

DEDICATION.

This Work
is
Respectfully Dedicated
to my revered grandfather
Bangalore Suryanarain Rao, B.A., M.R.A.S., Etc.
Editor of the Astrological Magazine and Author
of more than seventy works including the
famous "History of Vijayanagar—The
Never-to-be Forgotten Empire", as a
token of gratitude for his instruc-
tions to me in Astrology and
Astronomy, and in appre-
ciation of his profound
scholarship, by his
loving grand-
son.

B. V. RAMAN,
The Author.

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B. Suryanarayana Row

FOREWORD

BY

Bangalore Suryanarain Rao, B.A., M.R.A.S., F.R.H.S., etc.,
Editor, Astrological Magazine.

It gives me great pleasure to write a few words by way of a Foreword.

The writer of this work Dr. B. V. Raman, is my eldest son's eldest son, *i.e.*, my grandson. I was on the look-out for a competent successor to the special line of researches, *viz.*, astronomico-astrology in which I have spent the major portion of my active life and have found my grandson, a competent youth to take up my work.

He has made an intelligent study of mathematical and predictive astrology and has been able to compose some treatises on this important subject.

The necessity of accurate mathematical knowledge is placed beyond a question ; and no astrologer of any pretensions, can ever hope to become a successful predictor, unless he is competent in his astronomical knowledge of correctly casting the horoscope and finding out the various sources of strength and weakness of the Planets and the Bhavas.

This work, I am proud to say has been

done by my grandson, with considerable skill and ability. He has put his ideas in a flowing, convincing and easy style and the illustrations he has given, will be found to be of immense use to the readers.

I have been, during the last 60 years, of my activities in the astrological line, dealing more or less with the judicial portion of astrology, and did not give as much attention as the subject of mathematical calculations demanded. Probably fate ordained, that, while I have fully treated in my own inimicable style, the predictive portions of astrology, the astronomical portions have been reserved to be elaborated by my own grandson, adding a feather to the line of my succession.

As this book deals with the essential aspects of Mathematical Astrology, necessary for correct computation of horoscopes, according to the Hindu system, the selection of the name as "A Manual of Hindu Astrology" is quite appropriate.

There has been a very great demand for such a book and I am proud to say that my grandson Dr. B. V. Raman has supplied the want with credit to himself.

This book is written with a view to help all those who are attempting to grasp the fundamental principles of Hindu Astronomico-astrology.

To write a book on mathematical portion requires patience, diligence and devotion, all of which, my grandson, has displayed in a commendable manner.

I pray to God earnestly that he may live to a long age, as God has been pleased to give me longevity, and do as much service to the public as possible. Blessing him with all my heart and praying to God to make him successful and prosperous:—

A handwritten signature in black ink, appearing to read "B. Suryanarain Row."

BANGALORE,
} 5th October 1935.]

(In his 80th year)

PREFACE

Last year I wrote a comprehensive book entitled "A Text Book of Hindu Astrology", the major portion of which has been devoted to the exposition of the predictive branch of the science. But later on, I realised the need for a book devoted to the mathematical side of the subject too, by the constant pressure brought to bear upon me by students of astrology. In casting horoscopes according to approved rules of Hindu Astrology, nothing but a series of mathematical calculations are involved; and hence the present manual is more or less devoted to the exposition of the important and essential principles of Hindu Mathematical Astrology. The mathematical portions dealt with are of a very elementary nature. It is hoped the present work will supply a long-felt want. All necessary and superfluous information constantly employed by writers on Mathematical Astrology, which are not only cumbersome but also unimportant from the point of view of correct predictions, has been omitted. Ignorance of even the elementary principles of Mathematical Astrology is sure to lead one to the obvious misconception of the fundamental postulates of the judicial system and, at the same time

too much indulgence in mathematics alone, is equally harmful as completely atrophying one's judgment faculty and power of induction. Hence to cast and read a horoscope, a moderate knowledge of Mathematical Astrology would be simply invaluable.

I propose to issue two other books on the "Strengths of Planets" and "Longevity" so that these three books contain all the information necessary to enable the student to prepare a suitable ground for venturing predictions. This book deals with such aspects as the determination of the longitudes of planets, house-cusps, sunrise and sunset and other information essential for constructing a horoscope. "The strength of planets" and "Ayurdaya" deal with the planetary relations, shad-balas, periods and sub-periods and longevity.

A separate chapter, exclusively devoted to describing the method of casting the horoscope, etc., according to the western system and its reduction to the Hindu, has been included and this is sure to enhance the value of the book by making it accessible to the Eastern and Western students alike.

The book is intended both for the beginner and the advanced.

The book may have its own defects,

and any suggestions for its improvement will be gratefully appreciated.

Original books on Varshaphal (Annual reading of horoscopes) based on Tajaka, Kala-chakra Dasas, etc., are in the course of preparation and they will be released for publication in due course, for the benefit of the astrological public. I am specially indebted to my grandfather Prof. B. Suryanarain Rao, to whom this work is dedicated for his valuable instructions to me in Astrology.

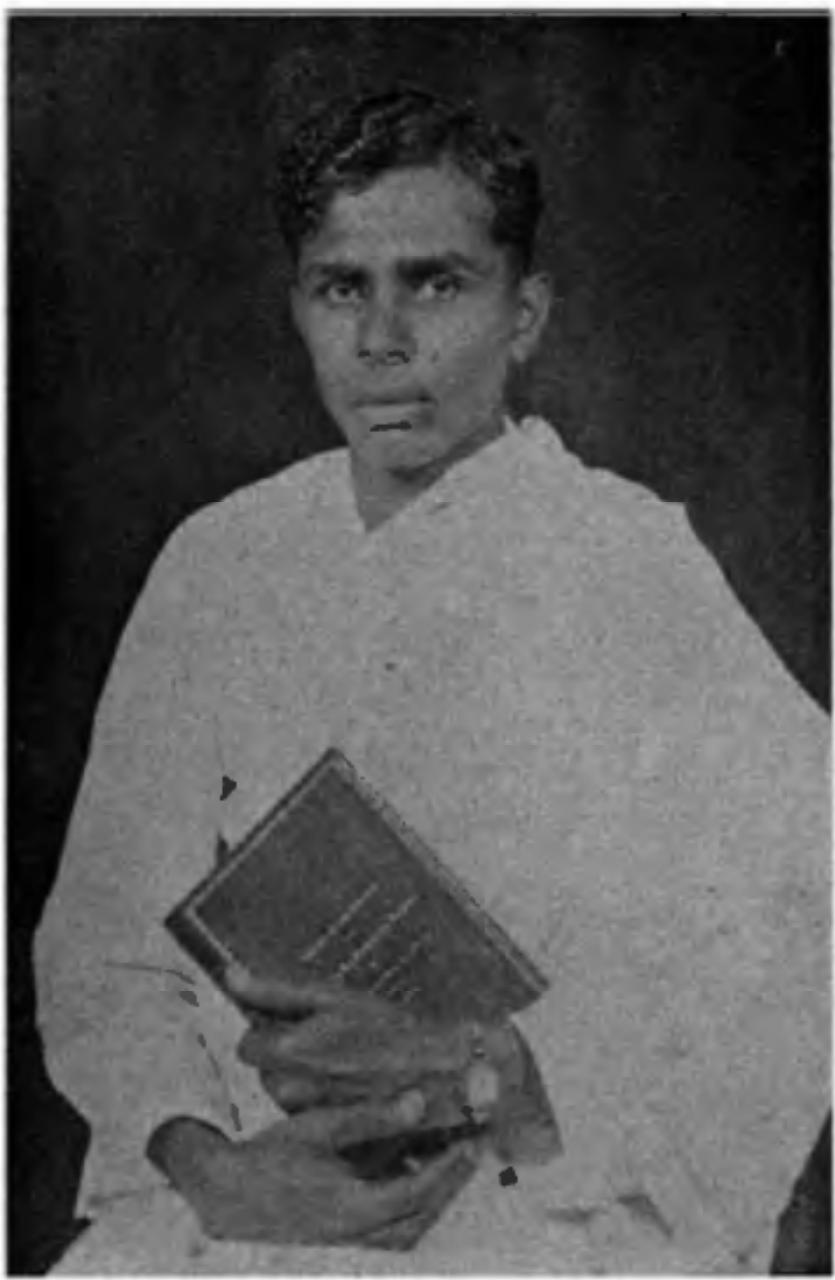
I have relied to some extent on the English translation of Sripathi Paddhati by Mr. V. S. Subrahmanya Sastri for information on Dasamabhava Sphuta and my thanks are due to him. I cannot but appreciate the labours of my wife Srimathi Rajamma Raman for re-writing the entire Manuscript and making it suitable for the press. My thanks are also due to Dr. M. C. Srikanta Pandit for having financed the publication, and to Mr. Mir Abdul Huq and the staff of Modi Power Printing Works for evincing special interest in printing the work.

I feel certain that my humble endeavours in expounding Astrology will be appreciated by all well-wishers of knowledge and understanding.

*BETTAHALSOOR,
BANGALORE.

5th October 1935.]

B.V. Raman



B. V. Raman

The Author

AN INTRODUCTION

BY

Jyothirbhushan Dr. V. V. Ramana Sastrin, M.A., Ph.D., etc.

I am asked to write a few words by way of introduction, which I do with extreme pleasure, even in the face of poorly health.

The present volume is devoted to the astronomical basis of Hindu Astrology, not without occasional side-lights on the theory of Western Astrology, but the manner in which the relevant findings are marshalled, and the methods, expounded, will not fail to hold the attention of the reader.

To the beginner with the merest acquaintance with the astronomical preliminaries, the presentation is bound to make a fascinating appeal, but to the trained student, the book as a whole, cannot but serve the purpose of a stimulating repertory of the leading facts or concepts of Astrological Mathematics.

The Author, Dr. B. V. Raman has already made his mark in the astrological world, and bids fair to hold his own in the future, as a first-rate expounder of Hindu Astrology. He is none other than the grandson of Prof. B. Suryanarain Rao, the venerable doyen of Indian Astrologers of repute, whose personal teaching

and example have gone not a little to make of
the grandson what he is.

This book is intended to be the first of a
series, planned to embrace the several depart-
ments of astrology, one after another, and I
sincerely bid him God-speed in the successful
materialisation of his plans.

VEDARANYAM,
TANJORE,
} 25th Sept. 1935.)

(Sd.) V. V. RAMANAN.

AUTHOR'S INTRODUCTION

The mathematical basis of astrology is so precise and exact that even its greatest enemies cannot but be convinced of its scientific nature. The noble art of predictions assumes a fair amount of knowledge in the mathematical part of astrology. It cannot be denied, that such an ability, imposes a great strain on the limited mental acumen of the average astrologer, that his pretensions to make correct predictions are really baseless. It would be better to draw a distinction, between mathematical astrology and astronomy. By the former, we mean, the relation of mathematics to astrology in so far as it is concerned with the correct determination of the longitudes of planets on the basis of reliable ephemerides or almanacs, cusps of the various houses, the different kinds of Balas or Sources of strength and weakness of each planet and house, and such other details which are ascertainable with the aid of mathematics so that a sound basis for making correct predictions may be obtained. In other words, mathematical astrology deals with nothing but correct casting of horoscopes. And we classify the methods of computing the longitudes of planets independently, determining the periods of eclipses and

such other details as the measurement of the dimensions of the various celestial bodies and their internal and external peculiarities, etc., under astronomy. The ancient Hindus always regarded astrology and astronomy as synonymous so that a bad astronomer was also considered a bad astrologer. In fact the qualifications laid down by great and illustrious writers like Varahamihira and Bhaskaracharya are so rigorous, that, we fear, that none of us to-day, would be deemed to be called an astrologer at all. Bhaskara stresses on the need of a clear knowledge of spherical astronomy, for one, who wishes to be an astrologer and a comprehension of the doctrine of spherical projection and allied theories for locating the true positions of planets, etc. But for our purpose, we shall maintain this distinction, we have called attention to above, in regard to mathematical astrology and astronomy; and deem that a fair acquaintance with the principles of mathematical astrology are absolutely essential for successful predictions.

A noteworthy sign of this century seems to be a general awakening in the minds of the educated classes to institute a scientific inquiry into ancient subjects like astrology and astronomy. It is, however, deplorable to note that, in their over-enthusiasm to benefit the cause

of the science, many of the modern English Educated Hindus of to-day are adopting an undesirable attitude towards Hindu astronomical calculations in rejecting them altogether as incorrect or inconsistent and replacing them entirely by modern ones, as being quite accurate and precise. The arguments advanced by them, in favour of such a theory, are generally unsound and cannot stand the test of actual demonstration. Are we to reject the Hindu astronomical calculations formulated and adopted by such celebrated exponents of the celestial science as Varahamihira, Bhaskara, Sripathi and others, because they seem to clash with modern ones, who accept the ancient astrological principles? A Varahamihira or a Kalidasa, who has bequeathed to us such master-pieces as Brihat Jataka and Uttara Kalamritha could not have been so ignorant or indifferent as to give room for such fallacies, inconsistencies and errors which we are trying to find out in their writings. It would be the height of folly and absurdity to estimate their conclusions in matters of astronomy and astrology in the light of our own developments or achievements in those branches of knowledge. Modern decisions and conclusions cannot be taken as criteria for judging the accuracy or otherwise of the ancient Hindu Astronomers. The extreme accuracy and

precision to which we lay claim are often times questionable. It is true that no satisfactory agreement could be found between the writings of any two people even, in ancient books. But what of it? Do all modern calculations tally with each other? Certainly not. Take for instance the measurement of terrestrial latitudes. Each reference book, an authority in its own way, differs decidedly from the other. Bangalore is located on 13° , $12^{\circ} 57'$ and $12^{\circ} 58'$ N. Lat; which of these is correct? Therefore it is useless to reject the ancient methods of calculations completely, because they clash with ours and replace them entirely by those of modern times.

Most of the theories of to-day are simply tentative ; they have not, as yet, been established. The statements of some of the astronomers are really ludicrous and excite sympathy in the hearts of sober men for such perverted views. Modern calculations alone cannot be accepted as correct or accurate (for astrological purposes) and the ancient ones rejected. Moreover the ancient Hindu astronomers dreaded secular interference in matters of astronomy for *astrological purposes*.

The ancient Maharishis were past masters of the first magnitude in almost all branches of knowledge. That they discoveved many

phenomena by mere observation alone cannot be vouchsafed. The plane of observation employed by them was certainly quite different from that of the modern scientists. The art of Yoga is peculiar to them. Not being satisfied with the nature of the phenomena revealed by glasses and other material objects, they dived deep into the unfathomable depths of Yoga by means of which they were able to see things in their reality, face to face. The first *sutra* in the *Grahanirnaya Prakarana* of the *Bhoutika Sutras* is "*Darpanemithya Vadaha*," meaning that objects at a distance, viewed through glasses, always present forms, which really do not represent their true state or nature. This clearly suggests, that to get at truth, so far as the celestial and distant objects are concerned, we must view them by something other than glasses, as there are many media between them and the earth, whose refracting and dispersing powers, we do not know much about. Thus they had the gift of Yoga, the fragments of which we see even unto this day, which helped them to a great extent in their expeditions in unveiling the mysteries surrounding the phenomenon of the celestial bodies.

• There may be still other causes for the existence of differences between modern and ancient astronomical observations. For instance

the equation of the Sun's centre according to the Indian tables is $2^{\circ} 10\frac{1}{2}'$ whereas according to modern observations it is only $1^{\circ} 55\frac{1}{2}'$. Is the first figure wrong because it differs from the second? It cannot be; for "the eccentricity of the solar orbit on which the equation just mentioned depends was greater in former ages than it is at the present time because, of the consequence of natural disturbances of planets." Hindu calculations require consideration of Hindu figures and tables and we have to consider Hindu methods alone in matters of Hindu Astrology. Prof. Wilson observes that "The Science of astronomy at present exhibits many proofs of accurate observation and deduction, highly creditable to the science of the Hindu Astronomers." Take for instance eclipses. The Hindu method yields as correct results as the modern method.

The sciences of Hindu Astronomy and Astrology have got into disrepute by the ignorance of the fake and quack astrologers and astronomers, whose mercenary nature make them impervious and indifferent to the grave responsibilities that lie on their heads, and such an attitude of these people is directly traceable to the lethargic mentality of many of our indolent Rajas and Maharajas who, while spending immense sums on useless and

chimerical purposes, are completely deaf towards rehabilitating such useful sciences as astrology and astronomy.

The perfection of predictive astrology among the ancient Hindus was really marvellous; and to-day, we have lost that power. Even with sound mathematical basis, our predictions are generally vague and indefinite—except for a few, made by the real experts in this science. Is it because, our inductive faculty is marred by the too much precision we aim at, or are we on the wrong tract. Are we not wasting much of our precious time by entering into profitless discussions and controversies as regards house division, ascribing rulerships to the so called newly discovered planets, finding the rationale of the significations of the different houses of the Zodiac, etc. The greater portion of our time must be devoted to the practical study of astrology. This requires a moderate knowledge of astrological calculations. For instance, in determining Ayurdaya, Maraka Grahas (death inflicting planets) and the time of death, we should ascertain the relative sources of strength and weakness of the different planets. This requires a fair knowledge of Shadbalas. And with our present knowledge in the predictive art, we do not require to be so precise as to find out .000067" of an Arc. We had better

maintain what can be termed "minute precision", and then adopt "second precision", after we have attained proficiency in the art of predictions consistent with our present precision in calculations.

Bearing this in mind, if the reader goes through this volume, without any bias or prepossession, he will really find much useful information presented in quite an intelligible manner. Throughout the book, in the examples worked out, fractions less than half a Ghati or 30" of Arc have been rejected. If the reader is patient enough he can consider the minutest divisions and maintain the degree of accuracy he wants.

In the determination of Madhya Lagna (10th Bhava), the Hindus do not consider the Sidereal Time of Birth. Instead, the Sun's Sayana Longitude at birth moment and the interval between meridian-distance are taken and the Dasamabhava Longitude determined by considering the Sidereal Time of the ascension of the Rasimanas on the equator according to the prescribed rules. Besides, the Bhojya and Bhuktha portions of a sign are found out by the application of rule of three assuming that equal arcs ascend at equal times. These two are considered, by some recent writers as fallacies or errors. But they are not fallacies at all astrologically because,

perhaps the ancients thought, that it would not make much difference, whether the ascension of Arc was calculated arithmetically or by more refined modern methods *for astrological purposes*. They had their own reasons which remain inexplicable to assume so many things, which look controvertible to-day. We have not the slightest justifiable ground to label them as incorrect and eulogise our own conclusions as eminently correct. We have lost the power of Yoga, we cannot see things face to face by physical aids. And hence we can neither deprecate the one nor appreciate the other. Each has its own faults and perfections and we must as far as possible adopt the Hindu method of calculations for applying Hindu astrological principles.

BETTAHALSOOR.
BANGALORE.
5th October 1935. } Br. Rama

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(CORRECT CASTING OF HOROSCOPES)
By
Dr. B. V. RAMAN

CHAPTER I.

THE ZODIAC AND THE PLANETARY SYSTEM

1. **The Zodiac.**—It is a broad band or belt in the heavens extending 9 degrees on either side of the ecliptic, and known to the Hindus as Bhachakra or the Circle of Light. It is a circle and as such it knows no beginning or end. In order to measure the distance, an arbitrary point is established, which is called the first point of Aries. The zodiac revolves once in a day on its axis, from east to west.

2. **The Ecliptic.**—The ecliptic is the Sun's path. This is known as *apamandala* or *Ravi marga* in sanskrit. It passes exactly through the centre of the zodiac longitudinally.

3. **The Signs of the Zodiac.**—The ecliptic is divided into twelve equal compartments, the signs of the zodiac, each being thirty degrees in

extent. Each sign has its own peculiar qualities attributed to it by the ancient Maharishis, after careful and profound observation and meditation. As already observed above, the commencement of the zodiac is reckoned from the first point of Aries. Each degree is divided into sixty minutes and each minute is further subdivided into sixty seconds, so that, the total extent of the zodiac is 21,600 minutes or 129,600 seconds.

4. The Constellations.—The ecliptic is marked by twenty-seven constellations or Nakshatras, often called lunar mansions, because the Moon is brought into special connection with them, as traversing twenty-seven constellations and making a complete round of the ecliptic in a lunar month. Each constellation contains four padas or quarters and each quarter is equal to $3\frac{1}{2}$ ° of the celestial arc (*rekha*). In other words the whole zodiac consists of 108 padas so that each constellation measures 13° 20' of arc. The Rasis and the Nakshatras are both reckoned from the same point, *viz.*, the zero degree of longitude of Mesha (Aries), *i.e.*, the initial point of Mesha* (See Chap. II) is the first point of Aswini.

5. The Planetary System.—The planetary system otherwise known as the solar system,

* See Varaha Mihira's Brihat Jataka—English translation by Prof. B. Suryanarain Rao, B.A., M.R.A.S.

headed by the most glorious Sun—the *Jagat-chakshu*—consists of seven important planets (including the Sun himself). All the planets, save the central luminary, are held by the gravitation of the Sun and they all revolve round him, the period of revolution varying with reference to each planet. Along with these are included Rahu and Kethu—considered as *Aprakashaka grahas* or shadowy planets; and moreover their importance does not seem to have been stressed upon by writers on Mathematical Astrology, for they partake of the characteristics of the signs which they occupy, whilst later writers on Judicial Astrology, invariably recognise their influences in the analysis of a horoscope.

Saturn is the most distant planet from the earth; Jupiter, Mars, the Sun, Venus, Mercury and the Moon, come next in the order of their distance.*

6. Rotation and Revolution.—These planetary orbs, which the ancients recognised as having powerful influences on the terrestrial phenomena, perform the double function of not only rotating on their own axis (*Brahmana*) from west to east, but also revolving round the Sun (*Bhagana*). The latter is comprehended in the astronomical nomenclature as the orbital

* See *Suryasiddhanta*.

revolution of the earth and the planets, which for the sake of simplicity, we have preferred to call as revolution.

7. Velocities of Planets.—Each planet has its own rate of motion or velocity depending upon its nearness to or distance from the earth. For instance, the Moon is our nearest planet and consequently she has a very swift motion. She travels round the zodiac once in 30 lunar days ; whereas, Saturn who is the most distant from us, has got the slowest motion and accordingly performs one revolution round the ecliptic once in thirty years. The planets do not maintain a uniform rate of movement, for various causes. The following are the approximate periods taken by each planet to make a circuit round the zodiac.

The Sun moves at the rate of roughly one degree a day or $365\frac{1}{4}$ days for one complete revolution. The Moon takes 27 days 7 hours and odd for a similar circuit. Mars takes 18 months for one revolution. Mercury requires a similar period as the Sun but his closeness to the Sun makes Mercury rather unsteady with the result that he often takes 27 days to pass through one sign. Jupiter requires roughly twelve years for a circuit. Venus has more or less the same velocity as the Sun. And Saturn moves for thirty months in a sign. Rahu and Kethu take

18 months each in a sign or 18 years for a complete revolution. All the planets have *savya* or direct motion, while Rahu and Kethu have *Apasavya* gathi, i.e., they move from east to west.

THE VELOCITIES OF PLANETS.

| | | Degree | Minute | Second | Para | Paratpara | Tatpara |
|---------------|---------|----------------|--------|--------|------|-----------|---------|
| Sun | per day | 0 | 59 | 8 | 10 | 10 | 24 |
| Moon | .. | 13 | 10 | 34 | 52 | 3 | 49 |
| Mars | .. | 0 | 31 | 26 | 28 | 11 | 9 |
| Mercury | .. | 1 | 5 | 32 | 20 | 41 | 51 |
| Jupiter | .. | 0 | 4 | 59 | 8 | 48 | 35 |
| Venus | .. | 1 | 36 | 7 | 43 | 37 | 15 |
| Saturn | .. | 0 | 2 | 0 | 22 | 53 | 25 |
| 60 Tatparas | | = 1 Paratpara. | | | | | |
| 60 Paratparas | | = 1 Para. | | | | | |
| 60 Paras | | = 1 Second | | | | | |

The above information is culled out from an ancient astronomical work and the reader is referred to more advanced works on Astronomy for fuller and more detailed information.

8. Retrogression and Acceleration.—

When the distance of any one planet from the Sun exceeds a particular limit, it becomes retrograde, i.e., when the planet goes from perihelion (the point in a planet's orbit nearest to the Sun) to aphelion (the part of a planet's orbit most distant from the Sun) as it recedes from the Sun, it gradually loses the power of the Sun's gravitation and consequently,

to gain it, it retrogrades ; and when the planet comes from aphelion to perihelion, nearer and nearer to the Sun the gravitation of the Sun grows more and more powerful, so that the velocity of the planet is accelerated, *i.e.*, the state of *Athichara* is entered into. All the planets are subject to retrogression and acceleration excepting the Sun and the Moon, let alone the *Aprakashaka grahas*. Hence we find that there is no uniformity in the velocities of planets, that they are different at different parts of the orbits and that the planetary orbits are elliptical. The *vakra*, *athichara*, etc., are caused, according to Surya Siddhanta, by the invisible forces *Seegrochcha*, *Mandochcha*, and *Patha*.

The importance of *vakra*, etc., of planets, so far as it is necessary for astrological purposes will be dealt with in its proper place. Those who wish to soar into the higher regions of astronomy will do well to study such celebrated works as Surya Siddhanta, Panchasiddhantika, etc., of illustrious authors of yore, in whose luminous expositions of this celestial science, the inquiring mind is sure to find much more than what is sought for.

CHAPTER II.

PRELIMINARIES EXPLAINED

9. Rasis and their Extent.—

| | Sign. | Its English equivalent. | Its Symbol. | Its Extent. |
|-----|-----------|-------------------------|-------------|-------------|
| 1. | Mesh | Aries | ♈ | 0° 30° |
| 2. | Vrishabha | Taurus | ♉ | 30 60 |
| 3. | Mithuna | Gemini | ♊ | 60 90 |
| 4. | Kataka | Cancer | ♋ | 90 120 |
| 5. | Simha | Leo | ♌ | 120 150 |
| 6. | = Kanya | Virgo | ♍ | 150 180 |
| 7. | Thula | Libra | ♎ | 180 210 |
| 8. | Vrischika | Scorpio | ♏ | 210 240 |
| 9. | Dhanus | Sagittarius | ♐ | 240 270 |
| 10. | Makara | Capricornus | ♑ | 270 300 |
| 11. | Kumbha | Aquarius | ♒ | 300 330 |
| 12. | Meena | Pisces | ♓ | 330 360 |

10. Nakshatras and their Extent.—

| No. | Rasi. (Sign) | Nakshatra. (Constella- tion) | Pada. (Quarter) | Space on the ecliptic from 0° Aries |
|-----|-----------------|------------------------------------|--------------------|---|
| 1. | Aries | 1. Aswini | 4 | 13° 20' |
| | | 2. Bharani | 4 | 26 40 |
| | | 3. Krithika | 1 | 30 00 |

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| No. | Rasi. (Sign) | Nakshatra. (Constella- tion) | Pada. (Quarter) | Space on the ecliptic from 0° Aries |
|-----|-----------------|------------------------------------|--------------------|---|
| 2. | Taurus | Krithika | 3 | 40° 0' |
| | | 4. Rohini | 4 | 53 20 |
| | | 5. Mrigasira | 2 | 60 0 |
| 3. | Gemini | Mrigasira | 2 | 66 40 |
| | | 6. Aridra | 4 | 80 0 |
| | | 7. Punarvasu | 3 | 90 0 |
| 4. | Cancer | Punarvasu | 1 | 93 20 |
| | | 8. Pushyami | 4 | 106 40 |
| | | 9. Aslesha | 4 | 120 0 |
| 5. | Leo | 10. Makha | 4 | 133 20 |
| | | 11. Pubba | 4 | 146 40 |
| | | 12. Uttara | 1 | 150 0 |
| 6. | Virgo | Uttara | 3 | 163 0 |
| | | 13. Hasta | 4 | 173 20 |
| | | 14. Chitta | 2 | 180 0 |
| 7. | Libra | Chitta | 2 | 186 40 |
| | | 15. Swathi | 4 | 200 0 |
| | | 16. Vishaka | 3 | 210 0 |
| 8. | Scorpio | Vishaka | 1 | 213 20 |
| | | 17. Anuradha | 4 | 226 40 |
| | | 18. Jyesta | 4 | 240 0 |
| 9. | Sagittarius | | | |
| | | 19. Moola | 4 | 253 20 |
| | | 20. Poorvashada | 4 | 266 40 |
| | | 21. Uttarashada | 1 | 270 0 |

| No. | Rasi. (Sign) | Nakshatra. (Constella- tion) | Pada. (Quarter) | Space on the ecliptic from 0° Aries |
|-----|-----------------|------------------------------------|--------------------|---|
| 10. | Capricornus | Uttarashada | 3 | 210° 0' |
| | | 22. Sravana | 4 | 293 20 |
| | | 23. Dhanishta | 2 | 300 0 |
| 11. | Aquarius | Dhanishta | 2 | 306 40 |
| | | 24. Satabhisha | 4 | 320 0 |
| | | 25. Poorva- bhadra | 3 | 330 0 |
| 12. | Pisces. | Poorva- bhadra | 1 | 333 20 |
| | | 26. Uttara- bhadra | 4 | 346 40 |
| | | 27. Revathi | 4 | 360 0 |

The above table may be interpreted thus. It will be seen that there are 27 constellations comprising the 12 signs. For instance, take Aries. You will find that 4 quarters of Aswini ($13^{\circ} 20'$), 4 of Bharani ($13^{\circ} 20'$) and 1 of ($3^{\circ} 20'$) Krithika—on the whole 9 quarters constitute it. Again, the remaining 3 of Krithika (10°), the 4 of Rohini ($13^{\circ} 20'$) and 2 ($6^{\circ} 40'$) of Mrigasira make up Taurus and so on. What use this table will be of, the reader will realise after he has gone through some more pages. For the present suffice it to say that he must be quite familiar with it in order

to understand the information set forth in the subsequent chapters.

Note.—In the characteristics of the signs and planets which I am giving below, such information as has a direct bearing upon and involved in the mathematical calculations, has been included. All other details necessary for predictions, which can be gathered from any astrological work has been scrupulously omitted.

11. **Movable Signs.**—Aries, Cancer, Libra and Capricorn.

12. **Fixed Signs.**—Taurus, Leo, Scorpio and Aquarius.

13. **Common Signs.** — Gemini, Virgo, Sagittarius and Pisces.

14. **Odd Signs.**—Aries, Gemini, Leo, Libra, Sagittarius and Aquarius.

15. **Even Signs.**—Taurus, Cancer, Virgo, Scorpio, Capricorn and Pisces.

16. **Signs of Long Ascension.**—Cancer, Leo, Virgo, Libra, Scorpio and Sagittarius.

17. **Signs of Short Ascension.**—Capricornus, Aquarius, Pisces, Aries, Taurus and Gemini.

18. **Sirodaya Signs.**—(Rising by Head) Gemini, Leo, Virgo, Libra, Scorpio and Aquarius.

19. **Prustodaya Signs.**—(Rising by hinder part) Aries, Taurus, Cancer, Sagittarius and Capricorn.

The Sirodaya signs excepting Gemini are powerful during the day. The Prustodaya signs including Gemini are powerful during the night. The former are also called the Nocturnal signs and the latter the Diurnal signs. Pisces forms a combination of the two and is called Ubhayodaya Rasi.

20. **Quadrants.**—Kendras—1, 4, 7 and 10.

21. **Trines.**—Trikonas—1, 5 and 9.

22. **Succedent Houses.**—Panaparas—2, 5, 8 and 11.

23. **Cadent Houses.**—Apoklimas—3, 6, 9 and 12 (9th being a trikona must be omitted).

24. **Oopachayas.**—3, 6, 10 and 11.

25. **Planetary Ownerships.**—Aries and Scorpio are ruled by Mars; Taurus and Libra by Venus; Gemini and Virgo by Mercury; Cancer by the Moon; Leo by the Sun; Sagittarius and Pisces by Jupiter and Capricorn and Aquarius by Saturn.

25. **Exaltations.**—The Sun has his deep exaltation in the 10th degree of Aries; Moon 3rd of Taurus; Mars 28th of Capricorn; Mercury 15th of Virgo; Jupiter 5th of Cancer; Venus 27th of Pisces and Saturn 20th of Libra.

26. Debilitations.—The 7th house or the 180th degree from the place of exaltation is the place of debilitation or fall. The Sun is debilitated in the 10th degree of Libra, the Moon 3rd of Scorpio and so on.

27. Good and Evil Planets.—Jupiter, Venus, Full Moon and well associated Mercury are good planets and New Moon, badly associated Mercury, the Sun, Saturn and Mars are evil planets. From the 10th bright half of the Lunar month the Moon is full. He is weak from the 10th of the dark half.

28. Sexes.—Jupiter, Mars and the Sun are males: Venus and the Moon are females: and Mercury and Saturn are eunuchs.

29. Moola Thrikonas. — Sun's Moola Thrikona is Leo (0° - 20°); Moon—Taurus (4° - 30°); Mercury—Virgo (16° - 20°); Jupiter—Sagittarius (0° - 13°); Mars—Aries (0° - 18°); Venus—Libra (0° - 10°) and Saturn—Aquarius (0° - 20°).

30. Planetary Relations.—By friendship we mean that the rays of the one planet will be intensified by those of the other, declared as his friend, while the same rays will be counteracted by a planet who is an enemy.

Friendship will be both permanent (*Naisargika*) and temporary (*Tatkalika*). (See my "Potencies of Planets and Bhavas" for Tatkalika friendship).

PERMANENT FRIENDSHIP.

| Planets. (Grahas) | Friends. (Mitras) | Neutrals. (Samas) | Enemies. (Satrus) |
|----------------------|---------------------------|--|------------------------|
| Sun | Moon, Mars Jupiter. | Mercury. | Saturn, Venus. |
| Moon | Sun, Mercury. | Mars, Jupiter, Saturn, Venus. | None. |
| Mars | Jupiter, Moon, Sun. | Saturn, Venus. | Mercury. |
| Mercury.... | Sun, Venus. | Saturn, Mars, Jupiter. | Moon. |
| Jupiter | Sun, Moon, Mars. | Saturn. | Mercury, Venus. |
| Venus | Mercury, Saturn. | Mars, Jupiter. | Moon, Sun. |
| Saturn | Venus, Mercury. | Jupiter. | Mars, Moon, Sun. |

The practical applicability of some of these characteristics of planets and signs will be

made perfectly clear in chapters dealing with the calculation of Shadbalas, Ayurdaya, etc.

31. Karakas.—Each planet is supposed to be the karaka of certain events in life. Many function as producing, rather promoting the incidents ascribed to them.

| Name. | English equivalent. | Symbol. | Karaka of | Promoter of |
|----------|---------------------|---------|-----------|--------------------|
| Surya | Sun | ⊕ | Pitru | Father |
| Chandra | Moon | ⊖ | Matru | Mother |
| Angaraka | Mars | ♂ | Bhratru | Brother |
| Budha | Mercury | ☿ | Karma | Profession |
| Guru | Jupiter | ♃ | Putra | Children |
| Sukra | Venus | ♀ | Kalatra | Wife or Husband |
| Sani | Saturn | ♄ | Ayus | Longevity |
| Rahu | Dragon's Head | ♅ | Mathamaha | Maternal relations |
| Kethu | Dragon's Tail | ♆ | Pithamaha | Paternal relations |

32. Bhavas.—These correspond roughly to the "Houses" of Western Astrology. The most powerful point in a Bhava is its Madhya Bhaga or mid-point whereas the first point is the most powerful in a "Western House." There are twelve Bhavas and each controls rather signifies certain important events and incidents.

| Bhava. | House. | Signification. |
|----------------------|------------------|---|
| (1) Thanubhava | First House | build, body, appearance. |
| (2) Dhanabhava | Second House | family, source of death, prop- erty, vision. |
| (3) Bhratru Bhava | Third House | intelligence, brothers, sisters. |
| (4) Sukha Bhava | Fourth House | vehicles, general happiness, education, mother. |
| (5) Putra Bhava | Fifth House | fame, children. |
| (6) Satru Bhava | Sixth House | debts, diseases, misery, enemies. |
| (7) Kalatra Bhava | Seventh House | wife or husband, death, tact. |
| (8) Ayurbhava | Eighth House | longevity, gifts. |
| (9) Dharma Bhava | Ninth House | god, guru, father, travels, piety. |

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| | Bhava. | House. | Signification. |
|------------|--------|----------------|--|
| (10) Karma | | Tenth House | occupation, karma, philosophical knowledge. |
| | Bhava | Eleventh House | gains. |
| (11) Labha | | Twelfth House | loss, moksha. |
| | Bhava | | |
| (12) Vraya | | | |
| | Bhava | | |

33. The Astrological Measure. — The various sources of strength and weakness of the planets and Bhavas are estimated by certain units or measures. They are Rupas, Virupas and Prarupas. 60 prarupas are equal to 1 Virupa and 60 Virupas make 1 Rupa.

ASTRONOMICAL TERMINOLOGY

34. The Axis and Poles of the Earth. — The axis of the earth is that diameter about which it revolves from west to east with a uniform motion. The poles of the earth are its points where its axis meets its surface and they are the North Pole and the South Pole.

35. The Earth's Equator (Vishavarekha)
 This is an imaginary line running round the earth half way between the two poles. The equator divides the earth into a northern and a southern hemisphere.

36. The Latitude (Akshamsa).—The latitude of a place is its distance North or South of the equator, measured as an angle, on its own terrestrial meridian. It is reckoned in degrees, minutes and seconds from 0° to 90° , northwards or southwards according as the place lies in the northern or southern hemisphere.

37. The Longitude (Rekhamsa).—The longitude of a place is its distance East or West of the meridian of Greenwich (Ujjain according to the Hindus) measured as an angle. It is expressed as so many degrees, minutes and seconds, East or West of Greenwich according to where the place lies. It is also reckoned in time at the rate of 24 hours for 360° or 4 minutes for every degree.

38. The Celestial Equator (Nadivritta).—This is a great circle of the celestial sphere marked out by the indefinite extension of the plane of the terrestrial equator.

39. The Celestial Latitude (Kshepa).—This is the angular distance of a heavenly body from the ecliptic.

40. The Declination (Kranti).—This is the angular distance of a heavenly body from the celestial equator. It is positive or negative according as the celestial object is situated in the northern or southern hemisphere.

CHAPTER III.

THE AYANAMSA

41. The Equinoctial Points.—The celestial equator and the ecliptic intersect each other in two points; because, twice a year the Sun crosses the equator. On these two days the duration of day and night will be equal all the world over. These two points are known as the equinoctial points or the Vernal Equinox and the Autumnal Equinox.

42. Precession of the Equinoxes.—It has been observed and proved mathematically, that each year at the time when the Sun reaches his equinoctial point of Aries 0° when throughout the earth, the day and night are equal in length, the position of the earth in reference to some fixed star is nearly $50\frac{1}{2}''$ of space farther west than the earth was at the same equinoctial moment of the previous year. It is not merely the earth or the solar system, but the entire zodiac that is subjected to this westward motion. This slight increment—retrograde motion of the equinoxes—is known as the Precession of the Equinoxes.

43. Movable and Fixed Zodiacs.—We have seen from the above that the Vernal Equinox

slips backwards from its original position—recognised as the star Revati—by the Hindus. The zodiac which reckons the first degree of Aries from the equinoctial point which has a precession every year is the Movable Zodiac—whilst, in the case of the Fixed Zodiac, the first degree of Aries begins from a particular star in the Revati group of stars which is fixed. The movable zodiac is also termed as the Zodiac of Signs while the fixed zodiac is known as the Zodiac of Constellations, as its signs are almost identical with the constellations bearing the same names.

44. The Sayana and the Nirayana Systems.

The system of astronomy which recognises the movable zodiac belongs to the Sayana school while that which considers the fixed zodiac is termed as the Nirayana system. The Sayana is the one employed by western astrologers for predictive purposes while the Hindu astrologers use the fixed zodiac.

45. The Ayanamsa.—The distance between the Hindu First Point and the Vernal Equinox, measured at an epoch, is known as the Ayanamsa.

46. Varahamihira's Observations.—Even Varahamihira, one of the most celebrated of ancient writers in India, perpetuates and carries on the teachings of his far more ancient predecessors in marking the distinction between the

two zodiacs and referring all the astrological observations to the fixed zodiac. He states, that in his time, the summer solstice coincided with the first degree of Cancer, and the winter solstice with the first degree of Capricorn, whereas at one time the summer solstice coincided with the middle of the Aslesha.

47. Exact date of Coincidence not known. The exact period when both the zodiacs coincided in the first point is not definitely known and accordingly the Ayanamsa—the precessional distance—varies from 19° to 23° . The star which marked the first point seems to have somehow disappeared though some believe that it is 11' east of the star Pisces. A number of dates is given as the year of the coincidence, *viz.*, 361 A.D., 498 A.D., 394 A.D., 397 A.D., 559 A.D., etc.; which to accept, and which to reject, has been a matter of considerable doubt. No definite proof is available in favour of any one of the dates given above. No amount of mere speculation would be of any use, especially in such matters. Some attribute these differences to the supposed errors in Hindu observations. Whatever they may be, it is not our purpose here to enter into any sort of discussion which would be purely of academical interest and absolutely outside our limits. As such without worrying the reader with the technicalities

involved in the discussion a most vital question like that of the Precession of the Equinoxes we shall directly enter into setting below, a simple method for ascertaining the Ayanamsa, which will serve the purpose of any scientific astrologer and which would enable the reader to thoroughly understand and follow the principles described in the following pages.

48. Use of Ayanamsa.—The Indian adepts in the celestial science, realising, that the degrees of the fixed zodiac have a permanent relation with the star-points, and that the movable zodiac does not give us a definite position both for observation and experiment and to arrive at logical conclusions, have been advocating the Nirayana positions of planets for all predictive purposes, which should be arrived at after the necessary calculations are made according to Sayana and then the Ayanamsa subtracted from such positions. For astrological purposes, it would be quite sufficient, if we know how, to determine the Ayanamsa for any particular year. Since the object of this book is not to enter into any discussion about the superiority of this or that system, or the justification of adopting any particular value as the Ayanamsa, but to clearly describe and expound principles necessary for correct computation of a horoscope mathematically, according to the prescribed rules and

determine the various sources of strength and weakness of planets and discover other details that are within the reach of mathematical astrology and thus clear the way for making correct predictions, we do not, propose to lay any further stress on this question of Ayanamsa.

The Longitudes of the Houses (Bhava Sphutas), Rasimanas (Oblique Ascensions) and other important calculations are all computed for Sayana Rasis. From these the Ayanamsa is subtracted and thus the Nirayana Bhavas, etc., are obtained. In other words, every one of the Hindu astrological calculations which is at first based upon the Sayana Rasis, is eventually subjected to Nirayana reduction. All these indicate the absolute necessity for Ayanamsa.

49. Determination of (Approximate) Ayanamsa.—(1) Subtract 397 from the year of birth (A.D.)

(2) Multiply the remainder by $50\frac{1}{3}''$ and reduce the product into degrees, minutes and seconds.

Example 1.—Determine the Ayanamsa for 1912 A.D.

$$1912 - 397 = 1515 \times 50\frac{1}{3}'' = 76,255''$$

$$76,255'' = 21^\circ 10' 55''.$$

Example 2.—Find the Ayanamsa for 1918 A.D.

$$1918 - 397 = 1,521 \times 50\frac{1}{3}'' = 76,557'' = 21^\circ 15' 57''.$$

The slipping back of the movable zodiac in a year is so small that for odd days, we can conveniently neglect it. But the Ayanamsa for the moment can be determined by considering the precession for the odd days also.

CHAPTER IV.

RASIMANAS

50. **Geographic and Geocentric Latitudes.**

The latitudes of places marked in any ordinary atlas are the geographical latitudes. Because they are calculated on the supposition that the earth is a perfect sphere, while on the other hand, the flattened ends at the two poles, make it a spheroid, so that, the latitude measured from the true centre of the spheroid, is the geocentric latitude. For astrological purposes, it would be hardly worthwhile making any distinction whatever between the geocentric and geographic latitude of a place. For instance, the geographic latitude of Bangalore is $12^{\circ} 57'$ and its geocentric $12^{\circ} 52'$. We can adopt the former alone for astrological calculations.

51. **Rasimanas.**—Rasimanas mean the rising periods of the twelve signs of the zodiac. It is impossible to find out the actual Lagna (Ascendant) in a horoscope or the different Bhavas (Houses) or the sunrise and sunset in any place without a knowledge of the Rasimanas, which vary from Akshamsa (latitude) to Akshamsa. It must be noted that the Rasimana is always given Sayana (with precession), that is

to say, the time of oblique ascension is computed for the signs of the movable zodiac. From this is subtracted the Ayanamsa and the appropriate time of oblique ascension and thus is got the Nirayana Rasimana. If the division of the zodiac into 12 signs be taken to commence from the equinoctial point, their rising periods for any particular place will not vary from year to year.

52. **Charakhandas.**—The duration of the signs of the zodiac varies in the different degrees of latitude which can be ascertained by the Charakhandas (ascensional differences) of the particular latitude. Say, for instance, two men are born at the same time, one in Bangalore and the other in Berlin. Their latitudes are different. The rising periods of the signs in Bangalore must be quite different from those in Berlin. The sunrise and sunset in both the places cannot be the same. Therefore the rising periods in the different latitudes must be definitely known before casting a horoscope.

These Charakhandas, (ascensional differences) referred to above, in Indian sidereal time, the unit of which is an Asu (which is the equivalent of four seconds in English sidereal time) are, in accordance with certain definite rules, added to or subtracted from, the time of the Right Ascension (Dhruva) of the various Sayana Rasis, in order to get their

Oblique Ascension (Chara). Since the Chara (period of oblique ascension) and the Dhruva (period of right ascension) are identically the same for the Vishavarekha (equinoctial latitude) the ascensional difference is zero (shunya) for all the places situated on the equator. The ascensional difference is the same, in respect of the same sign, for places situated in the same latitude.

To be more clear, the rising periods on the equator where the Charakhanda is zero—being known, it is possible to calculate the Rasimanas for any latitude, provided, its Charakhandas are also known.

53. Rising Periods on the Equator.—The rising periods of the zodiacal signs reckoned from Sayana Mesha are thus distributed on the equator (0° latitude.) -

| Asus. | | | | |
|--------|--------|------|-------------|-----------|
| Aries | Virgo | 1674 | Libra | Pisces |
| Taurus | Leo | 1725 | Scorpio | Aquarius |
| Gemini | Cancer | 1931 | Sagittarius | Capricorn |

(6 Asus = 1 Vighatika = 24 Seconds.

60 Vighatikas = 1 Ghatika = 24 Minutes).

The above means that it takes for Aries, Virgo, Libra and Pisces, 1674 Asus or 4 Gh. 39 Vig. to rise at the eastern horizon on the equator and so on.

54. Determination of Rasimanas.—From or to the rising periods on the equator, the

Charakhandas of the required place from Aries to Gemini and from Capricorn to Pisces are subtractive* and from Cancer to Virgo and from Libra to Sagittarius are additive. That is, in the case of from Aries to Gemini and from Capricorn to Pisces, subtract the Charakhandas and from Cancer to Virgo and from Libra to Sagittarius add the Charakhandas of the required place and the rising periods of signs there, are obtained. These must be applied to any one of four triads as given above, into which the zodiacal signs are divided—commencing always from the Sayana Mesha, i.e., the first 30° from the equinoctial point.

The following examples will clear the meaning.

Example 3.—Find the Rasimanas at 13° N. Lat. whose Charakhandas are 162, 130 and 53 Asus respectively.

| Signs. | Rising periods at 0° Lat. (in Asus.) | Chara- khandas on 13° N. Lat. | Times of oblique ascension at 13° N. Lat. (in Asus) | | Times of oblique ascension at 13° N. Lat. (in Ghatis) | |
|-----------|--|--|---|-------|---|-----------------|
| | | | Gh. | Vig. | Gh. | Vig. |
| 1. Aries | ... | 1,674 — | 162 | 1,512 | 4 | 12 |
| 2. Taurus | ... | 1,795 — | 130 | 1,665 | 4 | $37\frac{1}{2}$ |
| 3. Gemini | ... | 1,931 — | 53 | 1,878 | 5 | 13 |
| 4. Cancer | ... | 1,931 + | 53 | 1,984 | 5 | $30\frac{2}{3}$ |
| 5. Leo | ... | 1,795 + | 130 | 1,925 | 5 | $20\frac{2}{3}$ |
| 6. Virgo | ... | 1,674 + | 162 | 1,836 | 5 | 6 |
| 7. Libra | ... | 1,674 + | 162 | 1,836 | 5 | 6 |

* In North Latitudes.

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| Signs. | Rising periods at 0° Lat. (in Asus) | Chara- khandas on 13° N. Lat. | Times of oblique ascension at 13° N. Lat. (in Asus) | Times of oblique ascension at 13° N. Lat. (in Ghatis) | Gh. | Vig. |
|-------------------|--|---|--|--|-----|------|
| 8. Scorpio ... | 1,795 + 130 | | 1,925 | 5 20 $\frac{1}{2}$ | | |
| 9. Sagittarius .. | 1,931 + 53 | | 1,984 | 5 30 $\frac{3}{4}$ | | |
| 10. Capricorn ... | 1,931 — 53 | | 1,878 | 5 13 | | |
| 11. Aquarius ... | 1,795 — 130 | | 1,665 | 4 37 $\frac{1}{2}$ | | |
| 12. Pisces ... | 1,674 — 162 | | 1,512 | 4 12 | | |
| | 21,600 | | 21,600 | 60 0 | | |

*Example 4.—Find the Rasimanas at 51° 32' * N. Lat. whose Charakhandas are 921, 737 and 307 respectively.*

| Signs. | Rising periods at 0° Lat. (in Asus.) | Chara- khandas at 51° 32' N. Lat. | Times of oblique ascension at 51° 32' N. Lat. (in Asus.) | Times of oblique ascension at 51° 32' N. Lat. (in Ghatis) | Gh. | Vig. |
|------------------|---|---|---|--|-----|------|
| 1. Aries ... | 1,674 — 921 | | 753 | 2 5 $\frac{1}{2}$ | | |
| 2. Taurus ... | 1,795 — 737 | | 1,058 | 2 56 $\frac{1}{4}$ | | |
| 3. Gemini ... | 1,931 — 307 | | 1,624 | 4 30 $\frac{3}{4}$ | | |
| 4. Cancer ... | 1,931 + 307 | | 2,238 | 6 13 | | |
| 5. Leo ... | 1,795 + 737 | | 2,532 | 7 2 | | |
| 6. Virgo ... | 1,674 + 921 | | 2,595 | 7 12 $\frac{1}{2}$ | | |
| 7. Libra ... | 1,674 + 921 | | 2,595 | 7 12 $\frac{1}{2}$ | | |
| 8. Scorpio ... | 1,795 + 737 | | 2,532 | 7 2 | | |
| 9. Sagittarius | 1,931 + 307 | | 2,238 | 6 13 | | |
| 10. Capricorn | 1,931 — 307 | | 1,624 | 4 30 $\frac{3}{4}$ | | |
| 11. Aquarius ... | 1,795 — 737 | | 1,058 | 2 56 $\frac{1}{4}$ | | |
| 12. Pisces ... | 1,674 — 921 | | 753 | 2 5 $\frac{1}{2}$ | | |
| | 21,600 | | 21,600 | 60 0 | | |

* The Charakhandas for 52° are considered.

(See Table I for Charakhandas for latitudes 1° to 60° .)

55. Duration of Signs in South Latitudes.

The additive and subtractive Charakhandas of North Latitudes, become subtractive and additive respectively, in case of South Latitudes. For e.g. add 162 to 1,674 instead of subtracting, and the duration of Aries on 13° S. latitude is obtained. It is to be noted that signs of short ascension in N. Latitudes are signs of long ascension in S. latitudes.

CHAPTER V.

SUNRISE AND SUNSET

56. Apparent Time of Rising and Setting of the Sun.—The exact moment when the Sun first appears at the eastern horizon of a place is the time of sunrise there. Since the Sun has a definite diameter, the interval between the moment of the appearance of the first ray at the horizon, and the moment at which the Sun is just clear off the horizon, is some 5 or 6 minutes. If this is so, which represents the exact moment of sunrise? It has been acknowledged that it is the moment at which the centre of the solar disc rises at the eastern horizon, that marks the sunrise at the particular place. It must also be noted that on account of the refraction of the solar rays, due to the various strata enveloping the earth, the Sun is not really at the horizon where he appears to be so but is really below the horizon by about a few minutes of arc (Rekha). But we can take the apparent time as almost correct and need not worry ourselves with the so called delicate correct time of rising.

57. Apparent Noon.—This is marked when the centre of the Sun is exactly on the

meridian of the place. The apparent noon is almost the same for all places.

58. **Ahas and Ratri.**—Ahas is the duration of the day, *i.e.*, the duration of time, from sunrise to sunset, and Ratri, is the duration of time, from sunset to sunrise. On the equator, the Ahas and Ratri are always 30 ghatis or 12 hours each, while in other latitudes, the sum of Ahas and Ratri will be 24 hours, whereas the interval between sunrise and sunset and *vice versa*, varies, this variation depending upon the declination of the Sun and the latitude of the place.

The duration of *Ratri* in a place expressed in arc corresponds to the Sun's nocturnal arc and that of the day to his diurnal arc. If we knew either of these arcs, we could find out sunrise and sunset.

In dealing with the question of the Precession of the Equinoxes, we have called attention to the fact that on the days when the Sun occupies the equinoctial points, *i.e.*, twice a year, he is visible for 12 hours at all places and invisible for a similar period. On these two days the declination (kranti) of the Sun is zero.

During his northerly course, when he will have a north declination, the duration of days is longer than that of nights, *i.e.*, he is visible for longer periods in north latitudes, while the

reverse holds good for south latitudes. During his southerly course, when he will have a south declination, the duration of days is longer than that of nights in south latitudes, and the reverse holds good for north latitudes.

59. Hindu Method of Determination of Sunrise and of Sunset.—First of all note the latitude of the place for which sunrise and sunset are to be determined and then its charakandas. Find out the position of Nirayana Sun* at approximate sunrise on that day. This can be done from any local reliable almanac. (See Chapter VII for determining longitudes of planets).

To this add Ayanamsa and the Sayana Ravi at sunrise is obtained: or the position of the Sayana Sun can be obtained by means of any modern ephemeris in which the positions of planets are to be found for Greenwich Mean Noon. By converting the approximate time (local) of sunrise to Greenwich mean time, the position of Sayana Surya—for sunrise can be found out. (See Chapter VI for Conversion of Time). Then find out the Bhuja (distance from the nearest equinoctial point) as follows:—

If the Sayana longitude of the Sun be less than 90° (i.e., the first three signs) it

* The solar date marked in the Hindu almanacs may be roughly taken as representing Sun's Nirayana longitude at sunrise on the particular day.

itself represents the Sun's Bhuja ; if it is more than 90° and less than 180° , subtract it from 180° and the result is Bhuja ; if it is more than 180° and less than 270° (*i.e.*, more than 6 signs and less than 9 signs) *subtract* 180° from the Sun's sayana longitude, the result represents Bhuja ; and if the sayana longitude of the Sun is more than 270° and less than 360° (more than 9 signs and less than 12 signs) subtract it from 360° and the result is Bhuja of the Sun.

If the Sun's sayana longitude is—Bhuja is

- (1) between 0° 90° Sun's sayana long itself.
- (2) " 90° 180° 180° —Sun's sayana long.
- (3) • " 180° 270° Sun's sayana long— 180°
- (4) " 270° 360° 360° —Sun's sayana long.

The Charakhandas given in three numbers are called the Adi (first), Madhya (middle) and Anthya (last) Charakhandas. The Adicharakhanda itself will be the first khanda ; this *plus* the madhya, the second khanda ; and the sum of the three (Charakhandas), the third khanda.

Now divide the Bhuja (if it is more than 30°) by 30. The quotient represents the khanda. Keep the remainder as it is and then apply the rule :—

As 30 degrees : the remainder :: the Charakhanda (Madhya, if Bhuja is more than 30° and less than 60° and Anthya if it is more than 60° and less than 90°) : the required quantity.

This required quantity must be added to the equivalent of the khanda represented by the quotient obtained by dividing the Bhuja by 30. The result is *chara*.

If the Bhuja is less than 30° then apply the rule :—

As 30 degrees : the degree (represented by Bhuja) ::
the Adicharakhanda : the required quantity.

Then the required quantity itself will be *chara*.

If the Sayana Sun is in Uttara (north) Gola (hemisphere), i.e., from Aries to Virgo, add *chara* to 15 ghatis (6 hours). If he is in the Southern Gola (from Libra to Pisces) subtract this from 15 ghatis. The result is *Dinardha* (half diurnal duration). Twice this is the length of day. This deducted from 60 ghatis (24 hours) gives the length of night. Convert *Dinardha* into hours, etc., and add and subtract this figure to and from 12 noon. The apparent time of sunset and of sunrise respectively of the place are obtained.

Example 5.—Find the length of day and of night and the apparent time of sunrise and of sunset at a place on 13° N. Lat. and 5 h. 10 m. 20 s. E. Long. on 16th October (1918 A.D.).

| | (First) | (Middle) | (Last) |
|------------------|------------|--------------|------------------------------|
| | Adi. | Madhya | Anthya |
| Charakhandas ... | 162 | 130 | and 53 (In Asus), or |
| | 27 (27) | 21.7 (22) | and 8.8 (In vighatis) (9) |

| | I. | II. | III. |
|---|-----|--------------------|---------------------------|
| $\therefore \text{Khandas} = 27$ | 49 | and | 58 |
| Nirayana Sun at approximate sunrise (6 A.M.) | | | |
| Ayanamsa | = | ... | <u>21 15 57</u> |
| $\therefore \text{Sayana Sun} =$ | ... | <u>200° 3' 57"</u> | |
| | = | $200^{\circ} 4'$ | = Libra $20^{\circ} 4'$. |

Since the Sayana longitude of the Sun is between 180° — 270° , apply Rule 3 to find out the Bhuja.

Rule 3.—Sun's Sayana long.— 180° = Bhaja.

$$200^{\circ} 4' - 180^{\circ} = 20^{\circ} 4'$$

Since in the above Bhaja, viz., $20^{\circ} 4'$ is less than 30° , apply the following rule to get Chara—

As 30 degrees : the degrees represented by Bhaja :: Adicharakhanda : the required quantity = x .

$\therefore 30 : 20^{\circ} 4' :: 27 = \text{the required quantity} = x$.

$$\therefore x = \frac{20^{\circ} 4'}{30} \times 27 = 18\frac{2}{5} = 18 \text{ vighatis.}$$

$\therefore x = 18 \text{ vighatis} = \text{Chara itself.}$

\because Sayana Sun is in Dakshina Gola (between Libra and Pisces)

\therefore Dinardha = Gh. (15-0)—Gh. (0-18)
(Half diurnal duration)
= Gh. 14.42.

\therefore Length of day = Gh. 14.42 \times 2 = Gh. 29.24.

\therefore Length of night = Gh. 60—Gh. (29.24) =
Gh. 30.36.

Dinardha = Gh. 14.42; in hours = 5 h. 52 m. 48 s.

12 noon—5 h. 52 m. 48 s. = 6 h. 7 m. 12 s.

\therefore Apparent time of Sunrise = 6 h. 7 m. 12 s. A.M.

12 noon + 5 h. 52 m. 48 s. = 5 h. 52 m. 48 s.
(P.M.) sunset.

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Example 6.—Find the length of day and of night and apparent time of sunset and of sunrise at 36° N. Lat. on 7th January 1932.

Charakhandas = 522° 6' 418° 08' and 174° 18' (In Asus.)
 = 87 70 and 29 (In vighatis.)

| | I. | II. | III. | |
|----------------|----|-----------|------------|----------|
| ∴ Khandas = | 87 | 157 | 186 | |
| | S. | D. | M. | S. |
| Nirayana Sun = | 8 | 22 | 30 | 0 |
| Ayanamsa = | 0 | 21 | 27 | 31 |
| ∴ Sayana Sun = | 9 | 13 | 57 | 31 |
| | | = 13° 58' | Capricorn. | |
| | S. | D. | M. | |
| | 12 | 0 | 0 | |
| Sayana Sun = | 9 | 13 | 58 | |
| | 2 | 16 | 2 | = Bhuja |
| | | | | = 76° 2' |

Divide Bhuja by 30 = $\frac{76^{\circ} 2'}{30}$ = Khanda 2
 and remainder $16^{\circ} 2'$.

As $30 : 16^{\circ} 2' :: 29 : \text{the required quantity} = x$.

$$\therefore x = \frac{16^{\circ} 2'}{30} \times 29 = 15^{\circ} 48' \text{ vighatis} = 16 \text{ vighatis.}$$

16 Vig. + 157 (Khanda II) = 173 Vig. = Chara.

Gh. 15—Vig. 173 = Gh. 12-7 = Dinardha.

∴ Gh. 24-14 = length of day.

∴ Gh. 35-46 = length of night.

12 noon—4 h. 50 m. 48 s. = 7 h. 9 m. 12 s. (A.M.) sunrise
 (Apparent time) = 7 h. 9 m. A.M.

12 noon + 4 h. 50 m. 48 s. = 4 h. 50 m. 48 s. (P.M.)
 sunset (Apparent time)

I have given above the Hindu method of finding out the apparent time of sunrise and of sunset. Some say, that this method is riddled with certain errors. I have spoken sufficiently about the supposed errors that have crept into Hindu calculations in the Introduction to this book. I shall also give below, the modern method of the calculation of sunrise and of sunset and the reader can adopt whichever he prefers. I shall apply this method to the examples worked out for the Hindu method so that the results in both the cases may be compared. Those who want to adopt the Hindu method may do so: and those who are in a position to work out problems in trigonometry may employ the modern method.

60. Modern Method of Determination of Apparent Time of Sunrise and of Sunset.—* First convert the local approximate time of sunset (or sunrise) into Greenwich Mean Time (see next Chapter) for which ascertain Sun's declination from the Ephemeris. Note down the latitude of the place and apply the following formula.

$$\begin{aligned} \text{Log. Tan. Dec. of Sun} + \text{Log. Tan. Lat. of place} \\ = \text{Log. Sin. Ascensional Difference.} \end{aligned}$$

Subtract ascensional difference from 90° if Dec. is South and add Asc. difference to 90° if Dec. is North.

(The reverse holds good for places in south latitudes).

* There is a slight difference between the results obtained according to Hindu and modern methods which may be safely overlooked for astrological purposes.

Convert the resulting degrees into hours, minutes, etc., at $15^\circ = 1$ hour. The result is local apparent time of setting. This subtracted from 12 hours gives local apparent time of sunrise.

Example 7.—Find the apparent time of sunrise and of sunset at a place on 13° N. Lat. and 5 h. 10 m. 20 s.

E. Long. on 16th October 1918.

Approximate time of sunset=6 P.M.

This converted to G.M.T. H. M. S.

(Greenwich Mean Time) = 12 49 40 (P.M.)

The difference between Greenwich Mean Noon and G. M. T. is only 49 m. 40 seconds. Therefore, we may take the declination of the Sun at G. M. N. on 16th October. The declination may be determined for 12 h. 49 m. 40 s. or 12-50 P.M. by considering Sun's motion (in dec.) in 24 hours and thus his proportional motion for 50 m.

Decn. on October 16th at (G.M.N.) = $8^\circ 41'$ S.

$$\therefore \text{Log. Tan. } 8^\circ 41' + \text{Log. Tan. } 13^\circ = \text{Log. Sin. Asc. Diff.}^*$$

$$= 9.1839 + 9.3634 = 8.5473 = \text{Sin. } 2^\circ \text{ (roughly)}$$

$$\therefore \text{Log. Sin. Asc. Difference} = \text{Log. Sin. } 2^\circ$$

$$\therefore \text{Asc. difference} = 2^\circ$$

\because Declination is South : subtract this from 90°

$$\therefore 90^\circ - 2^\circ = 88^\circ$$

$88^\circ 0' = 5$ h. 52 m. (P.M.)=Local apparent time of setting.

$\therefore 12$ h. — 5 h. 52 m.=6 h. 8 m. = 6 h. 8 m. (A.M.)= Local apparent time of rising.

*Seven figure logarithmic tables may be consulted for greater accuracy.

Example 8.—Find the apparent time of sunrise and of sunset on 7th January 1932 at a place whose latitude is 36° N. and Long. 90° E.

Approximate time of sunset=6 P.M.

This converted into G.M.T.=12 noon.

Since G.M.T. corresponding to 6 P.M. has become the same as Greenwich Mean Noon, we may take the declination of the Sun at G.M.T. on 7th January.

\therefore Sun's Declination at 12 noon (G.M.T.) or at the sunset at the required place= $22^{\circ} 30'$ S.

$$\therefore \text{Log. Tan. } 22^{\circ} 30' + \text{Log. Tan. } 36^{\circ} = \text{Log. Sin. Asc. Diff.}$$

$$= 9.6172 + 9.8613 - 19.4785 = 9.4785 = \text{Log. Sin. } 17^{\circ} 31'$$

$$\therefore \text{Log. Sin. Asc. Difference} = \text{Log. Sin. } 17^{\circ} 31'$$

$$\therefore \text{Asc. Difference} = 17^{\circ} 31'$$

\because Dec. is S. subtract this from 90°

$$\therefore 90^{\circ} - 17^{\circ} 31' = 72^{\circ} 29'$$

$72^{\circ} 29' = 4 \text{ h. } 49 \text{ m. } 56 \text{ s.} =$ Local apparent time of setting=4 h. 49 m. 56 s. (P.M.)

$\therefore 12 \text{ h.} - 4 \text{ h. } 49 \text{ m. } 56 \text{ s.} = 7 \text{ h. } 10 \text{ m. } 4 \text{ s.} =$ Local apparent time of rising. (A.M.)

61. Equation of Time.—This is the difference between Mean Time and Apparent Time. We obtain by the above methods the apparent time of sunrise. For this must be applied the equation of time in order to get the mean time, i.e.

- Equation of Time=Mean Time—Apparent Time at any moment.
(vice versa if A.T. is > M.T.)

The equation of time at a moment is positive or negative according as the apparent time is less or greater than Mean Time.

62. Method of the Determination of Equation of Time to get Mean Time from Apparent Time.—From any ephemeris find the Sidereal Time and the longitude (sayana) of the Sun for the G. M. N. or the G. M. T. corresponding to the approximate time of sunrise or sunset at the required place, on the required date. Find the Sidereal Time at which this particular degree (of Sun's sayana longitude referred to above) is on the cusp of the tenth-house of Greenwich or any place. This will give the Right ascension expressed in time of the Sun ; or we shall call this, for the sake of convenience, the Sun Time. Take the difference between the Sidereal Time and the Sun Time, and this represents the Equation of Time.*

If the Sun Time is less than the Sidereal Time, the Equation of Time must be subtracted from the Apparent Time (of sunrise or of sunset) in order to obtain the Local Mean Time of rising or of setting). If the Sidereal Time is less than Sun Time, add the Equation of Time for obtaining the Local Mean Time.

Example 9.—Find the Equation of Time on 16th

* It will do if the Equation of Time is found out for G.M.N.

October 1912, as applied to apparent time at sunrise,
at Bangalore.

Approximate time of sunrise = 6 A.M.

= 12 h. 49 m. 40 s. (A.M.) G.M.T.

Sayana Longitude of Sun at G.M.N.

On October 15, was = $21^{\circ} 45' 46''$ Libra

On October 16th. = $22^{\circ} 45' 19''$

Sun's Sayana Long. at 49 m.

40 s. A.M. (G.M.T.) on 16th

October = $22^{\circ} 17' 56''$

When 22° Libra is on the Cusp

of the tenth-house Sidereal H. M. S.

Time = 13 21 20

When 23° Libra is on the cusp

of the tenth-house Sidereal H. M. S.

Time = 13 25 6

\therefore When $22^{\circ} 17' 56''$ Libra is on

the cusp of the tenth-house

the Sidereal Time = 13 22 28

H. M. S.

\therefore Sun Time = 13 22 28

Sidereal Time at (G.M.T.) 13 36 10

\therefore Equation of Time at = -0 13 m. 42 s.

sunrise in the above given place, on October 16, i.e.,

at 12.50 A.M. (G.M.T.) October 16 was = 14 m.

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Approximate time of sunrise=6 A.M.=12 midnight
(G.M.T.)

Sayana Longitude of Sun at G.M.N.

on 7th January = $15^{\circ} 50' 36''$ Capricorn

\therefore Sayana Longitude of Sun
at G.M.T. = $15^{\circ} 29' 1''$

When 15° Capricorn is on the cusp H. M. S.
of the tenth-house, Sidereal Time = 19 5 8

When 16° Capricorn is on the cusp
of the tenth-house, Sidereal Time = 19 9 26

\therefore When $15^{\circ} 29' 1''$ —Sidereal time = 19 7 13

\therefore Sun Time = 19 7 13

Sidereal Time (G.M.T.) = 19 0 48

\therefore Equation of Time at sunrise in
the above given place on 7th
January, i.e., at 12 A.M. (G.M.T.)

| | |
|-----------------|----------|
| 7th January was | + 0 6 25 |
| | + 6 m. |

This must be added to the Apparent Time of sunrise
in order to get the Mean Time of sunrise. We
add this because Sun Time is greater than Side-
real Time.

63. Mean Time of Sunrise and of Sunset.

Add or subtract the Equation of Time to or
from the apparent time (of sunrise or of sunset),
the respective Mean Time is obtained. The
Equation of Time is positive, (i.e., must be
added to the apparent time) if the Sun Time
(See Article 55) is greater than Sidereal Time
and it is negative, (i.e., must be subtracted from
the apparent time) if the Sun Time is less than
Sidereal Time.

Example 11.—Find the Mean Time of sunrise on October 16th, 1918 A.D. at a place on 13° N. Lat. and 5 h. 10 m. and 20 s. E. Long.

| | H. M. |
|---|------------------|
| The apparent time of sunrise was | 6 8 A.M. (Ex. 7) |
| The Equation of Time (as applied to apparent time at sunrise) was—0 14 (Table III) | |
| ∴ the Mean Time of sunrise on October 16th was | 5 54 A.M. |

Example 12.—Find the Mean Time of sunrise on 7th January 1932 at a place on 36° N. Lat. and 6 hours E. Long.

| | H. M. |
|---|-------------------|
| The apparent time of sunrise was | 7 10 A.M. (Ex. 8) |
| The Equation of Time (as applied to apparent time of sunrise) was | + 0 6 (Table III) |
| ∴ the Mean Time of sunrise there on 7th January was | 7 16 A.M. |

64. Easy Method for Finding the Mean Time of Sunrise and of Sunset.—I have elaborately discussed in the above pages, the method of calculating the Apparent Time of sunrise and of sunset for any place on any day, with suitable examples according to both the Hindu and Modern systems and the determination of Equation of Time (as applied to the apparent time of sunrise or of sunset) in order to obtain the Mean Time (of local sunrise or of sunset) I leave it to the discretion of the reader to choose the method he best prefers.

Those who are not familiar with the method of consulting the trigonometrical and Logarithmic Tables, a knowledge of which is essential for applying modern methods are requested to adopt the following rules:—

1. Calculate the Apparent Time of sunrise and of sunset according to the Hindu method (as given in Article 59).
 2. Then instead of working out the problem for ascertaining the Equation of Time, the reader may conveniently find out the Equation of Time by referring to Table III, given at the end of the book.
 3. Then apply this Equation of Time to get the Mean Time of sunrise and of sunset by adopting the rules contained in Article 63.
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CHAPTER VI.

MEASURE AND CONVERSION OF TIME

65. **Hindu Chronology.**—The division of time is peculiar to the Hindus. It begins with a Tatpara and ends in a Kalpa (equal to 4,320,000,000 Sidereal years). The Hindu day (an apparent solar day) begins from sunrise and ends with the next sunrise. The division of time is thus—

| | | |
|-------------|---|-----------|
| 60 Tatparas | = | 1 Para |
| 60 Paras | = | 1 Vilipta |
| 60 Viliptas | = | 1 Liphtha |
| 60 Lipthas | = | 1 Vighati |
| 60 Vighatis | = | 1 Ghati |
| 60 Ghatis | = | 1 Day. |

I shall also introduce to the reader the three kinds of days now in vogue, though it is not worthwhile wasting any time over remembering them.

(a) **Sidereal Day.**—This is equal to 23 h. and 56 m. of Mean Solar Time. This is known as *Nakshatra Dina* among the Hindus and this is the time the fixed stars take to come round the Pole once.

(b) **Apparent Solar Day.**—This is known as the Savana Dina. This is longer than the Sidereal day by about four minutes.

(c) **Mean Solar Day.**—This is reckoned by considering the average length of all the days in a year.

Two kinds of months are generally in vogue among the Hindus, viz., Chandramana and Souramana. The Chandramana is based upon the movements of the Moon in the celestial circle. The Solar month is the time, the Sun takes to move in one sign. The month varies in duration according to the number of days the Sun takes to move in a sign. When the Sun enters into the new sign during the course of the lunation, the month is intercalary (Adhika Masa) and is baptised by the name of that which precedes or succeeds it with some prefix to distinguish it from the regular month.

The Hindus have a Solar rather Sidereal year, which is their astronomical year, and a Lunar year which is their civil year.

The lengths of the various years are as follows according to modern calculations:—

| | D. | H. | M. | S. |
|----------------------|---------|----|----|----|
| The Tropical year | ... 365 | 5 | 48 | 46 |
| The Sidereal year | ... 365 | 6 | 9 | 9 |
| The Anomalistic year | ... 365 | 6 | 13 | 48 |

66. **Local Mean Time.**—The local mean time of birth is very essential for the calculation of the horoscope. When the Sun is crossing the meridian of any place, it is twelve o'clock or midday at that place according to "Local Time". It is noon of local time on any day when the Sun reaches its highest point in the day. It is to be specially noted that the time shown by clocks and watches at any particular day is hardly the correct local mean time. Such times are subject to rectification by observing the course of events in one's life. Great care should be taken to see that watches and clocks, from which birth-times are recorded are accurate. Therefore, the first thing is to ascertain the correct local mean time of birth. The local mean time of a place depends upon its longitude, evidently terrestrial. In all Hindu astrological calculations the meridian of Ujjain was being taken when reckoning time or longitude, but now Greenwich is taken as the centre for such purposes. The local time of a place (L.M.T.) say 4 degrees east of Greenwich, will be 16 minutes later than Greenwich Mean Time (G.M.T.). In other words, if it is 12 noon at Greenwich, it will be 12 h. 4 m. (P.M.) in a place 1° E. to it, 11,56 A.M. in a place 1° W. to it and so on.

To reduce longitude into time, simply divide the number of degrees, minutes, etc., by

15 and the quotient will be the time. For instance, the longitude of Bangalore is $77^{\circ} 35'$ East of Greenwich. Dividing this by 15 we get 5 h. 10 m. 20 s. The place being East of Greenwich, it will be 5 h. 10 m. 20 s. (P.M.) at Bangalore—(otherwise termed as L.M.T.) when it is 12 noon at Greenwich or 8 h. 10 m. 20 s. (P.M.) when it is 3 P.M. at Greenwich and so on.

The local mean time can be obtained by adding to or subtracting from the Greenwich Mean Time, four minutes to every degree of longitude, according as the place is East or West of Greenwich.

The L.M.T. always synchronises with the G.M.T.

$$\text{L.M.T.} = \text{G.M.T.} \pm \frac{\text{Longitude}}{15^{\circ}}$$

- + if the place is East of Greenwich.
- if the place is West of Greenwich.

Example 13.—What is the L.M.T. of a place at Long. 78° West when it is 12 noon at Greenwich?

$$\text{L.M.T.} = 12 \text{ noon} - \frac{78^{\circ}}{15^{\circ}} = 12 \text{ noon} - 5 \text{ h.} 12 \text{ m.}$$

$$= 6 \text{ h.} 48 \text{ m. (A.M.)}$$

(—because place is West of Greenwich).

67. Standard Time.—It is usual to choose for each country, or for each part of a large country, a standard time for use over the whole country. This standard time, as a rule, is the local time of some most important town in the

country. If the birth is recorded in L.M.T. well and good; otherwise, the Standard Time of the country must be converted into the Local Mean Time. The time when Standard Times were introduced into different countries must be ascertained (See Table IV). In India Standard Time was introduced on 1-7-1905 and it is about 5 h. and 30 m. past (in advance) of Greenwich Mean Time. Before this, probably the Sun Dial Time was in existence, in which case, this can be converted into L.M.T. by applying the Equation of Time (as applied to sun dial time). For births that have occurred after 1-7-1905, if the time is recorded in Standard Time, it must be converted into L.M.T. Generally our clocks show Standard Time. For instance, Bangalore is 5 h. 10 m. 20 s. East of Greenwich; when it is noon at Greenwich the L.M.T. at Bangalore is 5 h. 10 m. 20 s. (P.M.) whilst the clock at this time shows 5 h. 30 m. P.M. (Standard Time).

L.M.T. = Standard Time \pm Difference between local
and standard longitudes
(expressed in time)

$+$ if local longitude is $>$ Std. Long.

$-$ if local longitude is $<$ „

68. The Standard Horoscope.—In order to illustrate the various principles described in this book, we shall consider the nativity of a female born on 16th October 1918 A.D.; at 2 h.

20 m. P.M. (Indian Standard Time) at a place on 13° N. Lat. and $77^{\circ} 35'$ E. Long. This horoscope will henceforth be termed as the Standard Horoscope.

Example 14.—Find the Local Mean Time, of birth in the Standard Horoscope, the Standard Long. being $82^{\circ} 30'$ E. of Greenwich. (5 h. 30 m. Fast of G.M.T.)

| | | |
|--------------------|---|------------------|
| Standard Longitude | = | $82^{\circ} 30'$ |
| Local Longitude | = | $77^{\circ} 35'$ |

Difference between St. Long.

and Local Long. = $4^{\circ} 55'$

$4^{\circ} 55' = 19$ m. 40 s. in time.

∴ Local Longitude is < Standard Longitude, this time must be subtracted from the Standard Time.

∴ L.M.T. = 2h. 20m. - 19m. 40s. = 2h. 0 m. 20 s. (P.M.)
= 2 P.M.

∴ L.M.T. of Birth = 2 P.M.

69. Suryodayadi Jananakala Ghatikaha.—

It is customary among the Hindus to mention the time of birth as "Suryodayadi Jananakala Ghatikaha", i.e., the number of ghatis passed from sunrise up to the moment of birth. First ascertain the local mean time of birth and of sunrise and then apply the following rule. (24 seconds=1 vighati; 24 minutes=1 ghati; 1 hour= $2\frac{1}{2}$ ghatis.)

(Birth Time — Sunrise) $\times 2\frac{1}{2}$ = Suryodayadi Janana-kala Ghatikaha.

Example 15.—Find the Suryodayadi Jananakala Ghatikaha in the Standard Horoscope?

Sunrise (L.M.T.) = 5.54 A.M. on 16th October.

Birth Time (L.M.T.) = 2 P.M.

$$\therefore (2 \text{ P.M.} - 5 \text{ h. } 54 \text{ m.}) \times 2\frac{1}{2} = \text{Gh. } 20-15.$$

\therefore Suryodayadi Jananakala Ghatikaha.

(Number of ghatis passed from

$$\text{sunrise up to birth) ...} \quad = \text{Gh. } 20-15$$

Example 16.—Miss N. Born on 3-5-1932 at 5.45 A.M. (L.M.T.) Lat. 13° N. and $75^{\circ} 0'$ E. Long. Find Suryodayadi Jananakala Ghatikaha.

Sunrise (L.M.T.) = 5 h. 42 m. (A.M.)

Birth Time (L.M.T.) = 5 h. 45 m. (A.M.)

$$\therefore 5 \text{ h. } 45 \text{ m. (A.M.)} - 5 \text{ h. } 42 \text{ m. (A.M.)} \times 2\frac{1}{2} = \text{Gh. } 0-7\frac{1}{2}$$

$$= \text{Gh. } 0-8.$$

Suryodayadi Jananakala Ghatikaha = Vighatis 8 only.



CHAPTER VII

GRAHA SPHUTAS

(PLANETARY LONGITUDES)

70. **Hindu Almanac.**—It requires a considerable amount of familiarity with the advanced portions of astronomical principles, in order to find out the longitudes of planets independently, *i.e.*, without reference to any almanac. As such I have reserved discretion to expound those principles in a separate book, and for the present, simply describe the method commonly adopted by all astrological students and adepts. Any reliable almanac will serve our purpose. There are still a few standard *Panchangas* (almanacs) which can be trusted for astrological purposes.

71. **Method of Making Graha Sphutas.**—If the panchanga is available for the place of birth then no trouble of conversion of time is involved; otherwise, birth time must be converted into local time of the place, for which the almanac is calculated, in order to find out the planetary positions.

Find out the date of the birth in the almanac and note down all the details given for

that day. If no planets are marked on the day of birth, then trace back and find out the position of the planet on the date, nearest to that of birth. It will be found that the planet's position will have been marked in Nakshatras (Constellations) and Padas (Quarters), with time of entry in ghatis into the particular Pada. Find out the time at which the same planet enters the next quarter of the constellation. Mark the interval in ghatis between the entry of the planet into these two quarters. Mark also the interval between the first entry and the birth time and proceed as follows :—

Formula (a) For all Planets.

$$\frac{\text{The interval between the first entry and birth}}{\text{The interval between the two entries}} \times 3\frac{1}{2}$$

= The number of degrees traversed in that particular quarter.

Formula (b) For the Moon.

$$\frac{\text{The interval between entry into the 1st degree of the sign and birth}}{\text{Time taken for traversing the sign}} \times 30^{\circ}$$

Add this to the number of degrees the planet has passed, up to the first entry. Its Nirayana longitude is obtained.

Example 17.—Find the Nirayana Longitudes of planets in the Standard Horoscope?

The Almanac for 1918 gives the following information :
 13-10-1918. Sun enters 2nd of Chitta at 51-54 Ghatis.
 17-10-1918. " 3rd " , at 12-10 "

Therefore the period taken by the Sun to pass through one pada or $3\frac{1}{2}$ degrees of the celestial arc is:—

| | Gh. | Vig. | |
|--------------|-----|------|--|
| 13th October | 8 | 6 | (Subtract the time of entry from 60, the duration of a day). |

| | | | |
|------|---|----|----|
| 14th | „ | 60 | 0 |
| 15th | „ | 60 | 0 |
| 16th | „ | 60 | 0 |
| 17th | „ | 12 | 10 |

Total Gh. 200 16 or 12,016 vighatis.

Time elapsed from the entry of the Sun into the 2nd of Chitta (which is nearest to the birth) up to the moment of birth:—

| | Gh. | Vig. | |
|--------------|-----|------|-----------------|
| 13th October | 8 | 6 | |
| 14th | „ | 60 | 0 |
| 15th | „ | 60 | 0 |
| 16th | „ | 20 | 15 (Birth Time) |

Total Gh. 148 21 or 8,901 vighatis.

Applying formula (a) :—

$$\frac{8901}{12016} \times 3\frac{1}{2}^\circ = 2^\circ 28' 9''$$

This distance, the Sun has passed in the second pada or quarter of Chitta. We know that the last three quarters of Uttara, the four of Hasta and the first two of Chitta constitute Kanya (Virgo). Up to the second of Chitta, the number of quarters passed in Virgo is:—

| | |
|--------|---|
| Uttara | 3 |
| Hasta | 4 |
| Chitta | 1 |

8 Padas or $\frac{10}{3}$ x 8 = 26° 40'.

This added to the number of degrees passed in the second of Chitta, viz., $2^{\circ} 28' 9''$ gives his true Nirayana Longitude as $29^{\circ} 8' 9''$ or $29^{\circ} 8'$ in Virgo = $179^{\circ} 8'$ from the first degree of Aries.

THE MOON

| | | Gh. Vig. |
|----------------------|----------------------------|-------------------------------------|
| 14-10-1918 | : Duration of Sravana | = 59 21 |
| ∴ Dhanista lasts for | | 0 39 (Subtracting 59-21 from 60) |
| 15-10-1918 | Do | 57 14 |
| | ∴ Duration of Dhanista | 57 53 |
| 15-10-1918 | Satabhisha lasts for | 2 46 (Subtracting 57-14 from 60) |
| 16-10-1918 | Do do | 54 19 |
| | ∴ Duration of Satabhisha | 57 5 |
| 16-10-1918 | Poorvabhadra lasts for | 5 41 (Subtracting 54-19 from 60) |
| 17-10-1918 | Do | 50 48 |
| | ∴ Duration of Poorvabhadra | 56 29 |

Aquarius is made up of : last two quarters of Dhanista plus Satabhisha plus first 3 of Poorvabhadra.

$$\begin{aligned}
 &= \frac{1}{2}(57-53) + (57-5) + \frac{3}{4}(56-29) \\
 &= \text{Gh. } 128-23.
 \end{aligned}$$

i.e., *The Moon takes Gh. 128-23 to travel through the sign of Aquarius*—

The interval between the Moon's entry into the first degree of Aquarius and birth time is found as follows :—

$$\begin{aligned}
 &\frac{1}{2}(57-53) + (23-1) = \text{Gh. } 51-57\frac{1}{2} \\
 &= 51-57
 \end{aligned}$$

Applying Formula (b)

$$= \frac{\text{Gh. } 51-57}{\text{Gh. } 128-23} \times 30^\circ = 12^\circ 8' 22'' \text{ in Aquarius.}$$

Mo \tilde{n} 's Nirayana Position is $12^\circ 8' 22''$ in Aquarius,
i.e., $312^\circ 8' 22'' = 312^\circ 8'$ from the first
degree of Aries.

72. Nirayana Longitudes of Planets.—
The Longitudes of other planets, similarly found out, are reproduced below for ready reference.

| Graha (Planet) | Sphatika (Longitude) |
|-------------------|----------------------|
| Sun | $179^\circ 8'$ |
| Moon ¹ | 312 8 |
| Mars | 229 49 |
| Mercury | 180 33 |
| Jupiter | 83 35 |
| Venus | 170 4 |
| Saturn | 124 51 |
| Rahu | 233 23 |
| Kethu | 53 23 |

CHAPTER VIII.

LAGNA SPHUTA

(THE ASCENDANT)

73. **Lagna or Ascendant**.—Lagna or the ascendant is that point of the ecliptic, which is at any time on the eastern horizon, and is expressed in signs, degrees, etc., of Stellar Aries.

74. **Solar Months**.—The earth is egg-shaped and rotates once in a day on its axis from west to east, and thus, all the zodiacal signs are invariably exposed to the solar influence. The twelve solar months are named after the twelve zodiacal signs. On the first day of Aries the first degree of that particular sign is at the eastern horizon, and the remaining signs are gradually exposed till the next day when at the sunrise, the second degree of Aries will be at the eastern horizon. The sunrise takes place on the last degree of the Zodiac on the 30th day of Pisces when the solar year closes, i.e., the Lagna is that particular place or point, which is on the eastern horizon at any particular time. The sunrise determines the Udaya Lagna and the degree and the sign in which the Sun rises, will be the Ascendant at that moment.

75. Determination of Lagna.—First find out the true Nirayana position of the Sun and add the Ayanamsa to it so that the Sun's Sayana Longitude is obtained. Ascertain the sign of the ecliptic the Sun is in, the degrees he has traversed in it, and those he has yet to pass through. The number of degrees he has gained are the Bhukthamsas, and those to cover, the Bhogyamsas. Now from the *Rasimanas* of the place, find out the *Bhogya Kala*, i.e., the time required to pass through the Bhogyamsas, thus:

Formula (a)

$$\frac{\text{Period of rising sign where the Sayana Sun is}}{30^\circ} \times \text{Bhogyamsas} = \text{Bhogya Time.}$$

Now from the *Ishta Kala* (the time for which the Lagna is to be found) subtract the Bhogya time and from the remainder subtract the periods of rising of the next successive signs as long as you can. Then at last you will find the sign, the rising period of which being greater than the remainder, you will not be able to subtract and which is consequently called the Ashuddha sign and its rising period the Ashuddha rising. It is evident that the Ashuddha sign is of course on the horizon at the given time. The degrees of the Ashuddha sign which are above the horizon, are the passed degrees and hence called the Bhuktha—are thus found.—

Formula (b)

| | |
|------------------------------------|---|
| 30° | The remainder of given time. |
| Rising period of the Ashuddha sign | = Passed degrees of the Ashuddha sign. |

Add to these passed degrees thus determined, the preceding signs reckoned from the first point of Aries and from the total subtract, the Ayanamsa. The remainder represents the Lagna from the Stellar Aries.

Example 18.—Find the Lagna in the Standard Horoscope.

| | | | | |
|-------------------------------|-----|------|-----|----|
| Nirayana Sun | ... | 178° | 49' | 0" |
| Ayanamsa | ... | 21 | 15 | 57 |
| Ishta Kala, i.e., Suryodayadi | | | | |
| Jananakala Ghatikaha | Gh. | 20 | 15 | |

| | | | | |
|---------------------------|-----|------|-----|-----|
| Nirayana Long. of the Sun | ... | 178° | 49' | 0" |
| Ayanamsa | ... | 21° | 15' | 57" |
| • | | | | |

| | | | | |
|-------------------------|-----|------|----|-----|
| Sayana Long. of the Sun | ... | 200° | 4' | 57" |
|-------------------------|-----|------|----|-----|

i.e., the Sayana Sun is in Libra 20° 5'

∴ Bhukthamsas = 20° 5' in Libra.

∴ Bhogyaamsas = 9° 55' "

$$\therefore \text{Bhogya Time} = \frac{\text{Gh. } 5\frac{1}{6}}{30} \times 9^{\circ} 55' = \text{Gh. } 1\frac{41}{36}$$

i.e., the Sun has to traverse in Libra for Gh. $1\frac{41}{36}$

| | | |
|-------------|-----|------|
| Scorpio | ... | 5-20 |
| Sagittarius | ... | 5-30 |
| Capricorn | ... | 5-13 |

| | | | | |
|--|---|----|----|-------------------------|
| Ishta Kala | = | 20 | 15 | Gh. 17-45 $\frac{1}{6}$ |
| | | | | Gh. Vig. |
| Ghatis passed till the end of Capricorn | = | 17 | 45 | <hr/> |
| | | | | <hr/> |

Bhuktha period in the Ashuddha
sign, viz., Aquarius. Gh. 2 30

The Bhukthamsas corresponding to the above Bhuktha time—

$$\text{Applying } \frac{30}{\text{Gh. } 4-37\frac{1}{2}} \times \text{Gh. } 2-30 = 16^\circ 12' 58'' \\ (\text{Aquarius}).$$

$$\therefore \begin{array}{l} \text{The Sayana Lagna} = 16^\circ 12' 58'' \\ \text{Less Ayanamsa} \quad \quad \quad 21 \quad 15 \quad 57 \end{array}$$

$$\therefore \begin{array}{l} \text{The true Lagna} \quad \quad \quad 24 \quad 57' \quad 1'' \\ \text{or} \quad \quad \quad 24^\circ 57' \end{array}$$

The Lagna of Standard Horoscope is $24^\circ 57'$, Makara or Capricornus or

Converting this into degrees, $294^\circ 57'$ from the first point of Stellar Aries.

Now adding 180° to this, viz., the Udaya Lagna, the Asta Lagna (Descendant) is obtained.

76. Rasi Kundali.—This is the Zodiacal Diagram representing a picture of the heavens at the time of birth. The diagram given below is the one generally in vogue in South India.

| | | | |
|---------------------|------------------------|------------------------|-----------------------|
| \times | γ | \S Kethu | Π Jupiter |
| Ξ Moon | | | Θ |
| Λ Ascdt. | MAP OF THE HEAVENS | | Ω Saturn |
| \sharp | η Mars Rahu | \clubsuit Mercury | π Venus Sun |

CHAPTER IX.

DASAMA BHAVA SPHUTA (TENTH HOUSE OR THE MID-HEAVEN)

77. **The Dasama Bhava**.—This is also known as the Madhya Lagna. It is on the correct determination of this that rests the entire fabric of the horoscope. In fact, all the other Bhavas (Houses) are very easily arrived at, after the longitude of the Dasama Bhava has been definitely ascertained. In the astronomical language, the Madhya Lagna may be described, as the culminating point of the ecliptic on the meridian. Astrologically speaking, the Dasama Bhava plays a very important part in the profession, rather the means of livelihood of a person—otherwise known as *Karma*.

78. **Rasi Chakra**.—A broad distinction must be maintained between the Rasi Chakra (see Art. 76) and the Bhava Chakra (see Art. 81) so that the reader does not mistake the one for the other. The Rasi Chakra is simply a figure of the Fixed Zodiac with the limits and occupants of its 12 signs as well as Lagna clearly marked. Each sign is just one-twelfth part of the zodiac made up of 30 ecliptic degrees.

79. Erroneous Conception of Bhava Chakra.

The conception prevalent amongst some astrologers, that after the Lagna Sphuta has been made, the other Bhavas can be easily determined, by assuming, that the influence of Lagna extends 15° on either side and then commence the succeeding and the preceding Bhavas, is erroneous, wholly unscientific and equally misleading : for, by doing so, we will be ignoring completely the importance of the variation of the influence with regard to each degree and minute of terrestrial latitude and longitude, let alone other things of more serious importance. In other words, the Rasi Chakra is passed off for the Bhava Chakra and accordingly the predictions made.

The reader is now aware of the definition of the Rasi Chakra and from what follows on the definition of the Bhava Chakra, he will realise the blunder, one would commit, if he took the former for the latter and the consequences that would inevitably follow.

80. Bhaskara's Definition.— Bhaskaracharya, describes a Bhava Chakra thus. "The point where the ecliptic cuts the horizon in the East is known as the Rising Lagna, and the point where the ecliptic cuts the horizon in the West is known as the Setting Lagna and the points where the meridian of the place cuts the

ecliptic are known as the Zenith Lagna and the Nadir Lagna."

81. **Bhava Chakra.**—This is an unequal marking of the ecliptic into twelve divisions (Houses) with reference to the latitude of the place and the moment of birth. (See next Chapter for the definition of a House). The Bhava Sphutam involves elaborate processes such as the determination of the limits—cusps of the various *Bhavas* (Houses)—comprehended as *Bhava Sandhis* and other details connected with them, which evidently form the subject matter of the succeeding chapter.

82. **Method of Determination of the Mid-heaven.**—The interval between the midday and the time of the day indicated by the position of the Sun is termed as *Natha*, i.e., the meridian-distance. This *Natha* may be either *Prag*, i.e., eastern or *Paschad*, i.e., western. It is *Prag* between midnight and midday and *Paschad* between midday and midnight. The *Prag Natha* comprehends two conditions: *viz.*,

- (1) the distance between the Sun and the Meridian when the birth occurs after sunrise; and
- (2) the distance between the Meridian and the Sun when the birth occurs before sunrise, i.e., when the Sun is still below the eastern horizon:

Similarly the Paschad Natha also includes two cases, *viz.*,

- (1) the distance between the Meridian and the Sun if the birth happens within sunset and
- (2) the distance between the Meridian and the Sun after he has set. Natha when subtracted from 30 ghati gives Unnatha.

Here it must be noted that Meridian refers to apparent noon and the Sun refers to the birth time.

After clearly understanding the meaning and significance of the words Natha and Unnatha, ascertain, if the birth has fallen in Pragnatha or Paschadnatha : In Pragnatha,

- (a) If the birth has occurred after sunrise, deduct the birth time from *Dinardha* (half-diurnal duration).
- (b) If it has occurred before sunrise add *Dinardha* to the ghati elapsed from the birth time up to sunrise.

The result in both the cases is Pragnatha, i.e., Pragnatha is indicated by the time elapsed between birth-moment and local apparent noon. In Paschadnatha,

- (a) If the birth has taken place in the afternoon and before sunset, deduct *Dinardha* from the birth time (in ghati).

(b) If the birth has occurred after sunset, add Dinardha to the interval between sunset and birth moment ; the duration of paschadnatha is obtained.

The above observations may be summarised thus :—

Rule 1.—When Birth is between Midnight and Midday.

(a) Dinardha — Suryodayadi Jananakala Ghatikaha = Pragnatha Period.

(b) Dinardha + interval between birth and sunrise = Pragnatha Period.

Rule 2.—When Birth is between Midday and Midnight.

(a) Suryodayadi Jananakala Ghatikaha—Dinardha = Paschadnatha Period.

(b) Dinardha + interval between sunset and birth = Paschadnatha Period.

Rule 3.—30 Ghatis — Natha = Unnatha.

Example 19.—Find the nature of the Natha and its duration in the Standard Horoscope.

It comes under "birth between midday and midnight" and Rule 2 (a) can be applied to it as the birth has occurred after midday and before sunset.

Dinardha (Half diurnal duration) = Gh. 14 vig. 42
Birth Time = Gh. 20 vig. 15.

∴ Gh. 20 vig. 15 — Gh. 14 vig. 42 = Gh. 5 vig. 33.

∴ Nature of Natha = Paschad.

Its duration = Gh. 5-33*.

Natha is simply the interval between the Mean Time of Apparent Noon and Mean Time of Birth. In this case the interval is, L.M.T. of Birth (2 P.M.)—M.T. of Apparent Noon (11-46 A.M.)=2 h. 14 m.=Gh. 5-33. The difference of 2 vighatis is due to the difference in the time of sunrise between Hindu and modern methods, which may be safely rejected for astrological purposes.

Example 20.—What is the Unnatha period in a case in which pragnatha = 17 Ghatis.

Applying Rule 3, we get

$$\text{Gh. } 30 - \text{Gh. } 17 = \text{Gh. } 13 = \text{Period of Unnatha.}$$

From the position of the Sayana Sun and reckoning the rising periods on the equator, find out the arc (in the reverse order) that corresponds to the Natha period. Add this to or subtract from Sayana Ravi according as the Natha is Paschad or Prag. The result diminished by Ayanamsa, gives Nirayana Madhya Lagna.

Example 21.—Deduce Nirayana Madhya Lagna in the Standard Horoscope.

$$\text{Paschadnatha} = \text{Gh. } 5-33 \text{ (Ex. 19)}$$

$$\text{Sayana Sun} = 200^\circ 24'$$

$$\text{The rising period of } 20^\circ 24'$$

$$\text{Libra at the equator} = \frac{20^\circ 24'}{30} \times \text{Gh. } 4-39 = \text{Gh. } 3-9\frac{1}{2}$$

or 3-10

Reckoning in the reverse direction, we find that Gh. 3 vig. 10 are passed in Libra.

In Virgo have passed, Natha — Gh. 3 vig. 10 or Gh. 5 vig. 33 — Gh. 3 vig. 10 = Gh. 2-23.

∴ Arc corresponding to Gh. 2 vig. 23 Virgo (on the

$$\text{Equator}) = \frac{\text{Gh. } 2 \text{ vig. } 23}{\text{Gh. } 4 \text{ vig. } 39} \times 30^\circ = 15^\circ 22' 34\frac{1}{2}''$$

$= 15^\circ 22' 35''$

∴ The distance between the Sun and the meridian is

$$\begin{array}{rcl} \text{Libra} & \dots & 20^\circ 24' \\ \text{Virgo} & \dots & 15^\circ 22' 35'' \end{array}$$

$$\begin{array}{rcl} \text{Meridian distance} & 35^\circ 46' 35'' \end{array}$$

Since the Natha is Paschad, add this to Sayana Sun.

| | | | | |
|--|-----|---------------|-----|-----|
| Sayana Sun | ... | 200° | 24' | |
| Meridian distance | ... | 35 | 46 | 35" |
| | | <hr/> | | |
| . . . Sayana Madhya Lagna | | 236° | 10' | 36" |
| Less Ayanamsa | ... | 21 | 15 | 46 |
| | | <hr/> | | |
| . . . Nirayana Madhya Lagna | | 214° | 54' | 49" |
| | = | 214° | 55' | |
| . . . The Mid-heaven or Madhya Lagna = | | 214° | 55' | |
| | = | Scorpio | 4 | 55 |

In other words, this is the Longitude of the Bhava
Madhya or the middle point of the Tenth-house.

CHAPTER X.

BHAVA SPHUTA

(LONGITUDES OF HOUSES)

83. **Bhava or House.**—According to the Hindus a Bhava means one-third of the arc of the ecliptic intercepted between any two adjacent angles, *viz.*, the Udaya Lagna (Eastern Horizon), the Patala Lagna (The Lower meridian), the Asta Lagna (Western Horizon), and the Madhya Lagna (Upper Meridian).

84. **Bhava Madhyas.**—The points of trisection of the ecliptic arcs referred to above are the *Bhava Madhyas* or the mid-points of the Bhavas.

85. **Kendra Bhavas.**—These are the four angular houses in a horoscope, *viz.*, the Udaya Lagna, the Pathala Lagna, the Asta Lagna and the Madhya Lagna, (Article 83) and they are considered very important astrologically.

86. **Determination of Kendra Bhavas.**—The preceding two chapters deal exhaustively with the method of determining the Ascendant and the Mid-heaven—two of the Kendra Bhavas. The Asta Lagna (Descendant or

Western Horizon) and the Pathala or Rasathala Lagna (Lower Meridian) are determined thus:—

Rule 1.—Udaya Lagna (Ascendant or East Horizon) + 180° = Asta Lagna (Descendant or West Horizon.)

Rule 2.—Madhya Lagna + 180° = Rasathala Lagna.
(Upper Meridian) + 180° = (Lower Meridian).

Example 22.—Determine the Longitudes of the Asta Lagna and Pathala Lagna in the Standard Horoscope?

$$\text{Udaya Lagna} = 294^\circ 57'$$

$$\text{Madhya Lagna} = 214^\circ 55'$$

(Applying Rule 1)

$$\therefore 294^\circ 57' + 180^\circ = 114^\circ 57' \text{ (Expunge } 360^\circ\text{)}$$

(Applying Rule 2)

$$\therefore 214^\circ 55' + 180^\circ = 34^\circ 55' \text{ (Expunge } 360^\circ\text{)}$$

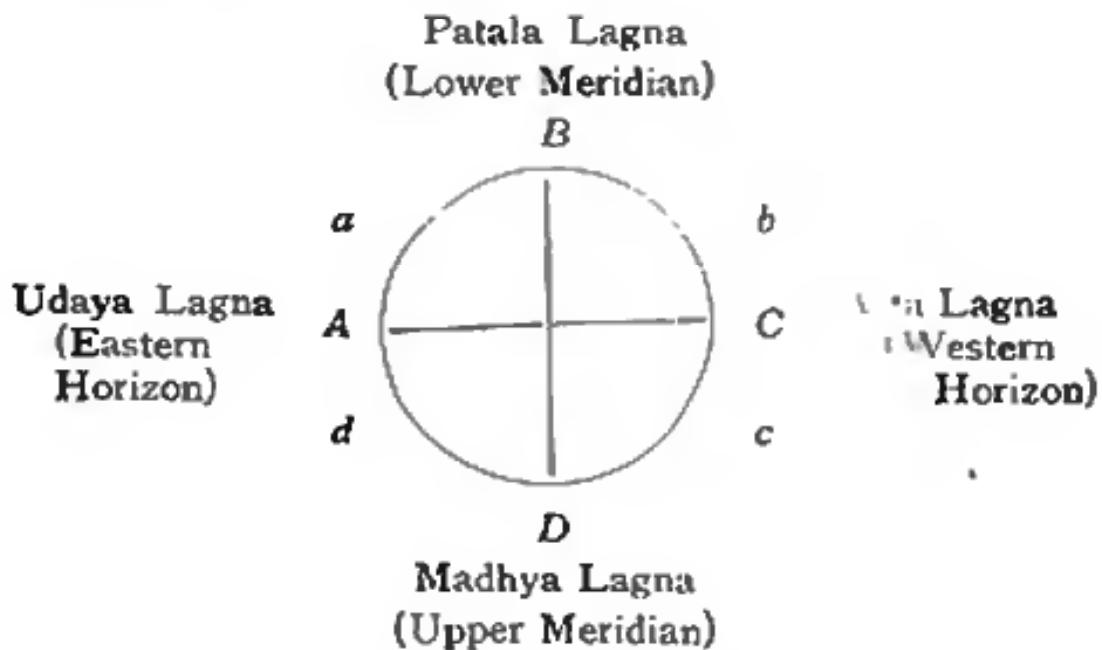
$$\therefore \text{Asta Lagna} = 114^\circ 57'$$

$$\text{Pathala Lagna} = 34^\circ 55'$$

87. Non-Angular Houses.—These are the houses between the angular ones. For instance angular houses are the I (Eastern Horizon)—IV (Lower Meridian)—VII (Western Horizon)—and X (Upper Meridian). The rest, viz., II, III, V, VI, VIII, IX, XI and XII are the Non-angular houses otherwise known as the Panapara Bhavas (Succedent Houses), and the Apoklima Bhavas (Cadent Houses)—see Articles 22 and 23. The Madhyas of these bhavas are the points of trisection referred to above (Articles 83 and 84).

88. Determination of Bhava Madhyas of Non-angular Houses.—There are four angles in a Bhava Chakra. First ascertain—rather determine the ecliptic arcs between these four angles,

viz., (a) the arc between the Eastern Horizon and the Lower Meridian; (b) between the Lower Meridian and the Western Horizon; (c) between the Western Horizon and the Upper Meridian; (d) and between the Upper Meridian and the Eastern Horizon.



A, B, C, D. = Angular Houses.

a, b, c, d. = Ecliptic arcs.

Trisect each arc: for instance, trisect arc *a*. The result is $\frac{1}{3}a = a/3$. Add this to the Longitude of the Bhava Madhya of the Udaya Lagna and that of the II Bhava (Madhya) is obtained. To the Longitude of the II Bhava add $a/3$; that of the III is obtained. Again trisect arc *b*. The result would be $b/3$; add $b/3$ to the Longitude of the Lower Meridian; that of the V Bhava is obtained. Similarly deal with the other arcs for obtaining the Madhyas of the rest of the Bhavas. The four arcs may thus be determined.

Arc a = Longitude of Lower Meridian — Long. of Eastern Horizon.

Arc b = Long. of Western Horizon — Long. of Lower Meridian.

Arc c = Long. of Upper Meridian — Long. of West. Horizon.

Arc d = Long. East Horizon — Long. of Upper Meridian.

Example 23.—Determine the ecliptic arcs between the four angles in the Standard Horoscope?

$$\text{Arc } a = 34^\circ 55' - 294^\circ 57' = 99^\circ 58'$$

$$\text{Arc } b = 114^\circ 57' - 34^\circ 55' = 80^\circ 2'$$

$$\text{Arc } c = 214^\circ 55' - 114^\circ 57' = 99^\circ 58'$$

$$\text{Arc } d = 294^\circ 57' - 214^\circ 55' = 80^\circ 2'$$

$$*a = 99^\circ 58'$$

$$\therefore b = 80^\circ 2'$$

$$c = 99^\circ 58'$$

$$d = 80^\circ 2'$$

Example 24.—Find the Bhava-Madhyas of the Non-angular Houses in the Standard Horoscope?

Long. of the Udaya Lagna = $294^\circ 57'$

$$\text{Arc } a^* = 99^\circ 58'.$$

∴ Trisecting Arc a we get

$$\frac{a}{3} = \frac{99^\circ 58'}{3} = 33^\circ 19\frac{1}{3}'$$

$$\therefore 294^\circ 57' + 33^\circ 19\frac{1}{3}' = 328^\circ 16\frac{2}{3}' = \text{II Bhava}$$

$$328^\circ 16\frac{2}{3}' + 33^\circ 19\frac{1}{3}' = 361^\circ 35\frac{2}{3}' = \text{III Bhava}$$

Long. of Lower Meridian = $34^\circ 55'$

$$\text{Arc } b = 80^\circ 2'$$

∴ Trisecting Arc b , we get

$$\frac{b}{3} = \frac{80^\circ 2'}{3} = 26^\circ 40\frac{2}{3}'$$

$$\therefore 34^\circ 55' + 26^\circ 40\frac{2}{3}' = 61^\circ 35\frac{2}{3}' = \text{V Bhava.}$$

$$61^\circ 35\frac{2}{3}' + 26^\circ 40\frac{2}{3}' = 88^\circ 16\frac{2}{3}' = \text{VI Bhava.}$$

* Note—Arc $a = c$ and arc $b = d$.

Long. of Western Horizon = $114^{\circ} 57'$
Arc c = $99^{\circ} 58'$
 $\therefore c/3 = 33^{\circ} 19\frac{1}{3}'$
 $\therefore 114^{\circ} 57' + 33^{\circ} 19\frac{1}{3}' = 148^{\circ} 16\frac{1}{3}' = \text{VIII Bhava}$
 $148^{\circ} 16\frac{1}{3}' + 33^{\circ} 19\frac{1}{3}' = 181^{\circ} 35\frac{2}{3}' = \text{IX Bhava}$
Long. of Upper Meridian = $214^{\circ} 55'$
Arc d = $80^{\circ} 2'$
 $\therefore d/3 = 26^{\circ} 40\frac{2}{3}'$
 $\therefore 214^{\circ} 57' + 26^{\circ} 40\frac{2}{3}' = 241^{\circ} 35\frac{2}{3}' = \text{XI Bhava}$
 $241^{\circ} 35\frac{2}{3}' + 26^{\circ} 40\frac{2}{3}' = 268^{\circ} 16\frac{1}{3}' = \text{XII Bhava}$

Example 25.—Mark the Bhava Sphutas in the Standard Horoscope?

| | Bhava (House) | Spashta (Longitude) |
|------|----------------------------|------------------------|
| I | Lagna or the Thanu Bhava = | $294^{\circ} 57' 0''$ |
| II | " Dhana " = | $328^{\circ} 16' 20''$ |
| III | " Bhrathru " = | $1^{\circ} 35' 40''$ |
| IV | " Matru " = | $34^{\circ} 55' 0''$ |
| V | " Putra " = | $61^{\circ} 35' 40''$ |
| VI | " Satru " = | $88^{\circ} 16' 20''$ |
| VII | " Kalatra " = | $114^{\circ} 57' 0''$ |
| VIII | " Ayur " = | $148^{\circ} 16' 20''$ |
| IX | " Dharma " = | $181^{\circ} 35' 40''$ |
| X | " Karma " = | $214^{\circ} 55' 0''$ |
| XI | " Labha " = | $241^{\circ} 35' 40''$ |
| XII | " Vraya " = | $268^{\circ} 16' 20''$ |

89. Bhava Sandhis.—These are the junctional points of the two consecutive Bhavas. The potency of the Bhava will be at its full in the Bhavamadhyas and hence, it must begin somewhere and end somewhere. The influence of a planet will gradually rise when approaching Bhavamadhyas, while it gradually diminishes from Bhavamadhyas till it is practically nil at the Bhava Sandhi. The place or the point

where the influence of the Bhava begins is the Arambha-sandhi and the place where it stops is the Virama-sandhi. The arambha-sandhi may be termed as the first point of the house, and the virama-sandhi, the last point. For instance the arambha-sandhi of the 1st Bhava will be the end-point of the 12th Bhava. Similarly the virama-sandhi of the first Bhava will be the end-point of the Lagna and the arambha-sandhi of the second house and so on. In other words the Sandhi of a Bhava represents the beginning of the influence of one Bhava and the termination of the influence of the Bhava preceding it.

In order to know the exact amount of the influence that a planet exercises, as a result of its position in a particular Bhava, it becomes necessary to determine the Sandhis of the various Bhavas.

90. Determination of Bhava Sandhis.—
Add the longitudes of two consecutive Bhavas and divide the sum by 2. The result represents sandhi. For instance, in the Standard Horoscope adding the longitudes of first and second Bhavas and dividing the sum by 2, we get:—

$$\begin{array}{r}
 294^\circ 57' 0'' + 328^\circ 16' 20'' \\
 \hline
 & 2 \\
 = & \frac{623^\circ 13' 20''}{2} = 311^\circ 36' 40''
 \end{array}$$

i.e., Aquarius 11° 36' 40" is the sandhi-joint

between the I and II Houses; or the Viramasandhi of the I Bhava is $311^{\circ} 36' 40''$ and the Arambha-sandhi of the II Bhava is $311^{\circ} 36' 40''$. It will be sufficient if Sandhis of 6 Bhavas are determined as those of the rest could be obtained by adding 180° to each of them.

Example 26.—Find the Longitudes of the Arambha-sandhis of the twelve Bhavas in the Standard Horoscope ?

| | Arambha-sandhi |
|-----|--|
| I | $(268^{\circ} 16' 20'' + 294^{\circ} 57' 0'') \div 2 = 281^{\circ} 36' 40''$ |
| II | $(294 57 0 + 328 16 20) \div 2 = 311 36 40$ |
| III | $(328 16 20 + 1 35 40) \div 2 = 344 56 0$ |
| IV | $(1 35 40 + 34 55 0) \div 2 = 18 15 20$ |
| V | $(34 55 0 + 61 35 40) \div 2 = 48 15 20$ |
| VI | $(61 35 40 + 88 16 20) \div 2 = 74 56 0$ |

The arambha, madhya and anthya of the Bhavas are thus situated :—

| Bhava. | Arambha. | Madhya. | Anthya. |
|--------|------------------------|-----------------------|------------------------|
| I | $281^{\circ} 36' 40''$ | $294^{\circ} 57' 0''$ | $311^{\circ} 36' 40''$ |
| II | $311 36 40$ | $328 16 20$ | $344 56 0$ |
| III | $344 56 0$ | $1 35 40$ | $18 15 20$ |
| IV | $18 15 20$ | $34 55 0$ | $48 15 20$ |
| V | $48 15 20$ | $61 35 40$ | $74 56 0$ |
| VI | $74 56 0$ | $88 16 20$ | $101 36 40$ |
| VII | $101 36 40$ | $144 57 0$ | $131 36 40$ |
| VIII | $131 36 40$ | $148 16 20$ | $164 56 0$ |
| IX | $164 56 0$ | $181 35 40$ | $198 15 20$ |
| X | $198 15 20$ | $214 55 0$ | $228 15 20$ |
| XI | $228 15 20$ | $241 35 40$ | $254 56 0$ |
| XII | $254 56 0$ | $268 16 20$ | $281 36 40$ |

91. Poorva and Uttara Bhagas of

Bhavas.—The poorva bhaga is that part of the Bhava which first rises and the uttara bhaga is

the part that next rises. They can be thus determined:—

Rule 1.—Poorva Bhaga of a Bhava = Long. of the Bhava
Madhya — Long. of the Arambha-sandhi.

Rule 2.—Uttara Bhaga = Long. of Virama-sandhi—Long.
of the Bhava Madhya.

Rule 3.—Length of each Bhava = Length of Purva
Bhaga + Length of Uttara Bhaga.

Example 27.—Find the Poorva and the Uttara Bhagas
and the length of each Bhava in the Standard
Horoscope?

Applying the above rules we get the following results:—

| | Poorva Bhaga of the Bhava. | Uttara Bhaga of the Bhava. | Length of the Bhava. |
|------|-------------------------------|-------------------------------|-------------------------|
| I | 13° 20' 23" | 16° 39' 40" | 30° 0' 0" |
| II | 16 39 40 | 16 39 40 | 33 19 20 |
| III | 16 39 40 | 16 39 40 | 33 19 20 |
| IV | 16 39 40 | 13 20 20 | 30 0 0 |
| V | 13 20 20 | 13 20 20 | 26 40 40 |
| VI | 13 20 20 | 13 20 20 | 26 40 40 |
| VII | 13 20 20 | 16 39 40 | 30 0 0 |
| VIII | 16 39 40 | 16 39 40 | 33 19 20 |
| IX | 16 39 40 | 16 39 40 | 33 19 20 |
| X | 16 39 40 | 13 20 20 | 30 0 0 |
| XI | 13 20 20 | 13 20 20 | 26 40 40 |
| XII | 13 20 20 | 13 20 20 | 26 40 40 |
| | 180 0 0 | 180 0 0 | 360 0 0 |

CHAPTER XI.

CASTING THE HOROSCOPE ACCORDING TO THE WESTERN METHOD AND ITS REDUCTION TO THE HINDU

92. General Observations.—Hitherto we have exhaustively treated the processes involved in the act of casting a horoscope according to the Hindu method. Realising the fact that to a number of people who are anxious to apply the Hindu method of astrology, the Hindu almanacs will not be either accessible or intelligible, we have thought fit to include a chapter dealing with the method of computing the longitudes of planets, etc., according to the western method and their reduction to the Hindu. It must be borne in mind that unless one is unable to apply the Hindu method, one need not adopt the method chalked out in this chapter.

93. Hindu and Western Methods.—The Hindu method of casting a horoscope is always Sayana though finally it is reduced to the Nirayana for predictive purposes, so that, we want Nirayana Longitudes of planets and Bhavas, for analysing a horoscope according

to the rules given in books dealing with the *Phalit Bhaga* (judicial portion) of astrology.

The westerners base their calculations as well as predictions on the Shifting Zodiac, i.e., the longitudes of planets, etc., given by them correspond to those of Sayana amongst us, so that by subtracting the ayanamsa from such positions, the Nirayana Longitudes can be obtained.

94. The Modern Ephemeris.—In order to cast a horoscope according to the western method, a reliable Ephemeris must be secured. An ephemeris will contain such information as the longitudes of planets, their latitudes and declinations and the Sidereal Time marked out for each day and calculated to Greenwich Mean Noon. In some, the Equation of Time referred to in the preceding chapters will also be given in addition to the daily motions of planets. A modern ephemeris roughly corresponds to a Hindu almanac with the difference that while the former is exclusively Sayana, among the latter, some are Sayana and besides, a Hindu *Panchanga*, contains much more useful information like *thithi*, *yoga*, *karana*, etc., whose importance, it is out of place to make mention of here, than an ephemeris.

95. Table of Houses.—These are absolutely necessary for ascertaining the ascendant

and other Houses knowing before hand, the Sidereal Time at the birth moment. The latitude of the birth place must be sought for in a "Table of Houses" and then the ascendant, etc., traced for the Sidereal Time. The cusps of the Houses of the western system correspond to the Sayana Bhava Madhyas of the Hindus and by the subtraction of the Ayanamsa, their Nirayana Bhava Madhyas can be obtained.

Cusp of the Western House—Ayanamsa = Nirayana Bhava Madhya of the Hindus.

96. Local Mean Time of Birth.—If the birth moment is marked in Standard Time convert it into Local Mean Time (L.M.T.) (see Article 66).

97. Greenwich Mean Time of Birth.—As the Sayana longitudes of planets are given for Greenwich Mean Time (G.M.T.) generally for Greenwich Mean Noon (G.M.N.), the L.M.T. of Birth must be converted into the corresponding G.M.T. of Birth thus:—

$$\text{G.M.T.} = \text{L.M.T.} \pm \frac{\text{Longitude of place}}{15^\circ}$$

— if place is E. of Greenwich.

+ if „ W. of „

Example 28.—Miss N. born on 3-5-1932 at 5.45 A.M. (L.M.T.) Lat. 13° N., Long. $75^\circ 0'$ E. Find the G.M.T. of Birth.

(This will be called the Illustrated Horoscope).

$$\text{G.M.T.} = (5.45 \text{ A.M.}) - \frac{1}{2}$$

$$(5.45 \text{ A.M.}) - 5 \text{ A.M.} = 0.45 \text{ A.M.}$$

$$\therefore \text{G.M.T. of Birth} = 0.45 \text{ A.M.}$$

98. Greenwich Mean Time Interval of Birth.—As already observed above, the longitudes of planets will be given for Greenwich Mean Noon (sometimes for midnight also). In order to find out their positions at the moment of birth, we should ascertain the elapsed time rather than the interval between the G.M.N. and the G.M.T. If the G.M.T. of Birth falls after the noon (*i.e.*, G.M.N.) then take the interval between the two: if the G.M.T. of birth is before the noon, then take the interval between the preceding noon and G.M.T. of Birth. The result is Greenwich Mean Time interval of birth.

Example 29.—Find the G.M.T. interval of birth in the Illustrated Horoscope.

The G.M.T. of Birth = 0.45 A.M.

∴ Take preceding noon (noon of 2-5-1932)

∴ G.M.T. interval of birth is 12 h. 45 m.

99. Daily Motions of Planets.—The celestial arc traversed by the planets in a day is their daily motion. Take the arc that each planet has traversed from the noon preceding birth to the noon succeeding birth.

Example 30—Find the daily motions of planets in the Illustrated Horoscope.

Referring to Raphaeil's Ephemeris for 1932, we get the following information :—

| Planet | | Long. on 3rd May at Noon. | Long. on 2nd May at Noon. | Daily motions of the planets. |
|---------|---|---------------------------------|---------------------------------|-------------------------------------|
| Sun | (Taurus) ... | 12° 49' 43" | 11° 51' 32" | 0° 58' 11" |
| Moon | (Aries) ... | 18 19 17 | 6 31 20 | 11 47 57 |
| Mars | (Taurus) ... | 23 15 0 | 22 29 0 | 0 46 0 |
| Mercury | (Aries) ... | 17 13 0 | 16 33 0 | 0 40 0 |
| Jupiter | (Leo) ... | 13 33 0 | 13 29 0 | 0 4 0 |
| Venus | (Gemini) ... | 27 37 0 | 26 46 0 | 0 51 0 |
| Saturn | (Aquarius) ... | 4 39 0 | 4 38 0 | 0 1 0 |
| Rahu | (Moon's ascending node) (Pisces) ... | 23 45 0 | 23 51 0 (1st May) | 0 6 0 (in 2 days) |

100. Hindu Nirayana Longitudes of Planets.—We know the daily movements of all the planets, *i.e.*, the arc they pass through in 24 hours. Now find by proportion or with the aid of Logarithmic tables, the arc covered by each of them in the G. M. T. interval of birth and add this to their respective longitudes at the noon previous to birth. The result would represent their exact Sayana positions at the birth moment. If a planet is in retrograde, instead of adding the arc traversed in a day, to its previous longitude, the arc must be subtracted from it. In case of Rahu, the arc must always be subtracted. In the case of the Sun and the Moon the arc must always be added. In the case of the other five planets, the arc is additive or subtractive according as

the planet is direct or retrograde. From the Sayana longitudes so obtained, subtract Ayanamsa for the year of birth (See Art. 49) and the Hindu Nirayana Longitudes of the planets are obtained.

Rule 1.—Arc traversed in G. M. T. interval of birth

$$= \frac{\text{Daily motion of the planet}}{24 \text{ hours}} \times \frac{\text{G.M.T. interval}}{\text{of birth.}}$$

Rule 2.—Sayana Long. at birth=

(a) Long. of planet at noon previous to birth \pm
arc traversed in G.M.T. interval of birth

+ in case of Sun, Moon and other planets having
direct motion, except Rahu

— in case of Retrograde planets and Rahu.

(b) Rahu's Long. $+ 180^\circ$ = Kethu's Long.

Rule 3.—Hindu Nirayana Long=Sayana Long—

• Ayanamsa.

Example 31.—Find the Hindu Nirayana Longitudes of
planets in the Illustrated Horoscope?

G.M.T. interval of birth = 12 h. 45 m. = 12.75 h.

\therefore arc traversed by each planet in 12h. 45 m. =

| | |
|------|---|
| Sun. | $\frac{58' 11'' \times 12.75}{24} = 0^\circ 30' 55''$ |
|------|---|

| | |
|-------|--|
| Mars. | $\frac{46' 0'' \times 12.75}{24} = 0^\circ 24' 26''$ |
|-------|--|

| | |
|---------|--|
| Mercury | $\frac{40' 0'' \times 12.75}{24} = 0^\circ 21' 15''$ |
|---------|--|

| | |
|---------|---|
| Jupiter | $\frac{4' 0'' \times 12.75}{24} = 0^\circ 2' 8''$ |
|---------|---|

| | |
|-------|---|
| Venus | $\frac{51' 0'' \times 12.75}{24} = 0^\circ 27' 9''$ |
|-------|---|

| | |
|--------|--|
| Saturn | $\frac{1' 0'' \times 12.75}{24} = 0^\circ 0' 32''$ |
|--------|--|

| | |
|------|--|
| Rahu | $\frac{3' 0'' \times 12.75}{24} = 0^\circ 1' 17''$ |
|------|--|

• It is better to ascertain the arc traversed by the Moon by recourse to Logarithmic tables given at the end of the Ephemeris. If the reader cannot do this he can simply find the arc, as usual, by the rule of three.

$$\text{Moon's daily motion} = 11^\circ 47' 57'' = 11^\circ 48'$$

$$\text{G.M.T. interval of birth} = 12 \text{ h. } 45 \text{ m.}$$

$$\therefore \text{Log. } 11^\circ 48' = .3083$$

$$\text{Log. } 12 \text{ h. } 45 \text{ m.} = \underline{.2747}$$

$$.5830$$

$$\therefore \text{Anti Log. of } .5830 = 6^\circ 16'$$

$$\therefore \text{Moon's motion in } 12 \text{ h. } 45 \text{ m.} = 6^\circ 16'$$

Applying Rule 2 (*a* and *b*) we get their Sayana Longitudes thus:—

| Planet. | Long. on 2nd noon. | Arc covered in 12 h. 45 m. | Sayana Long. at Birth. |
|----------------|--------------------------|----------------------------------|------------------------------|
| 1. Sun ... | 41° 51' 32" | + 0° 30' 55" = | 42° 22' 27" |
| 2. Moon ... | 6 31 20 | + 6 16 0 = | 12 47 20 |
| 3. Mars ... | 52 29 0 | + 0 24 26 = | 52 53 26 |
| 4. Mercury | 16 33 0 | + 0 21 15 = | 16 54 15 |
| 5. Jupiter ... | 133 29 0 | + 0 2 8 = | 133 31 8 |
| 6. Venus ... | 86 46 0 | + 0 27 9 = | 87 13 9 |
| 7. Saturn ... | 304 38 0 | + 0 0 32 = | 304 38 32 |
| 8. Rahu ... | 353 51 0 | - 0 1 17 = | 353 49 43 |
| 9. Kethu ... | ... | ... | = 173 49 43 |

Applying Rule 3.—

| Planet. | Sayana Long. of planet at birth | Ayanamsa | Its Nirayana Long. |
|----------------|---------------------------------------|-----------------|--------------------------|
| 1. Sun ... | 42° 22' 27" | - 21° 27' 41" = | 20° 54' 46" |
| 2. Moon ... | 12 47 20 | - 20 27 41 = | 350 19 39 |
| 3. Mars ... | 52 53 26 | - 21 27 41 = | 31 25 45 |
| 4. Mercury | 16 54 15 | - 21 27 41 = | 355 26 34 |
| 5. Jupiter ... | 133 31 8 | - 21 27 41 = | 112 3 27 |
| 6. Venus ... | 87 13 9 | - 21 27 41 = | 65 45 28 |
| 7. Saturn ... | 304 38 32 | - 21 27 41 = | 283 10 31 |
| 8. Rahu ... | 353 49 43 | - 21 27 41 = | 332 22 2 |
| 9. Kethu ... | 173 49 43 | - 21 27 41 = | 132 22 2 |

Now we have obtained the positions of grahas; we shall proceed to find out the different Bhavas.

101. The Sidereal Time at Birth—This is very essential for finding out the ascendant and other houses. You will see the Sidereal Time marked for G. M. N. everyday in the first column of the Ephemeris, *i.e.*, next to week day. The Sidereal Time for birth must be obtained as follows:—

First ascertain the Sidereal Time at the previous Greenwich Mean Noon. From or to this deduct or add at the rate of 10 seconds for every one hour of longitude, this being the correction for the difference of time between place of birth and Greenwich. Deduct if the place of birth is East of Greenwich, add if it is West of Greenwich. The Sidereal Time for the previous Local Mean Noon is obtained. Now add to this the Mean Time interval (*i.e.*, the number of hours passed from previous local noon to birth) and also add 10 seconds per hour since noon as this represents the difference between the Sidereal Time and the Mean Time. Expunge multiples of 24 hours. The result represents the Sidereal Time at Birth.

Example 32.—Find the Sidereal Time at Birth in the Illustrated Horoscope?

| | | |
|--|---|------------------|
| L.M.T. of Birth | = | 5.45 A.M. |
| Long. of Birth 75° E. | = | 5 Hours in time. |
| | | H. M. S. |
| Sidereal Time at the noon of 2nd May | | 2 40 45 |
| Less correction for the difference of time between the place of birth (East of Greenwich) and Greenwich | | 0 0 50 |
| ∴ Sidereal Time at the previous Local Noon | | 2 39 55 |
| Number of hours passed from previous noon to birth (<i>i.e.</i> , Mean Time interval) ... | | 17 45 0 |
| Correction between Sidereal Time and Mean Time ... | | 0 2. 57 |
| ∴ Sidereal Time at Birth ... | | 20 27 52 |

102. R.A.M.C. at Birth.—Convert Sidereal Time into arc. The result represents the R.A.M.C. at birth, *i.e.*, Sidereal Time $\times 15^\circ$ = R.A.M.C. at birth.

Example 33.—Find the R.A.M.C. at birth given Sidereal Time at birth as 20 h. 27 m. 52 s. in the Illustrated Horoscope:—

| | | |
|-----------------------|---|-------------|
| 20 h. | = | 300° 0' 0" |
| 27 m. | = | 6 45 0 |
| 52 s. | = | 0 13 0 |
| ∴ R.A.M.C. at birth = | | 306° 58' 0" |

103. Sayana Longitudes of Angular Houses.—Since there is a slight difference

between the Hindu and western methods of computing the longitudes of the non-angular houses, we shall ascertain those of the angular houses from the Modern Table of Houses, reduce them into Nirayana ones and then find out the longitudes of the non-angular houses according to the rules described in Article 88.

Consider the "Table of Houses" for the latitude of the birth place ; if no Table of Houses for the birth place is available, then refer to that which is nearest to the latitude of birth. Find the nearest time corresponding to the Local Sidereal Time of Birth (under the column Sidereal Time). Next to that we see the cusp of the Tenth house; mark its longitude ; trace further and you will see a column marked as "Ascend" ; mark its longitude also. Deduct from these two, the Ayanamsa. Their Nirayana Bhava Madhyas are obtained—i.e., the longitudes of Udaya Lagna (Ascendant) and the Upper Meridian (Madhya Lagna) are obtained. Adding 180° to each of these two, the Nirayana Asta Lagna (Western Horizon) and the Pathala Lagna (Lower Meridian) are obtained. Now apply the rules contained in Articles 87, 88, 89, 90 and 91. You have got the horoscope ready.

Example 34.—Find the Sayana Longitudes of the cusps of the ascendant and the 10th House in the illustrated horoscope and reduce them to those of the Nirayana ?

Sidereal Time at Birth = 20 h. 27 m. 52 s.

Birth place, 13° North Latitude.

∴ The Table of Houses for Madras, nearest to the birth latitude, must be consulted.

20 h. 25 m. 19 s. is the nearest to the Sidereal Time of Birth.

∴ Sayana Long. of cusp of ascend. = 12° 28' Taurus
= 42° 28'

∴ Sayana Long. of cusp of tenth-house = 4° Aquarius
or 304°

| | | |
|---------------------------------------|-----------|---------------------------------|
| Sayana long of the cusp of the house. | Ayanamsa. | Nirayana long. of Bhava Madhya. |
|---------------------------------------|-----------|---------------------------------|

∴ 42° 28' — 21° 27' 41" = 21° 0' 19"

304 0 — 21 27 41 = 282 32 19

∴ 21° 0' 19" + 180° = 201° 0' 19"

282 32 19 + 180 = 102 32 19

∴ Asta Lagna (W. Horizon) = 201° 0' 19"
Pathala Lagna (Lower Meridian) = 102 32 19

Example 35.—Applying the rules described in Articles 87, 88, 89, 90 and 91, find the Longitudes of Bhava Madhyas of the Non-angular Houses, Bhava-sandhis, Poorva and Uttara Bhagas of the Bhavas and the length of each Bhava in the Illustrated Horoscope and locate the planets in a map of the heavens.

P.S.—In considering the Longitudes of planets and Bhavas, omit less than half a minute of arc and consider more than half a minute as equal to one minute.

Bhava Madhyas of Non-angular Houses.

Arc *a* = 102° 32' 19" — 21° 0' 19" = 81° 32' 0"

Arc *b* = 201 0 19 — 102 32 19 = 98 28 0

Arc *c* = 282 32 19 — 201 0 19 = 81 32 0

Arc *d* = 381 0 19 — 282 32 19 = 98 28 0

| Bhava (House) | | | Spashta (Longitude of Bhava Madhya.) | | |
|---------------|------------------|-----|---|----|-----|
| I | Thanu | ... | 21° | 0' | 19" |
| II | Dhana | ... | 48 | 10 | 59 |
| III | Bhrathru | ... | 75 | 21 | 39 |
| IV | Sukha or Mathru | ... | 102 | 32 | 19 |
| V | Putra | ... | 135 | 31 | 39 |
| VI | Satru | ... | 168 | 10 | 59 |
| VII | Kalatra | ... | 201 | 0 | 19 |
| VIII | Ayur | ... | 228 | 10 | 59 |
| IX | Bhagya or Dharma | ... | 255 | 21 | 39 |
| X | Karma | ... | 282 | 32 | 19 |
| XI | Labha | ... | 315 | 31 | 39 |
| XII | Vraya | ... | 348 | 10 | 59 |

(Less than 30" have been omitted; more than 30"
have been considered as 1').

Bhavasandhis.

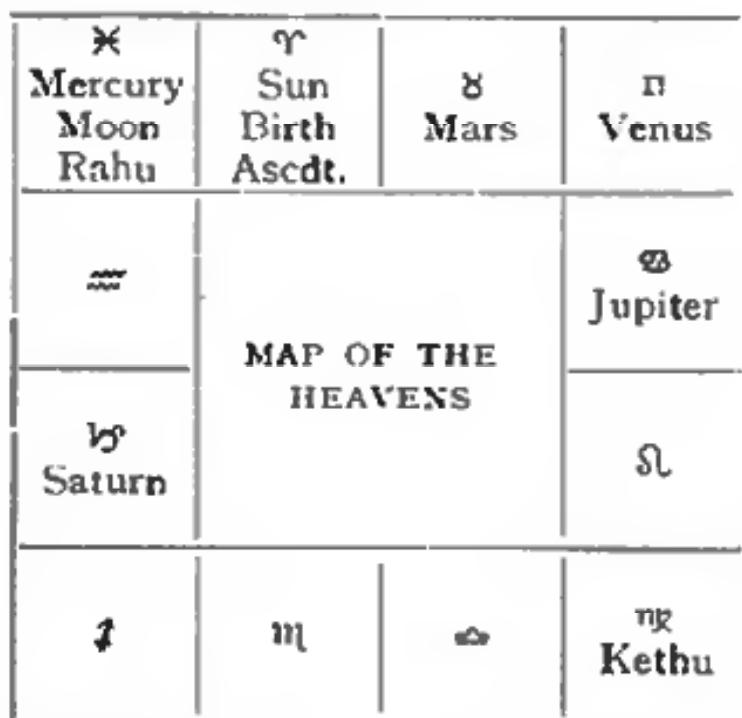
| Bhava. | Arambhasandhi. | Madhya. | Viramasandhi. |
|--------|----------------|---------|---------------|
| I | 4° 35.5' | 21° 0' | 34° 35.5' |
| II | 34 35.5 | 48 11 | 61 56.5 |
| III | 61 46.5 | 75 22 | 88 57 |
| IV | 88 57 | 102 32 | 118 57 |
| V | 118 57 | 135 22 | 151 46.5 |
| VI | 151 46.5 | 168 11 | 184 35.5 |
| VII | 184 35.5 | 201 0 | 214 35.5 |
| VIII | 214 35.5 | 228 11 | 214 46.5 |
| IX | 241 46.5 | 255 22 | 268 57 |
| X | 268 57 | 282 32 | 298 57 |
| XI | 298 57 | 315 22 | 331 46.5 |
| XII | 331 46.5 | 348 11 | 4 35.5 |

Poorva and Uttara Bhagas of Bhavas.

| Bhava. | Poorva Bhaga. | Uttara Bhaga. | Length of Bhava |
|--------|---------------|---------------|-----------------|
| I | 16° 24.5' | 13° 35.5' | 30° 0' |
| II | 13 35.5 | 13 35.5 | 27 11 |
| III | 13 35.5 | 13 35 | 27 10.5 |
| IV | 13 35 | 16 25 | 30 0 |
| V | 16 25.5 | 16 24.5 | 32 49 |
| VI | 16 24.5 | 16 24.5 | 32 49 |

| Bhava. | Poorva Bhaga. | Uttara Bhaga. | Length of Bhava. |
|--------|---------------|---------------|------------------|
| VII | 16 24.5 | 13 35.5 | 30 0 |
| VIII | 16 24.5 | 13 35.5 | 27 11 |
| IX | 13 35.5 | 13 35 | 27 10.5 |
| X | 13 34 | 16 25 | 30 0 |
| XI | 16 25 | 16 24.5 | 32 49.5 |
| XII | 16 24.5 | 16 24.5 | 32 49 |
| | 180 0 | 180 0 | 360 0 |

104. Rasi Kundali.—



CHAPTER XII.

THE SHODASAVARGAS

105. **The Vargas.**—The Zodiac or the Bhachakra is composed of 360 degrees of the celestial space. 30 degrees constitute one sign of the zodiac. Each of such signs is further subdivided into a number of other divisions, i.e., into certain kinds of divisions. These kinds of divisions are known as the Vargas. These are based on the assumption that planets get increase or decrease in their capacity to produce good or inflict bad, in a horoscope, according to their particular positions within a sign. They become highly potent by occupying certain kinds of divisions, owned by them, or by planets declared as their intimate friends, or by such divisions being their own places of exaltation or fall. These various relations, like elevation (Oochcha), fall (Neecha), etc., have been already discussed elsewhere.*

106. **The Shodasavargas.**—These kinds of divisions are really sixteen in number. But the number adopted by the different astrologers varies according to how they are used. For instance, for finding out the *Sthana Bala*

* For further information see my book "Graha and Bhava Balas".

(Positional strength) of a planet, the Sapta-Vargas are considered. For making predictions, the Shadvargas are employed, some consider Dasa-Vargas and so on, the choice often depending upon the prevailing custom. We shall, for purposes of determining the Sthana Bala of planets, go detailly into Sapta Vargas and scan through all the sixteen-vargas rather superficially.

107. The Shadvargas.—They are (1) Rasi, (2) Hora, (3) Drekkana, (4) Navamsa, (5) Dwadasamsa and (6) Trimsamsa.

108. The SaptaVargas.—(1) Rasi, (2) Hora, (3) Drekkana, (4) Saptamsa, (5) Navamsa (6) Dwadasamsa and (7) Thrimamsa.

109. The Dasavargas.—(1) Rasi, (2) Hora, (3) Drekkana, (4) Chaturthamsa, (5) Panchamsa, (6) Shastamsa. (7) Sapthamsa, (8) Navamsa, (2) Dwadasamsa and (10) Thrimamsa.

110. The Shodasavargas.--(1) Rasi, (2) Hora, (3) Drekkana, (4) Chaturthamsa, (5) Panchamsa, (6) Shastamsa, (7) Sapthamsa, (8) Ashtamsa, (2) Navamsa, (10) Dasamsa. (11) Ekadasamsa, (12) Dwadasamsa, (13) Shodasamsa, (14) Thrimamsa, (15) Shashtiamsa and (16) Ghatikamsa.

We shall now describe the various vargas, and the methods of locating the planets in each one of them.

111. Rasi.—Rasi means sign. The 12 signs of the Zodiac are the 12 Rasis. The limits and the lordships of the various rasis are named in the second chapter.

Example. 36.—Find the Rasis of the different planets and the Lagna in the Standard Horoscope and the lords of such Rasis?

| Planet | Its Long. | Rasi | Lord of the Rasi. |
|---------|-----------|-----------|-------------------|
| Ravi | 179° 8' | Kanya | Budha |
| Chandra | 312 8 | Kumbha | Sani |
| Kuja | 229 49 | Vrischika | Angaraka |
| Budha | 180 33 | Tula | Sukra |
| Guru | 83 35 | Mithuna | Budha |
| Sukra | 170 4 | Kanya | Budha |
| Sani | 124 51 | Simha | Ravi |
| Rahu | 233 23 | Vrischika | Kuja |
| Kethu | 53 23 | Vrischika | Sukra |
| Lagna | 294 57 | Makara | Sun |

112. Hora.— $2\frac{1}{2}$ Ghatis constitute 1 Hora. 15 degrees are equal to 1 hour in time so that, on the whole, there are 24 horas of 15° each in the entire zodiac. Each sign contains 2 horas, namely, the Surya Hora (Sun's) and the Chandra Hora (Moon's). In Oja Rasis or odd signs the first hora is governed by the Sun and the second by the Moon. In Yugma Rasis or even signs the ruler of the first hora is the Moon, and second hora is governed by the Sun. Odd signs are Mesha, Mithuna, Simha, etc. Even

signs are Kataka, Vrishabha, Kanya, etc., For instance, the first hora in Mesha is governed by the Sun, while the second is presided over by the Moon. Similarly so with reference to Mithuna, etc. In Vrishabha, Chandra presides over the first hora and the Sun over the next.

Example 37.—Find the Horas occupied by the planets, and the lords of such horas in the Standard Horoscope.

| Planet | Its Long. | Nature of Rasi | Hora. | Its Lord. |
|---------|-------------|----------------|---------|-----------------|
| Ravi | ... 179° 8' | Yugina | Surya | Surya or Sun |
| Chandra | ... 312 8 | Oja | Chandra | Chandra |
| Kuja | ... 229 49 | Yugma | Surya | Surya |
| Budha | ... 180 33 | Oja | Ravi | Ravi |
| Guru | ... 83 35 | Oja | Chandra | Chandra |
| Sukra | ... 170 4 | Yugma | Surya | Surya |
| Sani | ... 124 51 | Oja | Surya | Surya |
| Lagna | ... 294 57 | Yugma | Surya | Surya |

We shall omit Rahu and Kethu for the present, as they are considered Aprakashaka Grahas or shadowy planets and as they simply reflect the results of the lords of the houses which they occupy.

113. Drekkana.—The Zodiac is divided into 36 drekkanas so that each gets 10°. The Lord of the first drekkana in a rasi is the lord of the rasi itself, that of the second, the lord of 5th from it, that of the 3rd, the lord of the 9th from it.

| Rasi. | Lord of its 1st Drekkana. | Lord of its 2nd Drekkana. | Lord of its 3rd Drekkana. |
|-----------|---------------------------|---------------------------|---------------------------|
| Mesh | Kuja | Surya | Guru |
| Vrishabha | Sukra | Budha | Sani |
| Mithuna | Budha | Sukra | Sani |
| Kataka | Chandra | Kuja | Guru |
| Simha | Surya | Guru | Kuja |
| Kanya | Budha | Sani | Sukra |
| Tula | Sukra | Sani | Budha |
| Vrischika | Kuja | Guru | Chandra |
| Dhanus | Guru | Kuja | Surya |
| Makara | Sani | Sukra | Budha |
| Kumbha | Sani | Budha | Sukra |
| Meena | Guru | Chandra | Kuja |

Example 38.—Find the various Drekkanas occupied by the planets and the lords of such Drekkanas in the Standard Horoscope.

| Planet. | Its Long. | No. of Drekkana. | Its Lord. |
|---------|-----------|------------------|-----------|
| Surya | 179° 8' | 3rd in Kanya | Sukra |
| Chandra | 312 8 | 2nd in Kumbha | Budha |
| Kuja | 229 49 | 2nd in Vrischika | Guru |
| Budha | 180 33 | 1st in Thula | Sukra |
| Guru | 83 35 | 3rd in Mithuna | Sani |
| Sukra | 170 4 | 3rd in Kanya | Sukra |
| Sani | 124 51 | 1st in Simha | Ravi |
| Lagna | 294 57 | 3rd in Makara | Budha |

114. Chaturthamsa.—When a sign is divided into four equal parts, each one is called a Chaturthamsa. The Zodiac contains 48 Chaturthamsas and each is equal to $\frac{90}{4} = 22\frac{1}{2}$ ° or 7° 30' of the celestial space. The lord of the first Chaturthamsa is the lord of the Rasi itself; that of the second, the lord of the fourth from it, that of the third, the lord

of the seventh and that of the fourth, the lord of the 10th. Thus the lord of each Kendra Rasi (quadrant), will become the lord of each Chaturthamsa.

115. Panchamsa.—Each Panchamsa— $\frac{1}{5}$ of a sign — is 6° in extent, i.e., the Zodiac is divided into 80 panchamsas. In odd signs the first panchamsa is governed by Mars; the second by Saturn; the third by Jupiter; the fourth by Mercury; and the fifth by Venus. The reverse holds good in even signs.

116. Shastamsa.—There are 72 shashtamsas in the whole of the Bhachakra. Each Shashtamsa is equal to five degrees and a Rasi is divided into 6 Shashtamsas. In odd signs the lords of the six Shashtamsas are the lords of the six houses from Aries and in even signs the lords of the six Shashtamsas are the lords of the six Rasis from Libra.

117. Sapthamsa.—When a sign is divided into seven equal divisions each is called a Sapthamsa and gets $\frac{1}{7} = 4^\circ 14' 17\frac{1}{7}'$. The Bhachakra is divided into 84 sapthamsas. In odd signs they are governed by the lords of the first seven Rasis and in even signs by the lords of the seventh and following signs.

Example 39.—Find the Sapthamsas the planets have

occupied, and the lords of such Sapthamsas in the Standard Horoscope?

| Planet. | Its Long. | Odd or Even Rasi. | No. of the Sapthamsa. | Lord of Sapthamsa. |
|-------------|-----------|-------------------|-----------------------|--------------------|
| Surya ... | 179° 8' | Even | 7th | Budha |
| Chandra ... | 312 8 | Odd | 3rd | Kuja |
| Kuja ... | 229 49 | Even | 5th | Budha |
| Budha ... | 180 33 | Odd | 1st | Sukra |
| Guru ... | 83 35 | Odd | 6th | Kuja |
| Sukra ... | 170 4 | Even | 5th | Chandra |
| Sani ... | 124 5 | Odd | 1st | Surya |
| Lagna ... | 294 57 | Even | 6th | Guru |

118. Ashtamsa.—An ashtamsa measures $3^{\circ} 45'$ and the Bhachakra is divided into 96 ashtamsas and each Rasi, therefore, contains 8 compartments - Ashtamsas. In movable signs (Aries, Cancer, etc.), the lords of the 8 ashtamsas are the lords of the 8 signs from Aries. In Sthira Rasis or immovable signs (Taurus, Leo, etc.), the lords of the 8 ashtamsas are those of Leo and the succeeding signs. In Dwiswabhava Rasis, (common sign like Gemini, Virgo, etc.), the 8 Ashtamsas are governed by the lords of Dhanus and the next succeeding signs.

119. Navamsa.—This is the most important subdivision among the Hindus. The successful forecasts made by them have this system as the basis. This has been formulated in view of the relationship between the degrees of the ecliptic and the stellar points or Nakshatras. The Nakshatras are 27 in number

(Art. 10). Therefore each Nakshatra gets $13\frac{1}{2}$. Each Nakshatra is further subdivided into four padas or quarters, so that one pada is equal to $\frac{13\frac{1}{2}^{\circ}}{4} = 3\frac{3}{4}^{\circ}$ of the ecliptic arc. Similarly a sign is divided into nine equal parts and each is a Navamsa. The Bhachakra is divided into 108 navamsas and each navamsa corresponds to a *Nakshatra Pada*. Reference to the schedule of Nakshatras given in Article 10 will tell you that 4 quarters of Aswini, 4 of Bharani, and 1 of Krittika make up Mesha. By knowing the Nakshatra padas of Grahas we can readily locate them in their precise Navamsa Vargas.

Take Mesha and divide it into nine equal parts. The first part (Navamsa) is governed by the lord of Mesha, viz., Kuja; the second by the lord of the second, viz., Sukra; the third by Budha lord of the third; the fourth by the lord of the fourth, viz., Chandra, and so on till the last or the ninth navamsa which is governed by Jupiter, lord of the ninth from Mesha. Now divide Vrishabha into nine equal parts. We have left counting of the navamsa at Dhanus, viz., the ninth from Mesha. Therefore, the first navamsa of Taurus (or the 10th Navamsa from Mesha) is governed by the lord of the 10th from Mesha, viz., lord of Makara—Sai.j; the 2nd navamsa (in Vrishaba), by the lord

of the 11th from Mesha, *viz.*, Sani, the 3rd by the lord of the 12th, *viz.*, Guru, the 4th, 5th, 6th, 7th, 8th and 9th by Kuja, Sukra, Budha, Chandra, Ravi and Budha respectively. Then the first navamsa of Mithuna is ruled by the lord of the 7th from Aries, *viz.*, Sukra. The last navamsa of Gemini is governed by the lord of the ninth from Gemini, Mercury. Again the first of Cancer is governed by the lord of Cancer and the last navamsa of Cancer by the lord of the ninth from Cancer, *viz.*, Jupiter, so that the first navamsa in Leo is ruled by the lord of tenth from Cancer—Aries, *viz.*, Mars. It invariably follows, that for Mesha, Simha and Dhanus, Navamsas must be counted from Mesha to Dhanus; for Vrishabha, Kanya and Makara from Makara; for Mithuna, Thula and Kumbha from Thula and for Kataka, Vrischika and Meena from Kataka. Thus we see four distinct groups :—

- (a) Mesha, Simha, Dhanus — from Mesha.
- (b) Vrishabha, Makara, Kanya — from Makara.
- (c) Mithuna, Thula, Kumbha — from Thula.
- (d) Kataka, Vrischika, Meena — from Kataka.

Take for instance a planet whose longitude is $114^{\circ} 26' 15''$ or $24^{\circ} 26' 15''$ in Cancer. Note this belongs to group (d) so that the navamsas must be counted from Kataka. $24^{\circ} 26' 15'' + 3\frac{1}{2} = 7$ and odd Navamsas. The planet has passed 7

navamsas in Cancer and is in the 8th. The 8th navamsa in Cancer is ruled by the lord of the 8th Rasi from Cancer, viz., Aquarius—Saturn. Thus the planet is in Saturn's Navamsa.

In group (a) the lords of the nine navamsas will be the lords of Mesha and the succeeding signs. Similarly with reference to other groups, the Navamsas must be considered.

*Example 40.—Find the Navamsas occupied by the planets and the Lagna, and the lords of such navamsas, in the Standard Horoscope.**

| Planet. | Its Long. | No. of the Navamsa. | Its Lord. |
|---------|-------------|---------------------|-----------|
| Surya | ... 179° 8' | 9th in Kanya | Budha |
| Chandra | ... 312 8 | 4th in Kumbha | Sani |
| Kuja | ... 229 49 | 6th in Vrischika | Guru |
| Budha | ... 180 33 | 1st in Thula | Sukra |
| Guru | ... 83 35 | 8th in Mithuna | Sukra |
| Sukra | ... 170 4 | 7th in Kanya | Sukra |
| Sani | ... 124 51 | 2nd in Simha | Sukra |
| Lagna | ... 294 57 | 8th in Makara | Ravi |
| Rahu | ... 233 23 | 8th in Vrischika | Sani |
| Kethu | ... 53 23 | 8th in Vrishabha | Ravi |

120. Navamsas and Nakshatra Padas.—
Now that we have learnt, how to find, in which Navamsa a planet is situated, we can also readily find out the particular constellation and the particular pada the planet is in. For instance, take the Sun. He occupies the 9th navamsa in Kanya, i.e., he is in the 9th

* Include Rahu and Kethu also.

pada of Kanya rasi. The schedule of constellations in Chapter II will tell you that the last three padas of Uttara Phalguni, Hasta and the first two padas of Chitta make up Kanya. See to which padam (Quarter) and nakshatram (Constellation) in Kanya, the 9th navamsa corresponds.

| | | | | |
|-----------|---|--------|---|--------|
| Kanya ... | { | Uttara | 3 | Padas. |
| | | Hasta | 4 | " |
| | | Chitta | 2 | " |

Therefore, the last navamsa of Kanya corresponds to, rather is the same as, the last pada in Kanya, i.e., the second of Chitta. Therefore you say that the Sun is in the second padam (Quarter) of the nakshatra (Constellation) Chitta. Ascertain for all the planets, the nakshatras and the padas corresponding to the navamsa positions.

Example 41.—Find the Nakshatra Padas occupied by the different planets and the Lagna (of course Bhava Madhya) in the Standard Horoscope.

| Planet. | Rasi. | Navamsa. | Nakshatra. | Pada. |
|-------------|-----------|----------------|------------|-------|
| Ravi ... | Kanya | Kanya —9th | Chitta | 2 |
| Chandra ... | Kumbha | Makara —4th | Satabhisha | 2 |
| Kuja ... | Vrischika | Dhanus —6th | Jyesta | 1 |
| Budha ... | Thula | Thula —1st | Chitta | 3 |
| Guru ... | Mithuna | Vrishabha —8th | Punarvasu | 2 |
| Sukra ... | Kanya | Kataka —7th | Hasta | 4 |
| Sani ... | Simha | Vrishabha —2nd | Makha | 2 |
| Lagna ... | Makara | Simha —8th | Dhanista | 1 |
| Rahu ... | Vrischika | Kumbha —8th | Jyesta | 3 |
| Kethu ... | Vrishabha | Simha —8th | Mrigasira | 1 |

***121. Navamsa Chakra.**—As navamsa combinations are too often referred to in Hindu predictive astrology, it would be better to mark the Grahas in a navamsa diagram for purposes of convenience and reference.

Example 42.—Locate the planets and Lagna of the Standard Horoscope in a Navamsa Kundali:—

| ✖ | ☿ | ☽ Guru Sani | ♊ |
|--------------|--------------------|-------------------|---------------------|
| ℞ Rahu | | | ⊗ Sukra |
| ☽ Chandra | NAVAMSA DIAGRAM | | ♌ Kethu Lagna |
| ♁ Kuja | ☿ | ♊ Budha | ☿ Ravi |

122. The Dasamsa.—When a sign is divided into ten equal parts, each is called a Dasamsa, meaning $\frac{1}{10}$ th of it. The whole Zodiac gets 120 Dasamsas of 3° each.

In odd signs the lords of the Dasamsas commence from the owner of the sign itself, while in even signs the rulers are the lords of the ninth* and the following houses respectively.

* See Sarwarthachintamani. English translation by Prof. Suryanarain Rao. Stanza 21, Chap. I.

123. Ekadasamsa.—Each Ekadasamsa measures $\frac{1}{12} = 2\frac{1}{2}^\circ$ or the Bhachakra contains 132 Ekadasamsas. The lords of the 11 Ekadasamsas are the lords of the eleven signs from the 12th Rasi, counted backwards. Thus in Aries the first Ekadasamsa is ruled by Jupiter, the lord of the 12th from it and so on.

124. Dwadasamsa.—When a sign is divided into 12 equal parts each is called a dwadasamsa and measures $2\frac{1}{2}^\circ$. The Bhachakra can thus be said to contain $12 \times 12 = 144$ Dwadasamsas. The lords of the 12 Dwadasamsas in a sign are the lords of the 12 signs from it, i.e., the lord of the first Dwadasamsa in Mesha is Kuja, that of the second Sukra and so on.

Example 43.—Find the Dwadasamsas occupied by the various planets and the Lagna in the Standard Horoscope and the lords of such Dwadasamsas.

| Planet. | Its Long. | No. of Dwadasamsa | Lord of Dwadasamsa |
|---------|-------------|-------------------|--------------------|
| Surya | ... 179° 8' | 12th in Kanya | Ravi |
| Chandra | ... 312 8 | 5th in Kumbha | Budha |
| Kuja | ... 229 49 | 8th in Vrischika | Budha |
| Budha | ... 180 53 | 1st in Thula | Sukra |
| Guru | ... 83 35 | 10th in Mithuna | Guru |
| Sukra | ... 170 4 | 9th in Kanya | Sukra |
| Sani | ... 124 51 | 2nd in Simha | Budha |
| Lagna | ... 294 57 | 10th in Makara | Sukra |

125. Shodasamsa.—When a sign is divided into 16 equal parts, each is called a Shodasamsa. The Bhachakra contains $16 \times 12 = 192$

Shodasamsas. In odd signs the lords of the first 12 signs govern them and the 13th, 14th, 15th and 16th parts are ruled by Sani, Budha, Kuja and Rayi. In even signs, the planets govern them in the reverse order.

126. **Thrimamsa.**—When a sign is divided into 30 equal parts each is called a Thrimamsa measuring 1° each. In odd signs, the Thrimamsas are governed thus:—

| | | | | |
|------|--------|---------|---------|---------|
| Mars | Saturn | Jupiter | Mercury | Venus |
| 5 | 5 | 8 | 7 | 5 = 30. |

In even signs the order must be reversed:—

| | | | | |
|-------|---------|---------|--------|---------|
| Venus | Mercury | Jupiter | Saturn | Mars |
| 5 | 7 | 8 | 5 | 5 = 30. |

The above may be interpreted thus:— .

In Mesha, Mithuna and such other Oja (odd) rasis, the first 5 Thrimamsas are governed by Mars, the second 5 by Saturn and so on. In Yugma Rasis (even signs) like Vrishabha, Kataka, etc., the first 5 are governed by Venus, the next 5 by Mercury, etc., as mentioned above.

Example 44.—Find the number of the Thrimamsas occupied by the planets and the Lagna in the Standard Horoscope and the lords of such Thrimamsas.

| Planet. | Its Long. | No. of Thrimamsa. | Lord of Thrimamsa. |
|---------|------------|-------------------|--------------------|
| Surya | ... 179 8 | 30th in even | Kuja |
| Chandra | ... 311 30 | 12th in odd | Guru |
| Kuja | ... 229 40 | 30th in even | Kuja |
| Budha | ... 180 33 | 1st in odd | Kuja |

| Planet. | Its Long. | No. of Thrimamsa. | Lord of Thrimamsa. |
|---------|------------|----------------------|-----------------------|
| Guru | ... 83 35 | 24th in odd | Dudha |
| Sukra | ... 170 4 | 21st in even | Sani |
| Sani | ... 124 51 | 5th in odd | Kuja |
| Lagna | ... 294 57 | 25th in even | Sani |

127. **Shastiamsa.**—When a sign is divided into 60 equal parts, each is called a Shastiamsa. The Bhachakra contains $60 \times 12 = 720$ Shastiamsas. In case of odd signs, the sixty Shastiamsas are thus named:—

- (1) Ghora, (2) Rakshas, (3) Devabhaga,
- (4) Kubera, (5) Rakshogana, (6) Kin-
- nara, (7) Hrusta, (8) Kalagnana, (9)
- Garala, (10) Agnighatha, (11) Maya-
- msa, (12) Preta Puriha, (13) Apam-
- pathy, (14) Devaganasa, (15) Kala,
- (16) Sarpa, (17) Amritha, (18) Chan-
- dra, (19) Mridwamsa, (20) Koma-
- lamsa, (21) Padma, (22) Lakshmisa,
- (23) Vageesa, (24) Digambara, (25)
- Devamsa, (26) Indra, (27) Kalinasa,
- (28) Kshitiswara, (29) Kamalakara, (30)
- Mandatmaja, (31) Mrityu, (32) Kala,
- (33) Davagnya, (34) Chora, (35)
- Yamakantaka, (36) Satya, (36)
- Amrita, (38) Paripurna, (39) Vishapradagdha, (40) Kulanasa, (41) Mukhya
- (42) Vamsakshya, (43) Ootpatha, (44)
- Kalarupa, (45) Soumya, (46) Mrudvamsa, (47) Susithala, (48) Damshtra,

(49) Seethabja, (50) Indumukha, (51) Poorna, (52) Kalagnya, (53) Dandayudha, (54) Nirmala, (55) Shuba, (56) Ashuba. (57) Atishuba, (58) Sudhapayodhi, (59) Dhyumani, (60) Indurekha.

In case of even signs, the order of naming must be reversed.

128. **Ghatikamsa.**—Each Rasi is divided into 150 ghatikamsas and each is again subdivided into two parts so that each Rasi is divided into three hundred equal parts, each amsa being equal to 6'. Chara, Sthira and Dviswabhava Rasis are considered in naming these Ghatikamsas, which it would not be worthwhile worrying with at this stage.

129. **General Remarks.**—We have said above that of all the Shodasavargas, it is the Saptavargas (108 Art.) alone that are of special importance to us as contributing to the positional strength (Sthanabala) of the different planets. The Saptavargas of planets, together with the lords of the Saptavargas can be tabulated as follows for our future use. Their importance and applicability has been elaborately explained in my book "*Graha and Bhava balas*".

Example 45.—Tabulate all the Saptavargas of the planets and the Lagna in the Standard Horoscope?

Table of Saptavargas

| Planet | Its Symbol | Rasi | Hora | Drekkana | Saptamsha | Navamsa | Dwadashamsa | Trinamsa |
|-------------|------------|------------|--------------|------------|--------------|--------------|-------------|--------------|
| Ravi ... | ⊙ | ng ♀ Budha | ॥ ⊖ Ravi | ♂ ♀ Sukra | ng ♀ Budha | ng ♀ Budha | ॥ ⊖ Ravi | ☿ ♂ Kuja |
| Chandra ... | ☽ | ≋ ՚ Sani | ≋ ՚ Chan-dra | ॥ ♀ Budha | ՚ ♂ Kuja | ՚ ♂ Sani | ॥ ♀ Budha | ‡ ՚ ՚ ՚ Guru |
| Kuja ... | ♂ | ☿ ♂ Kuja | ॥ ⊖ Ravi | ՚ ՚ ՚ Guru | ՚ ՚ ՚ Budha | ՚ ՚ ՚ Guru | ॥ ♀ Budha | ☿ ♂ Kuja |
| Budha ... | ♀ | △ ♀ Sukra | ॥ ⊖ Ravi | △ ♀ Sukra | △ ♀ Sukra | △ ♀ Sukra | △ ♀ Sukra | ՚ ♂ Kuja |
| Guru ... | ՚ ՚ | ॥ ♀ Budha | ≋ ՚ Chan-dra | ≋ ՚ Sani | ☿ ♂ Kuja | ՚ ♂ Sukra | ՚ ՚ ՚ Guru | ॥ ♀ Budha |
| Sukra ... | ♀ | ng ♀ Budha | ॥ ⊖ Ravi | ՚ ♂ Sukra | ≋ ՚ Chan-dra | ՚ ♂ Chan-dra | ՚ ♂ Sukra | ՚ ♂ Sani |
| Sani ... | ՚ | ॥ ⊖ Ravi | ॥ ⊖ Ravi | ॥ ⊖ Ravi | ॥ ⊖ Ravi | ՚ ♂ Sukra | ՚ ՚ ՚ Budha | ՚ ♂ Kuja |
| Lagha ... | Asdt. | ՚ ♂ Sani | ॥ ⊖ Ravi | ng ♀ Budha | ՚ ՚ ՚ Guru | ॥ ⊖ Ravi | △ ♀ Sukra | ՚ ♂ Sani |

'130. Interpretation of Saptavarga Table.

Rows horizontal indicate the planets and rows longitudinal—the vargas. Take for instance, the row under the heading Drekkana. Tracing downwards we find the lords of Drekkanas occupied by each planet and the names of the Drekkanas. For instance take the Sun, and tracing horizontally we find under the column Rasi the symbols ष and ४ . This means that the Sun is in Kanya (Virgo) Rasi having Budha as the lord. The table must be similarly interpreted with reference to other planets.

TABLE I.

Charakhandas.

| Latitude. | Vighatis. | Vighatis. | Vighatis. |
|-----------|-----------|-----------|-----------|
| 1° | 2°10 | 1°68 | 0°73 |
| 2 | 4°20 | 3°36 | 1°40 |
| 3 | 6°30 | 5°04 | 2°10 |
| 4 | 8°40 | 6°72 | 2°80 |
| 5 | 10°50 | 8°40 | 3°50 |
| 6 | 12°60 | 10°08 | 4°20 |
| 7 | 14°70 | 11°76 | 4°90 |
| 8 | 16°90 | 13°52 | 5°63 |
| 9 | 19°00 | 15°20 | 6°33 |
| 10 | 21°20 | 16°96 | 7°06 |
| 11 | 23°30 | 18°64 | 7°76 |
| 12 | 25°50 | 20°40 | 8°50 |
| 13 | 27°00 | 21°70 | 8°80 |
| 14 | 29°90 | 23°92 | 9°96 |
| 15 | 32°10 | 25°68 | 10°70 |
| 16 | 34°40 | 27°52 | 11°46 |
| 17 | 36°60 | 29°28 | 12°20 |
| 18 | 39°00 | 31°20 | 13°00 |
| 19 | 41°30 | 33°04 | 13°76 |
| 20 | 43°70 | 34°96 | 14°56 |
| 21 | 46°00 | 36°80 | 15°33 |
| 22 | 48°50 | 38°80 | 16°16 |
| 23 | 50°90 | 40°72 | 16°96 |
| 24 | 53°40 | 42°72 | 17°80 |
| 25 | 55°90 | 44°72 | 18°63 |
| 26 | 58°50 | 46°80 | 19°50 |
| 27 | 61°10 | 48°88 | 20°36 |
| 28 | 63°80 | 51°04 | 21°26 |
| 29 | 66°50 | 53°20 | 22°16 |

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| Latitude. | Vighatis. | Vighatis. | Vighatis. |
|-----------|-----------|-----------|-----------|
| 30° | 69°30 | 55°44 | 23°10 |
| 31 | 72°10 | 57°68 | 24°33 |
| 32 | 75°00 | 60°00 | 25°00 |
| 33 | 77°90 | 62°32 | 25°96 |
| 34 | 80°90 | 64°72 | 26°96 |
| 35 | 84°00 | 67°20 | 28°00 |
| 36 | 87°10 | 69°68 | 29°03 |
| 37 | 90°40 | 72°32 | 30°13 |
| 38 | 93°70 | 74°96 | 31°23 |
| 39 | 97°20 | 77°76 | 32°4 |
| 40 | 100°60 | 80°48 | 33°53 |
| 41 | 104°30 | 83°44 | 34°73 |
| 42 | 108°00 | 86°40 | 36°00 |
| 43 | 111°90 | 89°52 | 37°30 |
| 44 | 115°80 | 92°64 | 38°60 |
| 45 | 120°00 | 96°00 | 40°00 |
| 46 | 124°20 | 99°36 | 41°40 |
| 47 | 128°70 | 102°96 | 42°90 |
| 48 | 133°30 | 106°64 | 44°43 |
| 49 | 138°00 | 110°40 | 46°00 |
| 50 | 143°00 | 114°40 | 47°66 |
| 51 | 148°20 | 118°56 | 49°40 |
| 52 | 153°50 | 122°83 | 51°17 |
| 53 | 159°20 | 127°36 | 53°06 |
| 54 | 165°20 | 132°16 | 55°06 |
| 55 | 171°30 | 137°04 | 57°10 |
| 56 | 177°90 | 142°32 | 59°30 |
| 57 | 184°60 | 147°84 | 61°60 |
| 58 | 192°00 | 153°60 | 64°00 |
| 59 | 199°70 | 159°76 | 66°56 |
| 60 | 207°80 | 166°24 | 69°26 |

TABLE II.

Terrestrial Latitudes and Longitudes

| Name of Place. | Name of Country. | Latitude. | Longitude. |
|-----------------|------------------|------------|------------|
| Aberdeen | Scotland | 57° 10' N. | 2° 5' W. |
| Abyssinia State | Africa | 10 0 N. | 40 0 E. |
| Abu Mount | India | 24 30 N. | 72 30 E. |
| Achin | Sumatra | 5 0 N. | 96 30 E. |
| Aden | Arabia | 13 0 N. | 45 0 E. |
| Adoni | India | 15 38 N. | 77 15 E. |
| Agin Court | France | 50 29 N. | 2 9 E. |
| Agra | India | 27 10 N. | 77 52 E. |
| Ahmedabad | India | 23 2 N. | 72 19 E. |
| Ahmednagar | India | 19 1 N. | 74 52 E. |
| Aix-la-Chapelle | Germany | 50 46 N. | 6 2 E. |
| Ajaccio | France | 41 55 N. | 8 44 E. |
| Ajmer | India | 26 32 N. | 74 41 E. |
| Ajanta | India | 20 31 N. | 78 19 E. |
| Akyab | Burma | 20 18 N. | 92 45 E. |
| Alleppey | India | 9 30 N. | 76 13 E. |
| Alighar | India | 27 52 N. | 79 0 E. |
| Alaska | N. America | 65 0 N. | 150 0 W. |
| Alexandria | Egypt | 31 12 N. | 30 10 E. |
| Algiers | N. Africa | 36 35 N. | 25 45 E. |
| Allahabad | India | 25 26 N. | 81 48 E. |
| Almora | India | 29 40 N. | 79 40 E. |
| Alwar | India | 27 40 N. | 77 28 E. |
| Amarapur | Burma | 21 50 N. | 96 2 E. |
| Ambala | India | 30 28 N. | 76 50 E. |
| Amraoti | India (C.P.) | 20 56 N. | 78 0 E. |
| Amraoti | India (Deccan) | 16 34 N. | 80 25 E. |
| Afritsar | India | 31 39 N. | 74 47 E. |
| Amsterdam | Netherlands | 52 22 N. | 4 53 E. |

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| Name of Place. | Name of Country. | Latitude. | Longitude. |
|---------------------|------------------|------------|------------|
| Amona | Italy | 43° 38' N. | 13° 32' E. |
| Ananthapur | India | 14 40 N. | 77 39 E. |
| Andaman (Island) | India | 12 0 N. | 92 45 E. |
| Antwerp | Belgium | 51 13 N. | 4 24 E. |
| Anuradhapura | Ceylon | 8 26 N. | 80 20 E. |
| Arakan | Burma | 20 46 N. | 93 12 E. |
| Arabia (Country) | Asia | 24 0 N. | 48 0 E. |
| Aravali (Hills) | India | 26 0 N. | 74 0 E. |
| Arcot | India | 12 55 N. | 79 20 E. |
| Argentina (State) | S. America | 36 0 S. | 65 0 W |
| Armenia (State) | Asia | 40 30 N. | 44 30 E. |
| Attock | India | 33 55 N. | 72 20 E. |
| Asia Minor | Asia | 30 0 N. | 32 0 E. |
| Assam (Prov.) | India | 20 13 N. | 75 40 E. |
| Athens | Greece | 38 0 N. | 23 45 E. |
| Atlanta | U. S. A. | 33 53 N. | 84 19 W. |
| Augsburg | Germany | 48 18 N. | 10 53 E. |
| Aurangabad | India | 19 53 N. | 75 22 E. |
| Austria (State) | Europe | 47 0 N. | 14 0 E. |
| Australia | ... | 25 0 S. | 135 0 E. |
| Babylon | Mesopotamia | 32 30 N. | 44 35 E. |
| Bagdad | Mesopotamia | 33 29 N. | 44 31 E. |
| Baekergang | India | 22 36 N. | 90 20 E. |
| Baikul | India | 12 22 N. | 75 3 E. |
| Balasore | India | 21 31 N. | 87 0 E. |
| Balsar | India | 20 35 N. | 73 5 E. |
| Baltic Sea | Europe | 57 0 N. | 18 0 E. |
| Baltimore | Ireland | 51 28 N. | 9 19 W. |
| Baltimore | U. S. A. | 39 35 N. | 76 36 W. |
| Baluchistan (State) | Asia | 28 0 N. | 65 0 E. |
| Banavasi | India | 14 34 N. | 75 5 E. |
| Bavanahotte | India | 22 18 N. | 86 10 E. |

| Name of Place. | Name of Country. | Latitude. | Longitude. |
|-----------------------|----------------------------|------------|-------------|
| Bangalore | ... India | 13° 0' N. | 77° 35' E. |
| Bangkok | ... Siam | 14° 0' N. | 96° 15' E. |
| Bareilly | ... India | 28° 26' N. | 79° 25' E. |
| Burdwan | ... India | 23° 14' N. | 87° 55' E. |
| Barbados | ... W. Indies | 13° 40' N. | 59° 50' W. |
| Baroda | ... India | 22° 20' N. | 73° 0' E. |
| Batavia | ... Java | 6° 0' S. | 106° 58' E. |
| Bath | ... England | 51° 22' N. | 2° 23' W. |
| Bavaria (State) | Germany | 48° 48' N. | 12° 0' E. |
| Belgaum | ... India | 15° 51' N. | 74° 30' E. |
| Belgium (State) | Europe | 51° 0' N. | 4° 30' E. |
| Belgrade | ... Yugoslavia | 44° 57' N. | 20° 37' E. |
| Bellavi | ... India | 15° 11' N. | 76° 55' E. |
| Belur | ... India | 12° 55' N. | 76° 35' E. |
| Benares | ... India | 25° 20' N. | 83° 1' E. |
| Bengal (Prov.) | India | 24° 0' N. | 87° 30' E. |
| Berar (Prov.) | India | 20° 35' N. | 77° 0' E. |
| Barbara | ... (Brit. Somili land) | 10° 26' N. | 46° 0' E. |
| Berhampur (Ganjam) | ... India | 19° 20' N. | 84° 55' E. |
| Berhampur (Bengal) | ... India | 24° 6' N. | 88° 20' E. |
| Bezwada | ... India | 16° 40' N. | 81° 0' E. |
| Berlin | ... Germany | 52° 51' N. | 13° 24' E. |
| Bethlehelm | ... Palestine | 31° 41' N. | 35° 15' E. |
| Bhagalpur | ... India | 25° 20' N. | 87° 0' E. |
| Bhopal | ... India | 23° 15' N. | 77° 23' E. |
| Bhutan (State) | Asia | 27° 30' N. | 90° 30' E. |
| Bharatpur | ... India | 27° 28' N. | 77° 10' E. |
| Bhuj | ... India | 23° 12' N. | 68° 2' E. |
| Bikaner | ... India | 28° 0' N. | 73° 22' E. |
| Bidar | ... India | 17° 53' N. | 77° 50' E. |

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| Name of Place. | Name of Country. | Latitude. | Longitude. |
|-----------------|------------------|------------|-------------|
| Bijnour | India | 29° 26' N. | 78° 10' E. |
| Bijapur | India | 16° 50' N. | 75° 47' E. |
| Bismark | U. S. A. | 46° 50' N. | 100° 50' W. |
| Bombay * | India | 18° 52' N. | 72° 35' E. |
| Boordere | India | 25° 25' N. | 76° 0' E. |
| Boston | England | 53° 0' N. | 0° 2' W. |
| Brindisi | Italy | 40° 39' N. | 17° 56' E. |
| Brunswick | Germany | 52° 15' N. | 10° 22' E. |
| Bucharest | Rumania | 44° 25' N. | 26° 2' E. |
| Bushire | Persia | 29° 0' N. | 50° 50' E. |
| Cairo | Egypt | 30° 2' N. | 31° 40' E. |
| Calais | France | 50° 57' N. | 1° 51' E. |
| Calcutta | India | 22° 40' N. | 88° 30' E. |
| Calicut | India | 11° 15' N. | 75° 51' E. |
| Cambridge | England | 52° 12' N. | 0° 8' E. |
| Canterbury | England | 51° 16' N. | 1° 4' E. |
| Canton | China | 23° 25' N. | 113° 32' E. |
| Cape Town | C. of G. Hope | 33° 59' S. | 18° 25' E. |
| Chandranagore | India | 22° 50' N. | 88° 20' E. |
| Cawnpore | India | 26° 37' N. | 80° 10' E. |
| Charleston | United States | 32° 54' N. | 80° 0' W. |
| Chicago | United States | 41° 50' N. | 87° 35' W. |
| Chota Nagpur | India | 23° 0' N. | 83° 30' E. |
| Cochin | India | 9° 43' N. | 76° 13' E. |
| Cologne | Germany | 50° 56' N. | 6° 58' E. |
| Colombo | Ceylon | 7° 0' N. | 79° 45' E. |
| Constantinople. | Thrace | 41° 1' N. | 28° 55' E. |
| Copenhagen | Denmark | 55° 40' N. | 12° 34' E. |
| Corsica, I. | France | 42° 10' N. | 9° 0' E. |
| Costa Rica | Cent. Amer... | 10° 0' N. | 84° 0' W. |
| Croydon | England | 51° 22' N. | 0° 6' W. |
| Croydon | Queensland | 18° 10' S. | 142° 0' E. |
| Cutch | India | 23° 30' N. | 70° 0' E. |

| Name of Place. | Name of Country. | Latitude. | Longitude. |
|----------------|------------------|------------|------------|
| Dacca | India | 23° 40' N. | 90° 30' E. |
| Dakota N. St. | U. S. A. | 47 0 N. | 100 0 W. |
| Damascus | Syria | 33 33 N. | 36 18 E. |
| Darjeeling | India | 27 5 N. | 88 6 E. |
| Dartmoor | England | 50 38 N. | 3 58 W. |
| Delhi | India | 28 58 N. | 77 0 E. |
| Derby | England | 52 50 N. | 1 28 W. |
| Devonport | England | 50 22 N. | 4 12 W. |
| Dublin | Ireland | 53 23 N. | 6 15 W. |
| Dunkirk | France | 51 3 N. | 2 22 E. |
| Durban | S. Africa | 29 58 S. | 30 57 E. |
| East London | C. Gd. Hope | 32 58 S. | 27 52 E. |
| Ellichpur | India | 21 12 N. | 77 8 E. |
| Emden | Germany | 53 22 N. | 7 13 E. |
| Florence | Italy | 43 47 N. | 11 20 E. |
| Fyzabad | India | 26 44 N. | 82 9 E. |
| Gaya | India | 24 45 N. | 85 5 E. |
| Genoa | Italy | 44 25 N. | 8 59 E. |
| Ghazni | Afghanistan | 33 37 N. | 66 0 E. |
| Gibraltar | Spain | 36 7 N. | 5 21 W. |
| Glasgow | Scotland | 55 51 N. | 4 16 W. |
| Goa | India | 15 30 N. | 73 40 E. |
| Golconda | India | 17 30 N. | 78 2 E. |
| Greenwich | England | 51 29 N. | 0 0 E. |
| Gwalior | India | 26 22 N. | 78 2 E. |
| Hague | Netherlands | 52 4 N. | 4 18 E. |
| Halifax | England | 53 43 N. | 1 52 W. |
| Hong-kong | China | 22 16 N. | 114 9 E. |
| Hyderabad | India | 17 29 N. | 78 30 E. |
| Hyderabad Sind | India | 25 30 N. | 68 34 E. |
| Jaipdr | India | 27 4 N. | 76 0 E. |
| Jerusalem | Palestine | 31 45 N. | 35 17 E. |
| Jodhpur | India | 26 26 N. | 72 58 E. |

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| Name of Place. | Name of Country. | Latitude. | Longitude. |
|----------------|------------------|------------|------------|
| Jubbulpore | India | 23° 12' N. | 79° 59' E. |
| Juggernaut | India | 19 59 N. | 86 2 E. |
| Kansas City | U. S. A. | 39 3 N. | 94 39 W. |
| Karachi | India | 25 0 N. | 67 3 E. |
| Karikal | India | 11 0 N. | 79 39 E. |
| Kobe | Japan | 35 0 N. | 135 0 E. |
| Kolhapur | India | 16 40 N. | 74 18 E. |
| Kumbhakonam | India | 11 0 N. | 78 40 E. |
| Lahore | India | 31 39 N. | 74 23 E. |
| Lancaster | England | 54 3 N. | 2 48 W. |
| Lashkar | India | 26 0 N. | 77 0 E. |
| Leipzig | Germany | 51 20 N. | 12 21 E. |
| London | Canada | 42 55 N. | 81 11 W. |
| London | England | 51 30 N. | 0 5 W. |
| Los Angeles | U. S. A. | 34 20 N. | 118 45 W. |
| Madras | India | 13 4 N. | 80 4 E. |
| Madrid | Spain | 40 25 N. | 3 40 W. |
| Madura | India | 9 50 N. | 78 15 E. |
| Mahe | India | 11 33 N. | 75 35 E. |
| Mandalay | Burma | 22 0 N. | 96 15 E. |
| Manila | Philippines | 14 58 N. | 121 0 E. |
| Mantua | Italy | 45 10 N. | 10 48 E. |
| Masulipatam | India | 16 15 N. | 81 12 E. |
| Mecca | Arabia | 21 20 N. | 40 20 E. |
| Moscow | Russia | 55 40 N. | 37 40 E. |
| Multan | India | 30 12 N. | 71 31 E. |
| Murshidabad | India | 24 2 N. | 88 0 E. |
| Mysore | India | 12 0 N. | 76 38 E. |
| Naples | Italy | 40 52 N. | 14 13 E. |
| Natal | South Africa | 29 0 S. | 30 30 E. |
| New York | United States | 41 0 N. | 73 55 W. |
| Nilgiri Hills | India | 11 15 N. | 76 30 E. |
| Niniveh | Mesopotamia | 36 25 N. | 43 31 E. |

| Name of Place. | Name of Country. | Latitude. | Longitude. |
|-----------------|------------------|------------|------------|
| Olympia | Greece | 37° 40' N. | 21° 20' E. |
| Ottawa | Canada | 45 12 N. | 75° 52 W. |
| Paris | France | 48 50 N. | 2 21 E. |
| Poona | India | 18 32 N. | 73 53 E. |
| Prestonpans | Scotland | 55 58 N. | 2 58 W. |
| Puri | India | 19 59 N. | 86 2 E. |
| Quebec | Canada | 47 0 N. | 71 0 W. |
| Quetta | India | 30 12 N. | 67 30 E. |
| Rio de Janeiro. | Brazil | 22 50 S. | 43 44 W. |
| Saar, R. | Germany | 49 28 N. | 6 45 E. |
| Salt Lake City | U.S.A. | 40 55 N. | 112 0 W. |
| San Francisco. | U.S.A. | 38 0 N. | 122 24 W. |
| Seringapatam | India | 12 13 N. | 76 40 E. |
| Shanghai | China | 31 28 N. | 121 28 E. |
| Sheffield | England | 53 23 N. | 1 27 W. |
| Shillong | India | 25 31 N. | 91 58 E. |
| Srinagar | India | 34 14 N. | 74 50 E. |
| Surat | India | 21 2 N. | 72 50 E. |
| Taranto | Italy | 40 28 N. | 17 13 E. |
| Udaipur | India | 24 38 N. | 73 35 E. |
| Waterloo | Belgium | 50 44 N. | 4 23 E. |

TABLE III.

Equation of Time

| Date. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. |
|-------|------|------|------|------|-----|------|------|------|------|------|------|------|
| | M. | M. | M. | M. | M. | M. | M. | M. | M. | M. | M. | M. |
| 1. | + 3 | + 14 | + 13 | + 4 | - 3 | - 2 | + 3 | + 6 | 0 | - 10 | - 16 | - 11 |
| 2. | 4 | 14 | 12 | 4 | 3 | 2 | 4 | 6 | 0 | 10 | 16 | 11 |
| 3. | 4 | 14 | 12 | 4 | 3 | 2 | 4 | 6 | - 1 | 11 | 16 | 10 |
| 4. | 5 | 14 | 12 | 3 | 3 | 2 | 4 | 6 | 1 | 11 | 16 | 10 |
| 5. | 5 | 14 | 12 | 3 | 3 | 2 | 4 | 6 | 1 | 11 | 16 | 10 |
| 6. | 6 | 14 | 12 | 3 | 3 | 2 | 4 | 6 | 1 | 12 | 16 | 10 |
| 7. | 6 | 14 | 12 | 2 | 3 | 1 | 5 | 6 | 1 | 12 | 16 | 9 |
| 8. | 7 | 14 | 11 | 2 | 4 | 1 | 5 | 6 | 2 | 12 | 16 | 9 |
| 9. | 7 | 14 | 11 | 2 | 4 | 1 | 5 | 5 | 2 | 13 | 16 | 8 |
| 10. | 7 | 14 | 11 | 2 | 4 | 1 | 5 | 5 | 3 | 13 | 16 | 7 |
| 11. | 8 | 14 | 10 | 1 | 4 | 1 | 5 | 5 | 3 | 13 | 16 | 7 |
| 12. | 8 | 14 | 10 | 1 | 4 | 1 | 5 | 5 | 3 | 13 | 16 | 7 |
| 13. | 9 | 14 | 10 | 1 | 4 | 0 | 5 | 5 | 4 | 14 | 16 | 6 |
| 14. | 9 | 14 | 10 | 0 | 4 | 0 | 6 | 5 | 4 | 14 | 16 | 6 |
| 15. | 9 | 14 | 9 | 0 | 4 | 0 | 6 | 4 | 5 | 14 | 15 | 5 |
| 16. | 10 | 14 | 9 | 0 | 4 | 0 | 6 | 4 | 5 | 14 | 15 | 5 |
| 17. | 10 | 14 | 9 | 0 | 4 | 0 | 6 | 4 | 5 | 14 | 15 | 4 |
| 18. | 10 | 14 | 8 | 0 | 4 | + 1 | 6 | 4 | 6 | 15 | 15 | 4 |
| 19. | 11 | 14 | 8 | - 1 | 4 | 1 | 6 | 4 | 6 | 15 | 15 | 3 |
| 20. | 11 | 14 | 8 | 1 | 4 | 1 | 6 | 3 | 6 | 15 | 14 | 3 |
| 21. | 11 | 14 | 8 | 1 | 4 | 1 | 6 | 3 | 7 | 15 | 14 | 2 |
| 22. | 12 | 14 | 7 | 1 | 4 | 2 | 6 | 3 | 7 | 15 | 14 | 2 |
| 23. | 12 | 14 | 7 | 2 | 3 | 2 | 6 | 3 | 7 | 16 | 14 | 1 |
| 24. | 12 | 13 | 7 | 2 | 3 | 2 | 6 | 2 | 8 | 16 | 13 | 1 |
| 25. | 12 | 13 | 7 | 2 | 3 | 2 | 6 | 2 | 8 | 16 | 13 | 0 |
| 26. | 13 | 13 | 6 | 2 | 3 | 2 | 6 | 2 | 8 | 16 | 13 | 0 |
| 27. | 13 | 13 | 6 | 2 | 3 | 3 | 6 | 2 | 9 | 16 | 13 | 1 |
| 28. | 13 | 13 | 5 | 2 | 3 | 3 | 6 | 1 | 9 | 16 | 12 | 1 |
| 29. | 13 | ... | 5 | 3 | 3 | 3 | 6 | 1 | 9 | 16 | 12 | 2 |
| 30. | 13 | ... | 5 | 3 | 3 | 3 | 6 | 1 | 10 | 16 | 12 | 2 |
| 31. | 13 | ... | 4 | ... | 3 | ... | 6 | 0 | ... | 16 | ... | 3 |

TABLE IV.

Table of Standard Times

+ Fast of Greenwich Mean Time
 — Slow of Greenwich Mean Time

(e.g. If it is 12 noon at Greenwich, it will be 5.30 p.m. Indian Standard Time and 9 a.m. Eastern Brazil Standard Time and so on.)

| | | H. | M. | |
|--|-----|-----|-----|---|
| | | 5 | 30 | + |
| India | ... | ... | ... | |
| Mid-European Zone—i.e., Norway, Sweden, Denmark, Germany, Poland, Albania, Austria Hungary, Czechoslovakia, Italy, Malta | ... | 1 | 0 | + |
| British Isles* and all European Countries | | | | |
| West of Mid-European Zone | ... | 0 | 0 | |
| Holland | ... | 0 | 20 | + |
| Iceland | ... | 1 | 0 | + |
| Palestine, Syria, Egypt, South Africa, Finland* and all other European Countries East the Mid-European Zone | ... | 2 | 0 | + |
| New Zealand* | ... | 11 | 30 | + |
| Japan, Korea | ... | 9 | 0 | + |
| Siberia (97° 30' E. to 112° 30' E.) | ... | 8 | 0 | + |
| Hong Kong | ... | 8 | 0 | + |
| Uganda, Kenya Colony | ... | 2 | 30 | + |

x = From April 22nd to October 7th difference + 1 h. 0 m.
 y = From June 20th to September 30th difference + 3 h. 0 m.
 z = From 2nd Sunday in October to 3rd Sunday in March + 12 h. 0 m.

| | | H. | M. | |
|--|-----|-----|----|---|
| Eastern Brazil | ... | ... | 3 | 0 |
| British Columbia, California, Washington | | 8 | 0 | — |
| Mountain States of U.S.A. | ... | 7 | 0 | — |
| Uruguay | ... | 3 | 30 | — |
| New Foundland* | ... | 3 | 31 | — |
| Canada (68° W. to 88° long. W.) | ... | 5 | 0 | — |
| Eastern States of U.S.A. | ... | 5 | 0 | — |
| Chile, Peru | ... | 5 | 0 | — |
| Canada (88° W. to 103° W. long.) | ... | 6 | 0 | — |
| Canada (103° W. to B. C. Boundary) | ... | 7 | 0 | — |
| Central States of U.S.A. | ... | 6 | 0 | — |

* = From September 1st to March 31st, difference :—4 h.

An Index of Technical Terms.

| | |
|---------------------------|-------------------------------------|
| Adi | First |
| Adhikamasa | Intercalary month. |
| Ahas | Diurnal duration. |
| Akshamsa | Terrestrial Latitude. |
| Angaraka | Mars. |
| Antya | Last. |
| Apamandala | Ecliptic. |
| Apasavya | Sinistral. |
| Apoklima | Succedent house. |
| Aprakashaka grahas | Shadowy planets. |
| Arambha | Beginning. |
| Arambha-sandhi | The starting point. |
| Ashtamsa | ½ dn. of a sign. |
| Ashuddha rasi | The sign that cannot be subtracted. |
| Asta | Combustion. |
| Asta Lagna | Descendant. |
| Asu | Equivalent to 4 seconds of Sidereal |
| Athichara | Acceleration. [Time.] |
| Ayanamsa | Precessional distance. |
| Ayu | Longevity. |
| Ayurbhava | Eighth house. |
| | |
| Bhachakra | Zodiac. |
| Bhagana | Revolution of planets. |
| Bhaskaracharya | A great Hindu Astronomer. |
| Bhava | House. |
| Bhavachakra | Table of Houses. |
| Bhava madhya | Mid-point of the house. |
| Bhava-sandhi | Cusp of the house. |
| Bhava sphuta | Determining longitudes of houses. |
| Bhogya | To pass, e.g., time to pass. |
| Bhogyamsas | Arc to gain. |

| | |
|-------------------|---|
| Bhratru | Brother. |
| Bhratrubhava | Third house. |
| Bhuja | Distance from the nearest Equinoctial. |
| Bhuktha | Gained, e.g., Time gained. |
| Bhukthamsas | Arc gained. |
| Brahmanā | Planetary Rotation. |
| Brihat Jataka | A work on Horoscopy by Varahamihira |
| Budha | Mercury. |
| Chakra | Diagram, map. |
| Chandra | The Moon. |
| Chandramana | Lunar month. |
| Chara | Variable. |
| Charakhanda | Ascensional difference. |
| Chara rasis | Movable signs. |
| Chaturthamsa | ½ dn. of a sign. |
| Dakshina | South. |
| Dakshina gola | South (celestial) hemisphere; 180° to |
| Dasabhava | Mid-heaven. {360° of the zodiac. |
| Dasamsa | ⅓ dn. of a sign. |
| Dasavargas | Ten kinds of division: e.g., of a sign. |
| Dhanabhava | Second house. |
| Dhanas | Sagittarius. |
| Dharmabhava | Ninth house. |
| Dhruba | Time of right ascension. |
| Dina | Day, diurnal duration. |
| Dinardha | Half diurnal duration. |
| Drekkana | ⅓ dn. of a sign. |
| Dwadasamsa | ⅔ , |
| Dwiswabhava rasis | Common signs. |
| Ekadasamsa | ⅕ dn. of a sign. |

| | |
|--------------|--|
| Ghati | Equivalent to 24 minutes of English time. |
| Ghatikamsa | $\frac{1}{12}$ dn. of a sign. [Time.] |
| Gola | Hemisphere. |
| Graha | Planet. |
| Graha Sphuta | Determining planetary longitudes. |
| Guru | Jupiter. |
| Horā | $\frac{1}{2}$ dn. of a sign. |
| Ishtakala | The given time. |
| Jagatchakshu | The Sun. |
| Kalatra | Wife. |
| Kalatrabhava | Seventh house. |
| Kalidasa | A great Indian Dramatist. |
| Kalpa | 4,320,000,000 Sidereal years. |
| Kanya | Virgo. |
| Karaka | Promoter. |
| Karana | Half a lunar day. |
| Karma | Profession. |
| Karma bhava | Tenth-house. |
| Kataka | Cancer. |
| Kendra | Quadrant. |
| Kendra bhava | Angular house. |
| Kethu | Dragon's tail. |
| Khanda | Division or Section. |
| Kshepa | Celestial Latitude. |
| Kranti | Declination. |
| Kuja | Mars |
| Kumbha | Aquarius. |
| Kundali | Diagram, map. |
| Labha bhava | Eleventh house. |

| | |
|--------------------------|---|
| Lagna | Ascendant. |
| Lagna Sphuta | Finding Longitude of Ascendant. |
| Lipta | A unit of measure of Time or Arc. |
| | |
| Madhya | Middle. |
| Madhya Lagna | Mid-heaven. |
| Maharishis | Great Sages of India. |
| Makara | Capricorn. |
| Mandochcha | A celestial force. |
| Mathamaha | Maternal relations. |
| Mathru | Mother. |
| Meena | Pisces. |
| Mesh | Aries. |
| Mithuna | Gemini. |
| Mitra | Friend. |
| Moolathrikonas | Positions similar to those of exaltation. |
| | |
| Nadi vritta | Celestial equator. |
| Naisargika | Natural. |
| Nakshatra | Constellation. |
| Nakshatra Dina | Sidereal day. |
| Natha | Meridian-distance. |
| Navamsa | 1/8 dn. of a sign. |
| Nirayana | Ex-precession. |
| | |
| Oja Rasis | Odd signs. |
| Oochcha | Exaltation. |
| Oopachayas | 3, 6, 10 and 11 houses. |
| | |
| Pada | Quarter. |
| Panapara | Succedent house. |
| Panchamsa | 1/5 dn. of a sign. |
| Panchanga | Almanac. |
| Panchasiddhantika | A Hindu Astronomical work. |

| | |
|------------------------|--------------------------------------|
| Para | A unit of measure of Arc or Time. |
| Paratpara | Do |
| Paschad | Western. |
| Patha | A celestial force. |
| Pathala Lagna | Lower meridian. |
| Phalit bhaga | Judicial or predictive portion. |
| Pithamaha | Paternal relations. |
| Pithru | Father. |
| Poorvabhaga | Eastern or the first part. |
| Prag | Eastern. |
| Prarupa | A unit of measure of Arc or Time. |
| Prustodaya | Rising by hinder part : e.g., signs. |
| Putra | Children. |
| Putra bhava | Fifth house. |
| Rahu | Dragon's head. |
| Rasathala Lagna | Lower meridian. |
| Rasi | A zodiacal sign. |
| Rasi chakra | Zodiacal Diagram |
| Rasimana | Time of oblique ascension. |
| Rasi kundali | Zodiacal Diagram |
| Sama | Neutral. |
| Sandhi | Junctional point. |
| Sani | Saturn. |
| Saptha vargas | Seven kinds of division. |
| Satru | Enemy. |
| Satru bhava | Sixth house. |
| Sauramana | Solar month. |
| Savana Dina | Apparent solar day. |
| Savya | Dextral. |
| Sayana | With Precession. |
| Seegrochcha | A celestial force. |
| Shadvargas | Six kinds of division. |

| | |
|--|--|
| Shashtamsa | $\frac{1}{6}$ dn. of a sign. |
| Shashtiymamsa | $\frac{1}{6}$ dn. of a sign. |
| Shodasamsa | $\frac{1}{12}$ dn. of a sign. |
| Simha | Leo |
| Sirodaya" | Rising by the head : e.g., signs. |
| Spashta | Planetary or house longitude. |
| Sthanabala | Positional strength. |
| Sthira rasis | Fixed signs. |
| Sukha bhava | Fourth house. |
| Sukra | Venus. |
| Sunya | Zero. |
| Surya | Sun. |
| Surya siddhanta | A Hindu Astronomical work. |
| Suryodayadi Jana-nakala ghatikaha | Ghatis elapsed from sunrise to birth. |
| Tatkalika | Temporary. |
| Tatpara | A unit of measure of Arc or Time. |
| Thanubhava | First house. |
| Thithi | Luni-Solar day. |
| Thrimamsa | $\frac{1}{3}$ dn. of a sign. |
| Thula | Libra. |
| Thrikona | Trine. |
| Ubbhayodaya | Rising both by head and hinder part : |
| Udaya | Rising. [e.g., signs- |
| Udaya Lagna | Ascendant. |
| Unnatha | 30 ghati diminished by Natha. |
| Uttara | North. |
| Uttarabhaga | Second part. |
| Uttara Gola | North (celestial) hemisphere 0° to 180° of the zodiac. |
| Vakra | Retrograde. |
| Varahamihira | A great Indian Writer. |

| | | |
|----------------------|-------------------------------------|---------|
| Varga | Manner of division. | [Time.] |
| Vighati | Equivalent to 24 seconds of English | |
| Vilipta | A unit of measure of Arc or Time. | |
| Virama sandhi | End-point. | |
| Virupa | A unit of measure of Arc or Time. | |
| Vishavarekha | Terrestrial equator. | |
| Vrayabhava | Twelfth house. | |
| Vrischika | Scorpio. | |
| Vrishabha | Taurus. | |
| Yugma Rasis | Even signs. | |

ERRATA

| Page. | Line. | Incorrect. | Correct. |
|--------------|--------------|---------------------------------|-----------------------------------|
| 3 | 14 | <i>For</i> "Later Writers" | <i>Read</i> "Writers" |
| 3 | 25 | "axis" | "axes" |
| 11 | 24 | "art. 25" | <i>Insert</i> "art. 25 a" |
| 30 | 17 | "where" | <i>Read</i> "when" |
| 35 | 17 | "27 = the required quantity" | "27: the required quantity" |
| | * | | |
| 36 | 10 | "21° 27' 31"" | "21° 27' 41"" |
| 57 | 16 | "on" | "in" |
| 80 | 1 | "Raphaeil's" | "Raphael's" |
| 90 | 7 | "detailly" | "in detail" |
| 91 | 21 | "Sun" | "Sani" |
| 111 | 19 | "Brit. Somililand" | "Brit. Somaliland". |