ASTRONOMICAL LIGHT ON VEDIC CULTURE

By
R. V. VAIDYA,
M.A., B T., Jyotirvidyaratna

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FOREWORD

We have pleasure in placing in the hands of learned readers this book which is likely to prove the first of its kind in the market.

Prof. Vaidya, its author, has to his credit a rare combination of qualifications. He is an M. A. in Maths. and a Graduate of Sanskrit. He knows Astronomy—Oriental and Western, Theoretical and Practical, both. His experience as the Superintendent of Observatory over a decade, has helped him in finding out the hitherto lost system of Astronomy in Vedic Age. He has attempted to correlate the three main branches of Indology viz: Vedic Language, Astronomy and Sacrificial System, which is one of the salient features of the book.

He has also attempted to trace the changes in Astronomical and Sacrificial Systems in the Vedic age extending from the years 12000 B. C. to 3000 B. C. He has also attempted to show how Sanskrit words have lost their Vedic meanings during bygone Ages, and also how Christanity, Islam and Parsee religion can be found to have been influenced by the Vedic Culture.

P. V. Gadgil,
361, Dr. D N. Road,
1st floor, Fort, Bombay-1

Bombay,
Dated 21st March 1965

ERRATA

Page 16 Last three lines in the footnote, viz. "प्रतीचीनं संगवात्" are to be regarded as a footnote on "षोडशी, उक्थ्य, अतिरात्र, etc" occuring in line 20 on page 18

Page 18 : The footnote 22 viz : "पूर्वाण्हो वै देवानां – – – etc" refers to the words "These five parts" in the top line on page 19

Page 19 . The number 23 printed on "These five parts" is to be read as 22"

Page 22 · Delete the line "For complete footnote see" under footnote No 24

Page 32 Delete the first two lines at the top viz : "we quote below etc.'

Page 33 Delete the footnote "*cf संवत्सरस्य समता etc."

Page 33 see Trisuparna etc refers to "'चातुर्मास्य यज्ञा'" on page 32

Page 33 Delete the first two lines at the top, viz "see figure V "

PREFACE

The Vedic religion and culture is supposed to consist mainly of the three branches, viz Vedic literature, Sacrificial system and Astronomy While considering the almanac controversy (पचागवाद) in all its aspects, it has come to our notice that its indecision was mainly been due to lack of coordinated knowledge of the early Vedic tradition about the three branches on the part of the participants in the controversy The study of Vedic passages which are put forth as their supports by various scholars interested in the almanac controversy, has led us to the conclusion that the study of the three branches has continued for centuries quite independently, without even suspecting that a correlation between them was considered an essential factor in the early Age The following lines from the Vedangajyotish declare in unequivocal terms that the Sacrificial system was evolved and various adjustments made to it to suit the required system of time units and the Vedic passages were composed for being recited at the time of performing sacrifices —

वेदा हि यज्ञार्थमभिप्रवृत्ता कालानुपूर्व्या विहिताश्च यज्ञा ।
तस्मादिद कालविधानशास्त्र यो ज्योतिष वेद स वेद यज्ञान् ॥

It was, therefore, very necessary for a student of Vedic Sacrificial system to understand the Astronomical system of time units.

A study of Mahabharat, Brahmanic Works and of even of Puranas has shown that Sanskrit words like अह, संवत्सर, कला, मुहू, कल्प, पक्ष etc, have lost their original Vedic meaning during the Smriti Age.

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* The following lines also prove that Astronomy was considered as the first subject of study :—

(1) [illegible]

(2) [illegible]

It was, therefore, thought very essential to probe into the unknown dark of the pre-Vedic or Early Vedic Age and to try to see if some clues can be obtained just to enable us to throw some light on the subject. It is admitted on all hands that, of all methods of fixing the chronology of the Vedic period, the **Astronomical method is the most reliable and verifiable one.** We, therefore, decided to follow the following principles of research The merit of our efforts has, of course, to be judged from the degree of impartiality of approach made and on its novelty

THE PRINCIPLES OF RESEARCH

(1) The period of thousands of years from now to the distant past has to be divided into four Ages —

(a) **The Vedic Age** (वेदकाल), in which people described their actual experiences of life lived and Astronomical or Geographical scenes and conditions witnessed During this period, those Venerable Sages who are known as मन्त्रद्रष्टार, have to be assumed to have lived and **actually seen whatever has been described in Vedic** passages by Rishis during the Shruti Age

(b) **The Shruti Age** (श्रुतिकाल)– During this age, all knowledge handed down by the Venerable Sages to their posterity traditionally by mouth was incorporated by them in the form of hymns and mantras. These ' Junior " Sages may have made some modifications also in cetain cases

(c) **The Smriti Age** (स्मृतिकाल) – Vedic Scholars living in this Age continued to enrich the existing stock of knowledge by making additions and alterations to it. Words like "इति श्रुतिः" suggest the composition of such mantras during this period E. g ' प्रमादात् कुर्वताम् कर्म सपूर्ण स्यात् इति श्रुति " suggests that this mantra has been composed in the Smriti Age

(d) **The Puranic Age** (पुराणकाल) – This is notable for the compilation of dozens of Puranas Passages containing the phrase इति स्मृति also point to this Age for their composition

It is needless to say that the Vedic knowledge of ' actuality ' and ' Rishis have passed through different unchanged forms

during these Ages, and these "particles of knowledge" can be arranged in the descending order of reliability It has been decided to limit our enquiry up to the Smriti Age

(2) In adopting the Astronomical stand, so far as our knowledge goes, we have assumed a **principle which has not been adopted by any scholar in fixing up a date.**

(a) "Because the Vedic Sages never knew the astronomical phenomenon of the 'precession of *equinoxes*', the fixation of a date on the basis of the occurrence of Vernal Equinox in any particular asterism would be a fallacy and a mistake."

(b) Because passages like the following clearly show that the commencement of a year, a sacrifice and a Praja pati always coincided with a star rising in the East, the rise of Star exactly in the East should be taken to be our guiding principle for finding any Nakshatra Age.– E. g "कृत्तिकास्वग्निं आदधीत ॥ सर्वं ह वै नक्षत्राणि प्राच्यै दिश श्यवन्ते ॥ कृत्तिका न च्यवन्ते तस्मात् कृत्तिकास्वग्निमादधीत ॥"

(c) By the term 'Nakshatra' has to be taken a star, a cluster of stars or a constellation and not a divisional nakshatra of modern conception. The lines, "कृत्तिका श्रवणं पुष्य चित्रास्वात्योर्यदंतरम्", "आसन् मघासुमुनय", चित्रा शिर विशाखे उरू"etc clearly show that these were names of *stars and not of imaginary divisions*

(d) To remember that तिथि and पक्ष of today s conception never existed in the *Early Vedic Age* The terms कल्प ऋतु and नक्षत्र necessarily denoted time units, while मनु was a *Governor for social and religious affairs and* not a time unit.

(3)(a) If a passage or a line or a word would be seen to admit of two or more meanings, we have to accept that which would explain some astronomical or sacrificial event

(b) To assume that all astronomical *units of time* were determinable by some astronomical phenomenon or condition which had suggested to Early Vedic Rishis their creation

(c) To assume that all sacrificial systems came into existence because of various time units and were brought into use to measure them

(d) To assume that Vedic passages should be expected to describe the astronomical scenes and conditions which were actually seen and also various aspects of sacrificial systems employed by the Sages.

(4) All Sanskrit terms must have some meaning The names of deities, planets and stars could not have come into existence arbitrarily without their association with their actual experience of life.

(5) While attempting to interpret a Vedic passage, to set aside the views of commentators, and to test them on the touchstone of actuality, because, in accepting the interpretations of भाष्यकार, there is a danger of being carried away by their pre-conceived notions, which may prove to be quite wrong

We believe that research is endless. It knows no finality All theories are, therefore, tentative and provisional and likely to be modified in course of time. All scholars of Indolgy are, therefore, requested to subject our researches to closest possible scrutiny and thus help the sacred cause of Truth They are also requested to see how far we have succeeded in establishing a correlation between the three branches of Vedic culture. All adverse criticism would be gratefully welcomed and duly considered, provided it is free from bias of any kind and is at the same time supported by sound argument.

Our grateful thanks are due to—

(1) Late Shri G B Makoday, B. A, of Indore, an eminent scholar of Vedic literature, who urged us to undertake this kind of research work,

(2) The following eminent scholars of Vedic literature for having suggested correct interpretations for some of the Vedic passages —

(1) Dr H R. Diwekar, M A., D Litt., Sahityacharya, Gwalior

(ii) Shri R. V. Kumbhare, M. A., B. T., T. D., Retired Deputy- Director of Education, Jaipur

(iii) Ahitagni D. V. Nene, Ayurvedacharya, Indore.

(3) Shri P. V. Gadgil, Proprietor, Makarand Sahitya, of Bombay for having undertaken to publish our Researches, and for publishing this essay so soon.

Bombay,
January, 1961

R. V. VAIDYA

CONTENTS

(Tithi) as is used by us today —

त्रयोदश रात्री दीक्षित स्यात् त्रयोदश मासा संवत्सर
पचदश रात्री दीक्षित स्यात् पचदशवार्धमासस्य रात्रय

The following lines, for instance, from the well known hymn (पुरुषसूक्त) Purushasukta, which is chanted by us practically every day used to make me uneasy all these years and I used to ask myself the question, 'could there have lived sages on some part of the globe who used to perform sacrifices very different from those known to our Vedic Rishis'? —' यत्पुरुषेण हविषा देवा यज्ञमत न्वत ॥ वसतोऽस्य आसीदाज्य ग्रीष्म इध्म शरद्हवि ॥ तेन देवाऽयजन्त ॥ सप्तास्यासन् परिधय त्रि सप्त समिध कृता ॥ देवा यत् यज्ञमतन्वानाऽबध्नन् पुरुष पशुम् ॥ यज्ञेन यज्ञमयजन्त देवा ॥ तानि धर्माणि प्रथमानि आसन् ॥ अतो देवा अवन्तु नो ॥ तद्विष्णो परम पदम् सदा पश्यन्ति सूरय दिवीव चक्षुराततम् ॥ तद्विप्रासो जागृवास समिन्धते विष्णोर्यत् परम पदम् ॥

These lines have besen composed by Vedic sages. They herein refer to some persons calling them as देवा (Gods) who had a different system of religion to follow, and those who did not require any living animal (पशु) to offer, but the—पुरुष-विष्णु — विश्व—i. e. Universe. They did not need any (घृतम्) ghee, or (इध्म) fuel or (हवि) oblation to be offered to fire, for them the Vasant (ग्रीष्म) Groeshma and the (शरद्) Sharad served the pur pose. Those of them who could keep awake for nights together continuously could see the exalted position of God Vishnu.

The conditions and scenes described in the above stanza are not observable in any non polar region We began to ask ourselves the question Could there be a place on the globe where these scenes are observable?' We were thus led to find out if a resident under the North Pole could see such scenes. We, therefore, started to find out what astronomical scenes and conditions would an observer in the North Polar region observe during a very long period of say, 1000 years.

INTRODUCTION

The Vedic literature abounds in Mantras in which terms like युग, कल्प, सवत्सर, अह, मुहूर्त—etc. occur We never believe that in the early Vedic age the term युग (Yuga) could have been a period of millions of years. The following verse from Mahabharat quotes the time units in vogue in the time of Sage Vyas.

कल्प काष्ठाश्च युज्यन्ते मुहूर्ताश्च दिनानिच
अर्द्धमासाश्च मासाश्च नक्षत्राणि ग्रहास्तथा
ऋतवश्चापि युज्यन्ते तथा सवत्सरोऽपिच
एव कालविभागेन कालचक्र प्रवर्तते ॥

This led us to doubt if the term युग (Yuga) in the present day sense was at all in use in the Vedic age for measuring time. The lines like the following from the Vedas clearly show that the term युग (Yuga) indicated a very small period of time, . one which could be measured in the human life – " दीर्घतमा मामतेयो जुजुर्वान दशमे युगे " Rig V 1 1 58-6

" Dirghatama, the son of Mamata became old in the 10th Yuga "

While the above 2 verses led us to suspect if the terms कल्प (Kala), ऋतु (Ritu), and नक्षत्र (Nakashatra) may have been time units and the use of अर्धमास[1] (Ardhamasa) in place of पक्ष (Paksha) was also significant.

The following lines from the Brahmanas made us ponder and think if there could have been an age when they used a year consisting of 13 months, and it was also worth while to find why the term रात्री (Ratrihi) has been used in place of तिथि.

---

1. Cf. तै ब्रा 3 11 1

(a) ' लोकोऽसि स्वर्गोऽसि सवत्सरोऽसि नक्षत्रेषु श्रित । ऋतूनां प्रतिष्ठा ऋतवस्थ सवत्सरे श्रित मासास्तुह श्रिता अर्धमासानां प्रतिष्ठा । अर्धमासस्य मासु श्रिता

(b) तै सं 7-5-25

' अहोरात्रे निमिषो अर्धमासा पर्वाणिमासा सधानानि ऋतवोंगानि "

months duration अह (Aha) and an equally long dark period रात्रि (Ratrihi) See diagram given on last page.

5. When the Sun comes to the Celestial equator it becomes first visible to the residents of the Polar region. This phenomenon occurs only once after a year but its place of rising gradually shifts in a reverse direction [4] Although this shifting is very slow, it cannot escape the notice of the observer where a long period of 1000 years may have passed

6. Modern astronomy tells us that the rate of this shifting which is known as the precession of equinoxes is about 50 24 seconds per year, in other words the Sun would come to the same point of the ecliptic as the equinoctial Sun in about 25,790 or roughly in 26 000 years.[5]

7 One complete round of the Sun which would be equivalent to our day of 24 hours duration can be noted by the passage of the Sun past a pole fixed to denote the first position of the equinoctial sun or the East. When it would be a dark period of 6 months, this time unit would be observed by observing the succes sive passages of any particular star past the pole[6]

8. The moon also would show a long period of time. So long as her declination is south she would remain invisible but as soon as the declination would be zero she would make her first appearance to the residents.[7] She would also whirl round and round to a height of about 30 degrees, and after giving a continuous light for about 15 days, would disappear again. See diagram on page 7

The resident here will not fail to notice the following two peculiarities about the moon rise.

1 The periods between her two successive rises or sets is about 27 3 days.

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4 See (तै ब्रा १ १ २)

5 It will be shown later on that the early Vedic Rishis had adopted a period of 27 000 years, each consisting of 13 months of 27 3 days each. This comes to about 2o 000 years of 365.25 mean solar days.

6. The pole was सविष and the 24 hourly periods were the अह and रात्रि (not तिथि) in the early vedic age

7 This was a very important event in the life of the Vedic Rishis and was termed the चदर्दर्शनम. They made rejoicing and hailed her on her rise.
Cf यथा नवो भव त जायमानाऽहाम ——— १० ७-८५ १९

2 On the occasion of her rise she would appear with a different phase i.e. would appear every time new (नवो नवो भवति)

The following table specially calculated for the year 1963 would lend support to these conclusions.

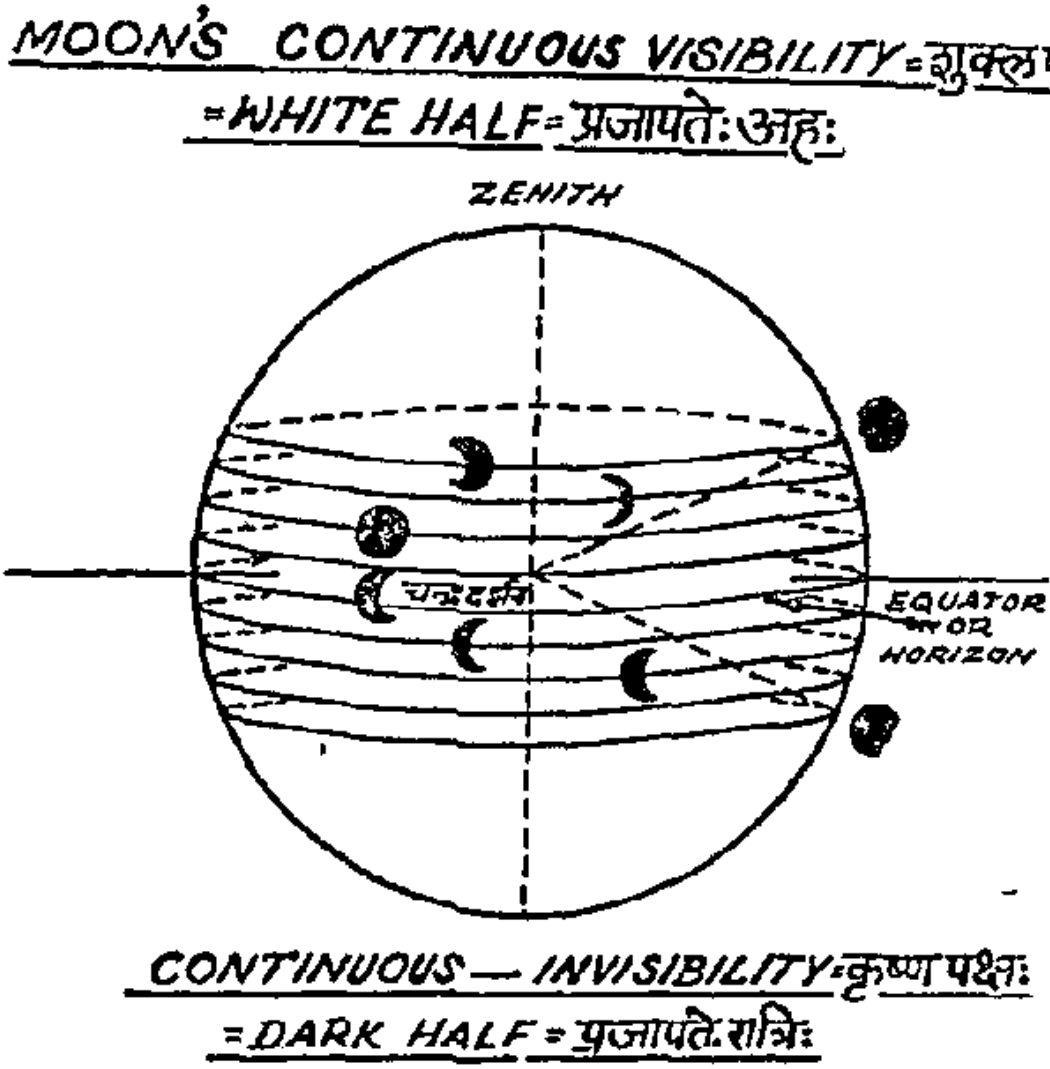
Moon rises and sets at the North Pole during 1963 A. D.

1963 A. D.

MOONRISE			MOONSET		
Date	Approx. Hour	Phase	Date	Approx Hour	Phase
3rd Jan	6 Hour	S 7	17th Jan	0 Hour	K 7
30th Jan	12 „	S 5	13th Feb	6 „	K 5
26th Feb	18 „	S 3	12th Mar	12 „	K 2
25th Mar	19 „	S 1	8th April	18 „	S 15
22nd April	6 „	K 14	6th May	6 „	S 13
19th May	20 „	K 12	30th June	0 „	S 11
16th June	12 „	K 9	30th June	6 „	S 8
13th July	12 „	K 7	27th July	8 „	S 6
9th Aug.	16 „	K 4	23rd Aug	12 „	S 4
6th Sept	0 „	K 2	19th Sept	22 „	S 2
3rd Oct	7 „	S 15	17th Oct	2 „	K 15
30th Oct	10 „	S 13	13th Nov	6 „	K 13
27th Nov	13	S 11	10th Dec.	9 „	K 10
24th Dec	12	S 8			

[Note —The above Table gives approximate moments of mathematical rise of the Moon and of her set in the polar region during the year 1963 A. D]

9 The celestial equator slides on the ecliptic in a retrograde direction In so doing it passes through each star whose latitude is less than 23½ degrees. Thus each of such stars can get its turn of being an eastern star The equator can pass through the same star twice during the period of about 26,000 years, the two ages being separated by about 13,000 years. On the first occasion it intersects the ecliptic at an angle of 23½ degrees, and on the other, it will be seen intersecting at an angle of 180° 23½° degrees. Thus in the time Krishna were an eastern star the year 3,000 B.C. they were so even in the year 16,000 B.C.



Another interesting thing about the risings of stars as an Eastern star, is that they do not necessarily rise in the chronological order of their place in the list of stars. Thus, although Aldeberran रोहिणी (Rohini) is a succeeding star, it rose as Eastern star in the year 2160 B.C. while कृत्तिका (Krittika) rose in 3000 B C

It can also be found from the above table that the moon creates a long continuous lighted night of more than 14 days and a continuous dark period of about 13 days

10 As the polar region is a very cold country, the resident there will have to make a provision against cold, this becomes necessary so particularly during the dark night of 6 months duration Naturally enough, he must light fire and maintain the fire at any cost. During the long day of 6 months, however, he

could devote his time and energy in procuring fuel, grass, and other items of provisional store for the cold season

11 The observer will not fail to see that the planet Jupiter sometimes would make his appearance, and would remain above the horizon continuously for 6 years. Similarly, the staying above of the horizon of Saturn for 15 years cannot escape his attention

12 Some stars would be seen continually rising higher and higher in altitude as centuries would roll by Others would be found descending and vanishing from sight.

13 They can also see the simultaneous movements of the Sun and the Moon during the long day of 6 months. This joint movement[8] is likely to create an impression of two dogs or two children playing the game of hide and seek '

14 The resident cannot fail to see a dawn-like light near horizon every time the moon would make her first appearance, following the crest of the dawn[9]

15 If the resident would desire to evolve a system of time units suggestible definable and determinable by nature, the following astronomical phenomena would help him in doing so

(a) The period between two successive appearances[10] of the Sun exactly at the same one particular point in his horizon. (ब्राह्मी अहोरात्र)

(b) The period between the rises of two successive stars in the East. (नाक्षत्र अहोरात्र)

(c) The period between two successive risings of Saturn. This was a पैत्र्यो अहोरात्र

(d) The period between two successive risings of the Jupiter This was a बाहस्पत्य अहोरात्र

(e) The period between two successive risings of the Sun above the horizon. This was a दैवी अहोरात्र

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8. पूर्वापरम् चरतो माययैतौ । शशू क्रीडन्तौ परियातो अध्वरम्
विश्वान्यन्यो भुवनाभिचष्टे ऋतूनन्यो विदधाज्जायते पुन: ॥ ३ ॥

9 नवो नवो भवति जायमानोऽह्नां केतुरुषसामेत्यग्रम् ।
भागम् देवेभ्यो विदधात् त्यायन प्रचद्ममास्तिते दीर्घमायु: ॥ १९ ॥ ऋ. १०—७—८९

10 Cf. Surya Siddhant.— बाह्य दैव्य तथा पैत्र्य मानात्पर्व प्रकीर्तय । सौरेण सावन चांद्र नाक्षत्र ।

(f) The period between two successive risings of the Moon above the horizon This was a प्राजापत्य अहोरात्र

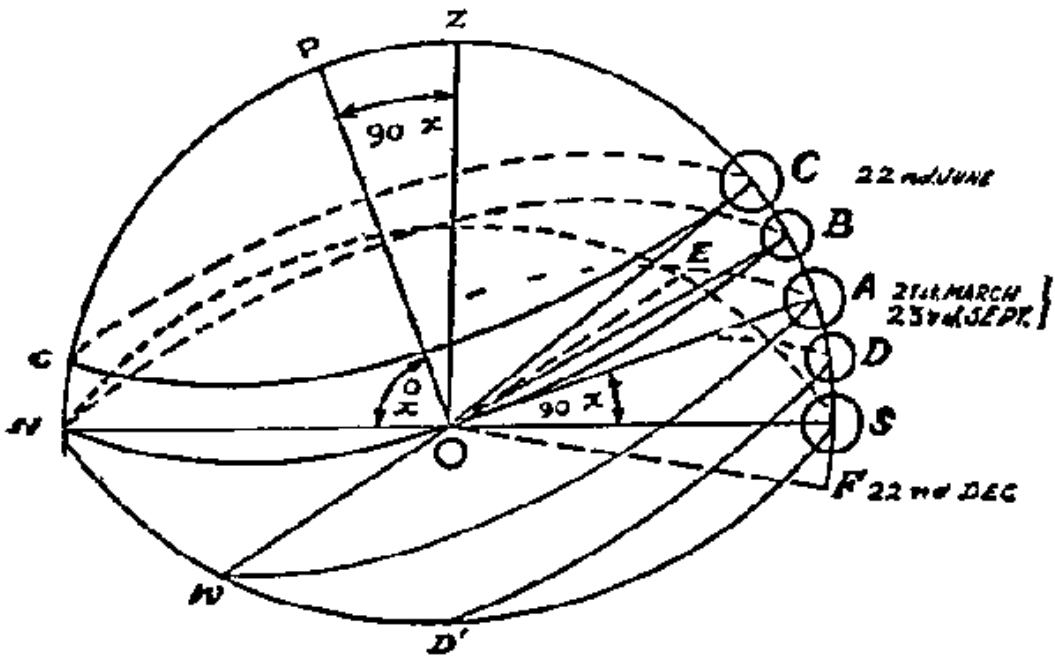
(g) The period between the two successive passages of the Sun, the Moon and of any one particular star past any fixed pole of observation. This was a मानुषी अहोरात्र

16 The Northward and Southward turning of the Sun as is witnessed here is not observable in the Polar region His only[11] path is the circular whirling direction.

17 If the residents gradually come down in the plains leaving the polar abode, they will witness variable lengths for the long day and the long night. These will reduce from those of 180 days each to 5, 4, 3, 2, 1, month each and the number of daily rises and sets of the Sun (i e. the common days) will increase, as the latitude would decrease.

[See diagram below]

VARIABLE APPEARANCES IN SUN'S ROTATIONS IN LAT: 66½°N to 90°N.



In the above figure, N W D' F E is the horizon of a place, whose latitude is x° North E, S, W, N, are the four cardinal direction points. P is the North pole, Z the zenith. A is the point in the meridian N P Z A S, at which the midday Sun comes

11 Cf. 'नान्य पन्थाः अयनाय विद्यते' पुरुषसूक्ते व

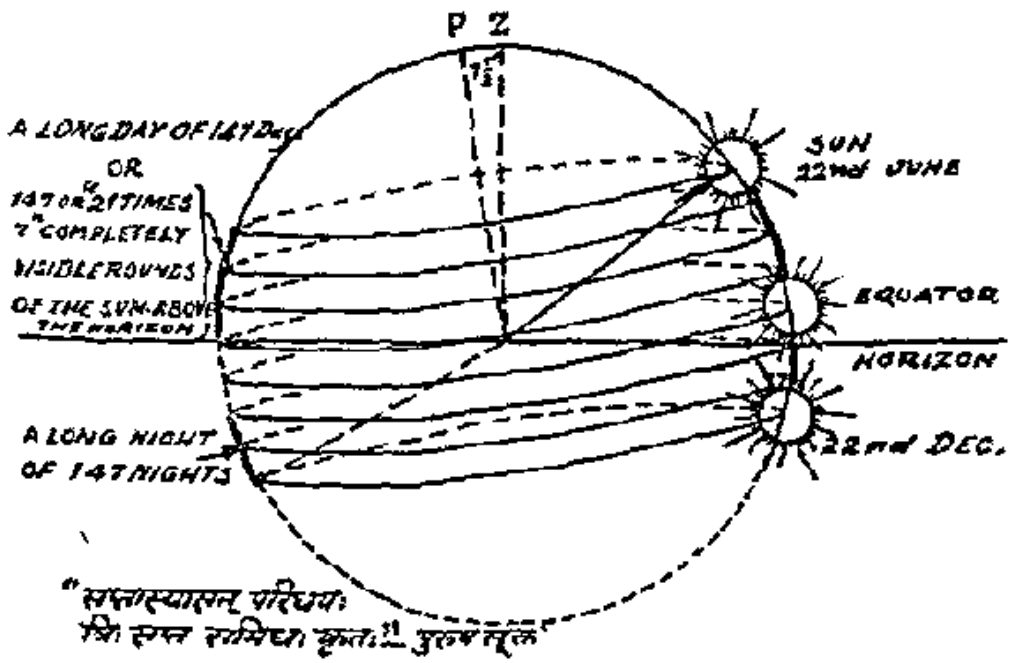
on equinoctial days. He crosses the meridian at C on 22nd June and at F on 22nd December. B is another position in the meridian where ∠ AOB = ∠ AOS = (90 − x)°. Between S to B and B to S, the Sun would appear to rise and set every day and thus describe, what is called, a '*common day*. Between B to C and back from C to B, he is seen above the horizon and describing circles of rotation, describing what is called a long *continuous* day (अहः). Between S to F and back from F to S he is all along invisible, and therefore, for a resident at the North Pole, it is a continuous long night*; long day and common days vary with the value of x.

Example :—

At a place in latitude 82½° N, find the variable appearances of the Sun.

(See diagram below) :—

SUN'S DIURNAL MOVEMENTS IN LAT. 82½° N.



SUN'S DIURNAL MOVEMENTS IN LAT. 82½° N

Here x = 82½° ∴ 90 − x = 7½.

* The legend of long night.

Hence, between April 10 to Sept. 4 his declination varies from 7½° to 23½° and back to 7½° N. This period *roughly* consists of 148 days

Similarly, between 7½° N to 7½° S, he describes common days This occurs between Sept. 5 to October 9, the period being 35 days. He thus describes a long day of 148 days, then 35 common days, then a long night of 147 days, and then again 35 common days.

The following Table will show the variations at different latitudes —

Lat.	Long days	Common days	Long night	common days	Lat.	Long days	Common days	Long Night	Common days.
90	183	—	182	—	75	104	79	103	79
85	161	22	161	22	70½	66	118	65	118
83½	153	30	152	30	69	60	123	59	123
82½	148	35	147	35	68	36	147	35	147
80	135	48	134	48	66½	—	183	—	182

If, therefore, we start with the assumption that the Aryans once lived in the North Polar region for a fairly long period, we should, as a natural corollary, expect to get descriptions of all the above mentioned scenes and conditions in the Vedic literature

An attempt has been made to show the correctness of our stand by quoting passages and lines from Vedic Samhitas and Brahmanas Attempt has also been made to show how the early Vedic sages had evolved three systems of time units one after the other, how the succeeding generations tried to incorporate the traditional sub-divisions, and then how afterwards, when the Aryans left their Polar abode, the Sages modified these systems and also their sacrificial systems It is also attempted to show how the Vedic passages can be sorted out into groups of *Suktas belonging to different Ages in their* chronological order

SECTION II

SYSTEMS OF TIME UNITS IN VEDIC AGE

The Surya Siddhant quotes the following verse which mentions nine kinds of systems of time units known in the 5th century A D It runs

ब्राह्म दैव्य तथा पैत्र्य प्राजापत्यं गुरोस्तथा
सौर च सावन चान्द्र नाक्षत्र * * ॥

Paras 4, 5 and 15 have helped us in coming to a conclusion that most of these systems were evolved and used by the early Vedic sages. It was their speciality that they evolved a terminology which they used uniformly in the case of each system. The opening verse of the Introduction" viz कलाकाष्ठाश्च युज्यन्ते declares in unequivocal terms that *all the terms mentioned in it are invariably the time units* These include the terms कला, ऋतु and नक्षत्र which are understood by us differently

The terms are.—

1 The Aha (अह) was the interval of time between two consecutive rises of any luminary above the horizon, रात्रि being the counterpart. The two together were called अहोरात्र or दिन, another name for अह was the word सवत्सर[12].

Note 1 — The Vedic Sages appear to have evolved seven kinds of अह's as described in sub paras of the para 15 they were —

The अह of ब्रह्मा, नक्षत्र, देव, प्रजापति, मानव, बृहस्पति and पितृ (Saturn)

Note 2 The unit 'मास' or the month of our conception never existed in these times)

2 Paksha (पक्ष) —Each of these सवत्सर's or अह's had two sides, one being a complete bright half (शुक्ल) and the other

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12 ' किंवा एतत् देवनां अह यत् सवत्सर " तै ब्रा १९-१२

being a complete dark half (कृष्ण) The two halves determined by the rise and set of the sun were known as the पूर्वपक्ष and अपरपक्ष [13] Those created by the Moon were known as the शुक्लपक्ष and कृष्णपक्ष respectively Later on, as the Ages rolled by, the lunar month became a time unit known as the मास and the two halves came to be known as the अर्धमास

3 मुहूर्त, काष्ठा and कला were the sub-divisions of the Aha (अह), each succeeding one being the 30th part of the preceding one thus

30 Kalas make 1 Kashtha
30 Kashthas make 1 Muhurta
30 Muhurtas make 1 Ahoratra

Note 1 We get the following references about these small time units as were understood in the time of Mahabharat

(a) " काष्ठा कला मुहूर्तांश्च दिवारात्रिस्तथालवा " —शांति॰पर्व अ॰ ७-२१
(b) संवत्सरान् ऋतून् मासान् पक्षानथ लवान् क्षणान् " शांति॰ अ ३७-१४
(c) सर्वे निमेषा जज्ञिरे विद्युत पुरुषादधि ॥
कला मुहूर्ता काष्ठाश्चाहोरात्राणि ॥ नारायण उप अनु १

Note 2 *We have not been able to find a relation between* निमिष, लव and क्षण

Note 3 At the time of अथर्वज्योतिष the time units appear to have been well set. It gives the units as follows

12 Nimeshas make 1 Lava
30 Lavas make 1 Kala
30 Kalas make 1 Kashtha
30 Kasthas make 1 Muhurta
30 Muhurtas make 1 Ahoratra

A

THE BRAHMA'S SYSTEM (ब्राम्ही गणना)

This appears to have undergone changes at least thrice during a period of 8000 years. These changes are described in the following three stages —

Stage I Brahma's Ahoratra = 24 000 YEARS

The following references found in different works go to support our inference that initially the Brahma s Aha was equivalent to 24,000 years —

13 पूर्वपक्षं देवा अन्वसृज्यन्त । अपरपक्षं अन्वसुराः । पूर्वपक्षमभित्य ततो देवा अभवन् परासुराः ॥ —तै ब्रा २-२-३-१

(a) " एतत् द्वादश साहस्र कथित दैविक युग " — मनुस्मृति

(b) एषा चतुर्युगावृत्ति आसहस्रात् प्रवर्तते
ब्रह्मणस्तदह. प्रोक्त . . .

(c) " एष त्वपिति युगसहस्र रात्रिस्तावेताहोरात्रौ अजस्र परिवर्तते स कालस्तदह भवति युग सहस्रपर्यन्त अहर्यद् ब्रम्हणो विदूरात्रिं युग सहस्रान्ता " निरुक्त अध्याय १४ ४

The Brahma's Ahoratri appears to have been suggested to ancient Sages by the observation of the gradual retrogade shifting of the Sun's rising position in the horizon of the Polar region. They appear to have found that the Sun shifts the place by an interval of about 1000 years, and at the end of this interval a new star rises in the East. The number of Naksatras or Asterisms of stars according to the then belief was only 24. Later on, they included Abhijit, and split up into two parts each of the three groups of Phalguni, Ashadha, and Bhadrapada under the names of Purva and Uttara These observations may have given them a clue therefore to evolve the following broad time units

Brahma's Ahoratra = 24,000 Years = 2,000 Yuga's of 12 years each
= Two Mahakalpa's[14]
= 24 small Kalpa s[15]
= 4 Mahayuga's of 6,000 years each
= 30 Muhurta's or Naksatras of 800 years each

Stage II Brahma s Ahoratra = 28,000 YEARS

As ages rolled by, the Sages appear to have found inaccuracy in time units. They immediately appear to have made an adjustment corresponding to 28 " Constellation-system " as follows –

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14 The following lines from Bhagavadgita supports the view that Brahma s Aha was equivalent to one Kalpa –
(1) सर्वभूतानि कौन्तेय प्रकृतिं यान्ति मामिकाम्। कल्पक्षये पुनस्तानि कल्पादौ विसृजाम्यहम्
(2) सहस्रयुगपर्यन्त महर्यद् ब्रह्मणो विदु । रात्रिं युगसहस्रान्ता तेऽहोरात्रविदो जना
(3) अव्यक्ताद् व्यक्तय सर्वा प्रभवन्त्यहरागमे। रात्र्यागमे प्रलीयन्ते तत्रैवाव्यक्तसंज्ञके

15 Diwan Bahadur S K. Pillai mentions the following six Kalpa s in Brahma s " Poorvanha or First Half day —
(1) Koorma कूर्म (2) Parthiva पार्थिव (3) Savitra सावित्र and
(4) [illegible] (5) Varaha [illegible] (6) [illegible]

Brahma's Ahoratra = 28,000 Years
= 28 Naksatra's
= 28 Kalpa's[16]
= One Mahakalpa

They appear to have divided the 'Ahoratra' into four main quadrants viz., (1) Poorvanha, (2) Aparanha, (3) Poorvaratri and (4) Apararatri. The followihg oft-quoted verse gives us a clue to understand how they counted the parts:

कलिः शयानो भवति संजिहानस्तु द्वापरः।
उत्तिष्ठन् त्रेता भवति कृतं संपद्यते चरन्

(Note: The terms कलि, द्वापर etc, stood for numbers 1, 2, 3, and 4 respectively; कलि represented the part associated with Brahma's evening, द्वापर with that of his night and so on.)

At the end of each Yuga or Kalpa, some important person held the office of "ruling" the race. He was known as "Manu"[17] It will be interesting to note that a मन्वंतर coincided with the युगान्तर.

Stage iii: Brahma's Ahoraratra = 27,000 YEARS

When the Aryans may have left the Polar region, they may have seen the daily rise and set of the Sun, and that his 360 such rises were taken to be equivalent to a Divine (दैवी) day or equal to a Human (मानुषी) year. The Muhurta or the Naksatra appears to have undergone another modification along with the length of Brahma's Ahoratra which was now taken to be a period of 27000 years, corresponding to 27 Naksatras, since now they discarded Abhijit from the list.

Brahma's Ahoratra = 30 Muhurta's of 900 years each,
= 27,000 years = 27 Yuga's[18] of 1,000 years each.

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16. The Vayu Purana gives a list of 28 different Kalpas in the 21st Chapter.

17. At the time of Sage Vyas four Manu's were known to have ruled the human race.

18. The term Naksatra was another time unit for Yuga, which first consisted of 1000 years, then of 900 years and then finally equal to 800 years, as Ages rolled by.

1 Muhurta = 30 Kashtha's = 900 years = 1 Naksatra.
1 Kashtha = 30 Kala's = 30 years.
1 Kala = One human year.
= One Divine Aha of 360 human days.
= 30 Lava's of 12 days each
1 Lava = 12 Nimesha = 12 human days.
1 Nimesha = 1 human day.[19]

B

THE NAKSATRA SYSTEM (नक्षत्रगणना)

The "Naksatra" was the period of time taken by a star group to remain as an Eastern star after the preceding star. E. g.: The following stars must have come to the Celestial[20] Equator in the century years noted against them:

Star	Year	Interval
Krittikas	16000 Yrs. B. C.	
Shatataraka	15000 "	1000 Years.
Dhanishtha	14000 "	1000 "
Shravana	13000 "	1000 "
Chitra	12300 "	700 "
Ardra	4000 "	
Krittika	3000 "	1000 "
Rohini	2140 "	860 "

The sages naturally may have been led to believe that the

19. cf. "... —ते. ब्रा.

Hence, one human day of 24 hours (Ahoratra) was but a moment (निमिष) as compared with Brahma's day of 27000 years.

20. The astronomical method of calculating the date of any star is given in Section IV, later on.

———ते. ब्रा. १-१-१

time interval is 1000 years. Then, they modified the period to 900 years (Kalas) and later on to 800 (Kalas).

Note. The Surya Siddhant quotes the following line,

"त्रिंशत्कृत्यो युगे भाना चक्र प्राक् परिध्वते"

कृति. = Square. त्रिंशत्कृत्यो = 900. This means that the cycle of stars shifts its place 900 times during a युग.

C

DIVINE SYSTEM (देवीगणना)

The Divine day was determined by the Sun's movement through the Divine half (देवभाग or देवयान) It was a period of about 6 months or 180 human days. Different quotations from Vedic works have led us to believe that the work of dividing this period into subdivisions was carried out in four distinct stages. The अह was subdivided into 2, 3, 4 and 5 parts in the Vedic age. The object of making such divisions was to enable the sacrificers to undertake the vow in instalments of two, three, four or five subperiods.

STAGE I

In the beginning the sacrifices used to be performed in honour of (देवा) Gods and (पितर) or the Manes. The first one used to be started in the beginning of the Aha which was called the प्रात and the second one was commenced in the evening साय or सायाह्न According to the writer of Tai Br the Deity in charge of the साय was वरुण (VARUNA)

This leads us to believe that शततारका was the last star at the end of the Divine path and पूर्वाफल्गुनी was the First star whose deity was भग The subdivisions of the Sun's अहोरात्र were therefore, as follows —

(1) प्रात Governing Deity being भग and पू फ the star.

(11) साय, Governing Deity being वरुण and शततारका the star.

STAGE II

The Divine Aha further appears to have been divided into

three subdivisions.[21] These were created to enable the sacrificer to satisfy the देवर्षि's, आचार्य's, and पितृ's. The sacrifices meant to appease Gods were to be started in the morning. The Veda to be made use of was the ऋग्वेद and the sub-part was to be called the पूर्वाण्ह. The middle part was to be called the मध्यदिन and यजुर्वेद was to be made use of at this time. The purpose of undertaking these sacrifices was to offer oblations to those "humans" who had in any way obliged the sages. They were the Rishis and Acharyas. Those who stuck up to the performance of these sacrifices alone perhaps came to be known as "माध्यंदिनाः"[22]. The third set of sages performed the sacrifices in honour of Pitri's and used to start them in the third part known as अपराण्ह. The three subdivisions were therefore called the पूर्वाण्ह–माध्यान्ह–अपराण्ह.

STAGE III

We now come to a stage when re-orientation of the Astronomical and Sacrificial systems becomes evident. The Vedic sages evolved 5 systems of undertaking the sacrifices, according as these were started in the beginning of each subdivisions. For this purpose they appear to have created sacrifices of short durations, the names of the sacrifices being the षोडशी, उक्थ्य, अतिरात्र, etc.

The passages are clear enough to show that while evolving new time units the sages were careful to see that they maintain the tradition as far as possible. The four deities of the four kinds of sacrifices were मित्र (i. e., अनुराधा) and वरुण (शततारका), बृहस्पति (तिष्यं) and भग (पू. फ.)

This appears to be the last stage of subdividing the Divine

21 The following lines can be quoted in support of our view

(१) ऋग्भिः पूर्वाण्हे दिवि देव ईयते । यजुर्वेदे तिष्ठति मध्ये चाण्हः सामवेदेनास्तमये महीयते । वेदैरशून्यैस्त्रिभिरेति सूर्यः ॥

22 (२) पूर्वाण्हो वै देवानां, मध्यदिनो मनुष्याणां, अपराण्हः पितृणा ।

(३) पर्जन्याय प्रगायत दिवस्पुत्राय मीळ्हुषे । स नो यवसमिच्छतु ॥ [illegible]

This is a part of the पर्जन्यसूक्त to be uttered in a माध्यान्हसवन

day for their sacrificial purposes. These five parts[23] were also called the ऋतु's, one Divine अह being equivalent to five ऋतु s The following lines from Brahmana's are significant and very clear They support our view They are

(1) आदित्यस्येव सर्वेऽहतव यदैवोदेति अथ वसत यदा सगवाऽथ ग्रीष्म यद् मध्यदिनोऽथवर्षा, यदाऽपराण्होऽथशरद् यदैवास्तमेति अथ हेमत ॥ श ब्रा २ २ ३ ९

(2) तस्मात् उद्यत् सूर्यांद्विकृणोति सगव प्रस्तोति मध्यदिन उद्गायति अपराण्ह प्रतिहरति अस्त यन्नियन ॥ अथर्व स ९ ६ ४६

The Divine day appears to be regarded as a bird having a beak, two wings the stomach and the tail The five ऋतु s were allotted the five places in the body as mentioned in the following lines from Tai Br (3-10-4-1)

तस्य ते वसत शिर । ग्रीष्मो दक्षिण पक्ष । वर्षापुच्छ ।
शरदुत्तर पक्ष । हेमतो मध्य ।

STAGE IV

When the Divine day came to be understood as the human year, or सवत्सर, it was again subdivided to subdivisions of a different nomenclature. They now believed that the year consisted of 360[24] days or 720 days and nights together They divided this period of 360 days into 12 and 30 parts respectively It is our belief that in making these subdivisions they were guided by the अह's of Jupiter and Saturn which were 12 years and 30 years respectively That these periods were actually suggestible can be proved from the following table in which the rises and sets of Jupiter over the horizon of the Polar region are given

Jupiter s Rise		*Jupiter s Set*	
Date	Interval 12 Years	Date	Interval 12 Years,
Oct. 25 1909	Short by 16 days	Aug 7 1915	Short by 4 days
Oct. 9 1921	16	Aug. 3 1927	4
Sept. 23 1933	16	July 31 1939	
Sept 7 1945	17		
Aug 21 1957			

23. Later on when the Aryans came to the south of lat. 66° they saw a day of 12 hours duration, and they applying the traditional analogy divided the human day into 5 parts of these very names with which we are familiar today

Sub-Divisions of Divine Day

30 Kala = 1 Kastha	30 Muhurta = 1 (human) day.
30 Kashtha = 1 Muhurta	30 days = 1 Masa
	12 Masa = 1 Aha (or Samvatsar) of 360 days.

As has been stated above, the Divine whole day was measured by observing the successive sunrises His day was the period between sunrise and sunset and this half division of the day was known as the देवभाग and देवयान and the counterpart was the असुरभाग or पितृयान. The Sunrise was definitely an event of festivity because, the residents were to be relieved from the troubles of the long night of six months and were to get a continuous light for a period of another six months. A well known verse chanted by us today reminds us of a possible custom amongst the Deva's viz, to ring bells to mark the moment when the असुर's day or the old year was going to end and a new year to begin [See foot note 27 on page 25 later on]

D

PRAJAPATI'S SYSTEM (प्राजापती गणना)

Who was Prajapati ?

Prajapati was the Civil and Religious Authority controlling and organizing the Sacrificial system of the Sages during the 'night' portion of the Divine 'day' Just as the 1st half lighted by the Sun was known as the Divine Aha or Divine Samvatsar (cf एक वा एतत् देवानां अह यत् सवत्सर), so the nocturnal half was known as the Prajapati's Samvatsar Their main guide during this period was the Moon and hence, the Moon came to be known as the Prajapati. So long as the Aryans lived in the Polar region, the two Samvatsar's were equal in length. The Divine Samvatsar and the Prajapati's Samvatsar were subdivided into smaller time units exactly on the same principle

(i) One Divine Samvatsar = 15 Muhurtas
One Muhurta = 12 Ahoratra

(ii) One Prajapati's Samvatsar = 15 Kalas
One Kala = 12 Kastha.

The relation between Kala and Kastha was the same as that between Muhurta and Ahoratra in the Divine system. This

is borne by the well known line "कला मुहूर्ताः काष्ठाश्चाहोरात्राणि" नारायण उप•

Another line viz, "कलाश्चाष्ठाश्च युज्यन्ते मुहूर्ताश्च दिनानिच" from M B. supports our view that the 1st two were employed (युज्यन्ते) to measure one time unit and the second one for another unit.

(Note. The same analogy appears to have been applied to the subdivision of a human day of 24 hours' duration e. g

1 Aha = 15 Muhurta | 1 Ratri = 15 Lava.*
1 Muhurta = 15 Nimisha | 1 Lava = 12 Kshana.

As ages passed by, and the aryans left their abode and descended into lower latitudes, the length of the Divine Aha began to diminish and that of the Prajapati's Aha began to increase, till at last, when they settled down in regions south of 66½° N latitude, the Prajapati's Samvatsar came to be recognised as a year of 360 whole days or 720 'days' and nights" together E. g, The Tai Sam, quotes the following line

'तस्य त्रीणि च शतानि षष्टिश्च स्तोमीया तावती संवत्सरस्य रात्रय"
—तै स ७-५-१

The Shatapath Br quotes the following lines

संवत्सरो वे प्रजापतिरग्नि । तस्य वा एतस्य संवत्सरस्य
प्रजापते सप्त च शतानि विंशतिश्चा होरात्राणि, —शत —ब्रा १०-४-२

Before describing in detail the various charges which appear to have taken place in the magnitude (length of a Prajapati's Samvatsar,) it is proposed to describe the Vedic sacrificial system which was used to measure various time units in different Ages. In employing various kinds of adjustments to prevailing astronomical conditions, the sages appear to have followed the following principles uniformly

1 The symmetry of the Samvatsar should be maintained at all costs (Cf संवत्सरस्य समता वेदितव्या—श ब्रा १२३४)

2 The daily sacrifices were to be so planned that they would always measure the Divine Aha, and so were the nightly sacrifices.

3 The Equinoctial day (विषुवान्) was to be at its exact place in all kinds of 'set up'

* Cf 'संवत्सरान्, ऋतून्, मासान् पक्षानथ स्वान् क्षणान्"

प्रजापतिः प्रजाऽसृजत । स रिरिचानोऽमन्यत ॥ सतपोऽतप्यत । स आत्मनि वीर्यमपश्यत् ॥ सा विराडभवत् ॥ तां देवाऽसुराव्यगृह्णन् सोऽब्रवीत् प्रजापतिः मम वा एषा ॥ दोहा एव युष्मा कमसिन् ॥ सा ततः प्राच्युदक्रामत् ॥ तत् प्रजापतिः पर्यगृह्णात् ॥... ... ...

पुनर्वसुरेपतिष्ठते ॥ साऽग्नावेयत् पेपातत् ॥ सा तत उन्मरोहत् ॥ सा रोहिण्यभवत् ॥ तद्रोहिण्यै रोहिणीत्वम् ॥ रोहिण्यामग्निमादधीत ॥

तै. ब्रा १-१-१०-६

"The Prajapati pondered. He thought that his belly was being emptied. He started a penance. He began to feel that he was getting a creative impulse. It developed. He created a new Universe (विराट्) He asked the Gods and Demons to accept the new distribution and asked the sages to use the new set up' for sacrifices.... Then the 'Virat' flew up She 'became known as the Rohini (i e., one who ascends); start the sacrifices on Rohini."

The control of Krittikas continued so long as the Rohini was South of the Equator and hence invisible. Her entering the Divine half is interpreted as her "ascending to heaven". The star Mrigashirsha[25] which was still invisible, but was to become visible after some centuries, is spoken of as following or pursuing the 'Rohini'. Her red colour is ascribed to her becoming bashful The same astronomical phenomenon is described by the Aitareya Brahman in a different way.

In order to enable the readers to rightly appreciate the discussion about Prajapati's system of time units, it is proposed to describe the sacrificial systems in Vedic Ages.

२५ प्रजापतिर्वा स्वां दुहितरम् [illegible]

SECTION III

THE SACRIFICIAL SYSTEM IN VEDIC AGE

(A means of measuring time)

The following well known verse very well explains the relation of Sacrificial system with that of time units

वेदाहि यज्ञार्थमभिप्रवृत्ता ॥ कालानुपूर्व्यां विहिताश्च यज्ञा ॥
तस्मादिद कालविधानशास्त्र ॥ यो ज्योतिष वेद सवेदयज्ञान् ॥

—वेदागज्योतिष

"The Vedic hymns were composed for sacrifices, which in their turns depended upon a suitable time for their performance." It is believed that all the six branches of Veda (वेदाग) grew round the sacrificial fire. They required the correct positions of the Sun and the Moon and those of the Stars. They wanted directions. They marked the position of the Sun's rising place by fixing up a stick to indicate the East. They used to count the whirlings of the Sky along with those of the Sun, the Moon and the Stars by marking their passages in front of the Easterly Pole (यूप or समिधू) They called the Sun s rotations as the अह's and those of stars as the रात्री s.

They appear to be using a peculiar system of measuring time by performing sacrifices in a particular order We come across words like the एकाह, त्र्यह षडह, दशाह, etc., meaning sacrifices lasting for one day three days, six days, ten days and so on The night sacrifices called the एकरात्रि, त्रिरात्रि, दशरात्रि, अतिरात्रयज्ञा used to be performed to attain the same purpose.

FIXATION OF CARDINAL DIRECTIONS

They started a year by commencing a yearly sacrifice called the सवत्सरयज्ञ on the vernal Equinox day It was called a विषुवान् They used to take a vow to perform a sacrifice lasting for different periods. The longest being a six monthly or a yearly sacrifice. This ceremony was well known as the महाव्रतम् which coincided with

the *first appearance of the Sun above the horizon.* It indicated the beginning of the Divine day and the end of the Asura's day They used to ring bells[27] to commemorate the occasion The point in the horizon where the Sun used to make his first appearance was the most important position. It was known as the प्राची (i. e., the East) They similarly noted the point in the horizon where the Sun used to set after six months. It was known as the प्रतीची They marked two more intermediate positions, calling them as the अवाची, (the lowest, the South) and उदीची, the highest, the North The Zenithal position was called the ऊर्ध्वा The Nadir was un known and indeterminable. It was called the अधरा (i.e., not deter minable in relation to the Earth) These four directions were use-ful to them during the Divine day, when the Sun was visible con tinuously for a fairly long period But when he set in the प्रतीची (West) how were they marking the various directions? They used to mark the advent of the Divine night by lighting the fire exactly in the direction of the Easterly Pole. It was known as the आग्नेया i. e., a direction belonging to Agni or fire. The other three directions used to be called after the Deities who had, in the distant past Ages occupied those directions. They were called as the नैर्ऋत्या i e. the one belonging to the निर्ऋति, or Demon which was a synonym of असुर the third direction was known as the वायव्या (i.e. the direction belonging to वायु or मरुत् the Wind God) and the fourth one was called as ईशान्या i. e, a direc tion belonging to the God इशान्. In the beginning, the set of nocturnal directions coincided with that of those of the day The first set was made use of during the Divine Samvatsar and the second set during the Prajapati s Samvatsar After thousands of years, when the star पूर्वा (फल्गुनी) had its turn of being the first star because of its rise in exact East the प्राची came to be called the पूर्वा or the direction (in the front), the other directions being called the पश्चिमा (at the back) the दक्षिणा (that to the right) and उत्तरा (that to the left)

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27 Even today we chant the following Mantra while worshiping a bell

आगमार्थं तु देवानां गमनार्थं तु रक्षसाम्
कुरु घण्टारवं तत्र देवताह्वानलक्षणम्

In our opinion the Vedic custom has been preserved by the Christians even today since they ring bells on the midnight of the 31st December each year say ing we ring the old year out and we ring the new year in" It is, in a way, welcoming the advent of the fresh year

So long as the Aryans were the residents of the Polar region, the East gradually altered its place, and hence, the whole set of four directions, changed its place with respect to stars. But when they came to the plains there was no more a continuous long day and night, and the four directions were found to be stationary for times to come. But, the second set still continued to change its position, because the position of the आग्नेय depended upon that of the Eastern Star. So after every 1000 years, this set rotated through 130°, till an Age came when this set took the present position of auxiliary directions (उपदिशा or अवान्तरदिशा) We find in the Vedic literature a reference to such an adjustment. [28]

The directional system appears to have undergone three changes. In the 1st stage, there were only two directions (प्राची and प्रतीची) for the day and only two (आग्नेया and वायव्या) for the night, because in the most ancient Vedic Ages the Deities were limited in number, the Principal Deities being Agni, Vayu and Sun. Later on, they evolved two more directions for the day and and the night each, their names being अवाची–उदीची and पैत्री–दैवी, the latter changing into नैर्ऋत्या and ऐशान्या respectively

Stage I	Stage II	Stage III
East = प्राची and आग्नेया West = प्रतीची & वारुणा	E प्राची & आग्नेया N S उदीची & दैवी अवाची & पैत्री W प्रतीची & वायव्या	प्राची (आग्नेया) उदीची अवाची ऐशान्या (नैर्ऋत्या) प्रतीची (वायव्या)

Stage IV	Principal (प्रधान)	Subsidiary (अवान्तर)
	पूर्वा उत्तरा दक्षिणा पश्चिमा	आग्नेया ऐशान्या नैर्ऋत्या वायव्या

Note – It will be interesting to note that the Principal Directions bear the names of the Sun's different positions while, those for subsidiary directions are those of the Deities governing the concerning stars situated at those positions. These relative

28 [illegible]

positions are true for the year 7000 B. C. when पूर्वा (फल्गुनी) became an Eastern Star

KINDS OF SACRIFICES

The Pandits of this Age have maintained the tradition of performing various kinds of sacrifices. Standard works on this subject describe a number of them in detail. These could be grouped into following kinds

I Annual. The ancient Vedic names for these sacrifices were आदित्यानामयनम्, आगिरसानामयनम्, गवामयनम् (The cow's walk) and so on The गवामयनम् appears to have been a sacrifice of varying lengths e. g a सप्तम्वा (Seven monthly sacrifce), नवम्वा, दशम्वा etc.

II Sacrifices of small durations:

(a) One day sacrifice (एकाह) The Aitareya Brahmana describes some examples of such sacrifices. They are known as the अग्निष्टोम The following are the main six kinds अत्यग्निष्टोम, उक्थ्य, षोडशी, वाजपेय, अतिरात्र and आप्तोयाम

[Note – Although these sacrifices, have come to mean 'one day' sacrifices in our opinion, these were created[29] by Prajapati as adjustments to sacrifices which are not commenced in the beginning (Morning) of a Samvatsar The names षोडशी (16th) and अतिरात्र (long night), अत्यग्निष्टोम (a long अग्निष्टोम) are very significant.]

(b) Sacrifices of the duration of 2 to 12 days

These were called the अहीन (AHINA) A three day sacrifice is known as the त्र्यह It includes the following kinds of three sacrifices ज्योतिष्टोम, गोष्टोम and आयुष्टोम A nine-night sacrifice (नवरात्रि) consists of three repetitions of the त्र्यह s. A twelve day Ahina includes three त्र्यह s a tenth day sacrifice and two ordinary one-day sacrifices known as अतिरात्र

(c) Sacrifices of higher duration ranging from 13 days to 1000 years

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29 Readers are requested to refer to the passage given in the footnotes 20 & 21 given before. According to our view a षोडशी may have represented a one day sacrifice performed on the 16th night and अतिरात्र a one day sacrifice performed on the 1st night of a long night period of any duration

These were called the Satras (सत्र) or sessions. Of them the following were very common in the early Vedic Ages Sacrifices of 13, 15, 17, 21, 24, & 25 days The 21 day sacrifice was the most important one and has been described by all Vedic works as the "एकविंश ." A consecrator was required to take a vow of performing a six nightly sacrifice or sacrifices of the duration of 12, 13 or 15 nights The reasons are given in the following stanza

षड् रात्री दीक्षित स्यात् षड् वा[30] ऋतव सवत्सर
द्वादश रात्री दीक्षित स्यात् द्वादशमासा सवत्सर
त्रयोदश रात्री दीक्षित स्यात् त्रयोदशी[31] मासा सवत्सर
पचदश रात्री दीक्षित स्यात् पचदश वा अर्धमासस्य रात्रय

A 21–Day Sacrifice

We come across the term "एकविंश" meaning a 21–day sacrifice at scores of places in the Vedic literature describing the Sacrificial matters. This number has a special importance from astronomical point of view The sun while turning from North to South and vice versa, is almost stationary at the highest and at the lowest positions for about 21 days. This fact could not have escaped the notice of our Ancient Sages who used to keep a watch for days together The central day during the 21 day period was also designated as the एकविश We find its mention in so many places. For example, while describing a formula for completing a 'twelve Samvatsar" cycle of the Prajapati, the ताण्ड्य ब्राह्मण quotes the following line त्रय त्रिवृता सवत्सरा त्रय पचदशा त्रय सप्तदशा त्रय एकविंशा प्रजापते द्वादश सवत्सरम्" (Chp 25–Sec. 6) The Tai Br says "एकविंशमहर्भवति। शुक्रमा ग्रहा एते॥ The Shatapatha Brahmana (13,4 4) explains a sacrifice undertaken in honour of Ashvamedha as follows. He mentions that 2 yupas are to be used They are to be made of different kinds of wood–राज्जुदाल, पिलुदारु, खदिर, बिल्व, पलाश, and others. — "एकविंशतियूपा सर्वे एकविंशतिरत्नय राज्जुदालेऽग्निष्टो भवति "

30 A six-day sacrifice was known as the षडह It had two kinds. The अनिरुद्ध and the तृप्त. These were useful in measuring a month of 30 days.

31 When the lunar month was regarded as consisting of 28 days the number of lunar months were naturally 13 occuring in one year A year as equivalent to 13 months refers to a very old traditional conception in use in the Early Vedic Age

Trans: "The poles are 21 and the cows also are 21. They are to be placed systematically at 21 specifically mentioned positions round the fire.

The Aitareya Brahmana (18 18) has quoted a very important passage in which it is mentioned that the Gods lifted the sun to heaven by means of the एकविंश This passage is an important one in the fact that it tells that the Sages in the later Vedic Age made modifications in the performance of the 21-day sacrifice. While in former times, it used to spread over 10 days on each side of the विषुवत् day, later on, they had to perform "a 7 day sacrifice before and a three day sacrifice beyond," to enable the Sun to maintain his highest position [32]

Even the पुरुषसूक्त mentions the number 21 in another form. It quotes the number 147 in a peculiar way It says सप्तास्यासन् परिधय: त्रि: सप्त समिध: कृता "

"10, 24, 25 day"–Sacrifices:

That such short period sacrifices were found to be necessary for adjustment will be evident from Mantras quoted from the "Brahmanas" For example, the शतपथ ब्रा० quotes a passage (कांड १२ - अ० १ - ब्रा २) which mentions these sacrifices

"श्रद्धाया वै देवा दीक्षा निरभिनत आदित्ये प्रायणीय सोमात् क्रय
विष्णोरतिथ्य सवत्सरात् चतुर्विंशमह ॥ सवत्सरात् दशाममह प्रजापते
महाव्रत . सवत्सरो भवति। संवत्सरो भूत्वा देवानप्येति।"

III Special Sacrifices known as the राजसूय, अश्वमेध, etc.

Movements of the Sun and the Moon:

These luminaries have been regarded as the "Eyes" of Gods. (cf चक्षुषी ह वा अस्य शुक्रामथिनौ ॥ तद्वा एष एव शुक्र य एष तपति ॥ तथव तपति ते वैष शुक्र ') -- शत ब्रा 4-2-1 These were the eyes set to give light to the divine and non-divine halves. The first (viz Sun) was known to be 'guarding the interest" of the Gods (cf त्वचक्षुर्देवहित पुरस्तात्) The Rik Sam quotes the following two verses which describe the concept of the sages about these luminaries

पूर्वापरं चरत मायवेतौ शिशू क्रीडन्तौ परियातोऽध्वरम्
विश्वान्यन्यो भुवनाभिचष्टे ऋतूनन्यो विदधाज्जायते पुन ॥

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32 'एकविंशमेतदुक्थमुपयति विषुवत मध्ये सवत्सरस्य ॥ एतत वै देवा एकविंशेन आदित्येन स्वर्गाय लोकाय उदयच्छन् स एष इति एकविंशस्तस्य दशावस्तादहानि दिवाकीर्त्यस्य भवति दश पश्चात् मध्य एष लोकाय उदयच्छन् स एष इति एकविंश उभयतो विराजि तत्र यो अवस्तात् सप्तदशी भवति अय परस्तात् मध्य एष एकविंश

The Sun and the Moon are regarded as two children playing on their road which passed through the two halves of the "Heaven (पूर्वापर) One of them (Sun) determined the ऋतुs while the other one determined the heavens (भुवनानि)

The next verse shows how the moon's first appearance was hailed with joy, since *it was new each time*[33]

The Moon was helpful in determining short periods of time. Her cycle consisted of a continuous white (lighted) part called the शुक्लपक्ष and a continuous dark half known as the कृष्णपक्ष The former was a period of more than 14 nights and the second one consisted of about 13 nights In the earliar stages this period may have been regarded as of 15 plus 13 or 28 nights, each period being called a मास (month) The Sun's complete round of the heavens was therefore, naturally regarded as equivalent to 13 rounds of the heavens by the Moon Hence a सवत्सर came to be known as त्रयोदशमासा The first half (अर्धमास) contained 15 nights and hence we get the line पचदश वार्धमासस्य रात्रय It is our feeling that this must be the reason why the moon is said to be 'पञ्चदश' The Tai Br quotes the following line चदमा पचदश। स पचदश्यां आपूर्यते पचदश्या अपक्षीयते" It means that "the Moon becomes full on the 15th night and loses her brilliancy on the 15th night.

PRAJAPATI'S SAMVATSARA

(Various stages)

In the beginning the Prajapati was the synonym of the Moon and the bright half of the Moon's day was called the Prajapati's Samvatsara Its length appears to have been of 14 days[34] as is suggested by the following line from the Tandya Br त्रय निरूता नि पचदशा प्रजापते द्वादश सवत्सरा। It clearly means that the Prajapati's 12 Samvatsars are equivalent to the sacrifices of 3 15 17 and 21 days performed three times each The same work repeats the formula for 1000 Samvatsaras of Prajapati the sacrifices to be repeated 250 times (cf पचपचाशत निरूता पचपचाशता) But as ages rolled on the Divine half came to be

33. cf नवो नवो भवति जायमानोह्ना दीर्घमायु।
ऋ. वे १०-८ ८५ १९

34 [3 + 15 + 17 + 21] × 3 = 168 days = 12 Times * 14 days.

known as the देवानां संवत्सरः and the second half as the प्रजापतेः संवत्सरः, each half being equivalent to 180 days each, with विषुवान् as the extra central day. When the Aryans left their Divine abode, they noted a change in the length of the Divine day. Mantras in Tai. Br., Sat. Br., Ait.Br., and other works on sacrificial system show that the days in a Divine half were 173 days and 147 days, and also that the number of Ahoratras (common days) grew from 7th month to 12 as the Sages came down to Southern latitudes. A corresponding change in the concept of the length of a Prajapati's Samvatsara is consequently visible in the Mantras. In the last stage Prajapati[34] was indentified with Sacrifice and the year. The alterations have been shown below with supporting passages from Vedic works.

Stage I	A Samvatsara	15 days and then 14 days.
Stage II	One year	A Divine Samvatsara of 180 common days.
		+ A Prajapati's Samvatsara 180 common days.
Stage III	One year	A Divine Samvatsara with 173[36] days (120 + 53 or 117 + 56).
		+ A Prajapati's Samvatsara or 192 days (12 × 16)[37]
Stage IV	One year	A Divine Samvatsara of 147[38] days + 25 days + 1 and a Prajapati's Samvatsara of 192 days.
Stage V	One year	A Prajapati's Samvatsara of (360 + 1)[39] days. Three such years to be followed by one year of (360 + 21)[40] days.

35 (i) यज्ञ प्रजापतिं (ii) संवत्सरो यज्ञ (iii) सहयज्ञा प्रजा सृष्ट्वा पुरैवाच्च प्रजापतिं (iv) यज्ञोपवीतं परमं पवित्रं प्रजापतेर्यत् सहजं पुरस्तात् (born with Prajapati to the East.)

36 संवत्सरस्य समया वेदितव्या। एकं पुरस्तात् विषुवतोऽतिरात्र उपयति एकं उपरिष्टात् पञ्चाशत पुरस्तात् विषुवतो अग्निष्टोमान् उपयति वा पञ्चाशत उपरिष्टात् विंशतिशत पुरस्तात् विषुवत उक्थ्यमितानि अहानि उपयति॥ अथ ये अग्निष्टोमाद् यद् पञ्चाशत पुरस्तात् सदहः शत पुरस्तात्। शत. ब्रा. १२ २ ५

37. एष संवत्सर प्रजापतेः षोडशकलः। तस्य रात्रय एव पञ्चदशकलाः। ध्रुवैवास्य षोडशी कला॥ स यावँ ह्येवार्धुपति अपक्षीयते। सोऽमावास्यां यावँ एतया षोडश्या स्थिरया कलया तत आपद्यते॥ बृ. आर. १ ५-१४

38 "सप्तास्यासन् परिधय त्रिः सप्त समिधः कृताः" पुरुषसूक्त

39 "संवत्सरो वै प्रजापतिरग्निः तस्य वा एतस्य प्रजापतेः सप्त च शतानि विंशतिश्चाहोरात्राणि" शत. ब्रा. १० ४-२

तस्य त्रीणि च शतानि षष्टिश्च श्रोत्रिया तावती संवत्सरस्य रात्रय एते. ब्रा. ७-५ १

[illegible] (पृष्ठ २ & ३) A detailed list of sacrifices spread over all days has been given in the passage.

We quote below the following passages for stages II, III, IV. These are given in the footnote.

The term Samvatsar now came to be known as one year.* It was subdivided into 12 parts called a (मास) (Month) and each month into 30 parts called a day (दिन) A month was divided into two halves called the (अर्धमास) Hence, there used to be 24 half months in a year. (cf चतुर्विंशति अर्धमासा. सवत्सर. यद्वा एतस्मिन् सवत्सरेऽधिप्राजायत).

The same analogy was carried to the division of a common day into 24 Horas (होरा) or hours

A NOTE ON YEARLY SACRIFICES

They used to perform yearly sacrifices in a number of ways. The length of a solar year being 365¼ days and that of a common year being only 360 days, it seems, they used to perform a 360 day sacrifice for three years and a 381-day sacrifice in a leap year The yearly sacrifice of whatever duration was to be so arranged that the symmetry of the year§ would be maintained The Vishuvan or Equinoctial sacrifice was always to occupy the central place, and a 21–day sacrifice (एकविंश यज्ञ) was to take the central place. The sacrifices covering a period of 10 days were to be dropped out from the list of sacrifices recommended for a 381 day sacrifice in the case of a common year. The yearly sacrifice could be performed even in three instalments each of four months duration, these were called ("चातुर्मास्य यज्ञा") These lists are given by the Shatapatha Brahmana in Kanda 12, Chap 1, Brahmanas 2 and 4 The order of sacrifices given in the following list will show how they were arranged symmetrically

* The Amarakosha gives the following Table of Time units in use in his time —

18 Nimesh	= 1 Kashtha	15 Ahoratra	= 1 Paksha
30 Kashtha	= 1 Kala	2 Paksha	= 1 Masa
30 Kala	= 1 Kshana	2 Masa	= 1 Ritu
12 Kshana	= 1 Muhurta	3 Ritu	= 1 Ayana
30 Muhurta	= 1 Ahoratra	2 Ayana	= 1 Vatsara

§ ' ऊनसंवत्सरो वै देवेभ्यो '

First Half (पूर्वपक्षः)	Latter Half (अपरपक्षः)
10 days : प्रायणीय + क्रय + आतिथ्य 1 1 1 + प्रायर्य + उपसद् + उपवसथ 3 3 1	10 days : दशरात्रिक + छन्दोमाः 1 3 + पृष्ठय षडहः 6
20 days : प्रायणीय अतिरात्र + चतुर्विंशः 13 1 पृष्ठय षडह 6	20 days : उदयनीय अतिरात्र + महाव्रतं 13 1 दशरात्र षडहः 6
150 days : 25 Six-day sacrifices called षडह's	150 days : 25 six-day sacrifices of 6 days
10 days : गोष्टोम (पृष्ठय) + अभिजित् 6 1 + स्वरसामानः 3	10 days : आयुष्टोम षडहः + विश्वजित् 6 1 + स्वरसामानः 3
190 days	190 days

* cf. "सवत्सरस्य समतां वेदितव्या"

@ See Trisuparna: "ये ऽ होरात्रे दर्शपूर्णमासौ... चातुर्मास्यानि ये च क्रतवः"

SECTION IV

RISE OF STARS IN THE EAST AND THEIR DATES

The following Astronomical method has helped us in calcu lating the approximate century year of the rise of each star in the East In this connection, it should be remembered that we get two dates of such rise, these being separated by about 13000 years

Let λ = Star's longitude in the year of its easterly rise
L = Star's longitude in 1960 A D
β = Star's latitude
ϵ = Obliquity of the ecliptic = 23° 27′

Find λ, from the formula $\tan \beta = \sin \lambda \tan \epsilon$

Then find the approximate year of the star's easterly rise by the formula,

$$\text{Year} = (L + \lambda) \times 72$$

* It will be interesting to note that the rises of Bharani and Krittika took place earlier than those of Rohini and Mriga shirsha, because the declinations of the former are + (positive) while those of the latter are − (negative) The same reason can be given for the pair Hasta and Uttara

The rule followed by the early Vedic sages in commencing a year, a sacrifice and a nakshatra system was always the same and they appear to have followed the age-old tradition of chang ing the priority claim (प्रथम्य) of all the three after a period of every 800 to 1000 years, which was popularly known as the Divine Yuga (दैविक युग) The rule was –

"Adopt that Nakshatra (star) as the first Nakshatra which rose exactly in the East."

When the sun would rise on an Equinoctial day along with such an East-rising star, that day was to be the 1st day of th

TABLL

No	Star	Year B C	No	Star	Year B C	No	Star	Year
1	Ashv ni	1900	10	Magha	8800	19	Mool	14601
2	Bharani	3300*	11	P Phalguni	12200	20	P Ashadha	
3	Krittika	3000*	12	U Phalgun	12800	21	U Ashadha	
4	Rohini	2100	13	Hasta	9300	22	Shravana	13000
5	Mr ga	2700	14	Chitra	12300	23	Dhanistha	2000 14000 3000
6	Ardra	4000	15	Swati		24		
7	Punarvasu	7100	16	Vishakha	13200	25		
8	Pushya	7300	17	Anuradha	15100	26		
9	Ashle ha	6800	18	Jyeshtha	15300	27		

year and also of the yearly sacrifice We find definite references of either of the following four events

1 Rising of a star in the East.

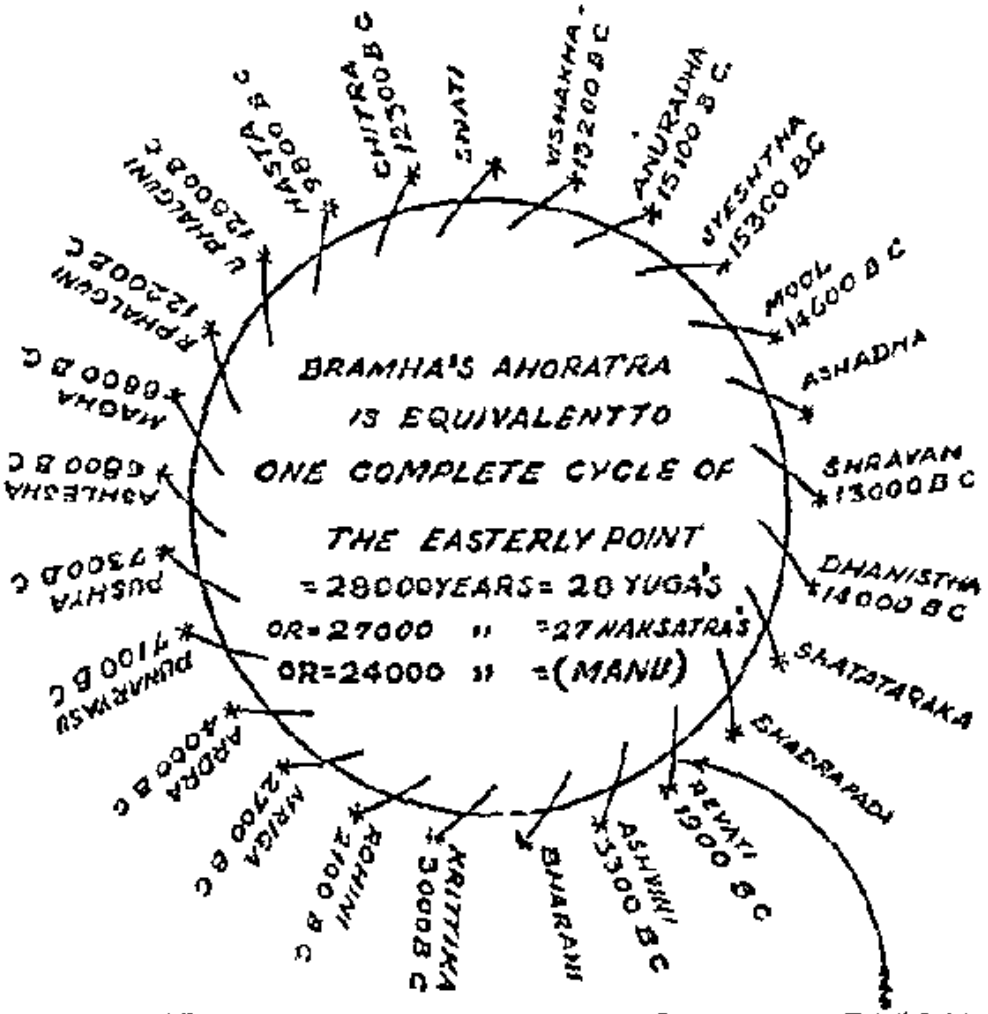
2 Re–distribution of the stars in the two halves of the sky (viz the देवभाग and असुरभाग)

3 Consecration of fire on a particular nakshatra

4 Naming the Deity for the first Nakshatra, and it was invariably the Sun

References for any one of the above four should be sufficient to believe that a change in the nakshatra and sacrificial order had taken palce We can trace such changes right from Shravana to Revati which denotes a period of 13000 years The Vedic works have given lists of stars and those of their governing Deities and this is a sufficient proof to show that the Sages have recorded the alterations in the sacrificial order for a period of at least 13000 years. A reference from M B shows that God Brahma had first started the time cycle from the star Dhanishtha (cf धनिष्ठादिस्तदा कार्ये ब्रह्मणा परिकीर्तित) Records show that all previous stars had their turn of being an Eastern star

MARCH OF TIME OR ब्राह्मी अहः



THE CELESTIAL EQUATOR OR HORIZON

1. The celestial equator passed through each nakshatra in turn, which rises exactly in the East.
2. The Sun's conjunction with an Easterly rising nakshatra determind the East in each age (yuga)
3. The East was, therefore, a variable direction

1. SHRAVANA (श्रवण)

(Vishnu was the Deity)

Before commencing any religious rite, we chant the following संकल्प every day: "भगवतः विष्णोः आज्ञया प्रवर्तमानस्य आद्यब्रह्मण. परार्धे विष्णुपदे श्रीश्वेतवाराहकल्पे वैवस्वतमन्वतरे—"

All words in *this Mantra* are very significant. It reminds us of our position in the infinite line of time. It shows that a fresh calculation started in the period of वैवस्वत Manu and in the

broad Kalpa period of श्वेतवाराह The second half of Brahma's day had commenced The system started on विष्णुपद (Vishnu's feet or the star of श्रवण) This system was introduced *under the orders of God Vishnu.* We quote below three references to prove that *Shravana was observed to be an Eastern star* and that a priority was given to it by the Vedic Rishis ·

(1) The शुल्बसूत्र gives the following verse :

कृत्तिका· श्रवण पुष्य चित्रास्वात्योर्यदंतरम् ।
एतत् प्राची दिगोख्यं युगमात्रोदिते पुरा ॥

The East has been determined by the the rise of the four stars of which श्रवण is one This is said to be the " Age-old tradition "

(2) cf " श्रवणादीनि नक्षत्राणि ऋतव शिशिरादय "-M B.

The श्रवण formed the the first star of the Nakshatra cycle.

(3) " प्रात श्रवणपूर्वाणि नक्षत्राणि चकार स· "

" Vishwamitra is said to have introduced new system of time units by carrying श्रवण to the East. "

The system of time units (whatever it may have been) and referred to in the above mantra is said to have been introduced on विष्णुपद (i e. श्रवण star) and under the orders of God Vishnu. The श्रवण may have attained an " almost Easterly " position in the year 13000 B C

2. CHITRA (चित्रा)

A passage from Tai Brah describing how the Asuras named Kala Kanj performed sacrifices on चित्रा (under the advice of God Indra) and attained the Divine part (स्वर्ग) Two of the Asuras flew to heaven and 'became a pair of Divine Dogs "-(" उदपतत, तौ दिश्यौ श्वानावभवताम्) Chitra is said to have been an Eastern star according to the above-quoted verse Even the following lines from Vedic literature speak of the importance of the star —

(1) 'स्वस्ति न इन्द्रो वृद्धश्रवा । स्वस्ति न पूषा विश्ववेदा .

(2) " वाजिनीवती सूनृस्य योषा चित्रानवद्य ईशे वसूनां"

(3) ' . चित्रा नक्षत्र भवति '

3. PHALGUNI फाल्गुनी (पूर्वा and उत्तरा)

Both the stars had their turn of being the first naksharta

in starting a Samvatsara and sacrifice. We quote below some references in support of our statement :

(1) "मुख वा एतन्नक्षत्राणां यत् फल्गुनी"

Here मुख means the "first."

(2) "य कामयेत दानकृमा मे प्रजास्युरिति स पूर्वयो फल्गुन्यो अग्निं आदधीत ॥ अर्यम्णो वा एतन्नक्षत्र यत् फल्गुनी"—तै ब्रा १-२

"Aryama was the Sun God governing the Purva Phalguni, one who desires to get the fame of being called a 'दानी' a (chari table) should consecrate on the P. Phalguni"

(3) न पूर्वयो फल्गुन्यो अग्निमादधीत ॥ एषा वै जघन्या रात्रि सवत्सरस्य यत् पूर्वा फल्गुनी ॥ उत्तरयो आदधीत ॥ एषा वै प्रथमा रात्रि सवत्सरस्य ॥ मुखेन एव सवत्सरस्याग्निमाधाय वसीयान् भवति ॥ य कामयेत भगी स्यामिति ॥ स उत्तरयो फल्गुन्यो अग्निमादधीत ॥ तै ब्रा १-२

4. MAGHA (मघा)

A line from Rik. Sam (4 5 56) read along with two others quoted under 'चित्रा' above makes us suspect that Magha was once in prominence and that शुक्र (the Sun God) was the governing Deity The line 'चक्षुषी ह वा अस्य शुक्रामन्थिनी। तद्वा एष एव शुक्र य एष तपति—" and the position of शुक्र just before that of बृहस्पति in the following list of names of Sun God support our suspicion

"वस्वसि रुद्रासि आदित्यसि शुक्रसि बृहस्पत्यसि चन्द्रासि"

The line runs thus :—उपो मघोन्या वह सूनृते वार्या पुरु अस्मभ्या वाजिनीवती वस्तुन सविता भगो वरुणो मित्रो अर्यमा ॥ इन्द्रो नो राधसागमत ॥

5. PUSHYA (पुष्य)

The following lines from the Rik Sam and the Tai Br are sufficient to prove that तिष्य had once become the first star and that the Sun God received the name of बृहस्पति in that Age. It is to be noted that Brihaspati like Shukra, was the sacrificial Deity in the form of the Sun and in later years one of the planets in the system received the name

(1) बृहस्पति प्रथम जायमान तिष्य नक्षत्र अभिसबभूव—तै ब्रा ३ १ १

(2) बृहस्पति प्रथम जायमान महो ज्योतिष परमेव्योमन्—ऋ स ३-८ १

We quote below a number of lines from the Rik. Sam which show beyond doubt that बृहस्पति was a synonym of the Sun God

Rik. Sam. (8 8.1 29)

(i) प्र नो यच्छत्वर्यमा प्रभग प्रबृहस्पति प्रदेवा
(ii) आदित्यान् विष्णु सूर्यं ब्रह्माण च बृहस्पतिं
(iii) इन्द्राय् बृहस्पतिं सु ह वे ह हवामहे
(iv) अर्यमण बृहस्पतिं इद्र विष्णु सवितार च वाजिनम्

The Tai Br quotes in (1 2 5) the following according to which all of them are synonyms of the Sun God

वस्वसि रुद्रासि आदित्यसि आदित्यासि शुक्रासि बृहस्पत्यसि चद्रासि त्वा सुम्नेरण्वतु ।

Sage Vamadeva praises the Sun God in the following way इद्राबृहस्पती देवते ॥ " अथ वा परिपिच्यते सोम इद्राबृहस्पती चारुमदाय पीतये॥ अस्मे इद्रा बृहस्पतिं रयिं धत्त शतजिन ॥ अश्वावन्त सहस्रिण '

According to Tai Br the बृहस्पति wanted to obtain the most exalted position (or highest honour) –

बृहस्पतिर्वा अकामयत । ब्रह्मवर्चसी स्यामिति ।

6 PUNARVASU (पुनर्वसु)

The following memorable lines from the Tai Br clearly suggest that the Prajapati had ordered the discontinuance of the commencing of the sacrifice on पुष्य and to start it on पुनर्वसु

" देवा वै भद्रा सतोग्निमाधित्सग ॥ तेषामनाहितोऽग्निरासीत् ॥
अथैभ्यो वाम वस्वपाक्रमत् । ते पुनर्वस्वोरादधत् । ततो वैतान् वाम वसुऽभावतत
य पुरा भद्र सन् पापीयान् स्यात् । स पुनर्वसोरग्निमादधीत् । पुनरेवैन वाम [41]
वसूपावर्तते । भद्रो भवति । " तै ब्रा 1–1–3

7. KRITTIKA (कृत्तिका B. C.)

We do not get a more definite statement about any other star than the कृत्तिका It was regarded as the first star of the Divine half because it rose exactly in the East "

' सर्वं ह वै नक्षत्राणि प्राच्यै दिशश्चवते कृत्तिका न च्यवते ॥ तस्मात् कृत्तिकास्वग्निमादधीत " शत ब्रा

Another verse mentions the first and last stars of each of the two halves of the zodiac —

कृत्तिका प्रथम विशाखे उत्तम तानि दक्षनक्षत्राणि
अनूराधा प्रथम अपभरणीश्चरम तानि यमनक्षत्राणि —शत० ब्रा०

41 Readers are requested to note that this is actually the fact. The retrograde motion of the Equinoxes has definitely the effect of creating an impression that the Earth was turning in an Easterly direction which was a reverse to the one actually [illegible]
वाम means " Retrograde " Can it mean the " Earth " ?

8. ROHINI (रोहिणी) (in the East)

The discussion on page 22 alone is quite enough to show that the Prajapati redistributed the stars among the सुर's and असुर's who accepted the division The following lines from a story about Rohini sisters and given by the Maha Bharata in the वनपर्व (ch 339) show that in some Age the Rohini had disappeared from sight (नक्षत्र गगनात् च्युत) and from the year 2100 B C. it crossed the Equator and entered the Divine half —

अभिजित् स्पर्धमाना तु रोहिण्या कन्यसी स्वसा
इच्छन्ती ज्येष्ठता देवि तपस्तप्तु वनं गता ॥ ८ ॥
तत्र मूढोऽस्मि भद्र ते नक्षत्र गगनात् च्युत
काल त्वि पर स्कन्द ब्रह्मणा सह चिंतय ॥ ९ ॥
धनिष्ठादिस्तदा काले ब्रह्मणा परिकल्पित
रोहिणी ह्यभवत्* पूर्व एव सख्या समाभवत् ॥ १० ॥
एवमुक्ते तु शक्रेण कृत्तिकास्विदिव गता
नक्षत्र सप्तर्षीणाम भाति तत् वन्हिदैवत ॥ ११ ॥

The words धनिष्ठादि etc. in the above verse refer to the system which was initially started by ब्रह्मा from the star धनिष्ठा and was later on replaced by विष्णु and a new system introduced– " विष्णोराज्ञया प्रवर्तमानस्य "

We can thus see that all the stars right from Dhanistha to Rohini had their turn in becoming an Eastern star and having the honour of starting the sacrifice (यज्ञ) and the year (सवत्सर) in different Ages

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* Scholars of Astronomy can easily know that [Rohini's rise in the East must' have occurred after that of the Krittika.

SECTION V

VEDIC DEITIES & NAKSHATRAS

1. Vedic Deities

In our opinion, in the earliest Vedic Age, the Deities and Gods देवा as they were called, were very few in number. The later Aryans used to call them as प्रधानदेवता (Principal Deities). The first and the foremost was the पुरुष or परमेष्ठी or Almighty, in whose honour we chant the famous पुरुषसूक्त every day. He was later on believed to have delegated his triple functions to three subordinate Deities called the त्रिमूर्तिः (Trinity). They were :

1. *The God of Creation* or धाता, ब्रह्मा, त्वष्टा, etc.
2. *The God of Protection* or विष्णु, नारायण. and so on.
3. *The God of Destruction* or ईश, ईशान, महेश etc.

PRINCIPAL GODS & DEITIES IN THE VEDIC AGE

Even today while following the Vedic and Post-Vedic tradition, we worship Gods (देवा) and Deities (देवता) and offer oblations to them. They are addressed as "Principal Deities", (cf. प्रधानदेवता) They are about 33 in number. It is our feeling that in the early period of the Vedic Age, the Gods were very few and then Deities were limited in number. These were symbolised and represented by Stars, Planets or Natural Elements. The primitive man had only one God – The Almighty, known as the परमेष्ठी, परमात्मन्, ब्रह्मन्, and so on. He was symbolised by the letter "OM" (ॐ). As time rolled on the sages evolved three conceptions about the "omnipotent and the omniscient" *(the all-pervading Great Spirit)* or *the* "अज" *(the not-born)*. He came to be known as the Trinity [42] (त्रिमूर्ति) comprising the three main Gods ब्रह्मा (God of Creation), विष्णु (God of Life) and महेश (*God of Destruction*) *Then came the turn of Five* Elements to be known as Gods. They were

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12. cf (i) ब्रह्मे.त्वष्टाजाईका (ii) [illegible] (iii) त्वं ब्रह्मा त्वं विष्णु· त्वंरुद्र . . .

1	द्यु, दिवं, स्वर्ग	meaning Heaven, represented by the sky.
2	अंतरिक्ष	Space.
3	पृथिवी	Earth
4	वायु or मरुत्	Wind
5	आप	Water

Later on, we come across hymns which show that the sages evolved another class of Gods to be known as देवता or Deities. The first three [43] of them were the Agni (अग्नि) (Fire), Vayu (वायु) or Wind and Surya or Savita (सविता), the Sun. Afterwards the number appears to have been increased to seven. [44]

It is our belief that Agni occupied the first position (मुख) in the list of Deities. This word has now come to mean as "The mouth' But it is our belief that the Vedic Rishis used the word 'मुख' definitely to denote "the first place.' The following lines from the Vedic literature will go to support our view

1	मुखं वा एतत् ऋतूनां यत् वसंत	(It is the Vasant which is the first of the seasons.)
2	मुखं वा एतत् संवत्सरस्य यत् फाल्गुनी	(It is the Phalguni Paurnima which denoted the first night of the year)
3	मुखं वा एतत् नक्षत्राणां यत् कृत्तिका	(It is the "Krittikas" which occupy the first place in the list of stars)
4	अग्निर्वै देवानां मुखं, also अग्निमुखा वै देवा	(Agni is the first of Gods.)
	[cf अग्निर्व देवानामवमो विष्णु परम तदन्तरेण सर्वा अन्या देवता]	
5	देवांगना उर्वशीमुखा '	(The Divine damsels headed by Urvashi)

The following Mantra which we chant on the occasion of wearing the ' holy thread shows that the name Agni comes just after the Omkar (ॐ) and before the list of 8 other Deities

ओंकारं प्रथमततौ न्यसामि अग्निं द्वितीयततौ न्यसामि नागास्तृतीयततौ न्यसामि सोम चतुर्थततौ न्यसामि

The following line अग्नि पूर्वेभि ऋषिभि इड्यो clearly shows that the Earlier Rishis had selected Agni as the first Deity. He was

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४३ त्रयस्त्रिंशत् सूर्यो देवता

४४ वसवोसि रुद्रोसि आदित्योसि बृहस्पतिरसि शुक्रोसि चन्द्रमसि

not the "messenger' or "a carrier of oblations" in that Age. He was to be worshipped and placed in the "East." [45]

We next come to an Age when the Rishis appear to have evolved ten Deities to control the ten directions as has been shown in the next table. The Brahma occupied the zenith permanently, the Ananta (The Infinite), the Nadir, and the 4 nocturnal Deities took the 4 positions of the bisectors of Cardinal angles (S E, S W, etc.) These directions were called the अवान्तरदिशा or उपदिशा (the Auxiliary or Subsidiary directions) *During the last stage of the Vedic Age, we find the Deities being represented by eight planets which are called the दिग्ग्रहा or* दिग्गजा (Elephants) guarding the directions. These lists are regarded as traditionally correct. These have helped us in verifying as to why a particular planet could have been allotted a particular sign

	Eight Directions	Controlling Deities	Elephants
1	Praachi (East)	Indra	Sun
2	Agneya (S E)	Agni	Venus
3	Awachi (South)	Yama	Mars
4	Nairhrutya (S W)	Nirhruti	Rahu
5	Prateechi (West)	Varuna	Saturn
6.	Vayavya (N W)	Vayu	Moon
7	Udichi (North)	Kubera	Mercury
8	Ishanya (N E.)	Ishana	Jupiter

It will be interesting to note that the names of the four cardinal directions indicate the Sun's position in the sky, viz that in front (प्राची), lowest (अवाची), at the back (प्रतीची) and highest (उदीची) and those of the subsidiary directions are 'derived epithets' from the names of the Deities) E. g आग्नेया from अग्नि", वायव्या 'from वायु' and so on

THE SUN

Gods Vishnu and Indra were represented by the Sun from the earliest Vedic Age. As time went on, the Moon also came to be

given an equal importance One was the creator of the day and the other of seasons[46] He appears to have received different names like सविता, आदित्य, पूषा, शुक्र, बृहस्पति, चंद्र, as Ages passed by Each time a fresh star began to make its appearance exactly in the East, a change in the sacrificial system used to be made, and the Sun God who commenced the year received a fresh name. He was known as वरुण, वसु etc according to his different positions near an easterly rising star. The Taitareya, the Aitareya and the Shatapatha Brahmana give lists of Nakshatras with their Deities, 16 of which are definitely names of the Sun God

The following list gives the names of the Sun God along with the Nakshatra which he used to govern in a particular Age

No	Namc	Star	No	Name	Star
1	वरुण or इन्द्र	शतभिषक	9	अर्यमा	पू फल्गुनी
2	वसु	श्रविष्ठा	10	बृहस्पति	तिष्य
3	विष्णु	श्रोणा	11	अदिति	पुनर्वसु
4	ब्रह्मा	अभिजित्	12	रुद्र	आर्द्रा
5	मित्र	अनुराधा	13	सोम	इन्वका
6	त्वष्टा	चित्रा	14	प्रजापति	रोहिणी
7.	सविता	हस्त	15	अग्नि	कृत्तिका
8	भग	उ फल्गुनी	16	पूषा	रेवती

Thirty Three (kinds of) Deities

The foregoing discussion is just an attempt to show how there is no unanimity of opinion about the number of Vedic Deities We, in the present Age, speak of "33 crores of deities" This is something unbelievable. The word "Koti" should be rendered as 'kinds of" If the lists of deities given by various Vedic scriptures be seen, we find that while the Krishna Yajurveda gives more than 100 names of deities, The Rigveda gives more than 200 and Atharva Veda gives more than 500 YASKA and SAYANA have attempted to classify these deities as (1) those residing on Earth, (2) those occupying the intermediate space, (3) and those residing in the Sky.

46 ' विश्वान्यो भुवनाभिचष्ट ऋतूनन्यो विदधज्जायते पुन ।

The Aitareya Brahman (2 8) gives lists of 33 deities in two groups, viz those who drink the Soma juice (सोमपा) and those others who do not (असोमपा) as given below —

The 'Somapa' deities		The 'Asomapa' deities	
Adityas	12		
Rudras	11	Prayaj	11
Vasus	8	Anuyaj	11
Prajapati	1	Upayaj	11
Vashatkara	1		33
	33		

This distinction, to our mind, is due to the two different systems of sacrifices in vogue, viz those in honour of Soma or Moon and those others performed in honour of the Sun

We attempt to show the following probable classification of deities in vogue in modern Age —

Class	Name of the class	Deities
1	Principal deities (प्रधानदेवता)	e. g इंद्र, अग्नि, वायु
2	Secondary deities (कनिष्ठदेवता)	ऋभु, त्वष्टा, अंश etc
3	Planetary deities (ग्रहदेवता)	शुक्र, बृहस्पति, शनि
4	Starry deities (नक्षत्रदेवता)	Lords of 28 asterions
5	Natural deities (निसर्गदेवता)	द्यु, पृथिवी, पर्जन्य, etc.
6	Feminine ,, (स्त्रीदेवता)	उषा, सरस्वती, वाक्, etc.
7	Group , (समूहदेवता or गणदेवता)	आदित्य, रुद्र, वसु etc.
8	Dual ,, (युग्मदेवता)	इंद्राग्नि, मित्रावरुणौ, अग्नीषोमौ or द्यावा पृथिवी, etc.
9	Directional (दिक्पाल)	Lords of 8 directions
10	Sacrificial (यज्ञदेवता)	
11	Regional (स्थलदेवता)	
12	Water (जलदेवता)	
13	Forest (वनदेवता)	
14	Herbs (वनस्पतिदेवता)	पिंपळ, वट, तुलसी
15	Beasts (पशुदेवता)	Cow, Bullock etc
16	Birds (खे-चर)	गरुड, कोंबडा, etc.
17	Insects (भू-चर)	नाग, विंचू etc

Class	Name of the class	Deites
18	Village „ (ग्रामदेवता)	Of one's own village
19	Locality „ (स्थानदेवता)	„ one's own locality
20	House „ (वास्तुदेवता)	„ one's own resdential place
21	Feelings represented by deities (भावदेवता)	श्रद्धा, मेधा, प्रज्ञा, धारणा
22	Merits „ (गुणदेवता)	वीर्य, सौंदर्य, etc
23	Sages „ (ऋषिदेवता)	Seven famous sages
24	Manes „ (पितर)	Forefathers
25	Celebration „ (इष्टदेवता)	The particular deity under consideration
26	Family „ (कुलदेवता)	
27	Action „ (कर्मदेवता)	

Six more classes of deities could be added to make the number 33

The following lists of Deities which occur in Vedic lines appear to be those of a later origin.—

(1) आप्तार, अग्नि, नागा, साम, पितृ, प्रजापति, वायु, सूर्य & विश्वेदेवा
(11) ब्रह्मा, विष्णु, रुद्र, इंद्र, अग्नि, वायु, सूर्य & चन्द्रमा
(111) इंद्र, अग्नि, यम, निर्ऋति, वरुण, वायु, कुबेर, ईशान, ब्रह्मन् & अनंत

Deities like अश्विन्यौ, definitely belong to a later Age of 4,000 B C The dual deities like मित्रावरुणौ, अग्न्यामरुत इंद्राग्नि etc. appear to have been the pairs of deities controlling the same one particular direction, one of them during the Divine day of six months and the other during the night

II

VEDIC NAKSHATRAS

(Their names and controlling Deities and Clusters of Stars)

We are convinced that the Vedic nakshatras were not exactly the same clusters of stars, as are known to us today. **Even the names of naksatras are changed.** It appears that the Vedic Rishis **named the stars** mostly according to their shapes, **resembling the parts of a human body or those of beasts** like the deer (antelope), the ox, the goat and so on, e.g the naksatra Hasta (हस्त) appears to have received this name because of the cluster resembling the fingertips of a palm (हस्त)

The head of an antelope (मृगशीर्ष), the बाहू (or two arms) and so on It has been attempted to find out a probable explanation as to why a particular star may have been so named In the following list the Vedic naksatras have been given in a bold type and the stars comprising them have been mentioned in accordance with the nomenclature used by the Modern Star Atlas The modern naksatra names have been given in a bracket. The name of each Naksatra Deity has been given in the last column The Vedic works differ amongst themselves regarding the number of stars in a cluster and regarding the gender in which each naksatra name is used For instance the अथर्वसंहिता mentions कृत्तिका in the singular, मृगशिर and पुष्य in the masc sing, स्वाति and अनुराध are used in a short vowel form, श्रवण in place of श्रोणा and भरण्य (plural) in place of भरणी (a feminine singular form)

S No	Nakshatras		The Deity
1	अश्वयुजौ	The name appears to have been given because of their resemblance with a pair of horses yoked to the Suns chariot and driven by the Charioteer	नासत्यौ
	(अश्विनी)	α β γ ARIES.	
2	भरण्य, अपभरणी, भरणी	35 39 and 41 Aries	यम
3	बहुला	(δ ι and 63 Aries)	
	कृत्तिका	So called because of their Scythe-like shape. It means a cutting machine.	अग्नि
4	रोहिणी	It was so named because it is रोहित or red It was also so called because, after a lapse of about 13 000 years since it was recorded to have disappeared[47] from sight it was again seen gradually rising in the heaven. (Tauri or Aldeberan) It is one of the five stars forming a cart-like cluster popularly known	प्रजापति

47 See M B Vanaparva Ch 23 अध्याय ... verses 8 and 9 See page 40 for these verses

S No	Nakshatras		The Deity
		as रोहिणी शकट, which was "pierced through" by the Saturn and Mars about 6,000 years ago In some Age, it was also called a 'red horse' (लोहिताश्व)	
5	इन्धना	A cluster of stars above the head of the Orion	सोम
	मृगशीर्ष	Orion It is situated at the head of an antelope-shaped cluster.	सोम
6	बाहु	The two arm-shaped cluster in the GEMINI group	रुद्र.
	आर्द्रा	(γ Gemini) It means either 'wet or moist' because of its position in the Milky way (आकाशगंगा) or it may mean "one having a relation to रुद्र	
7	पुनर्वसु	So named because it again attained the exalted position of the star पुनिष्ठा which was controlled by वसु People also believed that they brought wealth to a sacrificer again, if he discards sacrificing on the star It consists of two stars, Castor and Polluxe	अदिति
8	तिष्य सिष्य (पुष्य)	It is yet to be confirmed if this was the same as the पुष्य (δ – Cancri) of today	बृहस्पति
9	आश्रेषा (आश्लेषा)	It must have been a cluster of stars resembling a snake "सर्प" There are a number of such stars which are named *SERPENS*" even today in the star map	सर्प·
10	अघा[48] (मघा)	It is a cluster of 6 stars, the most prominent of them being the α – LEONIS	पितृ
11	अर्जुनी	A group of two pairs of stars popularly known as the पूर्वा and उत्तरा	
12	फल्गुनी		

48 (i) अघासु ह्यंत गतः
(ii) एता वा इद नक्षत्रं यत फल्गुन्योऽथास्य प्रनितोऽर्जुनेना
अर्जुन्यो वै नामैतास्ता

S No	Nakshatras		The Deity
13	हस्त	The palm like cluster (See the map)	अर्यमा
14	चित्रा	(SPICA)	भग
15	विशाखा	λ VIRGO	सविता
	स्वाती	ARCTURUS – It is bright like a pearl α BOOTES	इंद्र त्वष्टा वायु
16	विशाखा α	Libra (a single star)	
	(विशाखे राधा)	(Dual form) – Two branches of starry tree appear to pass through them. They were (α & β)	इंद्राग्नि
	विशाखा	(Plural) (α β and ν)	
17	अनुराधा (अनुराधा)	Plural meaning one coming after (राधा)	मित्र
18	ज्येष्ठा (रोहिणी)	Meaning the elder of the Rohini sisters This is also very red like the Aldeberran	इंद्र
19	विचृतौ	(two stars–perhaps E & δ) The meaning of the word is joined together	पितृ
	मूलबर्हिणी	λ SCORPII – Meaning is clear	निर्ऋति
	मूल	λSCORPII It means the root of the starry tree extending to the SPICA and ARCTURUS on one hand and to α DELPHINI on the other	प्रजापति
20 } 21 }	आषाढा	Group of 2 pairs of stars which are well known today	विश्वदेवा
22	श्रोणा कर्ण ? (श्रवण)	CORONA Meaning a maimed or disabled part of the body (cf श्रोण पगौ) (α δ ε ξ ι and ο) the modern Alpha ALTAIR	विष्णु
23	धनिष्ठा	An earlike cluster in the Aqualine group (α β γ ξ π and η)	वसु इंद्र or
	धानष्ठा	The Delphini group	
24	शतभिषक्	A cluster of densely situated stars in the Pisces group	वरुण अजएकपाद
25	शतत रका	λ Aquari	
26.	प्रोष्ठपदा	The name of the deity suggests that it was either like a foot or leg of a ram or was the first quarter of Brah	

S. No.	Naksatras	The Deity
	ma's day (since अज means ब्रह्मा also) (भद्रपदा) The name अहिर्बुध्नि also suggests the control of the group, by God Shiva who has a snake round his girdle. The group is yet to be confirmed. The meaning of "प्रोष्ठ" is not clear.	अहिर्बुध्नि
27.	रेवती One bringing wealth	पूषा
28.	अभिजित् Meaning one who controls or con quers all directions on all sides (VEGA).	ब्रह्मा

SECTION VI

IDENTIFICATION OF VEDIC DEITIES

In section V, we have attempted to give a list of Principal Vedic Deities and that of Vedic Stars, along with the names of stars according to popular belief The next problem is to interpret the Vedic passages and hymns in the light of our stand, viz that all the Vedic Deities were represented by stars, clusters, or constellations of stars and planets The following discussion, which has emerged as a result of further research will justify the correctness of our stand

The search about the origin of modern names of stars and constellations has revealed that while the constellations are known after their Greek or Latin names, some of the principal stars are known after their Arabic names, whose meanings are unknown to us. Further search is necessary for understanding the meanings of these names and this is likely to bring to light additional support for the correctness of our stand

It has come to our notice that *most of the modern names are the corrupt forms of the original Sanskrit names of the stars* These names clearly show that the stars and constellations were named according to the shapes suggested by them to the obser vers.

I

Principles of Research and of the Identifications of stars.

In view of the difficulties of identification described above, the following principles have been formulated for our guidance

1 To accept an English word as correct where it undoubt edly appears to be a corrupt form of an original Sanskrit word, which is likely to convey the meaning of a shape presented to an observer of a particular star, cluster or constellation

2 If the Star Atlas gives a meaning different from the one found above, in the case of a particular word, to ignore the meaning, considering its meaning to be the idea of an observer in [illegible] Vedic Age

(Examples CORONA = श्रोणा or कर्ण according to Vedic Sage, although it may have been a 'CROWN' to an observer in a Post Vedic Age.

COMA = सोम and not "hair"

ARA = आरा (asaw) and not an 'altar'

SCUTUM is चूतम् (a mango) and not a "shield"

3 Since, an error of transcription is likely to have occured, to try all possible changes in the letters of English alphabet e. g

(i) The letter C may be an S, Sh, or K

(ii) „ H „ H or E (The capital Greek letter of Eta)

(iii) „ Y „ Y or N (a mistaken Greek letter of Nu)

(iv) , G „ G, J or N (A mistake for 'Gamma')

(v) , F „ F or G „

(vi) „ P „ P or R („ 'Rho')

[Examples – HYADES = हयादि, but HYDRA = हद्र

REGULUS = रज्जुल, but VEGA may have been वीणा

CETUS = सेतुस्, COMA = सोम, CORONA = श्रोणा

FORAX = गोरक्ष]

4 If an English word gives a meaning in agreement with the shape required in a particular case, we have to accept that meaning, but we have further, to reserve this as a problem for further research as to how and why this word could have received that meaning

(Examples – SAGITTA = an arrow, SAGITTARIUS = Archer,

AQUILLA = Eagle, CYGNUS = Swan, and so on.

5 Every Sanskrit name followed by the words ध्वज, वाहन or केतु, must be the name of a cluster or a constellation of stars presenting to an observer a shape of that name, e g मयूरध्वज, मकरध्वज, हंसवाहन, मीनकेतन

6 To expect the place of every concerning Vedic Deity either exactly at the place indicated by the भज group or in its vicinity.

7 While finding out a rational explanation for any Vedic passage it must be noted that a constellation may have presented different shapes to different observers, in different Ages and at different places on the Earth, and then to try to find out the time and place for the composition of that particular passage.

8. If two or more shapes on the starry sphere be found to agree with the description of any particular deity, all such constellations must be accepted as their positions at differnt stages of the Vedic Age.

9 Since Asuras were पूर्वदेवा according to Amarkosh, we should expect to get their positions also in the similar manner and their shifting into or away from the Divine half should be interpreted as the Divine victory over them

We now enumerate some examples of how the same one constellation presented different shapes.

II

ONE CONSTELLATION PRESENTING DIFFERENT SHAPES

The following examples will be sufficient to prove our view that the same one particular constellation has presented different shapes to different observers in different Ages and in different countries Cases of each such variation will be found in the discussions under 'Interpretation of Vedic Mantras

THE GREAT BEAR

The Astronomical name for this constellation is the "URSA MAJOR' The present Indian name is the Saptarshis (सप्तर्षि) The word *URSA* clearly admits of a number of versions and fortunately for us we do get supports for our stand in each case

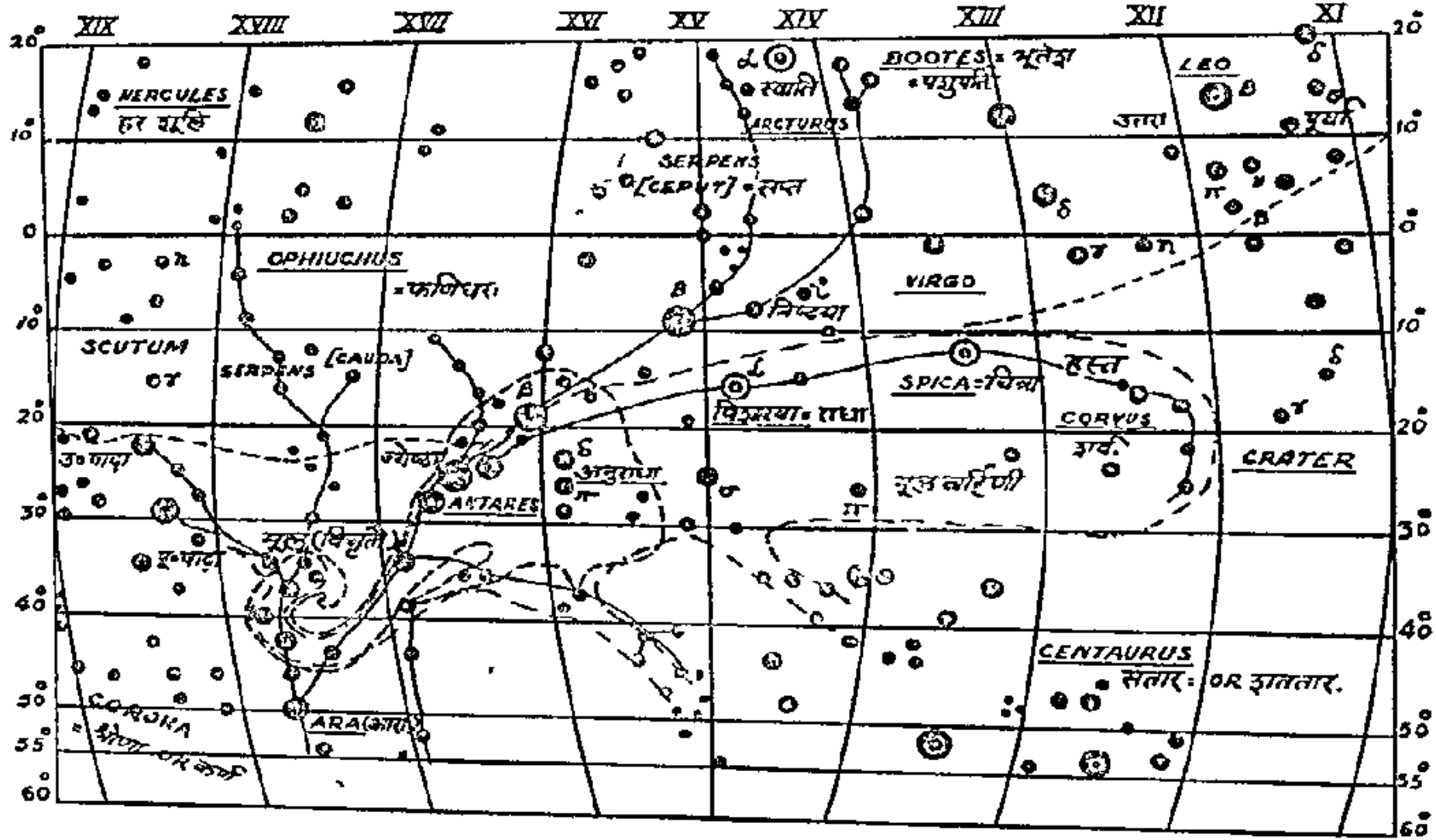
(1) URSA = ऋक्ष (i e, a Bear) The following lines from Rigveda clearly show that bear the seven - starred constellation was definitely named as the

अमी यऋक्षा निहितास उच्चा नक्त ददृश्रे कुहुचिद्दिवेयु

–Rik S 1 24 10.

सप्तर्षीनु ह्यस्मै पुरर्क्षा इत्याचक्षते Shatapatha, Br, 2 1 2

MAHADEVA GANAPATI & THE DIVINE TREE



at λ – Scorpii. The names "Arcturus, Centaurus, Sagittarus, are possible corrupt forms of Sanskrit words अर्कतरु, सतारं and शीमतरु respectively

(2) **The Omkar (ॐ)** This symbol was suggested to them by this very constellation, when it may have occupied an inverted position Lines[50] from the भगवद्गीता lend a support to our view, that the पुरुष was symbolised either by the Omkar or by a tree with its root above (ऊर्ध्वमूल) and branches downwards (अध शाख) extending up to the constellation of Scorpio (cf अश्वत्थ)

(3) **The tail of a Scorpion** – The shape is clear enough, and does not require any elucidation

(4) **The Peacock** :– The whole constellation of हस्त, चित्रा, विशाखा, अनुराधा, ज्येष्ठा, and मूल does give an impression of a peacock. The naksahtra now known as Mool, was formerly called the मूलबर्हिणी (i. e the tail of a peacock)

(5) **The Jar (or कुभ or कलश)** .– The clusters of अनुराधा, ज्येष्ठा, and मूल may have suggested the shape of a Jar, having, अनुराधा as the mouth, ज्येष्ठा as the neck and मूल as the base. The Deities governing these portions were the विष्णु, रुद्र and ब्रह्मा, respectively

(6) **The God गजानन** – The figure is sufficient to convince a reader of this suggestion

THE ALDEBERRAN (Rohini Group)

(1) It has suggested the shape of a horse (अश्व) The Star Map does give the name of 'HYADES' which is none other than the "हयादि". The Arabic word "Al-deberran" also means "the Zebra" or a horse. This consists of seven stars, and may have been considered as the सप्ताश्व in some Age.

(2) **The Cart (शकट)** The ancient Hindu Astronomical works speak of the रोहिणीशकटभेद or "being pierced through" by Saturn and the Mars.

(3) It was taken to be a Conch (or शख) A clearer explanation of this will be found under the interpretation of the Mantra "शखादौ चन्द्रदैवत्यम्"

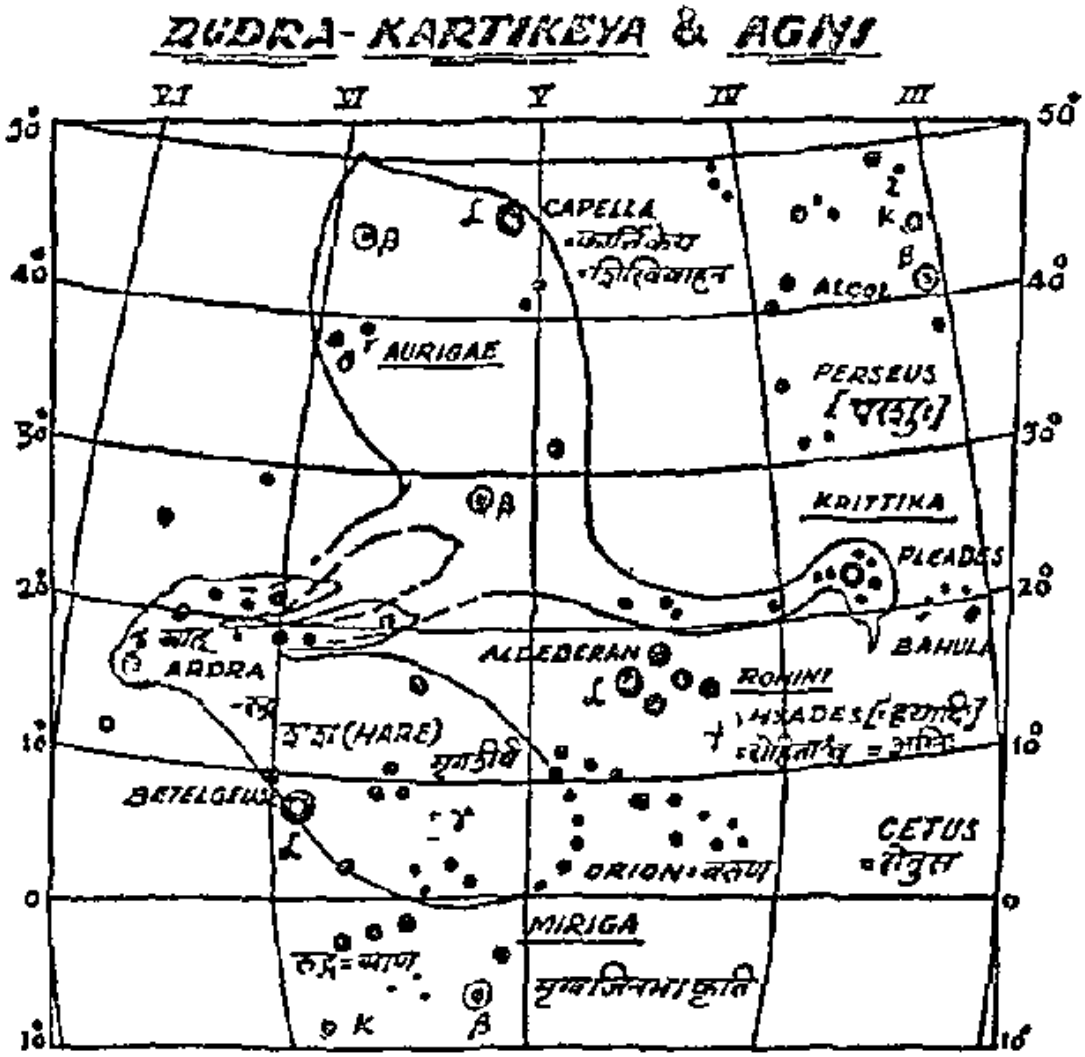
THE CONSTELLATION OF GEMINI

The following star groups, appearing in two parallel lines, appear to have suggested the following things

50 [illegible]

(i) λ, μ, ν, 126 and (ii) Nos. 71,68,61, 57and ξ

(1) The legs of a peacock. (2) The ears of a hare. (3) The horns of an antelope. (4) The arms of God Rudra (बाहू)



We now proceed to show how the Vedic descriptions of various deities are the descriptions of shapes of constellations and clusters[51] of stars actually observed by our Sages It is our belief that in the earlier stages, when the whole human race was divided into two groups, the Suras (सुर) occupying the Northern Hemisphere, and Asuras (i.e non-Suras) occupying the Southern half, there were two Deities equally honoured by both viz , the महादेव and गजानन

According to the names of Deities given by Amarkosha, these can be classified into three groups –

51 देवगृहावि नक्षत्राणि । य एवं वेद गृही एव भवति
— तै० ब्रा० १-५

(1) The 'Federated Gods' or गणदेवता [52] E g Adityas, Vasus Vishvedevas etc.

(2) Those Deities which are represented by a very bright star situated in a constellation whose shape resembles that of a bird or a beast These are designated as "one whose vehicle (वाहन) or flag (ध्वज) is a particular bird or beast". E g, हंसवाहन, मयूरवाहन, शिखिवाहन, मेषध्वज, मकरध्वज and so on

(3) Those which are represented by a single star – E.g, Vayu (वायु) is represented by स्वाति or निष्ठया

The positions of these Deities or Gods can be identified with those clusters which show an association with their "Power Goddesses" (शक्ति) who have derived their names directly from those of the Gods E.g शिवा, शर्वाणी, शाक्री, from शिव, शर्व, and शक्र respectively, वैष्णवी, ब्राह्मी, माहेश्वरी, शाम्भवी, and so on Saraswati who is supposed to be riding a peacock can help one in identifying the position of गणपति, the Lyre (वीणा) of शारदा can give a clue to find out the position of ब्रह्मा and so on

(1)

MAHADEVA

This deity has received thousands of names during the last 15 000 years, but the Amarkosha gives about 50, many of them are easily seen to be the names of constellations, which are known by those names or their equivalents even today We have based our conclusions on the nomenclature used by the Norton's Star Atlas. We now attempt to show, how the names of Mahadeo are represented by different constellations.

(i) भूतेश = **Bootes.** The meaning of the word, as given by the Atlas, is 'the herdsman which is another name of the deity, viz पशुपति or पशुमान्

(ii) हर-शक्ति = **Hercules.** This is the name of that Giant who has supported the Earth A man of giant like strength is called भीम in Sanskrit, and this is also a name of God Shiva

(iii) पन्नगधर = **Ophiuchus.** Its meaning is given as the 'snake-bearer"

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52. आदित्य विश्वसवसु तुषिता भास्वरानिला ।
महाभिकाश्च रुद्राश्च स्मृदेवा ॥

(iv) गंगाधरः = The Milky Way (or आकाशगंगा) is clearly seen occupying the main position of his body.

(v) व्योमकेशः, चंद्रशेखरः, शशिधरः } = Coma Bernices. The Atlas gives 'hair' as the meaning of COMA. To our mind it is सोम and BERNICES is चर्णिकः. The star Swati is as bright as the Moon[f]. It was taken to be the Moon in the head of God Shiva.

(vi) त्रिनेत्रः = δ-Antares. The three stars comprising this cluster include the middle one which is red like fire. Hence, God Shiva was named त्रिलोचनः having a "fiery eye" in the centre of his forehead.

(vii) त्रिपुरांतकः = Triangulum. It means "terminating in the three cities."

(viii) नीललोहितः = α-Antares. The middle star is red and the other two are bluish in colour.

(ix) शर्वः = Corvus. This is a corrupt form of शर्व.

(x) शंकरः = Cancer.

(xi) कपर्दिकर्णः = Capricornus, justas the word CORONA is the corrupt form of कर्णः or श्रोणा, or both.

(xii) अहिर्बुध्निः = Serpens (Ceput and Cauda) together, the word CEPUT is the corrupt form of सप्त and CAUDA, that of पोढा. It means one, having snakes about his girdle.

(xiii) रुद्रः or बाहू = Ardra or ζ-Gemini along with two parallel strips of stars, described before.

(xiv) कृत्तिवासाः = The Orion. It means, one wearing the skin of a deer.

(xv) इषुः[51] = Sagitta. Its meaning is given as the arrow. There are four more star-clusters which appear like arrows; any of them could have represented the God MAHADEVA.

(xvi) स्मरहरः = मदन or God of Love, is named as स्मरः पंचशरः (five-arrowed) or पुष्पधन्वा. The constellation of SAGITTARUS, which literally means an archer, formerly represented the मदन who shot five arrows,[54] and then represented महादेव who destroyed the

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53. "नमस्ते रुद्रमन्यव उतोत इषवे नमः ॥

54. "अरविंदं अशोकं च चूतं च नवमल्लिका
नीलोत्पलं च पंचैते पंचबाणस्य सायकाः ॥"—अमरकोशः

former The star group "ALTAIR" (=the '*teer* =arrow) is one arrow and the group "VULPE CULA" which is the corrupt form of 'फुल्लबकुल' is another arrow 'SCUTUM" which is the corrupt form of चूतम् is the 4th arrow This portion of the sky may have been designated as the इषु

(xvii) धन्वी = Sirius (The dog star or the Hunter as it is called

(xviii) खडपरशु = Perseus which is clearly a 'broken axe.'

(xix) वृषध्वज = The constellation of TAURUS (वृषभ)

(xx) मृड = The constellation of ORION which may have been taken to be a डमरु (Drum)

(xxi) श्रीकठ = The constellation of CANIS MAJOR, which has the brightest star SIRIUS (=श्री) in the 'neck'

(2)

GANAPATI (See Fig on page VI)

The literal meaning of the word is "the Governor of groups' His oldest description is found in the अथर्वशीर्ष which has been composed by the sage गणक According to him* the crescent with a star (अर्धन्दुलसित ताराणरुद्ध),* he[a] is said to be identified with ब्रह्मा, विष्णु रुद्र, अग्नि, सूर्य, and चद्र, इन्द्र, and वायु He is said to be 'blown up bellied (लबोदर), one having a crescent in his *forehead* (भालचद्र) *one having a mouth of an elephant* (गजानन) one having fan like ears (शूर्पकर्ण) and so on. He is also द्वैमातुर (one having two mothers)

* Note.— According to another consideration, because Ganapati also is called भालचद्र (i e, one having Moon in his forehead), शशिवर्ण (the same as सोम वर्णिक) and गजानन (one having the mouth of an elephant) शूपकर्ण (having an ear like a winnower) गणपति or गणाधिप (Lord of groups), the constellations of Corona, Bootes, Antares, Scorpio together may have suggested to the Sages, the figure of an elephant's head, ear and trunk, and in the initial stages Ganapati and Mahadeva may have been the same Deity (cf गणानां त्वा गणपतिं हवामहे)

[a] cf ॐ नमो ते रुद्र मन्यव उतो त ... नमः

* The symbol of Omkar ॐ and * represented him.

In our opinion, the constellation of हस्त, चित्रा, विशाखा, अनुराधा, ज्येष्ठा, and मूळ, together correctly represented गणपति This figure can be called a peacock also He was represented by other groups of stars by the Asuras. They perhaps were, the MUSCA (मूषक), CARINA (करिन्), Reticulum (meaning a net, i e. पाश) and so on.

(3)

GOD SKANDA or KARTIKEYA

Vedic Literature and Puranas abound in stories about the birth of स्कंद, and कार्तिकेय He has received the following names –षाण्मातुर (six-mothered), तारकजित् (conqueror of Tārak), कार्तिकेय (born of कृत्तिका), बाहुलेय (born of बहुला), और्ज्य (born of ऊर्जा), रौद्र (born of रुद्र), शिखिवाहन (one having the peacock as the vehicle) and so on. In our opinion, as the Ages rolled by, some of the constellations which previously formed a part of महादेव, gradually left the Sura half, and other clusters newly appeared This was taken to be the "parting of authority" to Gajanan and Shadanana God Shiva had eight wives (stars) two of whom were given over to Gajanana and six others to Skanda Because, both these Gods received the control of star groups from Rudra, they were called the 'sons of Rudra' or रुद्र The constellation of CENTAURUS (शततारा) which formerly belonged to the Asura half, entered the Sura half, and this event was interpreted as the conquering of the तारकासुर by Skanda, who thereby came to be known as the तारकजित् After about 12 000 years, parts of the constellations of Tauri Gemini and Aurigae, which together gave an impression of a peacock (see the diagram given on page 52) represented the Skanda The star कृत्तिका is called बहुला The constellation of AURIGAE contains one principal star and six others He is also called आग्नेय (son of Agni) because Agni is the Deity of कृत्तिका (cf नक्षत्रे सप्तर्षीणाम वह्निदेवत) He is called a मयूरकेतु This is clear from the shape of a peacock suggestible from the stars

(4)

PRAJAPATI

Two different constellations were taken to represent the Prajapati One is described as a combination of the clusters of[56]

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[56] पश्चनक्षत्रीय प्रजापति हस्त पंचास्य हस्त चित्रा शिर स्वाती हृदय विशाखे ऊरु अनुराधा प्रतिष्ठा।

हस्त, चित्रा, निष्ट्या, विशाखा and अनुराधा The second is represented by the constellation of ORION (वरुण)

(5)

VARUNA

We find the position of Varuna definitely specified by the following mantra which we chant every day —

शखादौ चद्रवत्य कुक्षौ वरुण देवता । पृष्ठे प्रजापतिश्चैव अग्रे गगा ." The word ORION is clearly the corrupt form of Varuna (वरुण) This constellation consists of three curved lines of stars resembling "Chille" The Amarkosha gives सेतुस् and तिक्षशाक as the synonyms for वरुण [58] The word सेतुस् appears to be the constellation of CETUS.

(6)

INDRA

In our view, the constellation of Magha represented the Vedic Deity of Indra, who was generally represented by the Equinoctial Sun He received the title of मघवान्[59] because of his association with this cluster The Phalguni constellation which was known as अर्जुनी or गौ represented the Divine Cows (गाव कामदुघा) These cows are said to be killed when the Sun comes to Maghas (cf अघासु हन्यन्ते गाव ।)

(7)

KUBERA

He is called the God of Wealth and the friend of God Shiva (त्र्यबकसखा) He is called the वैश्रवण (i. e Governor of a province from which the portion called श्रवण has been snatched away) In our every day prayer, when we offer flowers at the end of our worship, we request *him to give us the* sovereignty of the whole earth including that of विश्वेदेव who are simply "members of a Federation" under him (cf राजाधिराजाय—नमो वय वैश्रवणाय कुमहे सम्मे कामान्—कामेश्वरो वैश्रवणो ददातु । कुबेराय वैश्रवणाय—विश्वेदेवा सभासद इति) He is called the कामेश्वर (i. e. God of काम or मदन) *The Vedic works give the Lordship of the 'Ashadha' constella*tion to विश्वेदेवा This constellation consists of a dozen second

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[57] "यजापतिर्मृगो भूत्वा रोहितम् अभ्यधावत् रोहितम् भूतो अभ्यैत् ऐ. ब्रा ३ १ ५

[58] "वरुणो वरुण स्तुलितक्षाक सुसारक — अमरकोश

[59] इमो मरुतो मघवा इमका मम Rik. Sam.

grade bright stars In our opinion, he was given the lordship of the whole of the region formerly under the control of God काम or मदन and that of the whole of Ashadha group from which the cluster called CORONA (*or* कोणा) was taken away, and that is why he came to be known as कामेश्वर and वधकण He is also called नरवाहन because the figure of Sagittarus (Archer) was formerly that of a human body

(8)

MADANA [60] (God of Love)

The Amarkosha gives the following epithets – पचशर (Five arrowed), पुष्पधन्वा (One having a bow of flowers) मकरध्वज (Having the flag of मकर i e. crocodile) मीनकेतन (Having a fish at the tail), अनग (Having no body) The star map mentions the following stars which are clearly the arrows referred to by the कोश (1) SCUTUM = चूतम् (or mango) (2) SAGITTA (meaning an arrow), (3) ALTAIR = (The 'Teer or 'arrow), (4) VUL PECULA = फुल्लबकुल or अशोक The fifth one could not be identified The constellation of SAGITTARUS (*meaning a bow*) is the धन्वा The cluster of Delphini resembles a 'fish' All these stars are seen in the Milky way, and they together give an impression of a मकर (or crocodile)

(9)

NAGAS

The whole sky appears to have a number of snakelike clusters The star map does give such constellations under the names (1) SERPENS (2) HYDRA, (3) DRACO There is a cluster called SERPENS (Ceput) It is clearly the सप्तसर्प We also find a SERPENS Caudaa or षोढासर्प The HYDRA may be the वासुकी and DRACO the शेष That 'nagas' were a deity can be proved beyond doubt by the following lines.—

(1) ओंकार प्रथमततौ न्यसामि नागास्तृतीयततो न्यसामि '

—यज्ञोपवीतधारणविधि

(2) ब्रह्माणमीश कमलासनस्थ ऋषींश्च सर्वान् उरगाश्च दिव्यान् ।

(10)

AGNI

Agni was the first Deity of the Vedic Sages (cf अग्निर्व देवाना मुख) His postion can be identified either with that of LIBRA+SCORPIO

60 When this portion of the sky passed into the D vine half the event was interpreted as the destruction of काम or स्मर and hence God Mahadeo received the epithet of क मारि and स्मरह

or with कृत्तिका, रोहिणी and मृग[61] This double representation in the case of many of the Deities is significant as shown later on Among the 34 synonyms of Agni as enumerated by Amarkosha the following are significant from our standpoint Agni is called the शिखावान् (i e. having a plume) The star Pleades looks like the plume of a peacock. He is सप्तार्चि (i e. worshipped seven times). वृहद्भानु (A major Sun) The lines[62], usually uttered on the occasion of the वैश्वदेव sacrifice, present before our eyes a clear picture of the Deity having association with the star Pleades, which is known as कृत्तिका, बहुला or औजी The अग्न्याधान or the commencement of a yearly sacrifice was associated with the rising[63] of the star कृत्तिका, exactly in the East. The Agni was therefore called मेषारूढ Because the Mesha sign or the constellation of stars resembling a ram, commenced from कृत्तिका, Agni came to be known as मेषारूढ and मेषध्वज The Vedic Literature shows that the Vedic Sages used to perform periodic sacrifices of durations of 7,9 and 10 months each They were known as the सप्तम्वा, नवम्वा and दशम्वा. It is on account of the seven monthly sacrifices that the Agni is called सप्तार्चि The star Pleades consists of a cluster of seven stars and is called the " नक्षत्र सप्तशीर्षाभ ". Since Agni is worshipped seven times during the day (अह) of 180 days and seven times during the night, the sacrifice had two beginnings (मुख or शीर्ष) and hence Agni is aptly described as सप्तार्चि and द्विशीर्षक The year was divided into four quarters, they used to perform four quarterly sacrifices and hence Agni appears to have received the name of चतुश्शृग The star Krittika, which was the beginning point of मेष, gave the signal of the advent of the new year and Agni came to be known as मेषध्वज· He is called the रोहिताश्व· The star popularly known as the Al-deberran or रोहिणी consists of seven stars, of which the principal star is very red The cluster is called HYADES which is clearly the corrupt form of ह्यादि The Arabic name " aldeberran " itself means The *ZEBRA " or the horse (रोहिताश्व = red horse) This cluster,* therefore, formed a part of the constellation of Agni He is also

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61 रोहिताश्व and लोहिताक्ष are names of Agni. The red star रोहिणी situated in the horselike constellation of Rohini suggests the name.

62 सप्तास्य चतुश्शृग स्वाजको द्विशीर्षक । त्रिपाद् प्रसद्वदन मेषाक्षो जटावटी धूमकेतु
[illegible] सप्तार्चि सविनामदृ ।

63 कृत्तिकास्वग्निं आदधीत । सर्वे ह्येते नक्षत्राणां प्राच्यै दिशो च्यवन्ते । कृत्तिका न च्यवन्ते

called चित्रभानु *reminding one of Agni's position at the Sun's rise* with चित्रा in the East

(11)
BRAHMA

He is said to be the controlling deity of the star अभिजित् (L–LYRA). His wife, Goddess Sharada is said to be fond of playing on a lyre or LYRA. The vehicle[64] of Brahma is said to be the SWAN. The star map gives us a constellation of CYGNUS whose meaning is swan Just near this cluster is that of the "LYRA" and VEGA is the brightest star The star Vega, therefore, used to represent God Brahma in the earlier Vedic Age. His position is said to be at the bottom of a jar (कलशस्य मुखे विष्णु मूले तत्र स्थितो ब्रह्मा) but he always occupies the zenithal position (cf ऊर्ध्वायै दिशे ब्रह्मणे नम)

(12)
VISHNU

He is generally represented by God Sun He has been given the lordship of the star, Shravana He is called the गरुडध्वज The constellation of Acquilla was, therefore, the representative of Vishnu, with two bright stars of श्रवण as the principal stars

(13)
RUDRA-YAMA AND SHANI.

Rudra is the later synonym of God Shiva It is derived from Ardra He is said to have become a hunter (व्याध = SIRIUS) and shot an arrow to the deer which was the form taken up by प्रजापति The star Sirius is therefore the यम and शनि both The word CANIS is the corrupt form of शनि Both of them are called "रौद्र"[65] i e. derived from or born of Rudra.

(14)
USHA or DAWN

Vedic Literature abounds in hymns composed in the praise of Usha or dawn which usually attracted them for days together and it was an object of veneration The following lines will show that योषा was an epithet of उषा —

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64 हंसवाहन

65 काणोलाको रौद्र यमोऽथवा । कुत्ता यानि सिंहमृगौ ।

i वाजिनीवती सूर्यस्य योषा चित्रामघाराय ईशेवसूना
Rik. S 7755

ii उषा ददर्शि रश्मिभिव्यक्ता चित्रामघाविश्वमनुप्रभूता
Rik. S 7773

According to Amarkosha, योषा means a beautiful woman, and the list of its synonyms contains वरारोहा as one. This word has undergone corruption and we have today the word AURORA which is universally known to be a flood light seen in the North Polar region

We close the discussion by adding a list of names of other constellations which are probable corruptions of Sanskrit words shown against them

A list of Arabic names of stars may prove to be very useful to a prospective research scholar

Ara	=	आरा	*Horolocum*	=	हरलेकम्
Antares	=	अतरि (धन्वतरि)	*Indus*	=	इंदु
Apus	=	आप	*Nova*	=	नो
Cassiopea	=	कश्यपीय	*Pleades*	=	प्लीहादि
Canes	=	श्वेन	*Perseus*	=	परशु
Camelo	=	कमलो or श्यामलो	*Pavo*	=	पव
			Pictur	=	पिष्टुर
Caelum	=	शैलम्	*Phoenix*	=	फणि
Carina	=	करिन्	*Octans*	=	अष्टाश
Dorado	=	दारदो (वासनाभश्व)	*Pyxis*	=	पक्षि
Canopus	=	कोणप	*Reticulum*	=	रतिबुल्लम्
Fornax	=	पूर्णाक्ष	*Sextans*	=	षष्ठयश
Forax	=	गोरक्ष	*Camelopardus*	=	कमलप्रद
Grus	=	गुरु	*Tucana*	=	पुषेण

THE STORY OF FOURTEEN JEWELS

We often chant the following verse which mentions 14 jewels having been obtained by the Gods (सुर) who had a constant struggle with the Asuras about their share. The lines run thus –

लक्ष्मी कौस्तुभ पारिजातक सुरा धन्वतरीश्चन्द्रमा
गाव कामदुघा सुरेश्वरगजो रम्भादि देवाङ्गना
अश्व सप्तमुखो विष हरिधनु शङ्खोऽमृत चाबुधे
रत्नानीह चतुर्दश प्रतिदिन कुर्वन्तु वो मगलम् ॥

According to the prevalent story which is not Vedic the Gods and Demons were engaged in the task of churning the ocean The churning rod (मथनदड) was the Meru and the rope was the snake VASUKI They quarrelled over the possession of the jewels which emerged from the ocean and ultimately Gods could obtain the possession of the 14 jewels enumerated in the above verse. (It is to be noted that the list includes विष or poison. It is surprising that this is regarded as a jewel)

The story, which is current in other Puranic works, is that in the beginning, a jar of poison (विषकुभ) came out and there was a very small quantity of nectar (अमृत) in its mouth Neither Gods nor Demons were prepared to accept the jar of poison God Shiva then placed the poison in his throat which became blue in colour and he was, thenceforth called नीलकठ

These mythological stories have got some Astronomical meaning and it is our attempt to bring to light the secrets or the mysterious meanings lying underneath these stories Our search for the origin of names of stars has helped us in finding out the truth, which is not known to the world and it is claimed that the secret will be known through this book for the first time.

It is our claim that the fourteen jewels are none other than 14 constellations of stars which came up above the horizon of polar region one by one as the Ages rolled by Each such constellation had one star of the first magnitude in it. These stars formerly belonged to the Southern hemisphere, the common boundary being the Equatorial horizon (the क्षितिज or वसुज or possibly वासुकी) The whole universe rotated about the axis of the Earth which always pointed out to the Pole or Meru The list of modern names of stars which are Greek or Latin or Arabic and which is the basis of our research work, shows beyond doubt that *the jewels are single bright stars or clusters containing them* It is up to scholars to find out if there can be a better selection of stars in disagreement with that of

ours. We could not get the Arabic dictionary, but it is our belief that when the meaning of Arabic names is known, it will lend an additional support to our stand.

THE JEWEL REPRESENTED BY A STAR OR A CONSTELLATION

1 लक्ष्मी —The Amarkosha gives a list of synonyms for लक्ष्मी in which the word श्री occurs The star map gives a list of stars of first magnitude, of which the first is the *SIRIUS*. Curiously enough, this is the corrupt form of the word श्री Hence, लक्ष्मी is SIRIUS.

2 कौस्तुभ–According to Amarkosha, this is the name of the jewel worn by God Vishnu on his chest. This lotus–like jewel is the bright star of VEGA (अभिजित्) which is the seat of God Brahma.

3 पारिजातक–This is the name of a Divine tree We do see a starry tree in the diagram It has five branches, the middle branch has a first grade star, named स्वाती in it. It is called *ARCTURUS* which appears to be a corrupt form of अर्कतरु. Hence, this branch along with स्वाती is the पारिजातक.

4 सुरा–The word *ORION* is the constellation of वरुण वारुणी (or सुरा) is the feminine form of the word वरुण The bright star of β–*ORION* was सुरा

5 धन्वतरी–The star cluster of Ashvini whose controlling deity was the अश्विना (the Divine Physicians).

6 चन्द्रमा –The star *BETELGEUSE* is situated in the constellation of Gemini. It resembles a hare or शश This was naturally called a शशांक or चन्द्रमा

7 गाव –The constellation of Phalguni contain a number of bright stars फल्गुनी,[66] अर्जुनी and गौ are, according to Amarkosha, synonyms

8 सुरेश्वरगज –The constellation of *CORVUS* admits of another interpretation It is popularly known as हस्त (derived from हस्ति) It is easily seen to be the corrupt form of करभ (a young one of an elephant.) A shape of an elephant with his head at the bright star of चित्रा can be easily imagined out. So चित्रा with Corvus was the Divine Elephant.

66 गोहिणी सौरभेयी गावस्त्रया माता च शृङ्गिणी, अर्जुन्यन्या रोहिणी स्यात्

9 राधादि देवांगना –The bright stars of Vishakha and Anuradha together The star of Vishakha was called the राधा (See Amarkosha) That which followed this were naturally called the अनुराधा 'Radha' means a beautiful woman These stars were the Divine damsels[67]

10 अश्व सप्तमुख –The constellation of Magha was the seven headed horse. The principal star is known as *REGULUS*[68] meaning a horse. This consists of seven very bright stars

11 विष–The star Jyestha, known as α-*ANTARES* It has been shown before, that this cluster gave the name of नीलकंठ to God Shiva.

12 इरिधनु –We get this very exact name today It is the constellation of *ERIDANUS* which is clearly its corrupt form.

13 शख –The conch-like cluster of Rohini may have been considered to be a jewel This position is verifiable in the description of various objects described in themantra for शख

14 अमृत–is the first grade star of *FOMALHAUT* situated just below the constellation of AQUARIUS or कुभ In our opinion the Sanskrit alphabet of क्ल has been transliterated as क्ळ (or l)+र (mistaken by *ṛ* or *ḷ*)

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67 "देवानामस्तको अनुराधा Amarkosh.

68. It is our belief that Regulus is the corrupt form of रज्जु which means "rope-like. The constellation has that shape.

SECTION VII

CORRECT INTERPRETATION OF VEDIC MANTRAS, HYMNS AND STORIES

It is now proposed to illustrate the correctness of our stand (viz that the Vedic Sages lived in the North Polar region for thousands of years, before the Age of the Shatapatha and Taittireya Brahman works) by showing how the meanings of a number of passages, hymns and stories, could be found to be clear, which are otherwise obscure or not appealing to reason An attempt has been made to show that most of them are descriptions of scenes actually witnessed and of experiences of life actually lived by the Vedic Rishis They are not descriptions of miracles or of self-conceived notions A few examples of each are being given below

(A) Those which describe the position of a Deity.

1. GODS BRAHMA, VISHNU AND OTHER DEITIES.

(a) ब्रह्माणमीश कमलासनस्थ ऋषींश्च सर्वान् उरगाश्च दिव्यान् ।
(b) ध्येय सदा सवितृमण्डलमध्यवर्ती नारायण सरसिजासनसन्निविष्ट ।
(c) शाताकारं भुजगशयन पद्मनाभ सुरेश ।

No 1 (a) reminds one of a list of Gods and Deities worshipped by our Vedic Sages God Brahma was represented by the star Abhijit (VEGA), which at one time used to occupy an almost zenithal position. The cluster of stars all around it was taken to be a lotus whose stem was connected with another asterism consisting of dragon-shaped stars This cluster is now a-days known as the DRACO This may have been the भुजग or शेष on which lay the God Vishnu referred to in 1 (c) above. The 'Rishis" were none other than the Saptarshis (Great Bear of today) The उरगा are the serpent like clusters now designated as 'SERPENS' in the Star Atlases today. One

of them viz, "SERPENS CEPUT" is the सप्तसर्प No 1 (b) is a hymn chanted by us in honour of God Sun In our opinion, this refers to God Brahma who is clearly said to be "seated on a seat of lotus" (सरसिजासनसन्निविष्ट) and whose position has to be conceived as occupying the central position of the cycles of diurnal rotation traced by the sun (सवितृमडलमध्यवर्ती ध्येय) Abhijit used to remain visible continuously for six months during the Divine night. But during the day of 6 months, his position has to be imagined, and that is why this idea has been given in the hymn, 1 (*b*)

2 The PURUSHA (विश्व विष्णुर्वपदस्कार पुरुष)

The Purusha was represented by the Omniscient *UNIVERSE* which includes everything This universe was actually seen as a revolving hemisperical dome of the sky and this motion was found to be ever continuous and non-stop (अखड) and nobody knew the beginning or the end This idea has been recorded in the following lines.–

(a) अखडमडलाकार व्याप्त येन चराचर।
(b) "नान्त न मध्य न पुनस्तवादि" — भगवद्गीता

3. THE DIVINE DOGS

The following references from different Vedic works definitely point to the fact that some stars came to be known as "dogs," and two of them were very bright. Even today, the moden Star Atlases give stars known as the "CANIS MAJOR" (i e. a bigger dog) and "CANIS MINOR" (a smaller dog) The star SIRIUS (व्याध) is known as the Dog star There is no harm if it be supposed that the following verses and passages are reminiscent of some astronomical phenomena which were interpreted as the "passage" of dog stars in the Divine half as years rolled by –

(a) यौ ते श्वानौ यमरक्षितारौ (i e, guarding the Southern direction) चतुरक्षौ पथिरक्षी नृचक्षसा– *Rik. Sam. 10-14-11.*

(b) शुनो दिव्यस्य यन्महस्तेनावे हविता विधेम॥ ये चय कालकंजा दिवि देवा इव श्रिता तान्सर्वानवऋऊत्वये॥" Atharva Sam. 6. 80

(c)" तऊर्णाव भयो भवन्॥ द्वावुदपतताम्॥ तौ दिव्यौ श्वानावभवताम्' Tai. Sam.

(d)" वैवस्वतकुले जातौ द्वौ स्यामशबलौ शुनौ" – (वैश्वदेव मत्र)

4. THE STARRY PRAJAPATI

The Taittireya Brahman quotes the following lines to describe the Starry Prajapati –

यो व नक्षत्रिय प्रजापतिं वेद ॥ उभयोरेव लोकयोर्विंदु ॥ हस्त एवास्य हस्त चित्रा शिर निष्ठया हृदय विशाखे ऊरू अनुराधा प्रतिष्ठा ॥ प्रतिष्ठानुराधा ॥ एष वै नक्षत्रिय प्रजापतिं

Tai Br 1 5 2 2

"This verily is the starry Prajapati The star Hasta is his hand Chitra his head, Nishtya his heart, the twin stars of Vishakha his thighs and Anuradha the foot-stool to stand upon."

It will be interesting to note that a human figure could be imagined out of these asterisms

5. THE DIVINE BOAT

The boat-like cluster of stars which we find situated in the Milky way and is designated as 'Nova' in the Star Atlas, appears to have been an object of interest to Vedic Rishis.

The following lines from the Samhitas cannot fail to draw the attention of a critical reader suggesting to him the idea that the words नावम् and नौ in them may have been the NOVA of today —

(a) "हिरण्मयी नौ अचरत् हिरण्यबधना दिवि ॥ तत्रामृतस्य पुष्य देवा कुल्य अतन्वत ॥"

Atharva Sam. 6 9 5 2 and 5 4 4

(b) "दैवीं नावम् स्वरित्रामनासमस्वती "

Rik Sam 10 6 3 10

6 THE SAPTARSHIS

In the later Vedic Age, our sages appear to have recorded the high position of the Great Bear The following lines from different Vedic works clearly show that the stars now known as the सप्तर्षि s were originally called the ऋक्ष or Bear This constellation appears to have occupied an almost zenithal position and the following lines clearly support our view —

(a) 'ऊर्ध्वं सप्तर्षीनुपतिष्ठस्व "

Tandya Br 1 5 5

(b) 'अमीयऋक्ष। निहितासउच्चानक्त ददर्श "

Rik. S 1 2 4 1 0

(c) [illegible]

Shatapatha Br 2 1.2 4

7. THE SHANKHA (शख)

The following mantra is chanted at the time of worship ping the Conch (शख)

शखादौ चद्रदैवत्य कुक्षौ वरुण देवता ॥ पृष्टे प्रजापतिश्चैव अग्रे गगा सरस्वती ॥ त्व पुरा सागरोत्पन्नो विष्णुना विधृत करे ॥ निर्मित सर्वदेवैस्तु पाचजन्य नमोस्तु ते ॥

The 'Conch' is believed to be one of the 14 jewels (already described) and which was obtained by Gods (निर्मित सर्वदेवै) from the ocean (सागरोत्पन्नो) which was churned by the मेरुदड The शख is the conch shaped constellation of Rohini which contains five bright stars and hence, it came to be known as पाचजन्य (made up of or created from five) on that account The cluster of इन्वका whose governing deity is the Moon (चद्रदवत्य) is near the conch, and the ORION which is the corrupt form of वरुण is at its side (कुक्षौ वरुणदेवता) The first grade star of Aldeberran (प्रजापति) is behind (पृष्ठे) and the (आकाशगगा)- (Milky way) is in the front This conch is said to be 'firmly yheld by Vishnu (Sun) (Cf विष्णुना विधृत करे)

(B) Mantras indicating some astronomical condition

1. The advent of "Spring"

The following lines composed in honour of God Ashvini clearly describe the astronomical condition for the advent of Spring viz the heliacal rise of the three starred cluster of *Ashvini* –

(a) प्रातर्युज नासत्याधितिष्ठथ प्रातर्यावान मधुवाहन रथ

Rik. S 10. 3 47

(b) त्रिनन्धुरेण त्रिवृता सुपेशसा रथेन यातमश्विना यत्रासत्या परावति यद्वास्थो. अतो रथेन सुवृता गर्ते साक सूर्यस्य रश्मिभि

Rik. Sam 1 9 47

All mantras written in praise of God Ashvini or Nasatyas invariably mention the condition that the God comes riding in a chariot with three wheels or having three poled canopy, and carrying मधु (i e. Spring) and appearing at dawn.

The Vedas do not lack descriptions of popular conditions for the advent of Spring or rainy season. E.g The following well known mantra is nothing but the description of the Spring season –

' मधुवाता ऋतायते मधु क्षरंति सिंधव ॥ माध्वीर्न सत्वोषधी मधुनक्तमुत उषस ॥ '

The resident finds every thing around him having a sweet cool touch e g, cool breeze of air, cool water, cool dust and so on Curiously enough this mantra is chanted at the time of offering honey (मधु) to a deity The same is the case with the mantra "दधिक्राव्णोऽकारिष" which is composed in praise of दधिक्रा deity but is chanted at the time of offering curds (दधि)

2. **The advent of Rainy Season**

It was a belief that God Indra brought rains He is said to have received the name of मघवा because of his arrival with the star मघा

"इन्द्रो मघैर्वा मघवा शत्रहा भवन्"

The early rise of the cluster of मघा was a sure sign of the advent of rainy season

3. **The advent of the New Year**

A fresh annual sacrifice always started with the advent of a new year, both of which coincided with the rise of Sun with an Eastern star. The Prajapati also started his control from this day, which used to be an equinoctial day The Sun, who was so far invisible and living with the Asuras (in the Pitri half असुरभाग) was to enter the Divine half (देवभाग) and was hailed with hymns composed in his praise. This moment was a very important one and people, it seems, used to beat drums and ring bells to express their joy This idea appears in the following popular mantra which is chanted at the time of worshipping a घटा (bell) —

आगमार्थं तु देवाना गमनार्थं तु रक्षसा ।
कुरु घण्टारव तत्र देवताह्वानलक्षणम् ॥

The ringing of bells was a kind of announcement that the old year was passing out (गमनार्थं तु रक्षसां) and the Divine day or new year was coming in (आगमार्थं तु देवाना) This custom appears to have been retained by Christians who ring bells in their Churches on 31st of December at midnight each year, saying ring the old year out, ring the new year in '

4 **The advent of a New Moon**

It is a special condition in the Polar region that the Moon is invisible for about a fortnight (which period was called a कृष्णपक्ष) after which she made her first appearance.

This moment was naturally hailed with joy, since the residents were to get a continuous lighted period (शुक्लपक्ष) for about a fortnight. The moon did not always appear in the form of a crescent, but in any and every phase, and that is why she is described as "नवो नवो भवति" –

नवो नवो भवति जायमानोन्हा केतुरुषसामेत्यग्रे।
भाग देवेभ्यो विदधात्यायन् प्रचद्रमास्तिरति दीर्घमायु. ॥

The word अह्ना stands for the "day of the Moon," उष for the "dawn like light created by the Moon," भाग means "the part' and not "a share"

5. Creation of the UNIVERSE and TIME

"ऋत च सत्यचाभीद्धात् तपसोऽध्यजायत ॥ ततो रात्र्यजायत ॥ तत समुद्रोऽर्णव" ॥
समुद्रार्णवादधिसवत्सरोऽजायत ॥ अहोरात्राणि विदधत् विश्वस्य मिषतो वशी ॥
सूर्याचद्रमसौ धाता यथापूर्वमकल्पयत दिव च पृथ्वींचातरिक्षमथो स्वाहा ॥"

Rik Sam 10 190

This gives a description of how the ocean and earth came to existence Then the 'space' and 'sky' were taken to be separate forms of Existence. Then the movements of the Sun and the Moon were observed, and then, the long and short nights and days making up a year were actually seen and recorded

6. SUN'S motion

The सौरसूक्त is full of mantras giving an idea as to how the Sun was "conceived" The following lines, for example are a prayer to Almighty that the God Sun may shower blessings and long life on us on all sides –

सविता पश्चातात् सविता पुरस्तात् सवितोत्तरात्तात् सविताधरात्तात् ॥
सविता न पुवतु सर्वतातिं सविता नो रासता दीर्घमायु ॥

The Sun is here described as being visible in all directions all round (सर्वत) and also going underneath (अधरात्) This is clearly a description of the Sun's motion round and round while above the earth

At another place, he is described as a child playing a game of hide and seek with another child (Moon) both of whom are playing along a road –

पूर्वापर चरतो माययैतौ शिशू क्रीडन्तौ परियातोध्वरम्।
विश्वान्यन्यो भुवनाभि चष्टे ऋतूनन्यो विदधाज्जायते पुन"॥

One of them (Moon) is said to be " describing " mansions while the other (Sun) is known to create ऋतु s i. e. Seasons or portion of a day

7 Measuring an interval of time elapsed

When a worshipper finds that there has been either a commi, ssion or an omission in the right performance of his worship he has to chant the following lines by way of appeal to God –

प्रमादात्कुर्वता कर्म प्रच्यवेताध्वरेषु यत्।
स्मरणादेव तद्विष्णो सपूर्ण स्यादिति श्रुति ॥

The " Shruti " says that a simple act of remembering God Vishnu, *i e* a simple utterance of Vishnu's name would be suffi cient to wipe off all his sins and omissions. This is something unbelievable. The words प्रच्यवेत अध्वरेषु यत् are very significant. The Vedic sense of the word च्यवन is " deviation from or swerving away from." The Shatapatha Brahmana for instance quotes the lines " सवे ह वै नक्षत्राणि प्राच्यै दिशश्च्यवन्ते कृतिका न च्यवन्ते— " The correct interpretation of these lines would be as follows.–

" According to Shrutis, if one finds that he has gone astray from the time path while calculating his position in the time line he should simply recount that the starting point is Vishnu's feet (i. e. star श्रवण), from which the time cycle is believed to have been started, the difference in the position of the equinox in the present time from that in his time will immediately give him an idea of the ' period of time elapsed ".

8. Measuring a Year

It has already been shown that Vedic Sages used to measure a year by performing a yearly sacrifice in one attempt, or by performing the same in periodic sacrifices, two, three, four, five or six during the Divine day and the same during the Divine night

The following lines, which are chanted by Brahmins on the occasion of a ceremonial dinner reminds us of the Vedic system of performing periodic sacrifices —

चतुर्भिश्च चतुर्भिश्च द्वाभ्या पचभिरेव च।
हूयते च पुनर्द्वाभ्या सम्ने विष्णु प्रसीदतु ॥

We do not agree with the popular interpretation of this Mantra

(C) Examples of "Misplaced" Mantras

We come across scores of examples in which a particular mantra is declared to have been composed by a particular Sage in honour of a particular deity, but is now made use of for a different occasion No reasons are given as to why this use is made. E g The mantra[89] "पृथ्वी त्वया धृता लोका" is composed by the Sage मेरुपृष्ठ, the deity being कूर्मा देवता (tortoise), the metre being सुतल and is now being used for offering a seat (आसन) to the deity concerned —

(१) "पृथ्वि त्वया धृता लोका देवि त्वं विष्णुना धृता।
त्वं च धारय मां देवि पवित्रं कुरु चासनम्॥"

(1) The goddess of Earth has been requested to support the worshipper, just as she had supported different worlds and the deity herself was supported by God Vishnu himself This refers to the old story of how God Vishnu drew the Earth up from out of the ocean and kept it up floating by assuming the form of a tortoise. This mantra is not found in the RigVeda

Note (These lines have been taken here to show that all mantras chanted on the occasion of daily religious ceremonies (नित्य ब्रह्मकर्म) do not necessarily incorporate early Vedic notions)

(2) Certain passages from Brahmana and Aranyaka works reveal that their commentators have not understood the correct meanings of certain astronomical terms. In other words, it can be said that they had lost the original Vedic sense during the Smriti Age. As an example could be quoted the following lines from the Brihadaranyak, which is taken as the main support by certain almanac makers in adopting a new definition of the word "Tithi"

"एष संवत्सर प्रजापतिः षोडशकलः॥ तस्य रात्रय एव पञ्चदशकलस्य ध्रुवैवास्य षोडशीकला॥ रात्रिभिरेवैनं पूर्यते अपक्षीयते॥ सोऽमावास्यां रात्रिं एतया षोडश्या कलया सर्वमिदं प्राणभृत् अनुप्रविश्य ततः प्रातर्जायते॥ तस्मादेतां रात्रिं "

If the traditional Vedic meanings of terms occuring in this passage be accepted, the sense of the passage will be clear They are —

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[89] पृथ्वीति मन्त्रस्य मेरुपृष्ठ ऋषिः कूर्मो देवता सुतलं छन्दः आसने विनियोगः।

(i) सवत्सर. = अह = The period of six months between the Vernal to Autumnal Equinox, i.e. 21st March to 23rd September.

(ii) कला = A period of 12 days

(iii) रात्रि = A divine 'रात्रि' is equivalent to 6 months and a human रात्रि is equivalent to 12 hours

(iv) प्रात· = Commencement of the (divine) day, i e. the moment of vernal equinox

(v) ध्रुवा = Fixed or constant.

(vi) अमावास्या = The period of time during which the Sun and the Moon dwell together Such "dwelling together" for a period of about 12 days, occurs a number of times during the night of 6 months

We now translate the above lines as follows —

"This is the Prajapati s Samvatsar (as opposed to the Divine Samvatsar of 180 days). It consists of 16 Kalas (of 12 days each), [of which the nights themselves constitute 15 'Kalas' (तस्य रात्रय एव पचदशकला) The 16th Kala period is devoted to the nourishment of herbs etc, and at the end of this period the morning occurs. The Samvatsar (gets filled) increases and diminishes only during the nights "

It is to be noted that at least up to the date of Mahabharata कला [9] (Kala) definitely was a time unit and not an angle. The Prajapati's Samvatsar i. e, a Samvatsar according to Prajapati's System was a period of 192 days.

(3) We chant the following line to purify the body of the concerned deity' 'शरीरशुद्धयथ पचागन्यास च करिष्ये" and while so doing we offer water, to wash different parts of the idol According to our opinion, the word न्यास should be taken at its literal meaning of ejection or "throwing away" We can purify our body only by throwing away the impurities through five organs viz, the mouth, the eyes, organs of generation, nose, and rectum The idea is to wash these parts after the impurities are thrown away

(4) The following mantras give definite indication of the presentation of old Vedic tradition of giving help to deserving persons They used to perform five kinds of sacrifices, of which

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70 Cf कला काष्ठाश्च मुहूर्ताश्च एव कालविभागेन कालचक्र प्रवर्तते

one was termed the "वैश्वदेव" i e. a sacrifice in honour of "*General Deities in the Universe*" *This is nothing but the offering* of oblations (help) to the meritorious and deserving persons (देवा) in the society, who do not have any share under any special heading The following lines are worth considering –

(*a*) "ये भूता प्रचरति दिवानक्त बलिमिच्छन्तो तेभ्यो बलिं पुष्टिकामो हरामि॥"

"I carry oblations to those persons who wander about day and night, in search of food (बलि) "

Such persons being dependant upon others were naturally called परपुष्ट , परस्त or बलिपुष्ट , since they used the food given by others for their subsistence. The Amarkosha gives काक [1] as the synonym for such persons and also for such others as take plea sure in self praise. As time went on the word काक appears to have come to mean "a crow" and the बलि meant to be offered to a बलिपुष्ट came to be known as the काकबलि (crow's food)

(b) The following lines uttered on this occasion are very significant,

ऐन्द्र वारुण वायव्या याम्या नैर्ऋतिराश्च ये
ते काका प्रतिगृह्णन्तु भूम्या पिंड मयोज्झित II

Here the काका are desired to receive (and not eat) the food (पिंड) *offered by the donor to all those beggars who may have* come in search of food from any of the directions belonging to God Indra, Varuna, Vayu, Yama, Nirruti and others

(c) The donor is prepared to offer an oblation even to those two Divine dogs who used to guard the South We find a reference to this in the following lines –

वैवस्वतकुले जातौ द्वौ श्यामशबलौ शुनौ ।
ताभ्या पिण्डो मया दत्तो रक्षेता पथि मा सदा॥

(5) The following mantra is chanted by Pandits who celebrate the death anniversary of a Saint or an Ascetic –

वसुरुद्रापुत्रमन्तू वृधन्ता दीर्घतमा मामतेयो जुजुर्वान्दशमे युगे ॥
अपामर्थं यतीना तु ब्रह्मा भवति सारथि ॥

Rik Sam 2 3 1

These lines are composed by the Sage दीर्घतमा (the son of ममता) in honour of the Ashvini Deity They have to do nothing with

[1] काकेतु करटरिट-बलिपुष्ट-सकृत्प्रजा ।
ध्वांक्षात्मघोष-परभृद्-बलिभुग्-वायसाअपि ।

the ascetics. The word यतीना occuring in them may have led people to think that the passage refer to 'ascetics'

(6) We come across another set of three deities, with whom are compared the 'Manes' (पितर), their names are uttered on the occasion of the श्राद्ध ceremony The words 'पितृपितामह प्रपितामहाना . वसुरुद्रादित्यस्वरूपाणा" remind us of the oldest Vedic tradition according to which there were seven Sun Gods of whom वसु, रुद्र, and आदित्य were the first three. (Cf वस्वसि रुद्रासि आदित्यसि) Later Ages appear to have increased the number of Deities, making 8 वसूs, [2]11 रुद्रs and 12 आदित्यs. These three deities are supposed to represent the three generations of the departed souls A student of astronomy very well understands the fact *viz* just as, after about every 1000 years a fresh star would be seen rising in the East, the star at the end of the Divine half would enter into the Pitri half and would be called a "Pitri" The first one to be a Pitri would be वसु, the next one रुद्र, and the third one the आदित्य This is the reason why the number of वसुs रुद्रs and आदित्यs was multiplied *According to the Vedic works*, वसु is the controlling Deity of the star श्रविष्ठा, रुद्र that of आर्द्रा and अदिति that of पुनर्वसु The three stars after becoming the पितृ's appear to have still retained their right of being respected as Gods.

(D) SOME IMPORTANT SUKTAS

Our Vedic Brahmins chant a number of hymns known as Suktas in praise of Vedic Deities and the Almighty The most widely known are (i) पुरुषसूक्त (ii) सौरसूक्त (iii) श्रीसूक्त (iv) रुद्रसूक्त (v) अथर्वशीर्ष (vi) ब्रह्मसूत्र including त्रिसुपर्ण It is now intended to *show that these Suktas contain mantras which definitely point to* some astronomical conditions. We will take a few examples from each

1 THE PURUSHA SUKTA (पुरुषसूक्त)

A number of lines in this Sukta *clearly admit of* an astronomical sense. The Almighty was known as the Purusha'. His magnitude was immeasurable. His representative was the Sun who was the Vedic representative of Vishnu and Narayana also The Sun used to be observed describing circles of revolution round the Earth and he was seen at some definite 'highest

72 आदित्या द्वादश प्रोक्ता वसवश्चाष्टसंख्यात रुद्राश्चैका दशा स्मृता ।

altitude.' The time used to be measured in terms of so many Samvatsars or yearly sacrifices It has already been shown that 1000 was the biggest number conceived by them. Sun and Moon were the 'eyes of the Universe, the Sun was the Divine eye and the Moon was an eye set for the Asuras (Cf चक्षुषी हवा एते यत् शुक्रामन्थिनौ, ततश्चक्षु देवहित etc,) The following lines can now easily be interpreted in the light of the above-mentioned Vedic tradition.—

(1) सहस्रशीर्षा पुरुष सहस्राक्ष सहस्रपाद् स भूमिं विश्वतो (on all sides) वृत्वा (after encircling) अत्यतिष्ठत् दशागुलम् (stood at a height measurable by 10 angulas)

According to very ancient Vedic tradition, glimpses of which are found in the later work (शुल्वसूत्र) the Sages used to draw a circle of one हस्त (cubit) radius and fix a pole in the centre. The height of the Sun used to be measured by means of a समिध् which would cast a shadow equal to one Hasta (or 24 anguls) The mantra says that at the highest height, the length of the gnomon used to be only 10 anguls. This gives us a clue of finding the altitude. If x° be the altitude then $\tan x = \frac{10 \text{ angulas}}{1 \text{ Hasta}} = \frac{10}{24} = \frac{5}{12} = .42$ nearly This gives an angle of 23° which is very correct.

(11) The ancient sages who are called देवा or साध्या by the composer of this hymn were known to be performing a different kind of sacrifice for which the देवs did not need any animal ghee or oblation. They simply fastened to the pole the 'Purusha' (अबध्नन् पुरुष पशुम्) For example see the following lines —

(a) यत्पुरुषेण हविषा देवा यज्ञमतन्वता वसन्तोऽस्याऽऽसीदाज्य ग्रीष्म इध्म शरद् हवि

(b) त यज्ञम् पुरुषं जातमग्रत तेन देवाऽयजन्त साध्या ऋषयश्च ये।

(c) 'देवा यद यज्ञ अतन्वानाऽबध्नन् पुरुष पशुम्॥ यज्ञेन यज्ञमयजत देवा तानि धर्माणि प्रथमानि आसन्'

(111) The number of complete cycles of revolutions round the horizon as observed by the sages was 147 This is possible only at some place whose latitude is $82\frac{1}{2}°$ This suggests that the writer of this hymn may have lived in this latitude. सप्तास्यासन् परिधय त्रि सप्त समिध कृता।

Trans —His rotations were seven groups of three times seven, i. e. $7 \times 3 \times 7 = 147$.

(iv) The number of principal Deities were very few The writer of this hymn after comparing the Universe with a Divine body, he attempted to describe the control of several parts of this Divine body by the Principal Deities as given in the following lines. This is nothing but the enumeration of Deities— चन्द्रमा मनसो जात. चक्षो सूर्याज्जायत मुखादिन्द्रश्चाग्निश्च प्राणात् वायुरजायत) नाभ्या आसीद् अन्तरिक्ष शीर्ष्णो द्यो. etc.

(V) The last lines of this Sukta which are believed to have been composed in honour of God Vishnu can be easily interpreted as give below —

" विष्णो. कर्माणि पश्यत , तद्विष्णो परम पदम् सदा पश्यति सूरय
. . तद्विप्रासो . . . जागृवास समिंधते . . "

Trans.– Do see the prowess of God Vishnu The wise persons who keep a continued vigil (keeping awake) can see the highest position of God Vishnu for all time to come (सदा)

(vi) The lines " त्रीणि पदा विचक्रमे " refers to the crossing of the Heavens by Vishnu (Sun) in three strides of 9 naksatras each This refers to counting of time in three instalments, the period to be measured by three चातुर्मास्य sacrifices.

II The ATHARVASHIRSH (अथर्वशीर्ष)

This is a hymn composed by the Sage गणक in honour of Ganapati The initial description applies to Almighty But later on, the description of the Deity as conceived by Manu (cf एतत् तव मनुस्वरूप) applies to the clusters of stars forming the constellation of Scorpio The diagram will show that the inverse form of the cluster resembles the letter ॐ The trunk–like constellation of ज्येष्ठा and मूल together resembles the letter ग, The star Jyestha may have been conceived to be a crescent moon having a star in the central part (cf अर्धेंदुलसित तोरणध्वज), this being the forehead of God Ganapati.

III The SAUR SUKTA. (सौरसूक्त)

This is composed in honour of God Sun, who received different names in different Ages. E g The lines —

तन्मित्रस्य वरुणस्याभिचक्षे and इन्द्र मित्र वरुण अग्निमाहु अथो दिव्य सुपर्णो गरुत्मान् ॥
एक सद्विप्रा बहुधा वदति अग्नि यम मातरिश्वानमाहु clearly show principal

deities, viz इंद्र, मित्र, वरुण, अग्नि, गरुत्मान्, यम and वसु as different forms of the same God, the Sun.

VI The BRAHMASUTRA (ब्रह्मसूत्र)

A Brahmin while wearing the holy thread (यज्ञोपवीत) makes the thread holy by turning fingers round and round, and saying that you are making "The already threefold thread threefold." (cf. त्रिगुणीकृतसूत्र–त्रिगुणीकरणे विनियोग.). The origina mantra "ब्रह्म जज्ञान प्रथमं पुरस्तात्" which refers to the knowledge of Brahma by a Sage, is now made use of in the wearing of a thread which is a modified form of a holy sacrificial garment (यज्ञोपवीत)[73]. This symbolizes the ब्रह्मसूत्र, which is nothing but the continuous thread of time created by Brahma and was known as the ब्रह्मसूत्र The Brahman utters the following words "ओंकार प्रथमतंतौ न्यसामि अग्निं द्वितीयतंतौ न्यसामि नागास्तृतीयतंतौ न्यसामि सोम चतुर्थतंतौ. ." This is in memory of the age-old custom of measuring the time in terms of nine stars, each one getting a prominence after about *every 1000 years, the न्यास or throwing in or the plotting* of points in the time line has to be made nine times. The ओंकार may have been represented by the constellation of मूल (cf. मूले तत्र स्थितो ब्रह्मा), the ज्येष्ठा by अग्नि, the Serpents by नागा', the स्वाती by सोम and so on. The त्रिगुणीकरण of nine stars is the counting of 27 stars which would make up Brahma's one cycle.

V The TRISUPARNA (त्रिसुपर्ण)

This mantra is chanted on the occasion of public dinners to which a number of Brahmins are invited. It is our belief that the words "आसहस्रात् पंक्तिं पुनाति" may have led the writers of these mantras to prescribe their utterance on such occasions. The ultimate object of one's life was the attainment of ब्रह्म itself or at least reaching its core. The words अथातो ब्रह्मजिज्ञासा in ब्रह्मयज्ञ and ब्रह्म मेतु मा in त्रिसुपर्ण point to the same ultimate aim. The last words of these mantras viz, "तस्माद् ब्रह्मणो महिमानमाप्नोति" supports our view. The method of "understanding the Brahma" was to measure his magnitude in three ways – (1) by undertaking the evening-cum morning sacrifice (सायप्रात), (2) Morning-cum noon sacrifice, or (3) simple evening sacrifice. The त्रिसुपर्ण recalls

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73 The यज्ञोपवीत is said to have been born automatically along with the Prajapati in the old vedic age (cf यज्ञोपवीत परम पवित्रं प्रजापतेर्यत् सहज पुरस्तात्।)

to memory the old custom of measuring Brahma's day in terms of 1000 cycles of सुपर्ण (गरुत्मान्, विष्णु or Sun) The words आसहस्रात् means "counting up to 1000" पक्ति = line (of time) The following lines are very significant –

(1) ब्रह्ममेधया मधुमेधया ब्रह्ममेव मधुमेधया । Here, it is definitely said that the knowledge of मधु i e वसत is the same as the knowledge of ब्रह्म.

(ii) The मधुविद्या is given in the lines "मधुवाता ऋतायते मधु क्षरति सिंधव . . अस्तु सूर्य

(iii) येऽहोरात्रे दर्शपूर्णमासौ येऽर्धमासाश्च ते चातुर्मास्यानि य ऋतव ते पशुबधा ये सवत्स राश्च परिवत्सराश्च ते ऽहर्गणा –श्च एव विद्वान् उदगयने प्रमीयते देवानामेव महिमान गत्वा आदित्यस्य सायुज्य गच्छति ॥ अथ यो दक्षिणे प्रमीयते पितृणामेव महिमान गत्वा चद्रमस सायुज्य सलोकतामाप्नोति ॥ एतावै सूर्याचद्रमसोमहिमान ब्रह्मणो विद्वान् अभिजयति ॥ तस्मात् ब्रह्मणो महिमानमाप्नोति तस्मात् ब्रह्मणो महिमानम् ।

"The ब्रह्म's magnitude will be understood if that of the Sun and Moon is first understood, the two together ultimately helping to understand the ब्रह्म's greatness. Those Brahmans who undertake the measuring of Divine day should begin to measure from उदगयन (i e. Sun's entry into Northern Hemisphere) The Pitri half can be measured with the help of the Moon. The whole Samvatsar would be a unit (अहर्गण) for counting the days. This अह would consist of three ऋतु each consisting of 4 months (चातुर्मास्यानि) Each month (मास) would consist of two half months (अधमास) A month could be measured in terms of दर्शमास (Amavasya) and पूर्णमास Fullmoon day these in their turn being measured by अहोरात्रs (or common days). The mantra reminds a Brahman of the threefold system of measuring a year and by counting 1000 such years* to measure the ब्रह्म in terms of 1000 सवत्सर's

(E) SHORT VEDIC STORIES

Vedic literature, particularly the Brahmanic works, abound in stories which, in our opinion, are metaphorical descriptions of astronomical phenomena like the rise or set of constellation of stars, twilight, seasons etc A few of them are given below just to serve as an example to support our stand

* See The formula "एतावान् वै [illegible] विद्वान् [illegible]"

(1) Story of Kalakanja and other demons

The Tai Br.1 1.2 quotes the following lines —

कालकञ्जा वै नामासुराऽऽसन् ॥ ते सुवर्गाय लोकायाग्निमचिन्वत ॥ पुरुष इष्टकामुपादधात् पुरुष इष्टकम ॥ स ह्रो ब्राह्मणो ब्रुवाण इष्टकामुपाधत्त ॥ एषा मे चित्रा नामेति ॥ ते सुवर्गं लोकमा-प्रारोहन् ॥ स इद इष्टकामाहृत ॥ ते ऽयार्यंत ॥ ये वार्यंत ॥ त उर्णाव ऽभयो बभवत् ॥ द्वावुदपतताम् ॥ तौ दिव्यौ श्वानावभवताम् ॥

"There were demons known as Kalakanjas. They performed sacrifices to attain a seat in Heaven. God Indra gave them a brick, saying "here is the brick called Chitra Worship it It will give you whatever you desire to have" They did it accordingly. They rose to higher worlds Two of them flew into heaven They were admitted as "Divine Dogs"

We come across references (from RikSam and Atharva Sam.) that there were 'Dogs' posted to guard the 'Yama's world' These were called the Divine Dogs. The star maps mention the names 'dog stars' called Canis Major and Canis Minor All these stars may once have been included in the Divine half The above lines indicate a transfer of some asterisms from one half into the other

(2) The 'Fall' of Rohini

Verses 8 to 11 * from Vana Parva (M B) give a story of how, the younger Rohini, in an attempt to attain highest position in the sky, fell down from the sky and disappeared This clearly refers to the passing of the Aldeberran into Southern half as centuries rolled by

(3) Rise of Rohini

The stories of Prajapati and Rohini as given by Aitareya and Tai Br are nothing but the reference of the astronomical phenomenon, viz re-appearance of Rohini above the Equator, then of Mrigshirsha and finally of Sirius (the Dogstar) The red colour of the star is attributed to her bashfulness by one Brahman and to anger by the other The three star groups must have been seen whirling round and round as if in a race.

There is a story in Mahabharata which purports to say that Revati had gone to the Divine half (स्वर्ग) and was finally allow

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* See Verses 8 to 11 given before

ed to stay there as a resident. This is nothing but the rise and permanent appearance of the star Revati as an Eastern star

It is my belief that all such Vedic stories can be interpreted astronomically.

SECTION VIII

VEDIC TRADITION IN ASTRONOMICAL SUBJECTS

A LORDSHIP OF SIGNS (राशिस्वामित्व)

All standard works on Astrology (Ancient Hindu or Modern and European) uniformly give the same list of signs (राशि's) for the "Own Houses" or the same signs for exaltation position (उच्च) for the planets, The Degrees of Exaltation also are almost the same except for the Sun. It is to be noted that these positions are given in terms of signs and not in terms of naksatras. All scholars agree that *neither the Rashi system* nor the divisional *naksatra system ever existed* in the Vedic Age. The *origin for the allotment of particular* rashis to particular planets must therefore *be traced with respect to 'stars'*. It should also not be believed that the signs and the degrees of exaltation may have been fixed quite arbitrarily in the Vedic Age, the planets may have been known to them, but we do not come across any hymns composed in their honour The names शुक्र and बृहस्पति were definitely those of the Sun in conjunction with an Easterly rising star The lists of names and synonyms as are those given by various writers including the Amarkosa, lead us to believe that the planets may have received their present names because of their affinity with some of the stars or with their deities, or because of their association with them in respect to colour, nature and so on.

In the following tables, are given names of planets, their own houses and houses of exaltation along with degrees according to the tradition followed by Astrologers even today. It will be our attempt to find out a rationalexplanation, not only for the above things but even for the order of planets and their periods as given in the Vimshottari Dasha system.

The following verses are often quoted by standard works while enumerating the lists of planets and their Houses.–

I

सिंहस्याधिपति सूर्यो कर्कटस्य तु चन्द्रमा
मेषवृश्चिकयोभौम कन्यामिथुनयोर्बुध
तुलावृषभयो शुक्र शनिर्मकरकुभयो
धनुर्मीनोभयोर्जीव एते राशीश्वरा स्मृता ॥

OR

भौम शुक्रो बुधश्चन्द्र सूर्य सौम्यो भृगु कुज ।
गुरु शनैश्चरो मदो गुरुर्मपादिराशिपा ।

II

मेषो वृषस्तथा नक्र कन्या कर्कीपास्तुला
सूर्यादीनां क्रमादेते कथिता उच्चराशय
सूर्यादीना क्रमानीच स्वोच्चाभाद्य च सप्तकम्
राहोस्तु कन्यका गेह मिथुन स्वोचभ स्मृतम् ॥

These can be exhibited in a better way in the form of a Table—

TABLE I.

S No	Planet		Own House	House Of Exaltation	Degrees	
					Indian Author	Raphael
1	Sun	☉	Leo सिंह	Aries मेष	10	19
2	Moon	☽	Cancer कर्क	Taurus वृषभ	3	3
3	Mars	♂	Aries & मेष Scorpio वृश्चिक	Capricornus मकर	28	28
4	Mercury	☿	Gemini & मिथुन Virgo कन्या	Virgo कन्या	15	15
5	Jupiter	♃	Sagittarus धनु मीन Pisces	Cancer कर्क	5	5
6	Venus	♀	Taurus & वृषभ-तुला Libra	Pisces मीन	27	27
7	Saturn	♄	Capricornus मकर Aquarius कुभ	Libra तुला	20	21

TABLE II

Stars with their longitudes in 1960, with Ancient and Modern names and with their Deities. —

No	Star	Long	Deity	No	Star	Long	Deity
1	अश्विनी	33°	अश्विनौ	18	स्वाती	204	वायु
2	अश्विनी	36 5	"	19	विशाखा	215	"
3	भरणी	46 5	यम	20	विशाखे	224	अग्नि
4	(बहुला)	56	अग्नि	21	विशाखा	236	"
5	कृत्तिका	59		22	अनुराधा	242	मित्र
6	रोहिणी	69	प्रजापति	23	ज्येष्ठा	249	इन्द्र
7	मृग	82 5	सोम	24	मूल	265	पितृ
8	आर्द्रा	93		25	पूर्वाषाढा	274	प्रजापति
9	आर्द्रा	98	रुद्र	26	उत्तराषाढा	282	विश्वेदेवा
10	पुनर्वसु	112	अदिति	27	श्रवण	301	
11	पुष्य	128	बृहस्पति	28	धनिष्ठा	317	विष्णु
12	आश्लेषा	133	सर्प	29	धनिष्ठा	336	वसु
13	मघा	149	पितृ	30	शततारका	341	रुद्र
14	पूर्वा	161	अर्यमा	31	पू भाद्रपदा	346	इन्द्र
15	उत्तरा	171	भग	32	उ भाद्रपदा	352)	एकपाद
16	हस्त	93	सविता	33		358)	
17	चित्रा	203	इन्द्र त्वष्टा	34	रेवती	8	अहिर्बुध्नि
						13	पूषा
						19	पूषा

STAGE I. : LORDSHIPS OF STARS.

It is our feeling that before the आश्विन्यादि Age, *The nakshatra divisional system was not in vogue.* An attempt has been made to show that the planets were first given the lordships of nakshatras i.e. stars (and not of Rashis). The stars suggested by us will appear to lie in the intervals of 30°, in both the two systems. We leave it to readers to find out which of these systems may have been ultimately responsible for the present system of Lordships of signs.

STAGE II. DEGREES OF PLANETS IN EXALTATION

(With respect to fixed stars)

It is attempted to show that the various degrees of exaltation concerning the planets happen to be the degrees of longitudes of some one star or the other in each of the three systems. This shows that by "Exaltation" they meant *the first position of the naksatra in the zodiac* in each Age. They appear to have followed this tradition at least since the year 4000 B. C.

Note:— For Stage I see Tables III and IV, and for Stage II see Tables V, VI and VII given on pages 91 to 93.

TABLE III

The भरण्यादि System

Selection of stars representing planets

Sign	Interval (Sayan Long)	Star with Long	Deity	Planet	Reasons for selection
♈	47° to 77°	Rohini (69°)	प्रजापति	Mars	Red in colour
♉	77 „ 107	Inwaka (93)	सोम	Venus	Bright like Moon
♊	107 137	Ashlesha (123)	साप	Mercury	He is सौम्य (i e. belonging to सोम or Moon)
♋	137 „ 167	Magha (149)	पितु	Moon	Belonging to the असुर half.
♌	167 „ 197	Uttara & Hasta	भग & सविता	Sun	
♍	197 , 227	Swati (203)	वायु	Mercury	Being a सोम्य
♎	227 , 257	Anuradha (242)	मित्र	Venus	
♏	257 , 287	Mool (265)	पितृयम	Mars	
♐	287 , 317	Shravan (311)	विष्णु	Jupiter	Sun God
♑	317 „ 347	Dhanishtha (317)	वसु	Saturn	Being रौद्र
♒	347 „ 17	Shatataraka (346)	वरुण	Saturn	
♓	17 „ 47	Revati (19)	पूषा	Jupiter	Being Sun God

TABLE IV. The अश्विन्यादि System

Sign	Interval	Star with degree	Deity	Planet	Explanation
♈	360 to 66°	Krittika (37°)	अग्नि	Mars	Fiery (अंगारक)
♉	66 „ 96	Inwaka (93)	सोम	Venus	Bright like Moon
♊	96 „ 126	Punarvasu ( )	अदिति	Mercury	Being सौम्य
♋	126 „ 156	Ashlesha (133)	सर्प	Moon	Belonging to असुर half.
♌	156 „ 186	Purva & Uttara (161) (171)	अर्यमा भग	Sun	Reason quite clear
♍	186 „ 216	Swati (203)	वायु	Mercury	Being सौम्य
♎	216 „ 246	Anuradha (242)	मित्र	Venus	Being a Sun
♏	246 „ 276	Jyestha (249)	इंद्र	Mars	Red in colour लोहितांग.
♐	276 „ 306	U. Ashadha (282)	विश्वेदेवाः	Jupiter	
♑	306 „ 336	Shravistha (317)	वसुवः	Saturn	Being इंद्र God
♒	336 „ 06	Shatataraka (346)	वरुण	,,	
♓	06 „ 36	Revati (19)	पूषा	Jupiter	Being the Sun God

TABLE V. ASHVINYADI SYSTEM (Ayanamsha 36°)

Star No	Star	Long	Rashi Position	Deity	Planet in Exaltation
2	भरणी	46 5	10°	यम	Sun
3	बहुला	56	20	अग्नि	Sun
6	रोहिणी	69	3	प्रजापति	Moon
11	पुष्य	128	2	बृहस्पति	Jupiter
17	स्वाती	203	17	वायु	Mercury (सौम्य)
21	विशाखा	236	20	इंद्राग्नि	Saturn
29	श्रविष्ठा	334	28	वसु	Mars
1	अश्विनी	33	27	अश्विन्	Venus

TABLE VI BHARANYADI SYSTEM (Ayanamsha = 49°)

Star No	Star	Long	Rashi Position	Deity	Planet in Exaltation
4	कृत्तिका	59	10	अग्नि	Sun
7	मृग	81 5	3	सोम	Moon
12	अघा	146	7	पितृ	Jupiter
19	निष्टया	215	16	वायु	Mercury
23	ज्येष्ठा	249	20	इंद्र	Saturn
31	शततारका	346	27	वरुण	Mars
2	भरणी	46	27	यम	Venus

TABLE VII. KRITTIKADI SYSTEM AYANAMSHA = 59°

Star No	Star	Long	Rashi Position	Deity	Planet in Exaltation
6	रोहिणी	69	10	प्रजापति	Sun
8	इन्वका	93	4	सोन	Moon
14	पूर्वा	161	1	अर्यमा	Jupiter
20	विशाखा	224	17	इंद्राग्नि	Mercury
24	मूल	265	26	निर्ऋति	Saturn
33	पूर्वा भाद्रपदा	358	29	अजएकपाद	Mars
4	बहुला	56	27	अग्नि	Venus

The above tables show that we do get stars which have approximately the same degrees as those mentioned for Planets in Exaltation. It shows that the planets may have been given the lordships of the signs according to the stars which may have some affinity or association with the planets Even the names of Deities governing the stars may lead us to find out an explanation as to why a particular planet has been alloted the lordship of a particular sign. Eg रौद्र may mean "one having some affinity or association with or 'derivable from' रुद्र", भौम may mean "one having its origin in the name भूमि or any one of its synonyms like पृथ्वी, भू, वसु, कु etc.," and सौम्य may mean one having some association with सोम or Moon Similarly, "रौहिणेय" suggests an association with रोहिणी and so on Since, the Sun and the Moon were the 'twy eyes'[74] set to guard the two halves, any nakshatra in the divine half (देवभाग) could be given over to the Sun and any one in the second half (असुरभाग) which was also called the यम,-पितृ, निर्ऋतिभाग, could be represented by the Moon. It is our attempt tou seek a rational explanation which will be in agreement with the stand taken by us

In our opinion, the exaltation-degrees were fixed in the भरण्यादि Age and the lordships of signs were fixed in the आश्विन्यादि Age We now proceed to show how most of these allotments are in keeping with the principles enunciated above We get support from the Amarkosha and other Ancient Hindu works which enumerate list of synonyms.

The following Table VIII gives at a glance, the Rashis naksatras, the controlling planets and probable reasons for their Lordships. —

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74 चक्षुषी इव ते यत् सूर्याचन्द्रमसौ

TABLE VIII

Showing Rashis, their naksatras, controlling planets and probable reasons for the selection

No	Sign	symbol	Containing naksatra quarters	Indicating naksotra	Deity	Controlling Planet	Probable reasons for the selection of the Planet
1	Aries मेष		अश्विनी + भरणी + कृत्तिका 4 4 1	कृत्तिका	अग्नि	Mars	Because he is "अगारक" that is "fiery"
2	Taurus वृषभ		कृत्तिका + रोहिणी + मृग 3 4 2	कृत्तिका	अग्नि	Venus	He is the lord of आग्नेय.
3	Gemini मिथुन		मृग + आर्द्रा + पुनर्वसु 2 4 3	मृग	सोम	Mercury	Because he is called a "सोम्य"
4	Cancer कर्क		पुनर्वसु + पुष्य + आश्लेषा 1 4 4	आश्लेषा	सर्प	Moon	She is the lord of Cancer which is उदीची (North)*
5	Leo सिंह		मघा + पूर्वा + उत्तरा 4 4 1	पूर्वा or उत्तरा	अर्यमा or भग	Sun	He is the lord of these Nakshatras
6	Virgo कन्या		उत्तरा + हस्त + चित्रा 3 4 2	चित्रा	त्वष्टा	Mercuy	Because सोम is the 'Maker of world."
7	Libra तुला		चित्रा + स्वाती + विशाखा 2 4 3	विशाखा	अग्नि	Venus	Lord of आग्नेय
8	Scorpio वृश्चिक		विशाखा + अनुराधा + ज्येष्ठा 1 4 4	विशाखा ज्येष्ठा	अग्नि	Mars	Because he is अगारक or red in colour लोहिताग
9	Sagittarus धनु		मूळ + पूर्वाषाढा + उ षाढा 4 4 1	मूल	पितृ or यम	Jupiter	He is lord of the ईशान्य
10	Capricorn मकर		उ षादा + श्रवण + धनिष्ठा 3 4 2	धनिष्ठा	or रुद्र वसुरुद्र	Saturn	who is रुद्र or यम Because Saturn is रौद्र
11	Aquarius कुंभ		धनिष्ठ + शततारका + पू भाद्र 2 4 3	शततारका	वरुण	Saturn	दिग्गज of West whose Lord is वरुण
12	Pisces मीन		पू.भाद्रपदा + उ भाद्र + रेवती 1 4 4	उ भाद्रपदा	अहिबुध्नि	*Jupiter*	*Lord of ईशान्य which is* the direction of अहि बुध्नि

* See the chart

THE SUN

Because, in each Age, it was the Sun who started a year when he came to a nakshatra at the Vernal equinox, he used to be given the control of that nakshatra in each Age, this particular star occupying the first (foremost and therefore, the Exalted) position in the zodiac. Since, the Vimshottari Dasha, (directional) system of the Hindus, starts with the direction of the sun who controlled the Krittikas, and since the--सर्वतोभद्रचक्र (table) also commences from the star Krittikas-(Pleades), it is our view that Astrology may have received a systematic form in the Krittika Age. According to present day belief, the Sun is to be regarded as 'Exalted' at 10° of Mesha (Aries), hence, it is our belief, that, the system took its root when the longitude of Krittikas may have been about 10°, i e, when the Bharanyadi system may have come into use. The Table No III above shows that our conjecture is correct.

The sign of Leo (सिंह) which consists of the stars पूर्वा, उत्तरा and हस्त, came to be regarded as the Sun's 'Own House" (स्वगृह or स्वराशि), because according to Vedic tradition, all the three stars happen to be controlled by अर्यमा-भग-सविता, all of them being the Sun Gods This allotment can further be justified when we look to the history of 'change of Sacrificial systems', one change was definitely affected when the उत्तरा and then the पूर्वा became the first stars.' The Sun is also the lord of the 'East' which perhaps came to be known as the पूर्वा because of its association with the star पूर्वा फल्गुनी It will thus be seen that the conditions of "own sign and sign of exaltation' are fully satisfied in the case of the Sun, as the Mesha is regarded as his house of Exaltation and Leo (सिंह) as his own House.

THE MOON

Moon was called the सोम He was traditionally regarded as the Lord of the North [75] (represented by Cancer) and the Governor (दिक्पाल) of the N W (वायव्य). These conditions are satisfied in the case of the Moon also, since Cancer is his own house and Taurus, his sign of Exaltation

75. Cf उदाच्यां दिशि सोमाय नम

MARS

The synonyms [76] of Mars, as given by the Amarkosh, are:– अंगारकः (meaning, the ' fiery '), कुज, भौम & महीसुत, all of them meaning " son of the Earth ", " born of Earth " or " derivable from Earth ", and लोहितांगः meaning, " the red-coloured bodied ". He is the lord of the south (i. e, the sign of Capricorn) and of the direction belonging to यम (God of Death). The equivalent names for यम are–पितृ, धर्मराज and अंतक. He can, therefore, be called the Lord of an अश्वि नक्षत्र also and of the red-coloured stars of रोहिणी and ज्येष्ठा. These conditions are fully satisfied in the case of Mars also.

MERCURY

His other names [77] are:— रौहिणेय, बुध and सौम्य. " Saumya " means relating to, associated with or born of सोम or Moon. Similarly, रौहिणेय may mean " associated with रोहिणी. " He is also the Governor of the north (सौम्या) or Cancer, since, रोहिणी and मृगशीर्ष are the stars under the control of the Moon (सोम). Mercury could have been given the Lordship of मिथुन (Gemini) on that account, and that of कन्या (Virgo) because of चित्रा whose lord is त्वष्टा or the Moon.

JUPITER (बृहस्पतिः)

Jupiter attained the exalted position at the Eastern rise of the star of पुष्य (तिष्य). (Cf बृहस्पतिः प्रथमं जायमानः तिष्यं नक्षत्रं अभिसंबभूव). So the allotment of the sign of Cancer to him as the sign of Exaltation is quite justified. He was also regarded as the Governor (दिक्पाल) of the N. E. of which the Deity was ईशान (रुद्र etc.). The उत्तरा भाद्रपदा star was governed by अहिर्बुध्न्य which is another name of the God Shiva, or Rudra. Similarly, because the star मूल was under the control of निर्ऋति or पितृ both of which are synonyms with यम, रुद्र and अंतक, Jupiter could have been given the lordship of मूल or of the sign of धनु (Sagittarus). All the necessary conditions in the case of Jupiter are thus fulfilled.

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76 Amarkosh gives the following couplets —

(i) अंगारक कुजो भौमः लोहितांगो महीसुत (ii) बृहस्पति सुराचार्यो . गुरु (iii) शुक्रो दैत्यगुरुः काव्य उशना भार्गव कविः

77 रौहिणेयो बुधो सौम्य

VENUS

He is the Preceptor of असुरs (दैत्यगुरु) and also the Governor (दिक्पाल) of the S E which is under the control of अग्नि Star कृत्तिका is under the control of अग्नि and so Venus appears to have been allotted the Lordship of Taurus which includes the nakshatra division of कृत्तिका. Similarly, Venus is said to control the sign of Libra which includes most of the division of विशाखा whose lord is again अग्नि He was also the Sun God, following the 'Sun' i e, the Sun associated with बहुला , भरणी and रेवती at all the three stages of the Sun's association with कृत्तिका and अश्विनी Hence Venus appears to have been given the Exaltation in Pisces

SATURN

In our opinion, Saturn was regarded as the most influential planet next to the Sun His influence worked of course in the Asura half just as that of the Sun worked in the Sura half That is why Saturn appears to have been called "सौरि" It appears that it was because of this main reason that he has been allotted a place exactly opposite to that of the Sun, viz, Libra (तुला) for exaltation and Aquarius for the "Own House". He was to be identified with God Rudra[8], Yama and Pitru, the manes He has been correctly assigned the Lordship of "मकर कुम्भ" both of which include the nakshatra division (धनिष्ठा), which used to be under the control of वसुरुद्र He was also the Lord of the West which used to be under the control of वरुण, the Lord of शततारका which is a part of the sign of कुम्भ (Aquarius)

It is worth while attempting to find out an explanation for the order of Planets and of their periods in the *Vimshottari* Dasha system, and if we base our stand on the Vedic tradition explained at length in this short essay, it is our firm belief that we will be able to get a rational explanation for the above problem also.

B THE SARVATOBHADRA CHAKRAM

This Table is widely in use among Indian Astrologers. The author of the work refers to one "Brahmayamal" for the information incorporated by him in the book. According to him, the

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७८ (१) कोणैःतस्थो पिङ्गलोमन्दः ॥ कृष्णः रौद्रो ऽन्तकोयमः शौरिः शनैश्चरः
(२) मन्दो सौरि शनैश्चरौ —अमरकोश

Table appears to have been in use in at least two forms[79] viz. (1) a square form (चक्र) and (2) a pyramidal form (शंकु). These Tables gave information about (1) names of stars, (2) their symbolic letters, (3) the 12 signs, (4) the tithis and so on.

The author has illustrated a square form* with 81 houses (small squares) as given below. It is not known how the squares with 64 and 144 houses could have been brought in use.

अ	कृ	रो	मृ	आ.	पुन	पु	श्ले	आ
भ	उ	अ	व	क	ह	ड	ऊ	म
अ	ल	ल्ह	ह	मि	कै	ल्ह	म	पू
रे	च	मे	ओ	नंदा	औ	सिं	ट	उ
उ.भा	द	मी	रिक्ता	पूर्णा	भद्रा	क	प	ह
पू.भा	स	कुं	:	जया	अं	तु	र	चि
श	ग	ऐ	म	घ	ह	ए	त	स्वा
ध	क्ष	ख	ज	भ	य	न	ऋ	वि
ई	थ	आभि	उ.षा	पू.षा	मू	ज्ये	अ	इ

A study of this Table reveals the following things:—

(1) The number of star names is 28 and not 27.

(2) The letters in the inner square are 20.

(3) The work contains 112 (28×4) letters to represent the 112 quarters of the nakshatra divisions : these include 5 forms of 19 letters

(4)[80] The Table commences with Krittikas in the East and seven nakshatras have been allotted each of the four sides of the square.

(5) The third inner square gives the names of 12 signs.

(6) The innermost square mentions 4 names of tithis, the central one being the Poorna.

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79 विविध सर्वतोभद्रं लघ्वालेखोभयात्मकं
चतुष्पंक्तिपदं लेखं पंक्त्यशीतिमर्कटकम्।
शंकुर्नामपदं चक्रं लघ्वालेखोभयात्मकम्
तन्मध्ये खंडचक्रस्य विधानं किंचनेदृशम्॥

80 कृत्तिकादीनि दिक्ष्वाहि पूर्वाशादिक्रमेण तु।
सप्तसप्तकमन्येतान्यष्टाविंशतिसंख्यया॥

* A square form with 100 houses has also come to our notice.

(7)[81] The letters representing the four quarter parts of Ashvini are चू चे चो ला and so on; but the list of letters begins with अ, व, क, ह, ड.[82]

According to the author of 'Sarvatobhadra Chakram' they used to exhibit all these items even in a pyramidal shaped figure. It is the property of a pyramid (शंकु) that,

(i) The number of houses in a complete pyramid is always a square number because the sum of the terms in the series $1+3+5+7...... = n^2$, where n is the number of terms.

(ii) The number of houses in the base of a square containing n^2 houses is $(2n-1)$, and it has got n rows.

(iii) The perimeter always contains a number (of houses) which is divisible by 4. Hence, odd numbers like 27 nakshatras cannot be represented in a pyramidal form.

The 28 nakshatras or 24 stars can be shown in the pyramid having a base of 15 or 13 houses, or in a square having 9 or 8 houses in a side. The 16 vowels written diagonally in a square form can be entered in the 3rd inner perimeter of a pyramid having 15 houses in the base.

This contains 64 houses. The outermost perimeter contains 28 houses and the inner one contains 24, 20, 16, ... etc as we proceed inwards.

81 [illegible]

82 अवकहडा दिशि प्राच्यां मदपस्थाश्च दक्षिणे । नयभजाश्चव वारुण्यां गसदचलाश्चोत्तरे ॥

The very fact that the commencing star was the Krittika and it was to be posted in the East, shows that this aspect of Astrological Knowledge was well known in the age of Shata patha Brahmana Any planet in conjunction with any of the 28 asterisms was supposed to exert a force or an influence in five possible directions, popularly known as 'five-arrowed attack' (पचशलाका वेध) Such a kind of वेध (attack) can be exhibited only in the pyramidal form, and it is our opinion that the square form was a later modification of the 'Shanku' form

C: THE अवकहडा CHAKRAM

The name of this Table appears at first sight to have no meaning But a careful thought has suggested to us a probable meaning The word 'alphabet' is coined from the first two letters (alpha and beta) of the Greek letters of the alphabet, and hence, it stands for the whole group of letters The letters श्री, ग, णे, शा are taught to a boy before the Sanskrit alphabet and have come to mean the 'beginning' of any work taken in hand Similarly, the word "ओनामा" suggests the same meaning to our mind The word 'अवकहडा' appears to be a corrupt form of अवगड (α, β, γ, δ) the first four letters of the Greek alphabet. A study of the letter symbols used to indicate a particular star lends a support to our assumption that the designers of this Table had based some of their conceptions on the Greek origin of the alphabet.

This Table incorporating information about 27 nakshatras is found in use in a circular form We have seen a Table about 28 nakshatras giving the same information but in a rectangular form The letters representing several nakshatras begin with चू चे चो ला This order of letters appears to be rather queer If, however, the nakshatras are written out in a rectangular form but taking Krittikas as the first star, we get, to our surprise, a systematic symmetrical order of the letters अ, व, क, ह, ड, etc., each letter being used in its five forms. The Table gives information about नाडी, गण, वर्ण, etc. which are the items which will form the subject of further study and have been reserved for a future research work The Table is given below

कृत्तिका आईऊए	रोहिणी ओवावीवू	मृग वेवोकाकी	आर्द्रा कूघडछ	पुनर्वसु केकोहाही	पुष्य हुहेहोडा	आश्लेषा डीडूडेडो
मघा मागीमूमे	पूर्वा मोटाटीदू	उत्तरा टेटोपापा	हस्त पूणगढ	चित्रा पेपोरापी	स्वाती देरेरोता	विशाखा तीतूतेतो
अनुराधा नानीनूसे	ज्येष्ठा नोयायीयू	मूल येयोभाभी	पू. षाढा भूधफढ	उ. षाढा भेभोजाजी	अभिजित् जुजेजोखा	श्रवण खीघूखेपो
धनिष्ठा गागीगूगो	शततारका गोसासीसू	पू. भाद्रपदा सेसोदादी	उ. भाद्रपदा दूसझथ	रेवती देदोचाची	अश्विनी घूचेचोळा	भरणी लीलूलेलो

OBSERVATION

(i) Looking to the systematic order of the letters आ ई ऊ ए ओ ... ...ल्यी ल्वे ल्ये, it will be correct to suppose that this table was prepared as an improved form of the सर्वतोभद्रचक्र and prepared for Astrological use by people in the Shatapatha Brahmana Age.

(ii) The order of letters appears to have been broken exactly in the central column, giving rise to a suspicion, that 3 letters in each central place were interpolated later on, to make up the number 112. These 12 letters are such that the names of persons do not begin from them

(iii) Comparing the square form of सर्वतोभद्रचक्रम् with the above अवकहडाचक्रम्, we can easily see that while 96 letters are the same, in both, the first has used 16 vowels in diagonalic houses, the latter has selected the above 12 letters.

(iv) There appears to have been modifications and alterations attempted over the previous, traditional tables, when people accepted one of the three nakshatra systems (21,27 & 28) and discarded the others.

(v) The addition of extra letters appears to have been made in the Gemini (मिथुन), Virgo (कन्या), Sagittarus (धनु) and Pisces (मीन) signs, when signs are reckoned from Ashvini as the first nakshatra.

(vi) The allotment of Nadis (नाड़ीस) to stars appears to have been on the principle followed in naming the week days, the only difference being that, in the first case, the day was regarded as consisting of 24 hours, that in the present case having 60 ghatis.

(iv) The assigning of the three Ganas (गणs) to three consecutive stars appears to be a matter of arbitrary arrangement. But the assigning of मनुष्यगण to all the three pairs of पूर्वास and उत्तरास indicate, that in the beginning there were only 24 stars, the पूर्वाफल्गुनी and उत्तराफल्गुनी being one star named फल्गुनी These were split up into 2 each when the number of nakshatras grew up to 28 and then to 27

(viii) The commencing letters अ, च, क, ह, ड, suggest, that initially the 24 stars were symbolized by 24 letters of the Greek

alphabet. These were 18 consonants and 6 vowels. But later on, when the question of naming the quarters of nakshatras may have come up for consideration, they appear to have devised a new plan of using all the 18 letters in the five forms (a, e, i, o, u,) plus 6 vowels, making the number 96. This principle may have been adopted by later Indian Astrologers, and they evolved the present way of denoting the stars. It must, however, be confessed that we have not been able to find out any rational explanation for the order of the letters म ट प र त, न य भ ज ख, and ग स द च ल. Was it the order of Greek letters of the alphabet in the initial stages?

Both the above tables show germs of Vedic tradition in as much as they followed the कृत्तिकादि system. The number of years for various Dasha (दशा) systems viz, 36, 108, 120, the number of years in planetary periods as also their order, the figures in आयव्यय table etc. are subjects which present a problem to be taken up by future research scholars.

SECTION IX

INFLUENCE OF VEDIC CULTURE ON ANCIENT RELIGIONS OF THE WORLD

It is now intended to show how traces of Vedic Culture described in detail in the foregoing Sections, are evident in original or in modified form in the Ancient (and even in Modern) religious customs of the world. They are manifest in many ways. E.g, In the adoption of —

(1) The Eastern rise of the Sun as the starting point of the year,

(2) The Moon's first appearance after a long dark period as the commencing moment for the Lunar month,

(3) Original Sanskrit names to the days and months of the year when certain religious ceremonies are performed,

(4) Some of the Vedic time units,

(5) The 28 Nakshatra system in place of 27,

(6) Vedic customs in exactly the same or in modified form.

A thorough search for the origin of all customs in these religions will itself form a "subject of research" For the the present it is desired to limit ourselves in showing how the *Vedic civilization appears to have flourished* before the Egyptian and Babylonian civilizations which are believed to have existed before 5000 B.C. An attempt also will be made to show that these religions appear to have adopted only one out of the following three main Vedic systems –

(1) The Solar system, (2) Lunar system, (3) The 'Fire' system, all requiring the use of Luni Solar system.

I. THE CHRISTIANITY

(a) The present Gregorian Calendar is the reformed form of the Ancient Roman Calendar which is believed to have a

year consisting of only 10 months, viz. 'March' being the first, meaning marching into the year (वर्षप्रवेश) and December being the 10th month. The words Septem, Octo, Novem and Decem are clearly corrupt forms of the Sanskrit words सप्तम्, अष्टम्, नवम् and दशम्। This is reminiscent of the Vedic custom of performing a 7th month, a 9th month and a 10th-month sacrifice (cf सप्तम्वा, नवम्वा, दशम्वा) The Romans are said to have introduced an intercalary period of 67 days. This reminds us of the Vedic custom of performing an अतिरात्र (long night) sacrifice.

(b) The present day custom of ringing bells in their Churches at midnight on 31st December each year to welcome the advent of the New Year appears to be a similar probable custom amongst Vedic sages of ringing bells to announce the advent of the Divine Samvatsar and the end of Asura's year (cf आगमार्थं तु देवाना गमनार्थं तु रक्षसा । कुरु घण्टारव तत्र देवताह्वनलक्षणम् ॥), on 21st March which was the New Year's March even amongst the Romans.

(c) A careful study of the names of Christian Holidays and their position in the year confirms our belief that the Aryan settlers in the European region may have carried with them the Vedic tradition of counting Sun's rotations in groups of seven, as also the Sun's low, high and central positions * All holidays are arranged almost symmetrically with respect to Easter Sunday

Readers will highly appreciate our meaning of the word "EASTER SUNDAY" The dictionary describes the importance of this holiday in the fact that it was dedicated to† 'EOSTRE' (Goddess of Dawn) To our mind the word Easter is not the adjective of Sunday It orginally may have meant *Eastern Sun's Day*, i e., "the day on which the Sun rose exactly in the East." The day previous to this is termed the *Easter Eve* which again confirms our belief that *the period prior to Easter was a night* in accordance to Vedic tradition and the next day was the beginning of the Divine Aha (Day)

The names Low, Ascension, Septuagesima, Trinity, etc. of the Sundays definitely can remind one of the low and high

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* Our interpretations of पुरुषसूक्त mantras may be seen again in this reference.

† Can this be the corrupt from of उषा स्त्री or some such Sanskrit word ? or of योषित स्त्री ?

positions of the Sun and also his position on the 70th day before the Easter Week.

The WHIT SUNDAY is also known as "PENTECOST" day. Curiously enough this is a corrupt form of पचहोत्र, which may have been some religious ceremony to be performed after about 7 weeks. The names Low, Ascension and Easter appear to be the corresponding names of अवाचो, उदाचो and प्राचो The Easter was to be celebrated on the appearance of the उषा or Goddess of Dawn, and thus may have been fasting for about a week before 21st March which is the Easter Sun's day The period between Septuagesima Sunday and Whit Sunday has a length of 147 days which curiously enough coincide with the number of revolutions described by पुरुषसूक्त (cf सप्तास्यासन् परिधय त्रि सप्त समिध)

II THE MUSLIM RELIGION

That branch of the descendants of Vedic Sages who may have migrated to the sandy deserts of Arabia and Asia Minor appears to have retained only the Lunar system of measuring time. For them, *the moon brought relief and happiness* The first appearance of the Moon, so far known as चन्द्रदर्शन, continued to be the beginning of the Lunar month, and its festival nature also was retained The festival is known as ईद the 'ID This appears to be the corrupt form of the Sanskrit word "इड् " to worship" (cf अग्निमीडे पुरोहित) The place where the prayers to Moon are offered was naturally called the इडगृह and we have to say that its corrupt form is the well known word ईदगाह In Vedic Age, the Moon used to make her first appearance after 13 nights, i. e. *on the 14th night* The 'fourteenth night moon was naturally hailed as the happiness-giving God and the present day proverb चौदहवी का चाद appears to have its origin in the above Vedic phenomenon The Muslims offer prayers five times a day This corresponds to our Vedic commands of performing five kinds of सवन in the five parts of the Divine Aha (cf प्रात सवन माध्यहसवन etc.) The Muslim system of holding a noon-day prayer is reminiscent of the Vedic custom of holding a माध्यदिनसवन

The names of Muslim festivals are either Arabic or Persian. Curiously enough some of them sound as corrupt forms of Sanskrit words E.g the original name of बारह वफात (BARAH WAFAT) viz *DWARDAHAM* appears to have been derived

from द्वादशाहम्. The word BARAT may have been (व्रत). The name Shabibarat may have been शिवव्रत or शिवरात्र. The word FITRE appears to be पितृ. The word Rabi in रबिउलअव्वल can be the first (अव्वल) Ravi. The Arabic Calendar gives a list of 28 stars, calling them as मंज़ील (Mansions). This is exactly the Vedic conception of "देवगृहा वै नक्षत्राणि".

III. THE PARSI RELIGION

The Parsis are Fire-worshippers and appear to have inherited the customs of earlier Vedic Sages who used to worship fire (अग्नि) which was the primary deity. (cf. अग्निर्वै देवानां मुखं, or अग्निमीडे पुरोहितं). Their main festival is 'Navaroj' which literally means the New (Year's) day. Curiously enough the Navaroz falls on 21st March, the Vedic New Year's Day. The word itself suggests that the Early Parsee Sages must have continued the system of starting their year on or about 21st March each year.

NAMES OF DAYS AND OF MONTHS

AHUR MAZD असुर मर्द *
VAHAR वासर
GARMA PAD घर्मपद
VANHEUS वन्हीयस
KSHATRAVAIJEHE क्षात्रवीर्य
ATREYADIJA आत्रेयादिज
ANAMAK अनामक
VERETHRAGHNAHE वृत्रघ्नः
MITRAHE मित्रः
AMERETATO अमृतत्व
VATAHE वातः
PAVANAMITRO पवनमित्र
VAHUMAN वसुमान
FARVARDINMAH प्रवर्धित मास
ARDIBAHISTHA अर्धवसिष्ठ
MORDANMAH मर्दन मास
ABAN MAH अवन मास

IV. THE EGYPTIAN CALENDAR

The Egyptians used to celebrate the day with great rejoicings when the Eastern Sun rose along with the star Sirius. Their year commenced from this day and used to consist of 12 months

* Note: The word मर्द appears to have some association with the killing of वृत्रासुर by Indra. वृत्र was called अहि or असुर.

of 30 days each like the Vedic system (द्वादशमासा सवत्सर अहानि) But curiously enough instead of making an adjustment of 21 days at the 4th (Leap) year, they used to add 5 days at the end, calling them "The five sons of God Sun". They were called the "EPAGOMENAI" which again is a clear corrupt form of the Sanskrit word "अपगामिन" meaning "going down" The names SEB, NUT, SOTIHS may prove to be corrupt forms of शिव, नट, स्वाति and so on

V. THE CHINESE SYSTEM

The Chinese appear to have followed the 60-year cycle system for about 2000 years before Christ They have got a system of 28 lunar mansions. One of the lists of stars commences from चित्रा which again points to some very ancient Age. The other list commences with कृत्तिका These things definitely point to the influence of Vedic culture over Chinese civilization Their history of time units shows that before the year 1100 B C. they had only 24 stars – a thing suggested by us in the Section on Astrological subjects. (See pages 84 to 98)

The above discussion definitely supports our stand that the Vedic Sages lived thousands of years before any other known Ancient Civilizations

CONCLUSION

We briefly enumerate the Results of our research as below —

I (a) The Vedic Sages lived in the North Polar region for about a period of 10 000 years (from 14000 B C. to 3000 B C)

(b) During this period they appear to have followed four systems of time units, all determined by Astronomical phenomena, viz (i) The Brahmi system, (ii) The Daivi system, (iii) The Prajapatis system, (iv) The Manushi (human) system

(c) The longest conceivable period of time was that of 1000 years which they used to measure by performing '1000-year-sacrifices' to be started with a star rising in the East, and at the commencement of each such period they elected a new Governor (Manu).

(d) The Divine Aha or Samvatsara of 180 days and the Ratrih (or Prajapati's Samvatsara) also consisted of 180 days As the Sages left their Polar abode and came down to lower latitudes, the lengths of these periods began to vary, thus necessitating the creation of sacrifices of different magnitudes. E. g, in the Age of बृहदारण्यक, the Divine Samvatsara appears to have consisted of only 168 days and that of Prajapati, of 192 days or 16 Kalas.

(e) The human year consisted of (1) either three Sacrificial years of 360 common days each to be followed by a leap year of 381 days, or (2) of a civil year of 13 lunar months, each lunar month consisting of a शुक्लपक्ष (i e. a continuously lighted period) of about 15 days and a कृष्णपक्ष (or a continuously dark period) of about 13 days

II Sanskrit words like Aha, Samvastara, Manu, Kalpa, Mukham, Ritu, etc lost their original Vedic meaning during the Smriti Age.

III Vedic Deities were few in number Their position used to be located by clusters of stars resembling shapes of birds and beasts. शुक्र and बृहस्पति were the names of God Sun• whose original name was सविता, and those of the Moon were सोम and मथिन्

IV The origin of many of the Christian, Mohammedan and Parsi customs can be traced to the Vedic period E. g, The ringing of bells on the day of commencement of the New Year, the offering of prayers to New Moon, the holding of Noon prayers at 1 30 P. M, the reckoning of a year as equivalent to 10 months are some of the examples.*

V The Ganapati and Mahadeo were the only two Vedic Deities who were equally respected by Suras and Asuras. The Mahadeo or the Great God was conceived as the Deity represented by scores of constellations of stars simultaneously visible in the

* See The Note on other Ancient Civilizations.

hemispherical dome which used to be seen revolving continuously.

VI The Vedic Sages evolved all their sacrificial systems, so as to measure time units needed by them. These were not the outcome of a fancy of imagination, but a systematic attempt of adjusting the age-old principles to new environments which the sages were required to face, as they moved down from their North Polar abode to Southern latitudes.

VII The well-known fourteen jewels were none other than the bright stars or constellations of stars which rose in the East (apparently from beneath the sea. cf. सागरोत्पन्ना) each one after a period of about 1000 years.

VIII. Most of the Vedic Mantras invariably point to one or the other of the astronomical conditions actually observed by Sages living in different latitudes during different Ages.

IX. Attempt has been made to seek a rational explanation for the names of stars like विशाखा, अनुराधा, ज्येष्ठा, मूल and so on.

X. For the first time it has been brought to light that the names of stars published by the Western countries are most of them the corrupt forms of their Vedic Sanskrit names or of their meanings given by the Star Atlas. The "ORION" is not the मृगशीर्ष but the वरुण, the SIRIUS is not a hunter but the Sanskrit name of शौ, the ERIDANUS is हरिण्यु, the CASSEOPEA is कश्यपोय, the COMA is सोम the CORONA is शोणा or कर्ण and so on.

XI Attempt has also been made to find out a rational explanation for some astrological subjects which point to their origin in the Shatapatha Brahmana Age.

If, therefore, our efforts to search out a "hitherto unknown" side of Vedic Tradition be appreciated by readers, we would be encouraged to analyse and rearrange in chronological order the Vedic Works and their passages at least up to the Age of Shatapatha Brahmana – a work which would immediately help research scholars in their work. It is the sacred duty of every

Indian Scholar of Vedic culture to place before the world the correct interpretations of Vedic passages which, to our horror, appear to have been made by Westerners in a grossly mistaken way

ANCIENT VEDIC TERMINOLOGY

[Following is a list of few Sanskrit words, given as an illustration, to show how they admit of meanings very different from the popular ones If these are not accepted, the sanskrit passages in which they occur, appear to cose their corect sense]

1 अह (Aha) It was a general time unit, denoting a period of time between the appearance (rise) and disappearance (set) of any luminary about the horizon of the North Polar region which was the abode of Vedic Sages Thus, Brahma's Aha was equivalent to 14,000 years Divine Aha = 180 days. Prajapati's Aha = 15 days (A human Aha was equivalent to a period of 24 hours taken by the Sun to make a complete encircling movement around the horizon A human Ratri was an equal period determined by the encircling of any star)

2 असुर (Asura) It did not necessarily mean a demon It simply denoted the counterpart of the human race known as the सुर He was also known as पूर्वदेव

3 अमावास्या (Amavasya) It was a period of time during which the Sun and the Moon were both visible and hence 'together" It could be even a period of about 13 days

4 अध्वर It meant the 'sacrifice' and also 'the road'

4 (A) अयन = movement as in उत्तरायण, दायन also knowledge, as in रामायण, ज्योतिषामयन, etc.

5 अनिरान It was the term applied to that sacrifice which used to be performed at the end of each long period of continuous nights which varied with latitudes of places on the Earth

6 ऋतु It was not a 'season' but a time unit. It stood for each and every portion in which a Samvatsar used to be divided There used to be 3,4,5 6 or 7 ऋतु in a Samvatsar

7 कला It did not mean an angle of 1 60 th degree, but denoted a time unit of 12 days

8 कल्प It was a time unit denoting a period of 900 or 1000 years.

9 ग्रह It was a time unit denoting a period of time between the consecutive rises of any planet.

10 चान्द्रमास A period of 15+13 or 28 days The first period consisted of 15 continuous lighted nights called the शुक्लपक्ष and the second, that of 13 continuous dark nights called कृष्णपक्ष

11 त्रिसुपर्ण It was a group of mantras composed in honour of God Vishnu (सुपर्ण) and meant to be chanted on the occasion of each of the three four-monthly sacrifices (चातुर्मास्ययज्ञा) during the year which was called महासुपर्ण

12 नक्षत्र was a time unit denoting a period of time between the exactly Easterly rises of two consecutive stars.

13 निमिष was the smallest of time units meaning "a twinkling of the eye." The Brahmi Nimisha was equivalent to a human day of 24 hours.

14 पक्ष meant a side of each of the Ahoratra described by the Sun and the Moon both

15 पचदशी meant the 15th night. This term was applied to Paurnima and Amavasya both

16 पुर or पूर्व meant 'in front of" or "to the East' as in पूर्वापरं or पुरोहित meaning 'placed in the East'

17 प्रजापति was the title of the Religious Head of the Society

18. भाग did not mean 'a share' but the celestial half belonging to Suras and Asuras

19 मनु was not a time unit but the title of the Social Head of the society. He was elected at the beginning of each Yuga or Kalpa

20 मधु did not mean honey" but the spring season'

21 मुख did not mean a 'mouth' but 'the first in a series'

22 यज्ञ A sacrifice. There used to be periodic sacrifices at the end of which used to be performed a special sacrifice known after the period. E g (1) the षोडशी, (2) the नवरात्र or दशरात्रिक, (3) एकविंश, (4) अतिरात्रम्

23 युग It was not a period of millions of years as is

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* Time used to be measured in cycles of 4 Yugas (चतुर्युगानि) The first one of 12 years was termed the Kali the second one the *Dwapara* the third one, the Treta and fourth one the Krita. The order of these Yugas was Kali to Krita

believed by us today, but a period of 3, 4, 5 or 12 years in the case of Human Yugas and of 1000 years in the case of Divine Yugas.

24. रात्रिः is the counterpart of Aha.
25. रिचः (as in रिरिचानः) means "get exhausted or spent up."
26. सव्यं meant "clock-wise."
27. वामं meant 'in a counter-clockwise direction'.
28. संवत्सरः A synonym of Aha. Later on, it denoted 'a year.'
29. समता means a symmetry with respect to equinox.
30. सोमं प्राप्नुवंति : Obtain a correct measure for the "Lunar time"


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