about the time Raja Griha was built (Ref, Studies in Ancient History-Legend of Rudrayana, by C. B. Conwell and R. D. Neil, Cambridge 1856). Dwaraka was another great sea port. It was the great port of trade for the Vedic Yadavas, and when the Yadavas got broken up by civil wars, the port was captured by pirates from the west of Indus, and by the Pandiyas from the south. It became an abominable nest for slave trade, looting, piracy etc. Its greatness was renewed by Sri Bala Rama and Sri. Krishna (about 3090 B. C.) (Ref. Krishnavatara by Sri. Munshi and Srimad Bagawatha), Prabasa at the mouth of the River Saraswathy (at the northeastern tip of the Gulf of cutch), Brighu Kachcha, the city of Brighu (Broach) at the mouth of the Narmada, were some of the other

important ports at that time. When Dwaraka was swallowed by tidal waves, a number of minor ports sprang up in the gulf of Cambay, and their ships traded with China for camphor, silk etc. and with Iraq, East Africa and European ports for tin, amber etc.

There are a good number of references to astronomical observations in the Vedas Refer (1) A. C. Das-Rig. Vedic India and (2) Mahadevananda Giri-Vedic Culture (Calcutta University 1947). The Vedas mention a special study called Nakshatra Vidya. The Vedic astronomers knew of different cycles of eclipses, Refer-Shyamasastri of Mysore- "Drapsa." Again there now remains only a few verses of the Vedanga Jyothisha, and these have a number of conflicting commentaries. A study of the Vedas reveals a deep knowledge of the planetary motions and eclipses obtained by close observation over many milleniums. In the Maha Bharata ix 37, 14, 117 and xii 59, 11 mention is made of Garga's Ashram and astronomical observatory on the River Saraswathy, where many scholars flocked to study Astronomy.

Now Adi Sesha is said to be the first and great Astronomer. Vidwan Melma Narasimha Thathachriar in his article in "Nrisimha Priya" Jan 1969 states: "Vedanta Desika Commenting on the 39th verse of Stotra Rathna of Alavandar, states that Adi Sesha is the author of a book on Astronomy. Again Thirumazhisai Alwar in the 63rd verse states that Adi Sesha wrote an elaborate text on the planetary motions.

“தரித்திருந்தேன் ஆகவே தாராகணப் போர் விரிந்து உரைத்த வெந்நாகத்
துன்னை-தெரித்தெழுதி, வாசித்தும் கேட்டும், வணங்கி வழிபட்டும் பூசித்தும்
போக்கினேன்போது”.

Maha Rishi Veda Vyasa in his Maha Bharata Anusavani Parva states that there was a great Naga Astronomer in Punjab to whom a Brahmin scholar went to study about the sun.

Later Adi Sesha as Patanjali, expounded the science of Yoga for the purification of the mind, the science of Vyakarna (Grammar) for the purification of speech and the science of Ayur Veda (Medicine) for the good of the Physical Body.

This ancient system of Jyothisha (Astronomy) was modified and the Siddhanta School of Astronomy was ushered into use during the early centuries of the Christian Era. Many books of this system are now available, showing the genius and greatness of those astronomers who lived between 200 and 1300 A.D. Even this slowly died out by the beginning of the modern age.

V TIME RECKONING IN ANCIENT BHARATH

There are two systems of time reckoning. The one based on the motion of the sun, which causes the seasons, the other the motion of the sun and the moon among the fixed stars. The first system was advocated by Maha Rishi Vasishta, to whom the sun was the manifestation of the Supreme God. The other system was advocated by the other Rishis, whose centre of activity was the Saraswathy Basin, at the western end of Brahmavarta.

To Maha Rishi Vasishta, the day was from Sun rise to sun rise, and the year was from Vernal Equinox to Vernal Equinox. The cult of Maha Rishi Vasishta spread over western Asia, Egypt, Southern Europe and Western Europe as far as Britain, where we still find the remains of the once prosperous Sun temples, now named stonehenge. His younger brother Maha Rishi Agastya, spread it over the Eastern part of the globe, as far as Mexico, central America and Peru.

The religion and culture of all these people was based on the cult of the Sun, and the system of Astronomy is called the Surya Siddhanta. This Siddhanta was taught by the Sumerians and chaldeans to the nations of Western Europe. The temples of Babylon, and ancient Egypt were sun temples, and great observatories of Astronomy. The Panis, of Rig Veda, (called Phoeni in Greece and Rome and named Phoenician in English) were great navigators of the Mediterranean, and good astronomers of this system. The Greeks learnt it from the Panis and their temples were excellent Astronomical observatories. They were all built facing the Krittika Nakshatra, (Pleiades) and became great centres of study. Any nation that builds up extensive seatriade must first develop a very good knowledge of Astronomy. Sidon and Tyre were great centres of trade because the merchants were backed by a large number of astronomers. It was true then, as it is true today.

According to this system of astronomy, the day is not of constant length and the year is also not of constant length. The beginning of the year is not at a fixed point on the fixed path of the Sun, called Ecliptic. The year is divided into four seasons, according to the North-south motion of the sun, and each season is divided into 3 months. This calendar system has undergone adjustments and changes at the

hands of the astronomers, and it is this system that is adopted by the people all over the world, under the influence of the European culture. It has undergone many alterations, changes and adjustments, and is a constant source of headache for modern astronomers.

Time reckoning by the other Maha Rishis of the Saraswathy Basin, was fundamentally different from the system of Maharishi Vasishtha. In course of time, the surya Siddhanta of Maharishi Vasishtha was completely suppressed by the better and more advanced system of the other Rishis. Maha Rishi Vasishtha stood alone from them for sometime, but later, gave up his pet theories and joined with the other Rishis, so says Tradition. The legendary quarrel between Maha Rishi Viswamitra and the ultimate success of Maha Rishi Viswanitra is well known. Maha Rishi Veda Vyasa, of the great line of Vasishthas, the author of the Maha Bharata, extols the greatness of Maha Rishi Viswamitra and clearly states that he made many changes in the Ancient astronomical systems.

According to this system of astronomy, the fixed stars of the sky are the guides, the sun's fixed path (among the fixed stars) termed Ecliptic, was the dial, the sun, the moon, and the 5 planets were the hands of the time clock. To them, according to Vedanta Jyotisha, of which only a few verses are left to us) the day was of constant length, equal to the time interval between two successive transits of any one star. This day is called a sidereal day. The time taken by the moon to go round once among the fixed stars, is called a sidereal month. This is a constant period. Similarly the time taken by the sun to make one revolution among the fixed stars is called a sidereal year. It is also of constant duration. Again the period from one conjunction of the sun and the moon to the next is called a Luni solar month or a Lunation. This is again a fixed period. The Vedic Rishis made time measures based on these constants.

The unit of time was a Yuga of 5 sidereal years, nearly equal to 67 sidereal months or 62 lunations. The very slight difference between the Yuga and 62 lunations was adjusted by dropping out one lunation at the end end of every seven yugas. This was done by constant observation of the full Moon among the fixed stars. Again at the end of 5475 sidereal years, the sidereal month and the lunation exactly agreed, with a very small difference of less than 45 minutes. This means the sun and the Moon were back again together exactly at the same spot at the end of 5475 sidereal years.

Now

5 sidereal years : $5 \times 365 \cdot 256898$: $1826 \cdot 284$ days.
 67 sidereal months : $67 \times 27 \cdot 32166$: $1830 \cdot 5512$ days.
 62 lunations : $62 \times 29 \cdot 530588$: $1830 \cdot 8965$ days.

Again

5475 sidereal years : $1,99,781 \cdot 92$ days.
 73194 sidereal months : $1,99,781 \cdot 73$ days.
 67719 lunations : $1,99,781 \cdot 89$ days.

Again the ecliptic was divided into 27 equal parts, and each part was named a Nakshatra. Similarly the period of a lunation was divided into 30 thithis. A thithi is the duration taken by the Moon to gain 12 degrees over the sun. Though this system was slowly perfected, the final stamp was given by Maha Rishi Viswamitra who came nearly 1500 years after the Saptha Rishis. The merchants of the time of Emperor Trisanku of Ayodhya, whose ships ploughed all the oceans, found the old Astronomical system of the Saptha Rishis not satisfactory in the oceans of the Southern Hemisphere. Maha Rishi Viswamitra, made the necessary changes and established the system on a permanent basis. He made Sravana (Altair), the first of the Nakshatras and he changed the last five of the Nakshatras (Anuradha, Jyeshtha, Moola, Poorva and Uthara Ashada) that they may be clearly visible in the Southern Hemisphere.

The tropical year was divided into six Ruthus (seasons), and the civil year began with the Autumnal Equinox (Sarad Ruthu). The civil year glided over the Ecliptic, and the beginning of the year was always referred to the Nakshatra at which it happened. The tropical year guided the performance of Sacrifices, and so came to be known as the Sacrificial year. The 12 months of the tropical year had distinct names and were never confused with the Yuga of five years, with its 62 lunisolar months.

During the days of Maha Padma Nanda (1563 B.C.), who ruled the entire Subcontinent from the Hindukush to Cape Comerin, there were many great scholars, who adorned his court. There was a great revival in culture. During that time there were great Mathematicians, Astronomers, Poets, Doctors, Religious teachers, and so on. It was then Vriddha Garga, the astronomer, modified the Vedanga Jyotisha, and wrote his "Garga Samhita". For over 2500 years his system held sway and guided the sons of Bharat in their great achievements. But from the beginning of the Christian Era, the influence of the Greek astronomers, made the Indian astronomers change over to the old Surya Siddhanta of Maharishi Vasishta. It was modified and many Siddhantas were born out of it. It is they that still hold sway over the many Indian Calendar makers.

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K. SRINIVASARAGHAVAN.

Chronology of Ancient Bharath

PART VI CHAPTER 3

Early History of the Tamils, According to Puranic and Tamil Literature

SECTION: A

It is well known that Early Man was evolved about two to one million years ago. About 50000 years ago the same type of man was seen roaming over the world from Spain to East Indias, and from North China to Cape Comerin. The two axes intersect at the narrow neck of land between the Indus and the Yamuna. I have proved in my "Cradle of Man" that it was here Man was evolved and it was here again early culture was developed. The Paleolithic man with the same kind of stone tools was found spread all over Bharat—some time between 200,000 to 400,000 years ago, according to all anthropologists. A number of recent expeditions by foreign scholars, and excavations at the Sivalik Foot Hills have proved the truth of the above statements. But it is not known whether he was able to speak at all and if so, whether it was a systematised and intelligent language.

Tradition and the Vedas, the oldest book of Man, reveal that it was the waters of River Saraswathy that gave speech to Man. As different types of Men and different improvements to their speech were evolved, they moved out of the cradle in all directions impelled by the intense urge for adventure inherent in Man. Those who could not speak well, are called the mouth-less in the Vedas. It can be seen that the distribution of language and racial characteristics in the sub continent of Bharat are in concentric circles, according to the Maps published in the first edition of the Gazetteer of India. It was the Geographic impress that changed the colour of the hair, skin, and eye, and the other anthropomorphic characteristics of Man including the forms of speech.

About 15,000 years ago there were many types of semi civilised tribes roaming over the mountains, forests and pastures of Bharat. Bhutas, Pretas, Pisachas and other wild uncivilised groups lived in the Trans Himalayan regions, while Yakshas and Rakshasas a semi cannibal people with ill developed physical features and with no distinct form of speech, lived in the areas to the south east and to the south west of Bharat.

Ref: Mahabharata Saba Parva—Maya, the Asura architect says that long time back, Vrishaparva, the Asura King and disciple, of Sukracharya, a contemporary of Yayathi, ruled the rich lands just to the North of Mount Kailas".

A better civilised race with distinct and well developed speech forms, called Gandarvas and Vidyadaras lived in the rich mountainous regions of Bharat. The Puranas graphically narrate the history of Man from Swayambhu Manu (Self created or First created Man) to Vaivaswatha Manu, the perfected Man, the first to institute the laws for social, political and religious conduct.

At that time Northern Eurasia and Central Asia were terribly marshy and unfit for human settlement. Central and Southern Africa and south China were very densely forested, infested with tropical diseases and impossible for human penetration. Southern Europe and Northern Africa, surrounding the Mediterranean and Saharan seas were slowly improving in climatic conditions to be fit for human occupation. The Polynesian and Malanesian islands then formed a big land mass connected with the Asiatic Main land. Hence as Man moved out of the Cradle he went westwards as far as Spain and Morocco via Asia Minor, and eastwards over the island continent as far as the Americas.

Many dialects were in use all over this region but the most important one was the Pisachi. Out of the many Prakrits, the correct and grammatical speech was slowly evolved in the Cradle of Man. Early Man was slowly taught the arts of culture by Indra, says the Rig Veda, and under the leadership of the Saptha Rishis, Man took the first step towards a civilised form of living. The History of Man from the days of Vaivaswatna Manu and the Saptha Rishis is given clearly in the Rig Veda, in the Zend Avesta, and all the Puranas in a very interesting manner.

The Ancient History of the Tamils presents a formidable difficulty. The stone inscriptions are not earlier than 400 A.D. and the copper plate inscriptions are later than 700 A.D. Chronologists have fixed the date of the earliest literature of the Tamils sometime between the 1st century B.C. and the 2nd Century A.D. but this does not tally with the Tradition current in the Tamil country. What happened to the books written by the great authors who lived long before the first century B.C. These can be solved on only one basis. The whole of Bharat has been one culturally. Manu's Code of conduct was carefully followed by all children of Bharat. According to Manu, Bharat extended from the Himalayas to the Southern Ocean and from Persia to Kamaroop (Assam). Manu defines Bharat as the land where the black buck roams free. (Persia is the land of the wild ass, and Kamaroop the land of elephants. S. India is still the best home of the buck). All the holy places are common to all the peoples of the land. Though there were many prakrits like, Magadhi, Mithili, Kosali, Suraseni etc. Sanskrit was the common language of cultured and educated persons all over the country (Valmiki, Sundara Kanda—Hanuman's soliloquy). The Vedas, the Ramayana, the M.B. and all the Puranas are considered holy and common to Hindus all over the Bharat. Hence it is that we do not find History, Mathematics, Astronomy, Medicine and other subjects written in the Prakrits. The Puranas are the source book for the history of each and every part of Bharat.

It is therefore proposed to present the History of the Ancient Tamils, as narrated in the Vedas, and the Puranas, and show that they are consistent and agree with the Ancient Tamil Tradition.

It must be remembered that English Historians and Chronologists purposely mutilated our history and wanted to present the Indians as a debased and cultureless group, (Sir William Jones wrote the first book, Chronology of Indians in 1788 A.D.). About 1820 A.D. Mr. Bentley wrote a book and started the campaign to abuse Indians as liars and rogues and tried to prove that all Indian Tradition was fundamentally a hoax. With this motive he fixed Kali Yugadhi on 17/18 Feb 3102 B.C. based on the so-called Indian Traditional Data and thereby he worked to prove to the world that Indian Tradition is most unbelievable. English Historians immediately took up the cue and began writing Indian History by mutilating our Puranas. From 1850 A.D. to date, Indians have coolly accepted the findings of Bentley, F.E. Pargiter, Max Muller (1859) and V. A. Smith and we find a lot of lies taught to our boys in the name of Indian History. Many learned Indian scholars have proved that the

methods and conclusions arrived at by the English writers are entirely based on prejudice and not acceptable to a scientific enquiry. A few French and continental scholars of that time questioned the conclusions of the British historians, but they quietly ignored them.

Based on correct astronomical calculations, I have fixed the Astronomical Kali Yugachi on Sunday, 11th Jan. 3104 B.C. when all the planets were together at the beginning of the Zodiac i.e. Mid Shravishta. I have fixed the date of the M. B. war on Friday 22 Nov. 3067 B.C. and I have shown that the M. B. has a number of self consistent astronomical data which go to prove the correctness of the ancient Tradition. Again in my articles on the Puranic Chronology from Vaivaswatha Manu to Salivahana I have shown that the History of Bharat is clearly and correctly presented in the Puranas. The Saptha Rishis started their Era (otherwise called Vaivaswatha Manvantradi) on Friday 21st Nov. 8576 B.C. from which date the Puranas reckon time. The first age is from Manu to the Mahabarata war (i.e. from 8576 B.C. to 3067 B.C.) and the second age is from Udhishtira to Salivahana (i.e. from 3067 B.C. to 78 A.D.)

It is as a continuation of the general trend of the topics, I propose to narrate here in the history of the Ancient Tamils.

[Sri C. Jaganrathachariar M.A. (Hist.), M.A. (Tamil), Dip. in Geography L.T., Professor of Tamil, Vivekananda College, Mylapore, Madras and Vidwan Venkatchariar of the Tamil Department of the Jain College, Meenambakkam, Madras helped me a good deal in preparing this essay. I thank them for their help.]

PART I

Vaivaswatha Manu, son of Vivaswan ascended the throne at Prathishtana (Prayag), after his maternal grand father, Daksha Prajapathy (emperor). He ruled over the whole of Aryavarta, With the help of his famous ministers, the Saptha Rishis, he framed the code of conduct for all mankind, known as Manu Dharma. On ascending the throne he performed a great Aswamedha (Horse-sacrifice) and instituted an Era called Vaivaswatha Manvantra or the Saptha Rishi Era. This was on Friday, 21st Nov. 8576 B.C. Magha Sukla Prathama, at the beginning of Sarad Ruthu (Autumnal Equinox).

He built the great city of Ayodhya (unconquered), and there established his second son Ikshvaku, as King. His first son Sudyumna had no son of his own. Manu had his daughter Ila married to Buzha Rishi, son of Chandra Rishi, who was the son of Atri Rishi, who was one of the great Saptha Rishis. These three Rishis have contributed many verses to the Rig Veda.

Ila's son, Pururavas, was adopted by his uncle Sudyumna. The great line of Kings born of Ikshvaku is called Surya Vamsi or Solar Dynasty, and the great line of Kings born of Pururavas is called Chandra Vamsi or Lunar Dynasty. Pururavas had his capital at Prathishtana, the ancient capital of Manu and Sudyumna. He is far famed in the Puranas as born of both the Dynasties.

The sixth in the line of Pururavas was Yayathi. He had five sons Yadu, Turvasu, Drhyu, Anu and Puru. After Yayathi, his youngest son Puru was crowned at Prathishtana (Allahabad) in 8225 B.C. *The others spread over the lands adjoining Scythia Sindhu and in company with the Brahmin Rishis, they educated the uncivilised and semi-civilised peoples of these lands in the arts of civilised life*. The tribe of Yadu flourished in the Middle country between the Yamuna and the Ganges on the North, the Vindhya and Tapti on the South, the sea of Rajaputana and the Arabian sea on the west and the dense forests of Chota Nagpur Hills on the east. They partly destroyed the forests, brought the land under the plough and specialised in breeding cows. They built the great ports of Dwaraka (meaning Gateway of Aryavarta) and Brighu Kachacha (Broach). Their ships roamed over the Indian ocean, and they established trading colonies in all the big islands of the Indian ocean. The tribe of Turvasu went west and north-west beyond Aryavarta, built the great city of Sumeria and spread more and more over Persia and Central Asia. The tribe of Drhyu, mixed with the Gandharvas, an early mountain tribe. They specialised in dancing and music. They were good at sword fight. One branch settled in Ganchara (Kandahar in Afghanistan) and another branch went south of the Vindhya and spread over the Peninsula. They developed a prakrit which was sweet to hear. They went almost to the extreme south, which then extended up to the equator (the southern part later got sunk under the sea). The tribe of Anu settled along the Indus and established the Kingdoms of Sauvira, Madra and Kekaya. They specialised in breeding horse. They traded on the Indus and built the great port of Sauvira, at the mouth of the River Sindhu, with the sea of Rajaputana.

During 7300 to 7000 B.C. the Aryan culture and the Aryan way of life was well established all over Bharat. The non-conformists Dasyus, Dasas, Panis, Asuras, Daityas, Thanavas and Rakshasas were driven out of Bharat or driven away into the wild mountain forests. But sporadic war continued among the Surya Vamsi Kings and the Chandra Vamsi Kings because of their land hunger. It was about 7200 B.C. that the battle of the 10 Kings described in detail in the Rig Veda was fought. Oriental Scholars describe it as a battle between the Aryan and the Dasyu Kings. It is not so, but it was a great battle between Sudas (39th from Vaivaswatha Manu) King of Tritus of the Bharata clan and the ten united Kings, five of whom belonged to the five tribes of the sons of Yayathi. Purukutsa, 24th of the Ikshvaku line was killed by Sudas in this great battle. The enemies were routed, and Sudas became a very great emperor and ruled over the whole of Aryavarta.

About 6500 B.C. when Trisanku was Emperor of Bharat, he maintained a huge navy to protect the many Aryan ships that roamed over the Indian Ocean. About 6300 B.C. Emperor Ruruka of the Ikshvaku line rebuilt the great port city of Sauvira and named it Raurika, because by that time the area was cleared of the Panis and Dasyus who held the trade on the Sindhu (Archaeologists call this city—the city of the dead—Mohenjodaro). 200 years later during the days of Emperor Sagara, the sea of Rajaputana started lifting up and slowly became the rich plain of the Sindhu, the Satadru (Sutlej) and Saraswathy (Ghagger). The course of the Yamuna was deflected from the west to the east and it became a tributary of the Ganges. (It was then the vast sea of Gobi in Central Asia and the sea of Turkistan, which covered the basin of the Caspian and the Aral also slowly developed into a rich plain and then long after, i.e. about 2000 B.C., slowly became a desert. The great port of Raurika lost its importance, as the course of the Sindhu was deflected and its mouth was shifted far to the south, but it was many millenniums later the City was destroyed by a sand storm about 2787 B.C., when another earth's crustal movement lifted up the rich plain of the Rajaputana and slowly converted a part of it into a desert by about 2000 B.C. (Refer maps in the cradle of Man).

Meantime the 18 clans of the Yadavas colonised the whole of the Middle country and the 18 regions are named after the 18 clans as Surasena, Anarta, Chedi... ..They built the great cities of Madura, Avanti, Chedi, Girivraja, Vidarba... ..Their great seaport towns were Dwaraka and Brighu Kachcha, (Broach). Though Sanskrit (as its name implies) was the common language of the educated, yet each region developed a prakrit of its own, (Magathi, Avantija, Prachiyai, Sooraseni, Ardha Maghadhi, Bahlekai, Southern Tongue)-8 Grammers referred to by Bharata Muni.

It was about this time the two great brothers Rishi Vasishtha and Rishi Agastya were revolutionising the social life of Arya Varta. They travelled by land and sea all over the then known world from the British Isles on the west to Mexico, Central America and Peru on the East, (Via the great land mass which then covered the area now occupied by the Indonesian and Polynesian islands.) They built temples for the worship of Mitra, the sun god, and Varuna, the God of the oceans. There are many Rig Vedic verses sung by Rishi Agastya, which go to prove this. At this time a large number of Bhargava Gotra Rishis were the Purohitas and advisers of the Yadavas.

Rishi Agastya married Lopamudra, the daughter of the Yadava King of Vidarbha. He destroyed the Asura Kings Ilvala and Vatapi, who ruled in the City of Vatapi (Badami). He helped Yadus to spread over the northern part of Deccan. He spent many years travelling in the Yadava ships over the Indian Ocean (Rig Veda). In one of his travels he found a rich and extensive land (now submerged under the sea) south of the present cape Comerin (Kumari), another extensive continent in the region, where we now find the Indonesian and Polynesian islands (East Indian ocean continent) and a third towards the west covering the area now occupied by the sea extending from the Maldives to the Madagascar (West Indian Ocean continent). The Daityas (a highly cultured group of Dasyus) who were driven out of Aryavarta now spread over the East Indian continent and moved more and more to the East till they established empires in the Americas. The Thanavas (another group of highly cultured Dasyus) occupied the land between the Vindhya and Venkatesam enslaved the wild people of the area (the Yakhas and Rakshasas) and moved south-west into the great continent (west Indian ocean continent) and built many cities, of which the capital Lanka is famous. (The Puranas describe the attempt of Bali, the Daitya King, helped by the Bhargava Rishi to reconquer Arya Varta, and the conquest of Deccan Plateau by Ravana, the Thanava Chief. Ravana was held up at the Narmada by Arjuna, the son of Krishna Virya, of the Yadu clan, from moving north and by the Pandyas another branch of the Yadu clan, led by Agastya from conquering the southern part of the Peninsula from Venkadam to Kumari and Vali drove him back from approaching the Mysore Plateau).

At that time, the southern part of the Indian Peninsula extended to a distance of about 500 miles, almost to the equator. It was bordered on the west by the continuation of the western ghats, ending in the multifolded high mountain called the Kumari mountain (பள்ளைய அடுத்ததுக் குமரிக்கோடு: சிலப் பதினாறாம் 11-5-7). In the Northern part of this region was the fertile valley of the river Kumari (குமரி ஆறு), and in the Centre of the region was the broad flat basin of the River Pahruli (பஹ்லுலி ஆறு). Though the land was rich in rivers, forests and mountains, it was very sparsely populated. A semi civilised clan of Gandharvas of the Race of Dryhu (son of Yayahi of the Lunar Dynasty) lived there in a primitive way as a mountain tribe.

“பொய்யகல நானும் புகழ் விளைத்தல் என் வியப்பாம்,
வையகம் போர்த்த வியங்கொலி நீர்-கையகலக்,
கல் தோன்றி மண் தோன்றக் காலத்தே
வாளொடு முன் தோன்றி மூத்தகுடி”

புறப்பொருள் வெண்பா மாலை; கரத்தைப் படலம்—14

They were divided into four groups according to the musical instruments they used—

“துடியன், பாணன், பறையன், கடம்பனென்று
இந்நான்கல்வது குடியுமில்லை” புறநானூறு 335—மாங்குடிகுழார்

The dialect of their speech was a corrupt form of the language of the Yadavas. It was sweet to hear as was their music. They were very good swordsmen. Agastya immediately decided to colonise this area by bringing in many enterprising families from the Yadava groups. The 18 clans of the Yadavas contributed large numbers to this band of early settlers. They are called in Tamil literature, the 18 clans (பதினெண் வேளிர்). Under the leadership of Agastya, they set sail (about 6:00 B.C.) from the copper plated port of Dwaraka and settled in the rich and extensive valley of River Pahruli.

- i “துவராபதிப் போந்து நிலங்கடந்த நெடுமுடியண்ணல்
உழிக்குண்பதினெண் குடிவேளிர் உள்ளிட்டாரையும், அருவாளரையும்
கொடுபோந்து காடு கெடுத்து நாடாக்கி”
—தொல்காப்பியம்—பாயிரம்—நச்சினர்க்கினியர் உரை.
- ii “இது மலைய மாதவன் நிலங்கடந்த நெடுமுடி அண்ணல்
உழை நரபதியருடன் கொண்டந்த பதினெண் வகைக்
குடிப்பிறந்த வேளிர்க்கும் வேந்தன் தொழில் உரித்
தென்கின்றது”. பொருள்—32.
- iii புறநானூறு—இருங்கோவேள்மீது கபிலர் பாடியது
“நீயே வடபால் முனிவன் தடவினுள் தோன்றிச்
செம்பு புனைந்தியற்றிய சேணெடும் புரிசை
உவரா விகத்துவரையாண்டு, நிற்பத்தொன்பது வழிமுறை வந்த
வேளிர்நானே விற்றபோர் அண்ணல்
தாரணயானைச் சேட்டிருங்கோவே—புறம் 82, 20

With arduous labour they cut down the rich forests, bunded the wild rivers and brought the land under cultivation. The area of their colonisation extended from Tirupathi in the North to the Kumari mountains in the South and was bounded by the ocean on the east and the west.

“வடவேங்கடம் தென்குமரி சூருக”—தொல்காப்பியம்
“வடவேங்கடம் தென் குமரி ஆயிடைத் தமிழ்கூறு நல் உலகம்—பரம்பரையார்
“கெடியோன் குன்றமும், தொடியோன் பொலவமும்”—சிலப்பதிகாரம்—
வேளிற்காண் 5.

Then they built the beautiful capital in the centre of the Valley on the banks of the River Pahruli. They named it Madura, after their ancient capital, the city of Madura, on the banks of the Yamuna. (Many American cities are named after European Cities). This ancient city of Madura on the Yamuna, with the temple of Maduravalli in the Centre was built by Madhu, the Thanava Asura, a cousin

of Ravana, and his sister's husband. He presented it to a Yadava Chieftain who married his daughter, Maduravalli). They then built the excellent port town at the mouth of the River Pahruli, and named it "Kapatapuram (the equivalent of Dwaraka) after Dwaraka the great port of the Yadava country (Kapatapuram means the city of the Gateway, just as Bombay is now called the Gateway of India.) Valmiki the greatest poet of all times, in his immortal epic the Ramayana, has extolled the beauty, wealth and culture of this city which according to him had its gates beautifully adorned with garlands of pearls, the special feature of the Southern ocean, (Kishkinda Kanda Chap. 42). The next thing Rishi Agastya did was to divide the entire Tamil land into districts and Taluks. The southern part which later in 2787 B.C. sank under the sea, was divided into seven districts and each district into seven taluks.

சிலப்பதிகார அடிகளும், கணக்காயனார் மகனார் சக்கிரனார் உரைத்த இறையனார் பொருள் உரையும் உரை ஆசிரியர் இளம்பூரண அடிகள் முகவுரையும் மேற்கோள் என அடியார்க்கு நல்லார் எழுதி உள்ளார். அதை நச்சினூர்க்கினியார் தொல்காப்பிய பாயிர உரையில் எழுதினார்:—இடைச்சங்க காலத்துக் கவி அரங்கேற்றிய எழுவர் பாண்டியருள் ஒருவனும், தொல்காப்பியம் செய்வித்தோனுமாகிய சயமாகீர்த்தி என்ற நீலத்தரு திருவிற் பாண்டியன் காலத்தே பாண்டி நாட்டுத் தென்பால் முகத்துக்கு வட லெல்லையாகிய பட்டுளி என்னும் ஆற்றிற்கும் குமரி என்னும் ஆற்றிற்கும் இடையே 700 காலதவாரும் இவற்றின் கண்ணவாகிய ஏழ்தேங்க நாடும், ஏழ் மதுரை நாடும், ஏழ் முல்லை நாடும் என்னும் இந் நாற்பத்தொன்பது நாடும், குமரி கொல்லம் முதலிய பன்மலை நாடும், காடும், உதியும், பதியும், தடரீர் குமரி வடபெருங் கோட்டின் காறும் கடல் கொண்டொழிந்து".

The Lord of the tribe of Pandyas was chosen as the Emperor of this land. (There are still many Pandyas in Rajasthan). He is called கெடியோசு (Irivikrama, the Vishnu, the patron God of the Yadavas). He is also named கிலத்தரு திருவிற் பாண்டியன் (Pan-ian who distributed the land to his vassals after bunding the River Pahruli and bringing under cultivation a large area of the basin). He is also named ஆழிவாழ் பல்பதின்ற பாண்டியன், (the sea washed his feet). Again he is named பூமலை அழகெடுத்த பாண்டியன் by Pulavar கெட்டிமையார் (Nettimaiyar) because he celebrated the worship of the ocean at the junction of the 3 seas. Early Tamil Literature mentions one of his descendants, the veteran Emperor who performed many Yagnas (sacrifices) "பல்யாகசகால முதுகுடும் பெருவாழ்து". Then a council of vassal kings was formed to help the Emperor. Agastya then wrote a grammar for the sweet language formed by a good blend of the Yadava tongue and the ancient dialect of the Gandharvas, adopting the ancient Sanskrit Grammar of Indra (சுந்திரவிய கரணம்) as his model. He created an artificial grammar for the reformed language of the people.

தொல்காப்பியம்—கு7S.—சேனாநாயர் உரையில்—"நாழிந் துறைய தெளிந்த க வேற்றுமை வேறென விளம்பாலை, மொது விசாரமென்றேதிய புலவனுமுள் நெரு வகையான், இந்நிள் ஈட்டாம் வேற்றுமை என்றனர்" என்றது காண்க. பாணினிக்கு ஏழ் வேற்றுமையே.

It may be said that there is no rival to sage Agastya in writing a grammar, because the grammars of all the languages of the world have many exceptions, to every rule of grammar and the rules themselves are very complicated. Agastya's rules are very simple, and he does not allow exceptions. The simple structure of the Tamil grammar, and the extra-ordinary nature of not allowing exceptions to the general rule make it a unique wonder language of the world. (A detailed study of the Tamil Grammar, from this point of view will reveal the simplicity of the rules of the Tamil Grammar, which has fooled many scholars to state that it is a pre-Aryan

tongue. How can language with almost a perfected grammar be a pre Aryan tongue? In the Rig Veda Agastya is mentioned as "Ubov Varnow Rishibihi, ugraha Puposha" meaning that he was a great scholar in two grammars. Valmiki knew Agastya's grammar and the people of the south (Kishkinda Ch. 42.) In Marichant's words he uses the Tamil form "காராதி" and not the sanskrit form "ரேபாதி". Again according to Panini there were only 8 Vyakarnas (Grammars) in N. India. Hanuman is called a Pandit in Nine Grammars, the 9th being Agasthiyar's Grammar of the Tamil language. Agastya then gathered a band of good scholars into an association called Tamil Sangam (தமிழ் வளர்க்க) and made them write book on various subjects His disciple Avinayanar wrote a book on Avinayam (அபினயம் mudras etc. of dance). Kakkai Padiniyar wrote Kakkai Padineeyan (on Music) and Chemboot Cheyar wrote Koothiyal (Dance).

All the languages of the world had their own literature before their grammars were framed, but it was the reverse in the case of Tamil. Some practical difficulties were felt by writers, poets and others, when they produced the necessary literature for their new language (compare modern languages like Canarese, Malayalam, Hindi and their growth). As difficulties arose slight amendments had to be made in the great grammar of Agastya "The Agastiam". Many scholars under the leadership of Tholkappiar, a close disciple of Agastya, raised the banner of revolt and had the old grammar modified according to the needs of practical usage. The introduction to Tholkappium (பாழிரம்) states that it is full of Indra's Grammar (ஐந்திரம் நிறைந்த தொல்காப்பியன்) Tholkappiar's grammar. "The Tholkappium" is the eldest grammar of the world, and it is still unrivalled, and has not undergone any change worth its name. during the last 8000 years. That is why the Tamil language is still young and virile and has no equal to the simplicity of its diction and grammar rules. Panini came long after to write the present Sanskrit grammar and the sanskrit grammar earlier than Panini's have died out just like Agastiar's.

Till about 800 A.D. i.e. for over 7000 years from the age of Agastyav. Tamil language was written in four scripts. (Refer. Prof. M. Raghava Iyengar (ஆராய்ச்சி தொகுதி) The Brahmi script is the one in which cultivated languages like sanskrit and Tamil were written. The other scripts were used for various colloquial dialects, like Kosal, Mythili, Magadhi, Suraseni, [Sauviri (Mohanjadaro script) etc. As an example of Brahmi script adopted by Tholkappiar it may be mentioned that there are no letters for the sounds ϵ and ϕ (shorts e and short o) in Brahmi and as the new sounds were introduced in Tamil, the letters for the two sounds were formed by adding a dot to the letters long o (ϵ and ϕ). Refer Tholkappium. Again short u (குற்றியலுகர) has two letters in Sanskrit (Ru and Lu), but the sounds have no Letters in Tamil scripts, and short u is used only under restricted conditions. The number of letters in Tamil according to Tholkappier is 51 (fifty one) as in Brahmi and Sanskrit. According to tradition the 49 poets in the 3rd sangam were the incarnations of the lords of the 49 sounds of the Alphabet, with Nakkirar representing the First letter "A". But it should be noted that modern Tamil has only 31 letters (How this happened is part of a study of the History of Tamil script, wanton vandalism.)

The principles and practice of social life were almost the same as in the Aryan homeland, but one special feature of the culture of the early Tamils was that most of the people were good at swordfight, playing on the musical instruments and at agriculture and pasture. Kalidasa while describing Bharata's conquests states that when Bharata (brother of Rama) defeated the gandharva host, he made them lay aside their swords and take up their musical instruments. Valmiki in his Ramayana,

Ayodhya Kandan states Sita while walking towards Chitrakoot adorned herself with flowers like the people of the south. (Valmiki and Vyasa mention the Tamils as Dakshinathiyas, people of the south, while the Pancha Dravidas were people living in the Central portion of India between the Vindhya and the Venkatam). Again in sarga 63 he says that the warriors of Bharata's army while on the march towards Chitrakoot adorned their heads with flower garlands like the warriors of the South. It is well known that ancient Tamil Warriors wore flower garlands (வெட்சி, கரத்தை, உழிஞை, வஞ்சி, தும்பை). Agastya is said to have been a player on yash—a multi stringed musical instrument, and he defeated Ravana in a music contest (நச்சினூக்கினியர்—இராவணனைக் கந்தருவத்தாற் பிணித்து அவனை ஆண்டு வாராமை விலக்கப் பொதியின்கண் இருந்தார்). Kalidasa in Raghuvamsa sarga 6 states that Ravana was afraid of the valour of the Pandyan King and made friends with him. Agastya states that Agastya blessed the Pandyan King whom he worshipped him after completing an Aswamedha sacrifice, Ravana, was then living in the great island continent just a few hundred miles to the South west of the Ancient Tamil country (in the west Indian Ocean).

One of the 18 Yadava clans was called the Haihayas or Nagas or Aruvalars (அருவாளர்). A few of them settled with the others in the Tamil country, but many settled in the great eastern island continent (the east Indian continent). They built a few cities in the Tamil country, on the sea coast and developed a maritime power and traded all over the then known world. The extent of their culture can be seen from Nagpur, Nagapattinam, Nagarkoil, Ankor Vat (Cambodia) etc. The district south of Venkatam hills and bordering the Northern boundary of the Tamil country was called Aruva Nadu, the land of the Nagas. The Vadugar (வடுகர்) who lived north of the Tamil country named the entire Tamil people as Aruvar (Nagas). Their flag was the cobra flag, and hence they were called Nagas. The Present day cobra worship is a heritage from this group of people. A few Nagas settled in Southern Persia and became the forefathers of the Chaldeans. Maha Rishi Veda Vyasa states that they were sun worshippers and were very good at Astronomy. According to him, Brahmin scholars studied under them and learnt the secret laws of Astronomy (Anusani Parva). Their capital in the Eastern continent was Bogavati. Because they lived south of the equator, they were called dwellers of the lower world, for according to Puranic geography the northern Hemisphere was the upper one and the Southern one was the lower one (Patala). The Nagas freely inter married with the other peoples of Bharat, and the Naga maidens were considered very beautiful. A local chieftain of the Nagas was a good disciple of Agastya, and he was a member of the Tamil Sangam. His name was Muranjloor Mudi Naga Rayar முரசூதியூர் முடிநாக ராயர் the crowned king of the Nagas of Muranjloor. They built temples for Agastya which are extolled by Sugriva in the Aranya Kanda of Ramayana. Sisu in Prakrit means sira in Sanskrit meaning head, Sisu Nagas of Northern India were Naga crowns on their head and "Mudi Naga" is an exact translation of "Sisu Naga."

In their ancient home in Central India, the Nagas or Haihayas became a powerful race, and built an empire, with its capital at Mahishmathi, at the mouth of river Nerbada. They were a good maritime race. Their emperor Arjuna, son of Krita Veerya, was a terror to the Kings of the North and the South. Even the far famed Ravana was defeated by him and his progress northwards was halted at Janasthana (Meaning Military Contonment and City) on the Godavari (near modern Nasik). Because of his tyrannical and evil ways he was condemned by his own ministers and Acharyas of the Brahmins of the Bhargava Gotra. He got wild and ruthlessly killed Rishi,

Jamadagni, the leader of the Bhargavas, The result was the people rose against him, lead by Jamadagni's son, Rama of the battle-axe, பரசுராம், and the Nagas were completely exterminated, A few escaped into the mountains of Kashmir, chota Nagpur and Assam,, where we still find their descendents in different stages of semi-civilised condition. Many migrated and settled in the East Indian continent. A few lived in small groups in Bharat in the secluded forest on river banks.

Agastya then turned his attention to the cultural and spiritual development of the people. True to the ancient code of Manu, Agastya fixed the law that it is the right of the 18 velirs alone to war the crown. This was very strictly observed in Tamil Nadu from the days of Agastva. No other person except kshatriya ever sat on a throne in Tamil Nadu. Brahmins have always been Purohits, Ministers, scribes' king makers and empire builders or engaged themselves in Tapas and Yagna. They set the standard for moral conduct (vide kuralf and never participated in Adharmic political intrigues. இது மலைய மாதவன்...உரித்தென்கின்றது (போருள் 32) already quoted. He had 16 temples built to the vedic gods in his Ashram near Panehavati (Nasik). His personal attachment was to the Vedic gods. So temples were built for them all over the Tamil Nadu in all important settlements. The great temple for Indra was built at Kaveri Poompattinam, at the mouth of the River Kaveri, named after king Kavera, the ruler of the region. Temples for Subramanya, the God of Yagna, was installed on the tops of all important peaks. Indra worship and the performance of Yagna were the greatest festivities of the early Tamils (refer Sila Padikaram, Paripadal, Thiruvaimozhi etc). Lopa Mudra, the wife of Agastya, was a great Rishi of the Saktha cult (worship of Goddess Sakthi). She built the central shrine at Madura for Maduravalli, for Kamatchi at Conchi (Conjeevaram), for Bagavathi at Kodunkaloor (Caranganoor in Malabar குரங்கனூர் அஞ்சனைக்களம் birth place of Anjanai mother of Hanuman) and a number of temples for Sakthi, Durga, Saraswathi etc., all over Tamilnad. The most important of the temples built by Lopa Madra was the one of the top on the Kumari Mountains for Kanya Kumari (Virgin Goddess) at the extreme south of the Tamil Nadu (when it was submerged in 2787BC, by the great earth movement. a new temple was built for her at the present site in the extreme south of Bharath.) Agastya always called his wife Lopamudra as Kumari. (Read Nachinatkiniars introduction to his commentry on Tholkappium) and the Goddess was named after her. The river and mountain in the region were named after her-as Kumari, just as River Kausiki (Kosi of U.P.) is named after Viswamitra's sister (Vide Ramayana-Ayodhya Kanda), River Kaveri is named after King Kavera's daughter and many other rivers of this land.

The Yadavas were mostly worshippers of Vishnu. One of the early Yadavas, Satvatha, inaugurated the special worship of Vishnu in his Pancha Ratra Agama called Sathvatha Samhita. It is said Adishesha, a great Naga saint, was his Acharya (teacher). So throughout the length and breadth of Tamilnad, temples were built for Vishnu. The greatest temple was built on the Northern boundary on the top of the Venkatam Hill. It is called Nediyan Kunram (தெடியோன் குன்றம், தெடுமாஸ் குன்றம்) Nedumall kunram, meaning the hill sacred to Trivikrama. (Thiruvikrama was the last of the avatars of Vishnu known to the Aryan sages at that time, as Sri Rama and Sri Krishna were not born then).

Vishnu worship continued as the major religion of the Tamils for a long time-refer Paripadal. Tholkappium in describing the five fold natural regions of Tamil Nadu, follows the ancient pattern of the Sanskrit Grammar, though only four types (நாசலம்) exist in Tamil Nadu - (1) Naithal (தெய்தல்) sea coast (2) Marudham

(மருதம்) cultivated plains (3) Mullai pasture land (4) Kurunji (குறுஞ்சி) hill country and (5) Palai (பாலி) Desert or uncultivable waste. These are named after the five flowers peculiar to the region. Each region had its own culture, human activities type of food, dress and God or Goddess. They are carefully and truly described in the early Tamil works. The Gods of the regions are all vedic gods being respectively Varuna, Indra Vishnu, Subramanya (or Muruga, the beautiful) and Durga. The Sangam literature and Tirukural mention only Manu Dharma, Vedic Gods and Yagna. Refer - Mahavidwan R. Raghava Iyengar's Tamil Varalaru ch. 8 p. 70 Tamils are Gandharvars, ch. 9 p. 85-Social and Religious customs of Tamils - ch.10 p.102 - Agastys.) The TamilNadu with its unique culture and language was firmly established by 6000 B.C. The first and the second Sangam periods of the Tamils were from 6500 B.C. to 2787 BC. It was during this time Valmiki (4700BC) and Vyasa (3100BC) lived in Northern India and wrote the great epics Ramayana and Maha Bharata. Since the whole of India from the Himalayas to the Comorin and from Gandhara to Kamarupa (Assam) was considered the land of the Bharata (பரதன்) in the Vedas and his children are called (பரதர்கள்) Bharatas. Manu's definition of Bharata Desa in the Manu Dharma is wonderful. It is the land where the black buck roams free. West of Gandhara it is the land of the wild ass, east of Kamroop it is the land of the wild elephants. The black buck is not found in any other part of the world and if taken to other areas it does not thrive but dies out. Even in Bharat it is found to thrive well only in the South. (The central government proposes to have a sanctuary for it in the Vedaranyam forests of Tanjore District). In vedic culture Black buck, Yagna and kusa grass go together. The whole of Bharat is therefore Yagna desa i.e. where Yagna is permitted to be performed by the Ancient rishis. Due to constant intercourse through land and sea the entire country was knit with a common and strong bond of culture. Rishi ashramas were distributed all over the country from Badri (Himalayas) to Podiyal (in Madura District). The emperors who performed Aswamedha, made a conquest of the whole country. People constantly moved about for visiting holy shrines and holy river ghats (Arjuna's Yatra), good and safe roads were maintained throughout the country. Inter-marriages between kings of the North, East, south and west were very common. Arjuna married the Pandyan princess and the great Pandyan emperor with one akshohini of army participated in the great Maha Bharata war and Vyasa gives a graphic description of the Emperor and his army and the valour of the warriors (udyoga parva). During this period the Tamils became a great Naval power and their maritime activities covered the whole of the Indian ocean. with Kapatapuram as the centre of their activities. Their flag bore the Fish emblem. The Pandyan is called Thirayan the ruler of the waves. Their ships ploughed and churned the Southern ocean. Large quantities of pearls and Conch were exported to Northern India (then as now). Conch bugles for warriors and conch bangles for women were a necessity. Yadavas being Vaishnavas, they endowed their great gods with conch bugles (Road Maha Bharata for varieties of bugles). They established colonies and traded with the east coast of African, the Southern coast of Arabia, Iraq. and Persia and drove the Persians westwards into the Mediterranean.

From 6500 B.C. to 5800 B.C the Tamils increased in population and established many colonies. One group called the Cholas settled in the valley of the River Kaveri when the birth of the S.W. Monsoon (in 5800 B.C.) made it a rich region. Just the same time the Gangetic valley became very important under Emperor Bagiratha. Embankments were built and the whole of the valley of the Kaveri became a great granary, under the great Chola king Karikalan. The Cholas were of the solar dynasty and related to the Nagas of the lunar dynasty and a few of them settled in the Persian coast and were called Chaldeans.

They were great astronomers and navigators. The cholas built the great city of Urayoor in the central part of the Cauvery valley (compare Madura on the Pahruli). Under the leadership of King Kavera, the great Vaishnava Yadavas built the great temple of Srirangam about 4700 B.C. Kavery poompattinam was built as the port town at the mouth of the River Kaveri (cl. Kapatapuram), Valmiki mentions Svetaranya, a suburb of Kaveripoompattinam, in Aranya Kanda - Karavada chapter.

A third group called the cheras settled on the narrow neck of land opposite the Palghat gap, built the great port of Musiri and the great temple for goddess Bagavathi at Kodungaloor (Caranganoor). They slowly spread into the interior and occupied what is today called the Coimbatore and Salem districts. They met the cholas in the region round about Erode. They developed the inland trade of the Middle Tamil country and connected the east and west coasts (Kerala and Canara did not exist then). It was all marshy along the West coast from Goa to cape comerin, except for the strip round about Calicut) Valmiki in Kishkinda ch. 42 mentions the city of Murasee Bandanam (முரசீபந்தனம் - Musiri) Marichi in Sanskrit means pepper. So Musiri was the pepper port of India. It was situated at the mouth of the River Choorna or Kanni (கூர்னூ or கன்னி), Pliny, Ptolemy, and other greek travellers of later times mention Musiri as a very important port on the west coast of Southern India. The Mahagony wood for Tutankaman's cot (Egyptian Pharaoh) must have been sent only from this port. It was in 4800 B.C. that Parasurama brought a group of Brahmin disciples from central India and established a colony in Kerala, whose marshes were slowly reclaimed and terrace cultivation in the hill slopes were developed. The hill tribes of the western ghats came under his influence. Slowly they became cultured, but maintained the earlier characteristics of the hill tribe-matriarchal laws. The new group of Yadavas blended with the natives and the Malayali race was established. Unmolested by the Pandyas and cheras they lived in the mid Kerala country between the hills and lagoons. Many millenniums later, the cheras and the Malayalees merged into what we today call Keralites.

Between 4200 B.C. and 3100 B.C. the Yadava Homeland got cut up by internal warfare. Their sea trade was destroyed by pirates called Pancha Janas (The five clans of pirates). The great ports Raurika, Prabhas, Dwaraka and Brighu Kachcha were destroyed and became dens for the pirates, who now and then molested the people of western India and carried away men, cattle, grain and money, Gujarat became deserted and the Yadavas of the middle country were oppressed by the emperors of Arya Varta. It was at this juncture that Sri Krishna was born, 3112 B.C. He brought unity among the Yadavas. built up a Yadava republic, and made the Yadavas a powerful martial race. He destroyed the power of the Panchajanas of the Southern seas, and got the big conch bugle, Panchajanya, when he went in search of the lost son of his Acharya. Sandeepani of Avanti (ajjain) he wiped out the naval power of Salwan, king of the country of Martikavatham whose capital was Soubhapuram (Maha Bharata - Venaparva - Krishna's conversation with Udhishtra in Kamyavana. He rebuilt Dwaraka and other ports and once more made the yadavas a great maritime people. Naturally they came in conflict with the pandyas on the seas. The pandya king was killed by Krishna, and his son wanted to take revenge and harass Dwaraka. But his ministers advised him to become a friend of Sri Krishna, and rule the oceans jointly helping each other. This Pandian King is extolled as a great warrior with an army of one Akshohini (18 Akshohini fought in the Maha Bharata war,). He stood by the side of Sri Krishna in the great Maha Bharata war, and died a heroic death at the hands of Drona (Udyoga Parva and Drona Parva of Mahabharata. Sri Krishna was a member of the second Tamil

Sangam (துவரைக்கோமலன்) of Kapatapuram, just as Valmiki and Gautama were members of the first sangam, It is stated in the M.B, that Arjuna married the Pandian princess Chitrangadai of Manaloor puram and her friend Ulupi, a Naga princess. Iravan, son of Ulupi, died in the M.B. War after a heroic show of valor and self sacrifice. Babruvahan, son of Chitrangadai did not participate in the M.B. war at the express request of the Pandiah Emperor, as he was the only heir to the he throne. Later he met his father Arjuna in battle (not knowing each other) and defeated him. Kalidasa in Raghuvamsa sarga 6 & 18, states that Ravana was afraid of the power of the Pandyas and solicited their friendship, He states that Pandyas paid tribute to Ragu. It must be noted that Maha Bharata which refers to the Pandyas in a number of places does not mention Madura as their Capital. Manaloor puram (a suburb of Kapatapuram) is mentioned as their Capital. From 3000 B.C. the Rajaputana area and the gangetic valley showed signs of rising, while the westcoast of South India began to sink. The southern tip of Tamil Nadu suffered from tidal waves. Slowly the great Pandyan king நிலந்தருதிருவிற்பாண்டியன் II, led his people further north and it is said that he was last of the millions of people who crossed the Kumari river northwards and the advancing tide washed his feet. A poet who saw the rocking and sinking of the land has described it.

The First Tamil sangam was established by Rishi Agastya at Madura on the Pahruli River about 6500 B.C, 89 (Pandyan kings ruled there from 6500 BC to 4800 BC. Later Kapatapuram became more important and the Capital was shifted to it. The second sangam was established there from 4800 BC to 2800 BC. 59 kings from vendar chezhian to Muda Thirumaran ruled there. Muda Thirumaran (lame) is also called Nilam Tharu Thiruvini Nediyan (நிலம் தருதிருவின் நெடியன்). It was during his time the sea swallowed the southern Tamil country. (It must be noted that there is agreement between the chronology of North Indian kings and South Indian kings) ! வடிவேலேறிந்த வாள் பகை பொருது பரிபுளியாற்றுடன் பன்மலையடுக்கத்து குமரிக்கோடுங்கொடுங்கடல் கொள்ள !! வடதிசை இமயமும் கங்கையும் கொண்டு தென் திசையாண்ட தென்னவன் வாழி—சிலப்பதிகாரம் 11-5-7.

(iii) இடைச்சங்காலத்து...கடல் கொண்டொழிந்தது—already quoted

(iv) “மலி திரையூர்ந்து தன் மண்கடல் வெளவலின்

மெலவின் ற்ற மேற்சென்று மேவார் நாடிடம் பட்ட!

புலியொடு விண்ணக்கிப்புழை பொறித்த கிளர்க்கண்டை!

வலியினுள் வணக்கிய வாடாச்சீர்த்தென்னவன்” கலித்தொகை, 104,

Tholkappium was published in the second sangam. The following were important members of the Sangam—இருந்தையூர்கருங்கோழியும், மோசியும், வெள்ளூர்க்காப்பியனும், சிறுபாண்டரங்கனும், திரையன் மாறனும், துவரைக்கோமலனும், சேரந்தையும் ஆவர்.

The grand son of this Thirayan Maran (a naval chieftain was Kari Marappiran—காரிமாறப்பிரான்—(Satagopa or Nammalwar), who knew directly from his father the great exploits of Sri Krishna (துவரைக்கோமலன்). He was born on the 43rd day after Sri Krishna's death. (There were many Kari Maran and Maran Kari in succession in that line). Madurakavi, a great Tamil poet, was a Younger contemporary of Sri Krishna and older contemporary of Sri Satagopa.

When finally the south Tamil country sank about 2787BC, the Pandyan king established his kingdom in the basin of the Tambaraparni. A new Madura was then built on the Vaigai river. (It is called Koodal in Tamil, as it was built at the junction of Rivers and roads in the vas basin of the Vaigai river). A new port town was built at the mouth of the River Tambaraparni, named Korkai (கொற்கை). Kautilya in Artha Sastra (1460BC) mention the excellence of the pearls of Korkai. The third sangam began from the buliding of the New Madura (Koodal-கூடல்) and continued till it was finally wound up about 550 BC. The central temple was built by the Pandian Empress Meenakshi and it was named after her. Greek writers mention that the story of Meenakshi's marriage was current at Pataliputra (about 300 B.C.) Nakeeranar was the last of the presidents, and Valluvar published his Thiru

Kural at this time. Silappadikaram and Manimekalai were written soon after the dissolution of the sangam. It was about 504 B.C. that Kaveripoompattinam was destroyed by a tidal wave ('Tennets' (Ceylon and other works).

Paripadal (a sangam work) and Mani Mekhalai (a post sangam epic) mention that Krittika was the first of the 27 Nakshatras, i.e. the vernal quin ox was in Krittika. The vernal equinox takes about 960 years to move over one Nakshatra. Therefore Buddha must have lived in the period from 25000 to 15000 B.C. (Refer to date of Buddha's birth 1816 BC in my book on Puranic chronology from Udhishtra to Salivahana). The sangam and post sangam works like Ahananooru, Pura Nanooru, Paripadal, Kalithogai, Silappadhikaram etc. give plenty of information about the culture, religion, political and economic condition of the Tamil Nadu during the period from 2500 BC to 1500 B.C.

It was during this period (from 2500 to 1500 BC) that Tamil Nadu received the influx of Buddhism, Jainism, and many other new religions of Northern India, but the mass of the people stood solid by the ancient Vedic religion and the worship of the Vedic gods, just as the violent onslaught of Islam, and the persuasive drive of Christianity have not made even a small dint in the social life of the upper classes during the last 1000 Years (from 1000 A.D.) Saint Nammalwar of 3031 B.C. lived long before the Third sangam age and Adi sankara (born 604 BC) established the Vedanta religion and Shanmathas (worship of six gods) at the end of the periods. The political history was stable under the Pandian emperors and their vassals and blood relatives the Cholas and the Cheras. For short periods now and then Tamil Nadu was part of the Magadha empire, Social, religious and cultural unity of Bharat was maintained.

(1) அகநானூறு-69-உமட்டுர் கிழார்மகனார் பரங்கொற்றனார்:—'வின்பொரு நெடுவரை இயல்தேர் மோரியர் பொன்புனை திகிரி திரிதரக் குறைத்து அறை இறந்து அகன்றனர்'. Refers to the Road built by Mauryas up the Podiyil hills to the shrine of Saint Agastiyar.

(2) அகநானூறு - 251 - மாமுலனார்: - "நந்தன் வெறுக்கை எய்தினும்"—
(13) "பொதியில்...மோகூர் பனியாமையின் பகை தலை வந்து, மாடுமழ தானை...வம்ப மோரியர் புனைதேர் நேமி உருளிய குறைத்த இலங்கு வெள் அருளிய அறைவாய் உம்பர்". Refers to the defeat of the Pandyas in the battle of Mohur (near Madura) and the beautiful roads laid by Mauryas.

(3) அகநானூறு - 265 - மாமுலனார்:—"நல்புகழ் நிறைந்த வெல்போர்ந்தர், சீர்மிகு பாடலிக்குழி இக் கங்கை நீர் முதல்கர்ந்த நியங்கொல்வோ...". Refers to Nanda's greatness as an emperor and the great hoard of gold he had under the Ganges.
அகநானூறு-581-மாமுலனார்

(4) "களைகுரல் இசைக்கும் விரைசெல்ல கடுங்களை முரண்மிகு வடுகர் முன்னுடைய மோரியர் தென் திசைமாதிரம் முன்னிய ரெவற்கு, விண்ணுற வோங்கிய பனி இரும் குறைத்து ஒண்கதிர்த்தி கிரி உருளிய குறைந்த அறை"

Refers to the Maurya army with the valiant Andaraks in the vanguard and the excellent chariot roads laid by them up the Podiyil hills.

From 500 B.C. the country was cut up into a number of Kingdoms. The march of the Bharatas extended westwards over land and Sea as far as the Mediterranean Sea and east Africa, eastwards over the Pacific as far as the Americas where the first empires of Peru, and Mexico were established. The Tamils had a great share in this great expansion.