

# **TABLE OF CONTENTS**

## **REFERENCES**

Appendix A: The ‘Puranic’ view of events and things

Appendix B: Random thoughts and notes,

Appendix C: Samhitas, Braahmanaas,

Appendix D: Vedaangaas & Upavedas

Appendix E: Puraanas & Smritis

Appendix F: Selected verses from Bhagavad Gita

Appendix G: Introductory Overview on Brahma Sutra

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## ***APPENDIX – A***

### **The ‘Puranic’ View of Events and Things - Origin and Creation, Time, Year, Month, Day, Panchanga (Calendar) etc.**

#### **Origin and Creation:**

According to our Scriptures, two states exist, the ‘avyaktha’ (the un-manifest state) and the ‘vyaktha’ (the manifest state). Thus, the universe existed almost always for a long time, even while its existence is not unlimited, in either of the two states. When we see the universe, it is in its manifest (‘vyaktha’) form while when universe is not seen it is in its un-manifest (‘avyaktha’) form. The creator’s, Brahma’s, life span of one hundred Brahma years (about 311.04 trillion human years) consists of months and days, with each day time of Brahma equal to 4.32 billion human years and equal night time of another 4.32 years. At the end of each day of Brahma, known as a ‘kalp’, Brahma’s night time begins which is known as ‘kalp-pralaya’ because the whole universe is deluged with water. All things that existed in the universe at the end of the previous day-time will all merge in Brahma during Brahma’s night-time and thus be in the ‘avyaktha’ or un-manifest state. At the beginning of the next Brahma day, the universe with all its contents will be restored exactly in an ‘as is’ condition by Brahma. Viewed in this context, the origins of the universe and creation, as hypothesized by science and our scriptures vary widely. At the end of Brahma’s life-span of 100 Brahma years, there is total darkness and the deluge of water fills everything and the first Brahma will be created by Lord Vishnu (one who has spread everywhere), the Para Brahman (one who grows unlimited everywhere).

During the time of ‘MahaPralaya’, when everything including this whole world is under water, Lord Vishnu (the ParaBrahman) was lying on his serpent Anantha on the surface of water. From His navel, came a lotus stem and flower from which was created Brahma from His own part. When Brahma opened his eyes, he saw only water all over (looked in the four directions with his four heads and eight eyes). Later on, he saw Lord Vishnu who taught, and advised, him to start creation.

#### **Creation:**

Brahma created the fourteen worlds (seven above the surface and seven below the surface). While each of these fourteen worlds have their own names, three names of these fourteen worlds are used to indicate broadly all the fourteen worlds as the Swargah (or Suvah) Loka (above the earth’s level), Bhuvah Loka (immediately above the earth’s level) and Bhuh Loka (earth and the seven Lokas below earth’s level including Pathala Loka, also known as the nether world). The seven lokas below the level of earth (Athalam, Vithalam, Suthalam, Thalathalam, Mahathalam, Rasathalam and Pathalam) along with earth (Bhuh Thalam) is known as Bhuh lokam; Mahah Loka, Janah Loka, Thapah Loka, Sathya Loka and Swargah (or Suvah) Loka is known as Suvah Loka and the one Loka in the middle, the Bhuvah Loka, as The Bhuvah Loka. These three Lokas are known also as Bhuh, Bhuvah and Suvah as in BhurBhuvaSsuvah. He then created the four munis (or rishis) the Sanathkumaras – Sanakan, Sanandan, Sanaathan and Sanathkumaran – and asked them to continue creation. They were, however, interested

ONLY in devotion to Lord Vishnu and didn't proceed to create. Even though Lord Brahma controlled his anger at the refusal by Sanathkumaras of his directive to them to engage in creation, there arose from Brahma's mid-region of his nose Rudra by name of Mrida. This Rudra divided himself into eleven Rudras. Brahma created eleven girls for these eleven Rudras and blessed them with all the jnana- and karma- indriyas required to engage in creation. Even though the Rudras engaged in creation, the created beings turned out to be the fiercely-shaped Rudramurthis. Brahma then ended their creative powers and sent them for tapas. Lord Brahma himself continued creation and created Marichi, Athri, Angiras, Pulasthyan, Pulahan, Krathu and Bhrigu. They are sometimes called Brahma's Saphama Munis. Later on Brahma created Vasishtha, Daksha, Narada, Dharmadeva, Kardama, Saraswathi, Jambavan and Garga. Brahma then created Swayambhuva Manu (the Manu who originated by himself from Brahma and the First Manu) and Shatharupa who married and produced children – 2 boys Priyavratha and Uthanapada and three girls, Aahuthi who was married to Shatharupan, Devahuthi who was married to Kardama and Prasuthi who was married to Daksha. Kardama and Devahuthi had nine daughters and one son (Kapila who was later on known as Kapila Vasudeva the great Maharshi). The daughters of Kardama & Devahuthi were married as: Kala to Marichi; Anasuya to Athri; Sradha to Angiras; Havirbhu to Pulasthya; Gathi to Pulahan; Kriya to Krathu; Khyathi to Brighu; Arundhathi to Vasishtha. Son of Angiras is Brihaspathi, the Guru of Devas. Lord Vishnu came in the form of a son, Yejnana, to Aahuthi and Shatharupa. Yejnana married Dakshana (who is part of Goddess Lekshmi). Yejnana was the Devendra in the Swayambhuva Manu reign. Prasuthi & Daksha had fifty daughters and Ashtha Vasus as children. Ten of these daughters were given in Marriage to Dharmadeva, twentyseven of them to Chandra and thirteen of them to Kasyapa, son of Marichi and Kala.

Narada remained a Brahmachari singing the praises of Lord Vishnu as "Narayana, Narayana" and moving from places to places. Sanathkumaras were interested in only learning and scholarship.

All created beings in this world are the descendants of these originally created Brahmashis, Brahma Munis, children of Swayambhuva Manu and children of Daksha Prajapathi.

### **Time – Definition, measurement and monitoring**

#### **Time:**

1. The time taken for a slender and pointed needle to pierce a tender leaf is defined as 'one kshanam'
2. Thirty 'kshanam' is 'one thruti'
3. Thirty 'thruti' is 'one kala'
4. Thirty 'kala' is 'one nimisham or one mathra or one kashta or one noti'
5. Four 'nimisham' is 'one ganitham'
6. Ten 'ganithams' form 'one Neduveerpu'
7. Six 'Neduveerpu' or Two hundred and forty (240) mathra is 'one vinazhika'

8. Sixty vinazhika is 'one nazhika'
9. Sixty nazhika is 'one day'(Since we know that one day has 24 hours, each hour is 2.5 nazhika. Since we also know that one day has 864,000 nimisham or mathra and since we also know that a day has 86,400 seconds, it follows that one second is equal to 10 nimisham or 10 mathra).
10. 15 days constitute 'one paksham'
11. Two pakshams or thirty days constitute 'one month'. (This is equal to one day of "pithrus", one paksham is their daytime and the other paksham is their night time).
12. Threehundred and sixtyfive days constitute one 'human' year. This constitutes 'one Deva day' or also known as "one Divya day'
13. Three hundred and sixty 'Deva' or 'Divya' days constitute one "Deva year" or "Divya Year". (Thus, one "Deva Year" is equal to 360 'human years').
14. There are four Yugas, the Kritha Yuga, the Thretha Yuga, the Dwapara Yuga and the Kali Yuga. Together these constitute one "Chathur Yuga" ('Chathur' is a Sanskrit word that means four). The Kritha Yuga has 4,800 Deva years, the Thretha Yuga has 3,600 Deva years, the Dwapara Yuga has 2,400 Deva years and the Kali Yuga has 1,200 Deva years. Thus the Chathur Yuga has 12,000 deva years or 4,320,000 human years (4.32 Million human years), since each Deva Year is equal to 360 human years.
15. 1,000 of these Chathur Yugas constitute a single day-time for Lord Brahma. Thus, Brahma's single day-time is equal to 4.32 Billion human years. At the end of his day-time, Lord Brahma starts to go to sleep or his night-time which lasts another 1,000 Chathur Yugas. The day time of Brahma (and also his night time) where each is 1000 chatur yuga is known as 'Kalpam'. When Lord Brahma goes to sleep, the world is in a deluge of water that submerges the whole world or this is also known as "Pralayam" (which lasts for 1,000 chatur yugas). It is instructive to note that the famous astro-physicist, Carl Sagan, also concluded that it is few billion years time since the start of the present solar system by precise scientific calculations and that he has stated that 'the Indians are correct in stating that the parlay or deluge of water occurs after 4.32 billion years'. Thus, a single day and night time together, or a single day of Lord Brahma consists of 2,000 Chathur Yugas or 8.64 Billion Years.
16. Three hundred and sixty such Brahma days constitute one Brahma Year. (This is equal to 3.1104 Trillion human years).
17. One Hundred such Brahma years is the Life of Brahma (311.04 Trillion human years).
18. One Lifetime of Brahma is just one second of Lord Vishnu (the ParaBrahman).
19. When the night time of Brahma ends, the 'pralayam' also ends and the next-day's day-time and his 'creation' ('srishti') begin.
20. Thus, as each Brahma day begins, creation begins and when Brahma's day ends and night begins, the world gets submerged in floods (pralayam) that lasts thru the night-time of Brahma. As His next day begins, creation begins and so on and the cycle is repeated.

During one day-time of Brahma, 14 Manus rule the world. Thus, each Manu's reign (or known as "Manvantharam") consists of  $71 \frac{3}{7}$  'chatur yugas'. The names of these fourteen Manus are: Swayambhuvan, Swarochishan, Uthaman (Outhami), Thamasan, Raivathan, Chakshushan, Vaivaswathan, Savarni, Daksha Savarni, Brahma Savarni, Dharma Savarni, Rudra Savarni, Rouchyadeva Savarni and Indra Savarni. The complete rule of all these 14 Manus constitute 1000 Chatur Yugas and is one day-time of Brahma. This is also known as "Kalpa". In each Manvanthara, Manu, the Saptharshi's, Indra, Devas and Manu's children are the Athikaris or responsible administrators to ensure that Dharma and God's will and plan are implemented. At the end of each Manvanthara, that Manu's life, his children's life and all those associated with the administration of the world according to Lord's wishes (Saptharshis, Indra and Devas) will all die. At the end of fourteen Manvantharas signifying the end of his day-time (or one Kalpa), Brahma goes to sleep for the length of another 'Kalpa', there is 'pralayam'. Thus 2 Kalpas constitute one day of Brahma. Next day morning, he starts the creation again and the same 14 Manus rule for 1000 Chatur Yugas (or another day-time of Brahma) and so on. At the end of 100 years, when Brahma's lifetime (also known as MahaKalpam) is over, the world enters into "MahaPralayam" for another 100 Brahma years. During this time, Lord Vishnu lies on the Serpent Anantha in this 'MahaPralaya Ocean'. At the end of 100 Brahma years of 'MahaPralayam', Lord Vishnu creates Brahma and this whole cycle then repeats itself.

### **Present Day:**

The present times are part of 'Kali Yuga'. It started on the day of Lord Krishna's Swarga Arohanam Day (the day of his going back to Vaikuntha after leaving the human form as Krishna Avathar, the ninth Avathar of Lord Vishnu – there are also scholars stating that Krishna is the eighth avatar of Vishnu). Best information from scholarly works available to us indicates that Lord Krishna's Swarga Arohanam took place on February 20, 3100 B. C. Since we are now in year 2004 A. D., we can state that it is about 5104 years after the beginning of Kali Yuga. As noted earlier, Kali Yuga will last for 1200 Deva Years (or 432,000 human years) and hence before the end of this "Chatur Yuga", there are 426,896 years more to be completed.

Our next quest is to find out on which 'Chatur Yuga' is our present day. We need this information to see whether we are nearing the thousandth 'Chatur Yuga' because when that happens the Pralaya will start. We are now in the 'Vaivaswatha Manvanthara'; Vaivaswatha being the seventh Manu. We are now in the twenty-eighth Kali Yuga in the Vaivaswatha Manvanthara (as noted, there are  $71 \frac{3}{7}$  Chatur Yuga in each Manvanthara). Since one daytime of Lord Brahma consists of fourteen Manvantharas, we are only nearing the half-way point of Lord Brahma's daytime; even to get to the half-way point, we must complete Vaivaswatha Manvanthara. For us to complete Vaivaswatha Manvanthara, we first have to complete this Kali Yuga for which we have another 426, 798 years to go! After completion of this KaliYuga, we would then have completed twenty-eight Chatur Yugas. We must then complete the remaining  $43 \frac{3}{7}$  Chatur Yuga (or about 187.61142 million human years, since each Chatur Yuga is 4.32 million human years). Thus, there are 188.03821million more years from A.D. 2002

before Vaivaswatha Manvanthara will end and Brahma's noon-time of this day will arrive.

The next task is to precisely identify where in the life of Brahma are we today in A. D. 2002. As noted from the 'Sankalpam' that we recite during performance of any religious ritual, Brahma has completed 50 years (first half of the 100-year life span) and has just begun the first day, first month of the first year of the second-half ('dwithiya parardham') of Brahma's 100-year life span (188.0382 million more human years to reach the noon-time of his first-day of the first month of his fifty-first year). After Vaivaswatha Manvanthara ends, the remaining 7 manvantharas will occupy the mid-day to the end of the day of Brahma. This is equivalent of 2.16 billion years (since a full day of Brahma is equal to 1000 Chatur Yugas which is equal to 4.32 billion human years). Thus, in 2.34803 billion years (that is, 188.03 million years plus 2.16 billion years) from A. D. 2002, the first day of Brahma's second 50-year of his 100-year life term will be over and the night time of Brahma will start. The Day time or Kalpa of Brahma is over in 2.34803 billion years from A. D. 2002. Stated differently, we have completed 1.97197 billion human years out of the 155.52 trillion years of Brahma's second 50 years of lifetime leaving us with about 155.51803 trillion years remaining in Brahma's second 50-year lifetime to be completed. After the first daytime of the first day of Brahma's second 50-year is completed (in about 2.34803 billion human years), the night time of Brahma will begin at which time, the whole world will be under water ('pralayam') for the full night of Brahma which is about 4.32 billion human years. Then the second day of Brahma's fifty-first year will begin with Swayambhuva Manu as the first Manu and the fourteen Manvantharas of the second day will proceed and so on until the remaining 50 years of Brahma will be complete (about 155.52 trillion years) at which time the life of Brahma will be completed and 'MahaPralayam' will begin for 311.04 trillion years (equal to 100 Brahma years or one second of Para Brahman) after which this process of creation again repeats.

Thus, we have another 2.34803 billion human years before the first day-time of the first month of the fifty-first year of Brahma at which time 'pralayam' or the whole place of earth submerged under water for one-night time of Brahma (equal to 1000 Chatur Yuga or 4.32 billion human years) occurs; then the second day of the first month of Brahma's fifty-first year will begin and so on until Brahma completes 100 years, which is about 155.51803 trillion human years from A. D. 2002 (in the remaining 50 Brahma years) before end of Brahma's life-time and onset of 'MahaPralayam'. We may, therefore, safely go about doing our day's work without worrying whether the 'pralayam' (at the end of the first day of the second-fifty Brahma-year life time of Brahma) in about 2.34803 billion human years or the 'Maha-Pralayam' (at the end of the life time of 100 Brahma years) in about 155.51803 trillion human years is around the corner or not!

### **Panchanga (Day, Nakshatra, Thithi, Yoga, Karana), Month, Year**

Calendar (the word comes from the Roman term for the beginning of the month, Kalends which means the 1<sup>st</sup> of the month) is used to measure time from the earliest days of recorded history. The Babylonian, Egyptian, Greek, Roman, Indian, Chinese, Jewish

calendars are in vogue. This short note will not attempt to discuss these calendars but will confine to scientific aspects of measuring time, the Indian Calendar and of course the Gregorian calendar and the inter-relationship of these calendars.

The observable facts are:

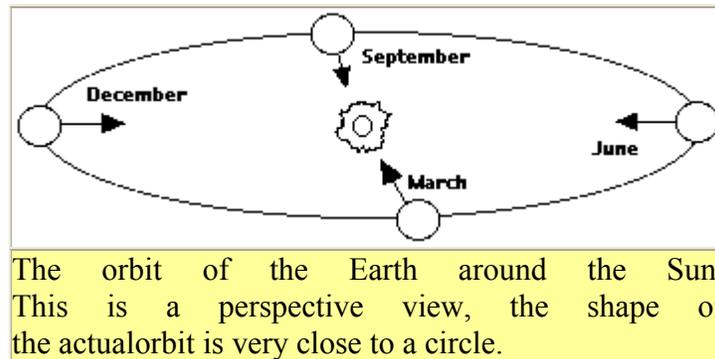
- Earth rotating in its own axis in 24 hours. This gives us daytime and nighttime to make up a single day.
- Moon rotating in its own axis and orbiting around the earth – both these take the same time - in 29.5 days or 29 days, 12 hours and 44 minutes to be exact. This gives us the ‘synodic’ lunar month (time taken for moon’s position from New Moon to the next New Moon relative to Sun). Because moon’s rotation in its own axis occurs in exactly the same time as its orbit around the earth, we see only the same side of the moon. (That’s why people ask the trick question, “When have you seen the far side of the moon, is it on the full moon day or some other day etc.” Answer is never). Each day of the 15-day period from New Moon to Full Moon is counted as one, two, three, .., (these days being given the names in Sanskrit as Prathama (first day), Dwitheeya (second day), Thritheeya (third day) and so on) and is said to belong to the ‘waxing period’ or ‘Shukla Paksha’ in Sanskrit. Similarly for the 15-day period from Full Moon to New Moon day is also named as Prathama, Dwitheeya, Thritheeya, .. and is said to belong to the waning period or ‘Krishna Paksha’.
- The ‘siderial’ month (time taken for moon’s position from New Moon to New Moon relative to the fixed stars) is 27.3 days. For each night, the collection of stars that the moon occupies is known as the ‘Moon’s mansion’. The Indian calendar uses 27 mansions (instead of 27.3) whereas the Chinese and Arab calendars use 28 mansions. Neither 27 nor 28 is useful to obtain an exact division of the 360 degree circle, the Indians using the 27 Nakshatras – Ashvini thru Revathi - (and using each Nakshatra to include 13.33 degrees) whereas the Chinese and Arabs use 28 mansions with each mansion spanning about 12 degrees 51minutes 25.71 seconds. The use of 28 mansions, however, allows 4 groups of 7 each, thus developing a connection between the 7-day week, the 4-week month and the 28 mansions. The 27 lunar mansions used in the Indian calendar has the advantage of more closely approximating the sidereal month (27.3 days) and also fitting nicely with a nine planet group including Rahu and Ketu, the Moon’s nodes, which over time have achieved near planetary status in interpretation.
- Earth orbit around the sun in 365 days, 5 hours and 49 minutes (Surya Sidhdhanta states that this is 365 days, 6 hours and 13 minutes). This is an elliptical orbit. Viewed from earth, it appears to us that the earth is fixed and the sun is moving in this elliptical path, even though, in reality, it is the other way around namely the earth is orbiting around the sun. A wide zone of about 8 degrees on either side of the elliptical path of the apparent motion of the sun, when viewed from earth, on the celestial sphere is known as the ‘zodiac’. The ancient astronomers associated dates when the sun was in the same region of the zodiac as the constellation of stars. There are twelve regions, or rasis as they are called, of the zodiac; these were given the names by the 2<sup>nd</sup> century astronomer Ptolemy. The names are:

Aries (ram), Taurus (bull), Gemini (twins), Cancer (crab), Leo (lion), Virgo (virgin), Libra (balance), Scorpio (scorpion), Sagittarius (archer), Capricorn (goat), Aquarius (water-bearer) and Pisces (fishes). The moment of entry of the sun into each of these paths (that is a zodiacal sign) is known as ‘Samkranthi’ (this term is a Sanskrit term and occurs only in the Hindu or Indian calendar), the stay within that sign is a solar month.

In summary, then, the observable facts of the motions of earth (on its own axis and around the sun) and the motions of moon (on its own axis and around the earth) are what provides us with : day and night, the nakshatra (the 27 or 28 lunar mansions for the ‘siderial month’), the thithi (the 15-day periods), the seasons and the year. The apparent positions of the sun in the celestial sphere (from a fixed observer on earth) give us the 12 lunar months and the “12 constellations of the ‘zodiac’”.

## The Ecliptic

The path of the Sun across the celestial sphere is very close to that of the planets and the moon. After clocks became available, it was a relatively straightforward job for astronomers to relate the path of the Sun in the daytime to the one of stars at night, and to draw it on their star charts. Because of its relation to eclipses, that path is known as the **ecliptic**.



The significance of the ecliptic is evident if we examine the Earth's orbit around the Sun. That orbit lies in a **plane**, flat like a tabletop, called the **plane of the ecliptic** (or sometimes just "the ecliptic"). In one year, as the Earth completes a full circuit around the Sun (drawing above), the Earth-Sun line and its continuation past Earth sweep the entire plane. The far end of that line then traces the ecliptic on the celestial sphere; if you have a star chart handy (it is often included in an atlas), you will find the ecliptic traced there, too.

## The Planets and the Moon

Planets seen in the sky are always near the ecliptic, which means that their orbits are never too far from the plane of the ecliptic. In other words, **the solar system is rather flat**, with all its major parts moving in nearly the same plane.

What about the connection between "ecliptic" and eclipses?

The moon's orbit cuts the ecliptic at a shallow angle, around 5 degrees, which means that on the celestial sphere the Moon, too, follows a path through the zodiac. Half the time the Moon is north of the ecliptic, half the time south of it. If the shadow of the moon hits the Earth, the Sun is eclipsed in the shadow area; if on the other hand the shadow of the Earth covers the moon, the moon goes dark and we have an eclipse of the moon.

Either of these can **only** happen when the Sun, Earth and Moon are on the same straight line. Since the Sun and Earth are in the plane of the ecliptic, the line is automatically in that plane too; if the moon is also on the same line, it must be in the plane of the ecliptic as well.

It takes close to a month for the Moon to go around the Earth ("month" comes from "Moon" – 'moonth' becoming 'month') and during that time its orbit crosses the ecliptic **twice**, as it goes from one side to the other. At the time of crossing, the Sun may be **anywhere** along the ecliptic; usually it is **not** on the Earth-Moon line, and therefore an eclipse usually does **not** take place. Occasionally, however, it is on that line or close to it. If it then happens to occupy exactly the **same** spot on the celestial sphere, we get an eclipse of the Sun, because the moon is then between us and the Sun. On the other hand, if it occupies the spot exactly **opposite** from that of the Moon, the Earth's shadow falls on the Moon and we have an eclipse of the Moon.

### **Early Hindu calendar formulations:**

All discussions from here will pertain to the Hindu calendar with essential references to other calendars. The scientific Hindu calendar, formulated by the ancient Indians, is based on the natural movements of earth, moon and sun (apparent motion of sun as observed from earth). The year is called 'varsha' (meaning 'rains'); thus the 'varsha' or year is when the annual rainy season is over and all seasons for the year are completed and the new seasons of the next year are ready to begin. The period of time between the appearance of Full Moon (or the New Moon) is called a 'Masa' or 'Month' (the lunar month). The night on which the Masa or month becomes complete (or Poorna) is called Pournamasi (or Poornima). After the Pournamasi, moon starts the waning period and in about fifteen days, the moon will not be visible for the whole night; this is known as 'Amavasi' or New Moon day. The lunar month has about 29 ½ days.

From the above observed and observable facts, the calendar is developed with the year, month, day and hour as sub-divisions of time for common use.

The year is 365 ¼ days long. This fraction of a day in the year is taken care of by the introduction of the concept of 'leap years'. That is that, every year will have 365 days with every fourth year having 366 days (to account for the loss of ¼ days in each of the 4 years). Even this is not sufficient because the earth's orbit around the sun takes not 365 ¼ days exactly but 365 days, 6 hours and 13 minutes (Surya Sidhdhantha states this is 365 days, 5 hours, 49 minutes). Thus, the concept of leap years also require a further

adjustment; this adjustment consists of dropping 1 leap year every one hundred years by assigning leap year only if the 'century year' is divisible by 400. In other words, years 1900, 2100, 2200 and 2300 are not leap years but 2000 and 2400 are leap years.

The sun's arrival, and stay, in a zodiac sign alone decides the solar month. The lunar month has duration of about 29 ½ days (29 days, 12 hours and 44 minutes). The task of combining the solar month and lunar month to develop of a luni-solar calendar was successfully achieved by the Hindus of ancient times.

Based on sun's apparent motion in the zodiac and its division into 12 rasis, twelve months in the year are used based on solar months. 12 lunar months will total 354 days, 9 hours and will lag the solar year by about 11 days (10.896 days). There is thus a lag of about 1 month every 3 years between the solar and lunar month usage. The religious calendar of Hindus, as well as many other faiths in the world, is lunar and is based on 'thithis' or lunar days. If the lunar months are allowed to recede progressively, as is done in the Islamic calendar, the seasonal festivals of any particular lunar month will also recede progressively and lose its association with the correct seasons. In other words, the same festival that occurs in spring season during this year, might fall in summer, winter or autumn as the years progress. For lunar months to move through all solar months and to come back to their original position, it takes about 321 years, that is to say that all religious festivals will coincide with the respective seasons only once every 321 years! In order that the religious festivals throughout the year harmonize with the seasons, the ancient Indian rishis devised a unique method of introduction of inter-calary month in the lunar calendar. That is that, when the loss of 11 days in the 12-lunar-month period compared to solar year accumulates to a month in about 3 years time ( in fact, every 32 or 33 months as the case may be), an inter-calary month is inserted in the lunar calendar (this is also known as 'Adhika' Masa or Mala Masa). There are additional points to be taken care of here, in that over a period of time, even with the introduction of inter-calary or Adhika masa (month), things will not be completely in sync and hence a Kshaya Masa (or Suppressed month) has also to be introduced. These are all details handled very precisely and methodically by the ancient Indian rishis and calendar makers who thus implemented and developed and perfected a luni-solar calendar,

Since a Full Moon occurs every 29 days, 12 hours, 44.05 minutes, 2 full moons can occur in the same solar month. This happens, usually, once every 2 ½ years or so (33 lunar months in 32 solar months, as noted above). The extra Full Moon in a month is known as 'Blue Moon'. The folklore expression to denote things occurring rarely "as once in a Blue Moon" has occurred from this definition. If it is indeed a rare occurrence, calling it once in a 'Blue Moon' may not be proper because Blue Moons occur once every 2 ½ years or so. Two Blue Moons in the same year can, and will, occur once every 18 or 19 years, so perhaps usage of "once every double Blue Moons" may be more appropriate to refer to 'rare occurrences' that occur once every twenty years or so!

The Gregorian calendar (named after Pope Gregory XIII suggesting adjustments in A. D.1582 to the then prevailing Roman Calendar) is artificial and arbitrary. The Romans started their calendar from days of the legendary founder and first king of Rome,

Romulus (circa 750 B. C.) who patterned their calendar after the Greeks and designed the year with 10 months and 304 days. Not much information is available how the remaining  $61 \frac{1}{4}$  days in the year were assigned or allocated. The ten months were named as Mrtius, Aprilis, Maius, Junius, Quintilis, Sextilis, September, October, November and December, the last six names meaning the numbers five thru ten. Roman ruler Numa Pompilius added January and February to the calendar, Julius Caesar changed Quintilius to July (named after him) and Romans changed Sextilis to August (after Emperor Augustus). The calendar changes made during Caesar's time made the calendar Julian Calendar. (who made a civil calendar based entirely on solar month basis rejecting the lunar month basis of 29 days, 30 days etc. The first Julian Calendar started on 1<sup>st</sup> January 46 B. C. The years before the birth of Christ were identified with the prefix B. C. to denote "Before Christ" and the years after birth of Christ use the prefix A. D. to mean "Anno Domini" or in the year of the Lord. There is also some confusion as to the exact date of Christ's birth, some scholars contending that his birth occurred few years ahead of the year assigned as his birth). While Gregorian calendar is used in most countries today for all civil use, Julian calendar is also used in some instances.

While the Gregorian calendar is in vogue almost universally, it is not scientific but arbitrary. Hindu calendar is scientifically developed.

The division of the 24-hour day into minutes and seconds followed the sexagesimal system of the Mesopotamians (60 minutes in an hour and 60 seconds in a minute).

The Panchanga of the Hindu calendar keeps track of five (Pancha) components (anga) particular to the day. These are (i) day, (ii) thithi (the 'thithi' associated with the day being counted as one, two, three and so on all the way to fifteen (the Full Moon day) from the day after New Moon day (the first day) to the Full Moon day (the fifteenth day); similarly the day after Full Moon day (the first day) to the New Moon day (the fifteenth day); the sequence from first day to the fifteenth day from New Moon day to Full Moon day will be termed as 'Shukla Paksha' and that from first day to the fifteenth day from Full Moon day to New Moon day will be termed as 'Krishna Paksha'), (iii) Nakshatra (or star), (iv) yoga and (v) Karana. Of these, the last two items are of lower significance, thus the three main items pertaining to the day are followed closely in the Hindu Panchanga.

The common order of the wandering heavenly bodies was Saturn, Jupiter, Mars, Sun, Venus, Mercury and Moon. It was common to assign Sun to the first hour of the first day, Venus to the second hour, Mercury to the third hour and so on. Thus in 24 hours of the day, these 7 bodies would be assigned 3 complete times and Sun, Venus and Mercury a fourth time. The first hour of the next day will thus be assigned to Moon. Proceeding in this manner, the days of the 7-day week are Sun's day, Moon's day, Mars's day, Mercury's day, Jupiter's day, Venus's day and Saturn's day. Nordic and Saxon God names were substituted for Mars (Tiw), Mercury (Wotan), Jupiter (Thor) and Venus (Frigg). With changing times, these have become Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday. In the Hindu calendar, names in Sanskrit for these days are ('var' in Sanskrit means day):

Sunday (Ravi Var or Bhanu Var) – Ravi and Bhanu are names for Sun god

Monday (Soma Var) – Soma is name for moon

Tuesday (Mangala Var) – Mangala means auspicious

Wednesday (Soumya Var) – Soumya means mild

Thursday (Guru Var) – Guru is teacher, Guru also means heavy (and refers to Jupiter being the heaviest planet).

Friday (Sukra Var) – Sukra is the teacher or preceptor of demons or asuras who have wealth in plenty, thus signifying Venus’s prosperity-providing stance.

Saturday (Sthira Var) – Sthira means fixed, the motion of Saturn from one Rasi to the next Rasi taking the longest time (amongst all planets) and hence appearing as though fixed in a Rasi for a long time. Another name is Shanai Var, Shanai meaning slowly (slowly moving from one Rasi to the next).

The month is divided into Pakshas, the fifteen-day period being known as Paksha. The fifteen-day period from Full Moon to New Moon is known as Krishna Paksha (or the dark 15-day period signifying that New Moon will result at the end of the 15-day period). The fifteen-day period from New Moon to Full Moon is known as Shukla Paksha (or the white 15-day period, signifying that Full Moon will result at the end of the 15-day period). Thithi of any day during the 15-day period is counted from one (the day after Full Moon or New Moon), two, three and so on until the 15<sup>th</sup> day, which will, in turn, be known as Pournamasi (Full Moon) or Amavasi (New Moon). The names for these thithis are: Prathama (First day), Dvithiya (Second day), Thrithiya (Third day), Chaturthi (Fourth day), Panchami (Fifth day), Shashti (Sixth day), Saptami (Seventh day), Ashtami (Eighth day), Navami (Ninth day), Dashami (Tenth day), Ekadashi (Eleventh day), Dwadashi (Twelfth day), Thrayodashi (Thirteenth day), Chaturdashi (Fourteenth day). The Fifteenth day will either be Full Moon day or New Moon day. Since the same one to fourteen day occurs in the Krishna Paksha and Sukla Paksha, the prefix of Krishna or Shukla will be added to the day based on the day belonging to Krishna or Shukla Paksha.

There are twenty-seven Nakshatras (Hindu Mythology states that these correspond to the twenty-seven wives of the Moon). As stated earlier, these ‘nakshatras’ correspond to the resting place of moon on each day of the ‘siderial month (27.3 days) and is known as ‘lunar mansion’. The Indians use 27 lunar mansions whereas Chinese and Arabs use 28 lunar mansions. The 27 nakshatras used in the Indian calendar are:

#	Name	Degrees (Rasi)	Lord	Meaning
1	Aswinni	00 - 13:20 Aries (Mesha)	Ketu	the horsemen
2	Bharani	13:20 - 26:40 Aries (Mesha)	Venus	the bearers
3	Krittika	26:40 Aries - 10 Taurus (Mesha, Rishabha)	Sun	razor/cutter
4	Rohini	10 - 23:20 Taurus (Rishabha)	Moon	ruddy cow, red, growing
5	Mrigashira	23:20 Taurus - 6:40 Gemini (Rishabha, Mithuna)	Mars	Dear or antelope's head

<b>6</b>	<b>Ardra</b>	6:40 - 20 Gemini (Mithuna)	<b>Rahu</b>	the moist
<b>7</b>	<b>Punurvasu</b>	20 Gemini - 3:20 Cancer (Mithuna, Karkitaka)	<b>Jupiter</b>	return of the light and goods,
<b>8</b>	<b>Pushyami</b>	3:20 - 16:40 Cancer (Karkitaka)	<b>Saturn</b>	nourisher, flower, the best
<b>9</b>	<b>Aslesha</b>	16:40 - 30:00 Cancer (Karkitaka)	<b>Mercury</b>	entwiner, embracer, intimate connection
<b>10</b>	<b>Magha</b>	00 - 13:20 Leo (Simha)	<b>Ketu</b>	beneficent, mighty
<b>11</b>	<b>PurvaPhalguni</b>	13:20 - 26:40 Leo (Simha)	<b>Venus</b>	previous red one
<b>12</b>	<b>UttaraPhalguni</b>	26:40 Leo - 10 Virgo (Simha, Kanni)	<b>Sun</b>	Later red one
<b>13</b>	<b>Hasta</b>	10 - 23:20 Virgo (Kanni)	<b>Moon</b>	Hand
<b>14</b>	<b>Chitra</b>	23:20 Virgo .- 6:40 Libra (Kanni, Thula)	<b>Mars</b>	brilliant, distinguished
<b>15</b>	<b>Svati</b>	6:40 - 20 Libra (Thula)	<b>Rahu</b>	independent, sword
<b>16</b>	<b>Vishaka</b>	20 Libra - 3:20 Scorpio (Thula, Vrischika)	<b>Jupiter</b>	branched, forked branches
<b>17</b>	<b>Anuradha</b>	3:20 - 16:40 Scorpio (Vrischika)	<b>Saturn</b>	subsequent success, following Radha
<b>18</b>	<b>Jyesta</b>	16:40 - 30 Scorpio (Vrischika)	<b>Mercury</b>	the eldest
<b>19</b>	<b>Moola</b>	00 - 13:20 Sagittarius (Dhanu)	<b>Ketu</b>	root, commencement
<b>20</b>	<b>Purva Ashada</b>	13:20 - 26:40 Sagittarius (Dhanu)	<b>Venus</b>	earlier victory
<b>21</b>	<b>Uttara Ashada</b>	26:40 Sagittarius - 10 Capricorn (Dhanu, Makara)	<b>Sun</b>	Later victory
<b>22</b>	<b>Sravana</b>	10 - 23:20 Capricorn (Makara)	<b>Moon</b>	famous, hearing
<b>23</b>	<b>Dhanishta</b>	23:20 Capricorn - 6:40 Aquarius (Makara, Kumbha)	<b>Mars</b>	Very rich, very swift
<b>24</b>	<b>Shatabishak</b>	6:40 - 20 Aquarius (Kumbha)	<b>Rahu</b>	100 medicines or doctors
<b>25</b>	<b>Purva Bhadra Pada</b>	20 Aquarius - 3:20 Pisces (Kumbha, Meena)	<b>Jupiter</b>	earlier auspicious one
<b>26</b>	<b>Uttara Bhadra Pada</b>	3:20 - 16:40 Pisces (Meena)	<b>Saturn</b>	Later auspicious one
<b>27</b>	<b>Revati</b>	16:40 - 30 Pisces (Meena)	<b>Mercury</b>	rich, wealthy

**Yoga and Karana** also provide useful information and constitute the fourth and fifth component (Pancha Anga) of the definition of a particular day. **Thithi, Yoga and**

**Karana** are used to define the distances between Sun and Moon as they traverse the 'zodiac'. The brightness of Moon is due to Sun's rays falling on the Moon. As they traverse the twelve zodiac signs (Sun's travel through these 12 zodiac signs takes one year with Sun spending one solar month in each zodiac sign. Moon travels the 12 zodiac signs in one lunar month. As the Moon approaches the Sun, Sun's rays do not fall on the moon and we do not see the moon (this is the New Moon or Amavasi). When the Moon is farthest from the Sun, in fact when the Moon is in the seventh zodiac sign from the Sun, it is at its farthest and maximum light from Sun's rays fall on the Moon and we get the Full Moon. Eleven Karanas (mainly the Karanas are named as 'Lion', 'Tiger', 'Pig', 'Donkey' etc.) and twenty-seven yogas (names are 'Vishkamba', 'Preethi', Aayushman etc.) are used for the intervening periods between Full Moon and New Moon and also between New Moon and Full Moon. However, it is not common to specifically identify the particular yoga and Karana of the day but only the thithi alone is primarily identified; instead of specific yoga and karana when the five components of a day are being mentioned, the general statement that the 'yoga' and 'karana' are auspicious is used by the words 'shubha yoga' and 'shubha karana' as part of the auspicious moment when rituals and prayers are conducted.

### **The Indian Calendar:**

As a result of a calendar reform in A.D. 1957, the National Calendar of India is a formalized lunisolar calendar in which leap years coincide with those of the Gregorian calendar (Calendar Reform Committee, 1957). However, the initial epoch is the Saka Era, a traditional epoch of Indian chronology. Months are named after the traditional Indian months and are offset from the beginning of Gregorian months (see Table 5.1.1).

In addition to establishing a civil calendar, the Calendar Reform Committee set guidelines for religious calendars, which require calculations of the motions of the Sun and Moon. Tabulations of the religious holidays are prepared by the India Meteorological Department and published annually in *The Indian Astronomical Ephemeris*.

Despite the attempt to establish a unified calendar for all of India, many local variations exist. The Gregorian calendar continues in use for administrative purposes, and holidays are still determined according to regional, religious, and ethnic traditions (Chatterjee, 1987).

### **Rules for Civil Use**

Years are counted from the Saka Era; 1 Saka is considered to begin with the vernal equinox of A.D. 79. The reformed Indian calendar began with Saka Era 1879, Caitra 1, which corresponds to A.D. 1957 March 22. Normal years have 365 days; leap years have 366. In a leap year, an intercalary day is added to the end of Caitra. To determine leap years, first add 78 to the Saka year. If this sum is evenly divisible by 4, the year is a leap year, unless the sum is a multiple of 100. In the latter case, the year is not a leap year unless the sum is also a multiple of 400. Table 1 gives the sequence of months and their correlation with the months of the Gregorian calendar.

**Table 1**  
Months of the Indian Civil Calendar  
Days Correlation of Indian/Gregorian

1. Caitra	30*	Caitra 1	March 22*
2. Vaisakha	31	Vaisakha 1	April 21
3. Jyaistha	31	Jyaistha 1	May 22
4. Asadha	31	Asadha 1	June 22
5. Sravana	31	Sravana 1	July 23
6. Bhadra	31	Bhadra 1	August 23
7. Asvina	30	Asvina 1	September 23
8. Kartika	30	Kartika 1	October 23
9. Agrahayana	30	Agrahayana 1	November 22
10. Pausa	30	Pausa 1	December 22
11. Magha	30	Magha 1	January 21
12. Phalguna	30	Phalguna 1	February 20

\* In a leap year, Caitra has 31 days and Caitra 1 coincides with March 21.

**Principles of the Religious Calendar**

Religious holidays are determined by a lunisolar calendar that is based on calculations of the actual positions of the Sun and Moon. Most holidays occur on specified lunar dates (*tithis*), as is explained later; a few occur on specified solar dates. The calendrical methods presented here are those recommended by the Calendar Reform Committee (1957). They serve as the basis for the calendar published in *The Indian Astronomical Ephemeris*. However, many local calendar makers continue to use traditional astronomical concepts and formulas, some of which date back 1500 years.

The Calendar Reform Committee attempted to reconcile traditional calendrical practices with modern astronomical concepts. According to their proposals, precession is accounted for and calculations of solar and lunar position are based on accurate modern methods. All astronomical calculations are performed with respect to a Central Station at longitude 82°30' East, latitude 23°11' North. For religious purposes solar days are reckoned from sunrise to sunrise.

A solar month is defined as the interval required for the Sun's apparent longitude to increase by 30°, corresponding to the passage of the Sun through a zodiacal sign (*rasi*). The initial month of the year, Vaisakha, begins when the true longitude of the Sun is 23° 15' (see Table 2). Because the Earth's orbit is elliptical, the lengths of the months vary from 29.2 to 31.2 days. The short months all occur in the second half of the year around the time of the Earth's perihelion passage.

**Table 2**  
Solar Months of the Indian Religious Calendar  
Sun's Longitude    Approx. Duration    Approx. Greg. Date

	deg min	D	
1. Vaisakha	23 15	30.9	Apr. 13
2. Jyestha	53 15	31.3	May 14
3. Asadha	83 15	31.5	June 14
4. Sravana	113 15	31.4	July 16
5. Bhadrapada	143 15	31.0	Aug. 16
6. Asvina	173 15	30.5	Sept. 16
7. Kartika	203 15	30.0	Oct. 17
8. Margasirsa	233 15	29.6	Nov. 16
9. Pausa	263 15	29.4	Dec. 15
10. Magha	293 15	29.5	Jan. 14
11. Phalgura	323 15	29.9	Feb. 12
12. Caitra	353 15	30.3	Mar. 14

Lunar months are measured from one New Moon to the next (although some groups reckon from the Full Moon). Each lunar month is given the name of the solar month in which the lunar month begins. Because most lunations are shorter than a solar month, there is occasionally a solar month in which two New Moons occur. In this case, both lunar months bear the same name, but the first month is described with the prefix *adhika*, or intercalary. Such a year has thirteen lunar months. *Adhika* months occur every two or three years following patterns described by the Metonic cycle or more complex lunar phase cycles.

More rarely, a year will occur in which a short solar month will pass without having a New Moon. In that case, the name of the solar month does not occur in the calendar for that year. Such a decayed (*ksaya*) month can occur only in the months near the Earth's perihelion passage. In compensation, a month in the first half of the year will have had two New Moons, so the year will still have twelve lunar months. *Ksaya* months are separated by as few as nineteen years and as many as 141 years.

Lunations are divided into 30 *tithis*, or lunar days. Each *tithi* is defined by the time required for the longitude of the Moon to increase by 120 over the longitude of the Sun. Thus the length of a *tithi* may vary from about 20 hours to nearly 27 hours. During the waxing phases, *tithis* are counted from 1 to 15 with the designation *Sukla*. *Tithis* for the waning phases are designated *Krsna* and are again counted from 1 to 15. Each day is assigned the number of the *tithi* in effect at sunrise. Occasionally a short *tithi* will begin after sunrise and be completed before the next sunrise. Similarly a long *tithi* may span two sunrises. In the former case, a number is omitted from the day count. In the latter, a day number is carried over to a second day.

### **History of the Indian Calendar**

The history of calendars in India is a remarkably complex subject owing to the continuity of Indian civilization and to the diversity of cultural influences. In the mid-1950s, when the Calendar Reform Committee made its survey, there were about 30 calendars in use for setting religious festivals for Hindus, Buddhists, and Jainists. Some of these were also used for civil dating. These calendars were based on common principles, though they had local characteristics determined by long-established customs and the astronomical practices of local calendar makers. In addition, Muslims in India used the Islamic calendar, and the Indian government used the Gregorian calendar for administrative purposes.

Early allusions to a lunisolar calendar with intercalated months are found in the hymns from the Rig Veda, dating from the second millennium B.C. Literature from 1300 B.C. to A.D. 300, provides information of a more specific nature. A five-year lunisolar calendar coordinated solar years with synodic and sidereal lunar months.

Indian astronomy underwent a general reform in the first few centuries A.D., as advances in Babylonian and Greek astronomy became known. New astronomical constants and models for the motion of the Moon and Sun were adapted to traditional calendric practices. This was conveyed in astronomical treatises of this period known as *Siddhantas*, many of which have not survived. The *Surya Siddhanta*, which originated in the fourth century but was updated over the following centuries, influenced Indian calendrics up to and even after the calendar reform of A.D. 1957.

Pingree (1978) provides a survey of the development of mathematical astronomy in India. Although he does not deal explicitly with calendrics, this material is necessary for a full understanding of the history of India's calendars.

## **FOUR YOGAS – PATHS TOWARDS SELF-REALIZATION**

### **Bhakti Yoga, Karma Yoga, Raja Yoga & Jnana Yoga**

#### **Introduction:**

Sanatana Dharma is a way of life practiced by inhabitants of the regions to the east of Sindhu River (known also by its Western name of 'Indus' river); this region is known as 'Bharat'. The Western names for these became: river as 'Indus river', the civilization as the 'Indus valley civilization', the inhabitants as 'Hindus', the Sanatana Dharma as 'Hindu Religion' or 'Hinduism'. Thus, even while the Hindu Religion does not fall under the structure of other organized religions like Christianity, Islam, Judaism, the way of life of the inhabitants of Indus Valley came to be known as Hindu Religion.

Many Hindus themselves do not know much about the structure and tenets of Hindu religion other than few tidbits that most of them have heard here and there. Even though many persons know that Vedas are the scriptural texts of Hinduism, many persons have

neither seen Veda texts nor know to read and understand them. The best that many Hindus know about their religious books is that Bhagavad Gita is an excellent text and referred to, by many people, as the ‘Song of the Divine’ and that it contains valuable advice for daily living and is considered as the ‘accessible religious book’ for Hindus due to its availability in English and other languages.

Practices of Hindu religion also vary. Most persons living in India follow the practices adopted by their forefathers and in the country over the past thousands of years with, or without, knowing the ideas behind the various rituals and in temple worship. The Hindus who have migrated to places outside India have built temples in their adopted countries and homes; however, the successive generations have neither the original fervor of their forefathers nor the understanding required to sustain such rituals. Consequently, many of these persons neither are interested in rituals nor have alternative ideas with the result that some of these practices might go by the wayside.

This paper attempts to summarize the way of life known as Sanatana Dharma and the worship patterns followed therein. In its simplest explanation, Sanatana Dharma rests only on few simple edicts like ‘Satyam Vada (Tell the Truth)’ and ‘Dharmam Chara (Follow Dharma or Righteous Conduct)’. To further provide examples of righteous conduct, the code further provides simple statements like ‘Ahimsa paramo Dharma (non-hurting of others is the greatest dharma)’, ‘Upakaara paramo dharma (helping others is the greatest dharma)’, ‘dharmo rakshathi rakshithah (dharma helps those help sustain dharma)’, ‘sukhasya moolam dharmah (the root of happiness is dharma)’, ‘dharme sarvam prathishtitham (everything rests on dharma)’ and so on. From this, it is seen that anyone who follows, and lives by, the twin dictates ‘Truth and Dharma’ are followers of Sanatana Dharma and Hindu religion. Following, and leading one’s life by, these commands would make one’s living in this world happy, peaceful, contented and full.

If that is all one has to do to practice Hindu religion, what are the concepts of worship, devotion, rituals and learning seen discussed and described? The Vedas, as the authoritative ‘scriptural’ text for the practitioners of Sanatana Dharma (or Hindu Religion as it is also called), provide the answer. Vedas are eternal, vast and contain various ways of attaining life’s goals. They prescribe various practices, suited for various kinds of persons, to do good things in one’s life. Hindus believe in reincarnation (life after death, in other words, one going through this life cycle of birth, living, death, re-birth, living again and death and so on the cycle will repeat until one has attained pure status from where one attains ‘moksha’ or liberation) and the re-birth to a stage higher or lower than one’s present stage in life will occur, depending upon how one lived the present life. In other words, if one lived a life of ‘goodness’ (or relatively, one does more good in one’s life than the bad which one might, knowingly or unknowingly, commit in one’s life), one takes re-birth in surroundings that are more congenial for one to do more good things in the re-birth and so on until one attains moksha. Conversely, if one does more ‘bad’ things in one’s life, one is likely to take re-birth into worse surroundings than this life which might further put the person to do more bad things and unable to get out of such ‘bad’ life and end up sufferings and more sufferings. Thus, one is encouraged to do good things in one’s life.

The various practices that would help one to do good in this life and attain one's life's mission of liberation or 'moksha' in this birth itself, or, failing which to attain a re-birth that would afford opportunities for one to do more good things in succeeding births and thus attain 'moksha' in one of those succeeding births, are described in the vast literature known as Vedas. These paths, or yogas, as they are sometimes called are Bhakthi Yoga, Karma Yoga, Raja Yoga and Jnana Yoga. Brief descriptions of these are provided herein.

### **Bhakthi Yoga:**

Development of Bhakthi or Devotion to God is the aim of this school of thought. There are various ways to develop Bhakthi to God. Lord Krishna explains 'Bhakthi Yoga' in Chapter 12 of the Bhagavad Gita. Verses 13 thru 19 – seven verses – define the various attributes of one who has Bhakthi and who is the perfect example of the practitioner of Bhakthi Yoga. Lord Krishna extols the practice of Bhakthi to reach divine and attain liberation and concludes in verse 20 that one who practices this 'immortal dharma' are exceedingly dear to him. Two Verses, the verse 13 and verse 14 are explained below to give one the basic starting points of bhakthi:

Verse 13:

“adveshtha sarva bhoothanaam maitra karuna eva cha  
Nirmamo nirahankarah sama dukha sukha kshamee”

One who hates no creature, and is friendly and compassionate to all, who is free from the feelings of “I” or “Mine:”, equanimous and even-minded in sorrow or happiness, and forbearing,

Verse 14:

“santhushtah sathatham yogee yathatma dridanischayah  
mayyarptitha mano budhihi yo madhbhakthah sa may priyah

Ever content and happy, steady in meditation, self-controlled, and possessed of firm conviction, with mind and intellect fixed on Me – one who is thus devoted to Me, is dear to Me”

Verses 15 to 19 further define, and elaborate upon, the traits needed for one to fully develop oneself in 'true bhakthi'. Such passages will help us all to compare ourselves and our thoughts and feelings in these aspects and evaluate our own progress against the criterion prescribed by Lord Krishna to be a 'bhakthi yogi'.

Ostentatious actions, rituals or offerings are not necessary for the divine to accept our gift; a leaf or water offered with 'bhakthi' or devotion is accepted by God. (“pathram pushpam phalam thoyam yo may bhakthya prayachchathi, thadaham bhakthi upahrutham ashnaami prayathatmanah: Whoever with devotion offers Me a leaf, a flower, a fruit or water, that I accept – the devotion-filled gift of the pure-minded” Bh. Gita Ch IX, Verse 26). The importance of 'bhakthi' to reach the divine does not need any greater emphasis or explanation than that.

Nine steps are prescribed, the complete-nine-step practice of which would lead us to the attainment of true devotion to, and ultimate union with, God. The nine steps are:

- Sravanam (Hearing – Hear stories of Lord’s origin, His accomplishments, His destroying of sinners and liberation of devotees etc.),
- Kirthanam (Sing His Glories),
- Mananam (Think of Him always in your mind),
- Sankalpam (Performance of your duties by thinking of Him always),
- Archanam (offering of flowers on God’s idol or picture by chanting His names),
- Vandanam (praying for His Blessings with folded hands by looking at His idol or picture),
- Bhavanam (Visualizing or Imagining Him as your Friend or as your Boss),
- Dasanam (Treating yourself as His servant), and,
- Atma-Nivedanam (surrendering everything, including yourself, to Him). The purification of your mind that results by the practice of the above nine steps would lead one to true devotion.

Hearing, listening, singing and mananam on our ‘mythological stories – Puraanaas & Ithihasa Puraanaas’ are sure ways of helping one rise in bhakthi yoga. The details of these puranaas are described in Appendix D, Puraanas & Smritis.

Bhed-bhakthi (dualistic bhakthi) and Abhed-Bhakthi (non-dual bhakthi):

Lord Rama asked his guru, Sage Vasishtha, about the types of devotion (bhakti) to which Vasishtha replied that Bhakti or devotion is of two types, dualistic (bhed-bhakti) and non-dualistic (abhed-bhakti). In order to develop the sense of virtue and right attitudes among those who are ignorant and have not reflected upon what is said in the scriptures, and to foster right living and conduct in them, the sages have introduced dualistic worship in which the duality of the deity (Ishwara) and devotee is maintained. In other words, those who have not controlled their senses are advised to follow dualistic worship in the beginning until they are able to control their senses at which time they are encouraged to move on to ‘non-dualistic’ worship. Without attaining the stability of one’s chitta and thought-process, one cannot start or proceed with ‘non-dualistic’ worship; in other words, one has to stay with idol or dualistic worship until such time one develops stability of mind. By dualistic worship, one benefits gradually according to one’s attitude. When the ideation or ‘sankalpa’ frame of one’s chitta gets stopped, one can start non-dualistic worship. Without excellent discrimination (viveka), one is not likely to quieten one’s chitta. Again, discrimination will not develop in a person without discipline and vairagya. Of course, if one has all these qualities – discrimination, discipline, vairagya, quietened the chitta such that quiescence or non-ideation has resulted etc. – the person attains Atmic state. Once the person is stabilized in Atmic state, one enjoys the pure existence (being) which is the fundamental and primeval base of the entire phenomena.

## **Karma Yoga:**

By faithfully discharging one's Karma, one can attain liberation, according to practitioners of the Karma Path. Yajnas and the proper conduct of such Yajnas according to Sastras would lead one to attain liberation or Moksha. Learning of the various 'Karmas' as prescribed by the Sastras is the goal of the Karma Institute.

Lod Krishna tells Arjuna in Bhagavad Gita:

“annaadh bhavanthi bhoothani, parjanyaath anna sambhavah  
yajnaath bhavathi parjanyaah, yajna karma samudhbhavah

From food come forth beings; from rain, food is produced.  
From Yajna arises rain, and yajna is born of action”

Bhagavad Gita Ch III, verse 14

Sruti or our Vedas is the basis for all Karma. Transmitted by word of mouth by the Guru-Shishya Parampara through the ages, we follow the learning of Vedas by 'gurumukha', literally from the face (mouth) of the guru. The Vedas are classified into four, Rik, Yaju, Sama & Atharva. Each of these Vedas is organized in four sections, the Samhita, the Brahmana, the Aranyaka and the Upanishad. The Samhita and the Brahmana portions constitute the 'karma kanda' and describe in detail the ritualistic aspects of Karma prescribed by the Vedas. Performance of *yajna* (sacrifice), without attachment, is the essence of Karma Yoga.

“yajnaarthaath karmanothra lokoyam karmabandhanah  
Thadhartham karma kauntheya mukthasangah samaacharah

The world is bound by actions other than those performed for the sake of yajna; do you therefore, O Kaunatheya (son of Kunti), perform action for yajna alone, devoid of attachment”

Bhagavad Gita Ch III, verse 9

## **Raja Yoga:**

**“Chittha Vritthi Nirodhah” - Patanjali**

**“samathvam yoga uchchyathey” – Lord Krishna in Bhagavad Gita**

Raja literally means king. Raja yoga is one of the four main paths of yoga. The premise of raja yoga is that our mind creates our world. Our whole life, with its pleasures and pains, is nothing but our mind's creation. If the mind is unsteady, it will waver with each and every distraction, obstacle or event happening in its environment.

Embarking on the path of raja yoga involves practicing techniques that lead to inner control and mind control, control of the body, the energy or prana, the senses or indriyas, and the mind (emotions and thoughts).

The chief practice is meditation but other techniques exist as well. Among them are the asanas or postures, and pranayamas or breathing techniques.

However in order to achieve success in the practice of meditation, one must deal with the resistance of one's own mind and herein lies the true difficulty of Raja Yoga. Most of the time, the mind will not cooperate, even rebel against the practice and discipline. In order to overcome each obstacle as they come, one must gain a keen understanding of the functioning of the mind and this is done through the learning of the yogic psychology.

Patanjali's Ashtanga Yoga (eight-component Yoga practice) is the basis for learning, proficiency and attainment of Moksha or Liberation by the Raja Yoga approach. The eight steps are:

- Yama (external control, discipline and observances),
- Niyama (Internal control discipline and observances),
- Asana (Posture),
- Pranayama (control of breath),
- Pratyahara (withdrawal of senses),
- Dharana (Concentration),
- Dhyana (Meditation), and,
- Samadhi (Intense Absorption).

Yama consists of 5 great vows:

- Ahimsa (non-violence, non-hurting of any and all other living beings),
- Satya (truthfulness),
- Aaastheya (non-stealing),
- Brahmacharya (devoted study and celibacy), and,
- Aparigraha (non-possession).

Niyama consists of 5 regulations and observances:

- Saucha (Purity),
- Santhosha (Contentment),
- Tapas (austerity),
- Swadhyaya (self-study), and,
- Ishwarapranidhana (surrender to God).

Each of the five items in the above two steps must be strictly practiced by the 'triple' ways of execution possible – Manasa (by mind), Vacha (by word) and Karmana (by action). This triple test of (i) execution by thought in one's mind, (ii) execution by the spoken word and (iii) execution by action by one's body is, indeed, a rigorous test and discipline dictated by the Yoga practices. The 'strict' practice of these two steps alone of

the 8-step Patanjali Yoga, by the triple tests mentioned above, would suffice for persons to lead a perfectly moral and spiritual life.

Similarly, there are details on the other steps of the 8-step process. It is also stated that only after one masters, and implements it in one's daily living, the first step, should one attempt the second step. Similarly, only after the first two steps are fully implemented in one's daily life and one completely lives by the regulations of these two steps should one attempt the third step and so on before proceeding to the next succeeding, and higher, steps.

By following these 8 steps and mastering them in all its aspects, one will be able to attain moksha or liberation.

### **Jnana Yoga:**

Jnana or Knowledge is the true path for Liberation, according to those who follow the Jnana Path.

Lod Krishna tells Arjuna in Bhagavd Gita:

“na hi jnaanena sadrusham pavithram iha vidyathey  
thath swayam yogasamsidhdhah, kaalena aatmani vindhathi

Truly, there exists nothing in this world as purifying as Jnana or Spiritual Knowledge.  
In course of time, having reached perfection in yoga, one realizes that in oneself”  
Bhagavad Gita Ch IV, verse 38

Such Knowledge is described in the ‘Jnana Kanda’ of the Vedas (the Aranyaka and the Upanishad portions of the Vedas) and the texts comprising what is known as Vedanta – the end of Vedas (literally and functionally) and contain some of the best philosophical treatises that man has ever known. The three texts of Vedanta are called Prasthanas. They are: The Upanishads, The Bhagavad-Gita and the Brahma Sutras. Study and understanding of the Vedanta Texts is the goal of the Jnana Institute.

## ***APPENDIX – B***

### **Random Thoughts and Notes, Points to Ponder, Ideas to think about**

#### Nasadiya-suktha from the Rig Veda:

“Then was not non-existent, nor existent:  
There was no realm of air, no sky beyond it:  
What covered it, and where? And what gave shelter?  
Was water there, unfathomed depth of water?

Death was not then, nor was the aught immortal:  
No sign was there, the day’s and night’s divider.  
*That One Thing*, breathless, breathed by its own nature:  
Apart from was nothing whatsoever.

Darkness there was: at first concealed in darkness,  
This all was indiscriminate chaos.  
All that existed then was void and formless:  
By the great power of warmth was born that unit.

Thereafter rose desire in the beginning.  
Desire the primal seed and germ of Spirit.  
Sages who searched with their heart’s thought discovered,  
the existent’s kinship with the non-existent.

Transversely was their severing line extended:  
What was above it then, and what below it?  
There were begetters, there were mighty forces,  
Free action and energy up yonder.

Who verily knows and who can here declare it,  
Whence it was born and when comes this creation?  
The Gods are later than the world’s production.  
Who knows then whence it first came into being?

He, the first origin of this creation,  
Whether he formed it all or did not form it,  
Whose eye controls this world in highest heaven,  
He verily knows it or perhaps he knows not”

An attempt is made in the above verses to define the Absolute – the primary Cause of all and everything – the Reality underlying all existence – the primal One; the Vedic Rishis conclude that It cannot be described as non-existent or as existent. The whole Universe is traced to ‘That One (*Tad Ekam*)’. The Advaita (monistic) philosophy seen in Upanishads can be traced to such references in the Vedas.

Bhagavad Gita:

vAsAmsi jIrNAni yathA vihAya  
navAni grhNAti narOparANi  
thatha sarIrANi vihAya jirNAny  
anyAni samyAti navAni dEhi

As a man casting off worn-out garments puts on new ones, so the me-bodied, casting off worn-out bodies enters into others that are new.

(Chapter 2, verse 22)

nainam chindanti sastrANi nainam dahati pAvakah  
na chainam kIEdayanty ApO na shoshayati mAritah

Weapons do not cleave the Atman, fire burns It not, water wets It not, wind dries It not.

(Chapter 2, verse 23)

Upanishads:

***Brahman is Sat-Chit-Ananda*** – Brahman is Existence-Consciousness-Bliss

The four (4) *Mahavakyas* (great utterances) that convey the relationship between individual Self and the Universal Self are:

**Rig Veda:**

***prajAnam brahma*** – Brahman is pure consciousness – Aitareya Upanishad

**Yajur Veda:**

***aham brahmAsmi*** – I am Brahman – Brihadaranyaka Upanishad

**Sama Veda:**

***tat tvam asi*** – That art Thou (You are that) – Chandogya Upanishad

**Atharva Veda:**

***ayam AtmA brahma*** – This Atman is Brahman – Mandukya Upanishad

Jalal-uddin Rumi:

‘I died a mineral and became a plant,  
I died a plant and rose an animal,  
I died an animal and I was man.  
Why should I fear? When was I less by dying?  
Yet once more I shall die as man, to soar  
With the blessed angels; but even from angelhood  
I must pass on. All except God perishes,  
When I have sacrificed my angel soul,  
I shall become that which no mind ever conceived,  
O, let me not exist! for Non-existence proclaims,

“To him we shall return,”

Khalil Gibran in “The Prophet”:

Then said a rich man, Speak to us of Giving.

And he answered:

You give but little when you give of your possessions. It is when you give of yourself that you truly give.

.....

And there are those who have little and give it all. These are the believers in life and the bounty of life, and their coffer is never empty.

.....

It is well to give when asked, but it is better to give unasked, through understanding.

.....

You often say, “I would give, but only to the deserving.” The trees in your orchard say not so, nor the flocks in your pasture.

.....

Ramesh S. Balsekar

“To be enlightened is to be able to accept with equanimity anything in life at any moment as God’s will.”

“Whatever you think you should do at any moment is precisely what God would want you to think and do”.

- From his website ‘[www.rameshbalsekar.com](http://www.rameshbalsekar.com)’

“As the spider weaves its thread out of its own mouth, plays with it, and then withdraws it again unto itself, so the eternal unchangeable Lord, who is without form, without attributes, who is absolute knowledge and absolute bliss, evolves the whole universe out of Himself, plays with it for a while, and again withdraws it unto Himself”.

- Quotations from ‘Srimad Maha Bhagavatham’ quoted in the book ‘the Ultimate Understanding’ (Reference 27)

Socrates:

“A life without philosophy is not livable for man”

Six Questions of Socrates by Mr. Christopher Phillips:

- What is virtue?
- What is moderation?
- What is justice?
- What is good?
- What is courage?
- What is piety?

Aristotle:

“All the other sciences which are not philosophy are more necessary, but none is more important than philosophy”

Anonymous:

“True knowledge is intuitive experience, *samyag-darshanam*”.

“Knowledge is a seed; mind must be fertile, and devoid of impurities, for the seed to grow”.

Swami Vivekananda:

“Truth does not pay homage to any society, ancient or modern. Society has to pay homage to truth or die”

Sri Ramakrishna Paramahansa:

On bondage:

“There are four types of human beings: *baddha* (bound), *mumukshu* (bound, but strives for liberation), *mukta* (free or liberated), *nityamukta* (the ever-free, never even once got into bondage). He gives an illustration: Fishermen cast a wide net to catch fish. Many fishes are clever enough never to be caught in the net (these are the *nityamukta*). Some among those caught in the net struggle to get free (these are the *mumukshu* – those are in bondage but are struggling to be free). Among many who struggle, few fishes get out of the net (these are the *mukta*, that have become free). The large majority caught in the net, Ramakrishna will say, never feels that they are in bondage, never make any attempt to get free, and peacefully stay there biting the net, thinking they are safe (these are the *baddha*, in bondage)”.

### On Ignorance and Bondage:

“ ‘I’ and ‘Mine’ – that is ignorance. ‘O God! Thou and Thine’ – that is knowledge.

Live in this world like a maid servant in a rich amn’s house. She performs all duites, takes care of master, his wife, their children – all the time knowing in her heart that none of those is hers and all the time thinking about her native place and her folks. Likewise, do your worldly duties fixing your mind on God all the time. And know that the house, family, possessions, children do not belong to you; they are God’s. You are only His servant”.

- Friday, September 26, 1884 (Refernce 25, Vol II, page 561)

### **Taittiriya Upanishad:**

***Om ithi idagum sarvam*** – Om (also written as ‘AUM’) is all these (effectively, everything).

#### **Pancha Kosa (Five sheaths)**

annamaya kosa - Food  
prANamaya kosa - Life Breath  
manomaya kosa - Mind  
vijnAnamaya kosa - Intellect  
Anandamaya kosa - Bliss (Happiness)

#### **Fourteen worlds:**

Brahma created the fourteen worlds – seven below earth’s level and seven above earth’s level including earth.

Seven lokas below earth’s level: Athalam, Vithalam, Suthalam, Thalathalam, Mahathalam, Rasathalam and Pathalam.

Seven lokas above earth’s level (including earth): Bhur, Bhuvah, Suvah, Mahah, Janah, Tapah, Satya

It is customary to include all the seven ‘nether’ worlds and earth together when the ‘Bhur’ world is discussed. In other words, Bhur can mean the earth only or the earth and the seven worlds below it (based on the context of usage).

Similarly, it is customary to include all the worlds above Suvah and Suvah together when the ‘Suvah’ world is discussed. In other words, Suvah can mean the ‘heaven or sky or yonder world’ only or the Suvah world and the four worlds above it (based on the context of usage).

Thus, the words Bhur, Bhuvah and Suvah – or, BhurBhuvassuvah – can mean just those three worlds or all the fourteen worlds or ten worlds (bhur for eight worlds) or seven worlds (Suvah for five worlds) depending on the context.

### **Saptha vyahrti:**

Vyahrtis are mystic utterances.

Bhur, Bhuvah, Suvah, Mahah, Janah, Tapah, Satya – are known as the saptha vyahrtis.

Bhur, Bhuvah and Suvah are known as the three vyahrtis.

### **Four Vyahrti and Brahman UpAsana for all gods to bring homage to the knower of Brahman:**

Bhur	Other deities –limbs of Brahman	This world	Fire	Rik	Prana
Bhuvah	Other deities –limbs of Brahman	Intermediate space	Vayu	Samaveda	Apana
Suvah	Other deities –limbs of Brahman	Yonder world (heaven)	Aditya	Yajus	Vyana
Mahah	Brahman and Atman	The Sun	Moon	All Vedas	Annam

### **Pancha Bhootha** (Five constituents of matter) and their qualities

prithvi – Earth	- 5 qualities (smell, taste, color, touch and sound)
ap - Water	- 4 qualities ( taste, color, touch and sound)
tejah – Fire	- 3 qualities ( color, touch and sound)
vAyu – Air	- 2 qualities ( touch and sound)
AkAsha – Ether	- 1 quality ( sound)

It is difficult to translate the word ‘AkAsha’ – the closest translation is ‘the element that provides space and has sound as its quality’

prithvi, ap, tejas, vayu, Akasa - fivefold group in the context of the worlds  
agni, vayu, aditya, chandrama, nakshatrani – five-fold group in the context of deities

aapa, oshadhayah, vanaspathayah, aakasa, aatma – five-fold group in the context of natural factors.

prana, apaana, vyana, udaana, smaana – five-fold group in the context of vital forces  
chakshu, srotram, manas, vaak, tvak – five-fold group in the context of sense organs  
charmam, mamsam, snaava, asti, majja – five-fold group in the context of material constituents.

### **Four Forms of Universal Self (Brahman) - (Simultaneous sides of One Reality):**

Brahman	- Pure Consciousness
Iswara	- The Causal Form
Hiranyagarbha	- the golden seed that contains the world of names and forms and Everythingelse – (The ‘subtle’ form)
Virat Purusha	- The manifested world – (The ‘gross’ form)

### **Four Forms of Individual Self (Atman)**

Body	Gross	vaiśvānara
Prana, Mind, Intellect	Subtle	taijasa
Ananda	Causal	prajna
spirit	Pure Consciousness	turya

### **The Four States (Mandukya Upanishad):**

A -	Jagrat (Waking state)	- Gross
U -	Swapna (Dream state)	- Subtle
M -	Sushupti (Deep Sleep state)	- Causal
Silence	Turiya (Fourth state)	- consciousness (spirit)

### **Ashtanga Pranam:**

Ashtanga (eight limbs) Pranam (prostration): Where eight limbs touch the floor when prostrating –

- two legs,
- two knees,
- two hands,
- chest, and,
- chin or forehead.

### **Nine stages of Bhakthi (Devotion):**

- Sravanam (Hearing – Hear stories of Lord’s origin, His accomplishments, His destroying of sinners and liberation of devotees etc.),
- Kirthanam (Sing His Glories),
- Mananam (Think of Him always in your mind),
- Sankalpam (Performance of your duties by thinking of Him always),
- Archanam (offering of flowers on God’s idol or picture by chanting His names),
- Vandanam (praying for His Blessings with folded hands by looking at His idol or picture),
- Bhaavanam (Visualizing or Imagining Him as your Friend or as your Boss),
- Daasanam (Treating yourself as His servant), and,
- Aatma-Nivedanam (surrendering everything, including yourself, to Him).

### **The ‘Adhishtana Devatas’ (The Devas inside each of us):**

The eleven (11) indras and indriyas of the human beings and their attendant Devas (or devathaas):

- |                           |                 |
|---------------------------|-----------------|
| • Ahankara (Ego)          | Rudra           |
| • Budhi (Intellect)       | Brahma          |
| • Manas (Mind)            | Moon            |
| • Srotram (Ear – Hearing) | The Dik Devatas |
| • Tvak (skin – Touch)     | Wind            |
| • Netram (Eyes – Sight)   | Sun             |
| • Rasana (tongue – Taste) | Varuna          |

- Nasika (Nose – Smell) Asvini Devas
- Vak (Mouth - Word, Speech) Agni
- Hastham (Hands) Indra
- Pada (Legs) Upendra

Brahma, the Creator, is included among the above 11 devatas.

The residents of Gokulam (Nandanam & Vrindavanam) enjoy the presence of the Lord, in the form of child Krishna, with the help of the Indriyas or the above eleven senses and sense organs. The sense organs are able to enjoy only with the help of the Adhishtana Devataas – the Devaas of the associated organs (these organs can, and will, function only with the help of the devataas who have overlordship of the organs etc.). Thus, in reality, these Devataas also enjoyed the presence of child Krishna and the Lord, that is what author Sridhara Warriar states in his excellent book “Srimad Bhagavatham” (in Malayalam language), Chapter 14 titled ‘Brahma Sthuthi’, verse 33, Dasama Skanda, Reference 24.

Sridhara Warriar goes on to say that whereas these Devas are only to enjoy one-eleventh of the joy of seeing child Krishna (because 11 devas are in charge of the 11 sense agents), the Gopis and the residents of Gokula were able to enjoy the totality of the joy given out by Krishna, thus pointing to the blessings of the residents of Gokul.

### **Life as Trees etc.**

*“Tharu janma (birth as trees etc.) yat kritham” (By the results of one’s actions, one takes the birth as ‘trees’)*

– *Srimad Bhagavatha Maha Puraana, Dasama Skanda, Ch. XV, Verse 5*

Based on the above statement by Sri Bhagavan, it becomes clear that one takes ‘birth’ as trees based on one’s actions in the preceding birth.

*“Sarirajaih karma doshairyathi sthavarathaam narah” (manu smriti, as quoted by Sridhara Warriar)*

*“yonimadhye prapadhyanthey shareerathvaaya dehinah  
Sthanumanye anusamyanthi yathakarma yathashrutham*

Some souls enter the womb for the purpose of bodies; others follow the motionless, like trees, according to their karma or what they have accomplished and according to what they heard during this birth (the knowledge acquired by them).”

Katha Upanishad, Ch. II, Sec. 2, Ver. 7

## **The Sixteen Limbs of Purusha (Prashna #6, Prashna Upanishad)**

The original cause is Brahman.

He is the Purusha.

All elements share a one-ness with Brahman.

The sixteen limbs of the Purusha, as posed by Sukesa, sixth of six students who posed their questions to Pippalada, their teacher, begin with Prana (Prana follows Atman just like shadow follows the person - as stated by Pippalada in Prashna III).

Prana  
Faith evolves from Prana  
Space (Akasa or ether) evolves from Faith  
Air  
Agni  
Water  
Earth  
Organs (sense organs)  
Mind  
Food (sense objects)  
Vigor (strength or viryam)  
Self-control or Austerity (tapah)  
Sacred Mantras  
Ritual (karma)  
Worlds (loka)  
Names of things (lokeshu ca nama)

Everything thus evolves out of Brahman.

Everything enters into Brahman at its time for dissolution.

Analogy of Spider spinning its web out of itself and withdrawing it unto itself when the purpose for which it created the web in the first place is described in Mundaka Upanishad.

Analogy used in Prashna Upanishad is that of rivers (with its own names, forms and shapes) flowing towards the ocean, finally merging with the waters of the ocean and thereby losing its individuality including its name, shape and form.

So also, the sixteen limbs, which are representative of everything in this world of name and form, issue out of the Purusha or Brahman. They return to Purusha or Brahman at the time of dissolution and lose their identity. Those who realize this while they are here become immortal, so says the teacher Pippalada and the Prashna Upanishad.

## **On Vedic Chanting:**

### **Vibration, Sound, Sruti and Vedas:**

Vibrations produce sound. Breath and Breathing is the basis for health, feelings and life of human beings and animals and all living beings. Vibrations of the pulses and nerve-centres produce healthy or unhealthy thoughts. When mind is peaceful, when one is in the presence of holy man or holy place or while in 'satsang', healthy breathing and thoughts occur as opposed to when one is angry or one's mind is agitated.

Jiva, consciousness and spirituality are governed by the energy created by breathing, by the sound generated by the vibrations. Vibrations from hearing chanting of mantras, bhajans are different from vibrations due to satisfaction of desires are, again different from vibrations when one is angry or agitated.

The origin of phenomenal existence is traceable to sound and vibration. Vibrations and sound can correct the 'erring forces of nature' and cleanse mind of improper thoughts. Vedas are such vibrations and sounds. Rishis in their superconscious state 'heard' the vibrations and sound of the cosmic breathing. Cosmic vibrations became audible to their ears. They gave what they heard to the world as Veda Mantras & hence Vedas are called 'Sruti', our ear is called 'Srotra'.

### **On chanting of mantras:**

To obtain full benefit from mantras, the prescribed method of chanting must be followed. Taittiriya Upanishad discusses the phonetics and the key aspects to be followed during learning and chanting. Learned persons consider the following 'six methods' of recitation as 'erroneous' and strongly suggest that these be avoided while chanting:

***“geethee sheeghree shirahkampee thatha likhithapatakah  
anarthajnah alpakantascha shadaithey patakaadhamaah”***

One who chants in a sing-song fashion (geethee), one who chants in a quick tempo (sheeghree), one who shakes and nods his head unnecessarily while chanting (shirahkampee), one who reads from the written script (likhithapatakah), one who does not understand the meaning (anarthajnah) and one who recites in a feeble voice (alpakantah) – these six aspects of chanting are to be avoided.

Many aacharyaas particularly make an exception to the 'anarthajnah' aspect stated above because of their belief that it may not always be possible for all vedic chanters to understand the meaning of all mantras in full. While the chanting of the mantras with proper understanding of the meaning will produce optimum benefits, chanting the mantras without understanding the meaning also produces good results – one's concentration, focus and innocence would all contribute to obtain the merits due to the chanting.

### **Important Chandas (Metre in which Vedas are chanted):**

- GAYathri - 24 characters - 3 paada (each with 8 characters)
- UshNik - 28 characters - 3 paada (with 8 + 8 + 12 characters)
- Anushtup - 32 characters - 4 paada (each with 8 characters)
- Brhati - 36 characters - 4 paada (with 8 + 8 + 12 + 8 characters)
- Pankti - 40 characters - 5 paada (each with 8 characters)
- Trishtub - 44 characters - 4 paada (each with 11 characters)
- Jagathi - 48 characters - 4 paada (each with 12 characters)

The most famous Gaayatri mantra, in Gayatri chandas, which is considered by many as the greatest mantra, is said to be the essence of the three Vedas, Rik, Yajus and Sama.

### **Gayatri Mantra:**

Vishwamitra, the Rishi, is to have 'herad' this mantra in his superconscious state and gave this mantra to man-kind (thus, he became the friend of every being in the universe – vishwm for universe, mitra for friend).

Om  
Bhur Bhuvah Suvah  
Tat Savitr Varenyam  
Bhargo Devasya Dheemahi  
Dhiyo Yonah Prachodayath

Gayatri Mantra is considered to be the essence among the Veda Mantras. According to mythological stories, the Devas (from the root 'div' meaning 'to shine', 'to excel' etc., Devas are the 'Shining Ones', div also is used in 'divinity', the 'Shining One', God being referred as the 'Shining Light' etc. – all these come from the root 'div') wanted to learn from God, the Creator, the Prajapati, the secrets of the universe. So, Prajapati gave them the three books known as Rig, Yajur & Sama Vedas. Devas found it very difficult to read, being quite voluminous and not wanting to spend time to read the Vedas and understand. So, the Devas came to Prajapati again and said, 'Give us the secret in simple words'. So, Prajapati gave them one sentence from each Veda, 'Tat Savitr Varenyam' from the Rig Veda (meaning – tat means that, savitur means of Savitu or Sun and varenyam means choice worthy or the one to be chosen), Bhargo Devasya Dheemahi from Yajur Veda (meaning – Bharga is a powerful word – burning splendour or brilliant splendour etc. of the sun, dhimahi – meditate upon and sustain, hold and maintain it in ourselves) and Dhiyo Yonah Prachodayath (meaning – please propel me towards it –by your blessings is sort of implied). After a while, Devas returned and said to Prajapati whether he can make it simpler. So Prajapati said 'Chant Bhuh, Bhuvah & Suvah' – This is in addition to Gayatri mantra. After a while, Devas came back and asked Prajapati to see whether He can make it any more simpler and He taught them 'AUM' and gave them the word 'Om'

– reproduced from "The Power of Gayatri", a Tattva Loka Publication, Sree Sharada Peetham, Sringeri 577 139, India, 2003

While the Gayatri mantra is the most famous mantra in the Gayatri Chandas, it may be noted that there are only 23 characters in the Gayatri (and not 24). It is therefore stated that the 'famous Gayatri Mantra' is in the 'nichrit gayatri chandas' – nichrit to indicate that there is one character less in the gayatri chandas).

## ***APPENDIX – C***

### **Samhitaas, Braahmanaas, Aaranyakaas, Upanishads**

The **Samhitas** (or also, **Mantra-Samhitas**) are hymns in praise of the Vedic God for acquiring material prosperity and happiness. They are poems comprising prayers, hymns and incantations addressed to various deities. This portion also contains information about the creative process, the universal laws, about the creation and the universe in detail. It is useful to Brahmacharins.

### **Braahmanaas**

The Brahmanas are explanations of Mantras or rituals, which give guidance to people as to how; the sacrificial rites are to be performed. They are explanations of the method of using the Mantras in Yajnas or other rites. Details for various ceremonies like birth, naming, study, marriage, death are in this portion. The Brahmana portion is suitable for householders (Grihastashram).

### **Brahmanaas of Rig-veda**

There are three Rig-vedic Brahmanas.

1. Ithareya Brahmana
2. Sankhayana Brahmana
3. Kausheethaki Brahmana

### **Brahmanaas of Yajur-veda**

There are three Yajur-vedic Brahmanas (numbered as 4 thru 6).

- 4 Shatapadha Brahmana
- 5 Thaiththareeya Brahmana
- 6 Maithrayaneeya Brahmana

### **Brahmanaas of Sama-veda (numbered 7 thru 15)**

There are nine Sama-vedic Brahmanas.

- 7 Jaimineeya Brahmana
- 8 Thandya Brahmana
- 9 Aarsheya Brahmana
- 10 Shadvimsadhi Brahmana
- 11 Chandhokya Brahmana
- 12 Samavidhana Brahmana
- 13 Abhootha Brahmana
- 14 Vamsa Brahmana

15 Samhithopanishathi Brahmana

### **Brahmanas of Atharva-veda (numbered as 16)**

16 Gopadha Brahmana

#### **Aaranyakas:**

The **Aaranyakas** are the forest books, the texts that give philosophical interpretations of the rituals. After a man has finished all his worldly duties (taking care of parents, marrying off children etc.) he proceeds to the forest to spend the rest of his days in solitude and meditation. The Aranyakas are intended for such people, hence the name. It explains the different kinds of rituals to be performed in forest by people, who go for Vanaprastha.

The Aranyakas are expositions on the inner meaning of the Vedic hymns and sacrifices. The hymns are interpreted symbolically to gain an insight into the reasons for performing yajnas and thus deal with higher metaphysical concepts.

#### **Aranyakas of Rig-veda**

There are two Rig-vedic Aranyakas.

- 1 Ithareya Aranyaka
- 2 Kausheethaki Aranyaka

#### **Aranyakas of Yajur-veda (numbered as 3 and 4)**

There are two Yajur-vedic Aranyakas.

- 3 Maithrayaneeya Aranyaka
- 4 Thaithhareeya Aranyaka

There is no Aranyakas for Sama and Atharva vedas.

#### **Upanishads**

The Upanishads are the essence of Vedic teaching. They are called *Vedantas* meaning the concluding portion of the Vedas as well as the ultimate conclusions of Vedic wisdom. Upanishads happen to be the foremost authorities of the Vedanta system of philosophy that developed in later times in different forms.

They reveal the most subtle and deep spiritual truths and are meant for Sanyasins. The collection of teachings generated by the ascetics who meditated on the mysteries of human existence came to be known as the Upanishads, which literally means "sitting close to" the teacher thereby indicating that the knowledge that it imparts is esoteric.

Many, many Upanishads existed ages ago; a lot of them have been lost in the dark backward abyss of time. Only one hundred and eight have been preserved so far some in prose, some in verse. They are:

### **Upanishads of Rig-veda**

There are ten Rig-vedic Upanishads. They are

- 1 Ithareya Upanishad
- 2 Kausheethaki Upanishad
- 3 Nadhabindhu Upanishad
- 4 Aathmabhodha Upanishad
- 5 Nirvana Upanishad
- 6 Mulgala Upanishad
- 7 Akshamalika Upanishad
- 8 Tripura Upanishad
- 9 Sowbhagyalakshmi Upanishad
- 10 Bhahvrucha Upanishad

### **Upanishads of Sukla Yajur-veda (numbered as 11 to 28)**

There are eighteen Sukla Yajur-vedic Upanishads. They are

- 11 sovaasya Upanishad
- 12 Brihadharanyaka Upanishad
- 13 Hamsa Upanishad
- 14 Paramahamsa Upanishad
- 15 Subhala Upanishad
- 16 Mantrika Upanishad
- 17 Thrisikibrahmana Upanishad
- 18 Niralamba Upanishad
- 19 Mandalabrahmana Upanishad
- 20 Adhwya Upanishad
- 21 Taraka Upanishad
- 22 Bhikshuka Upanishad
- 23 Adhyaatma Upanishad
- 24 Muktika Upanishad
- 25 Tarashara Upanishad
- 26 Yanjavalkya Upanishad
- 27 Shatyayana Upanishad
- 28 Turiyatheeya Avadhootha Upanishad

### **Upanishads of Krishna Yajur-veda (numbered as 29 to 60)**

There are thirtytwo Krishna Yajur-vedic Upanishads. They are

- 29 ada Upanishad
- 30 Thaiththireeya Upanishad
- 31 Brahma Upanishad
- 32 Kaivalya Upanishad
- 33 Swetaswetara Upanishad
- 34 Garbha Upanishad
- 35 Mahanarayana Upanishad
- 36 Amrithabindhu Upanishad
- 37 Amrithanadha Upanishad
- 38 Kalagnirudra Upanishad
- 39 Kshurika Upanishad
- 40 Sarvasara Upanishad
- 41 Shukarahasya Upanishad
- 42 Tejabindhu Upanishad
- 43 Dhyanaabindhu Upanishad
- 44 Brahmavidhya Upanishad
- 45 Yogatatva Upanishad
- 46 Dhakshinamoorthy Upanishad
- 47 Skanda Upanishad
- 48 Saareerika Upanishad
- 49 Yogashika Upanishad
- 50 Ekakshara Upanishad
- 51 Akshi Upanishad
- 52 Avadhootha Upanishad
- 53 Kadarudra Upanishad
- 54 Rudrahurdhaya Upanishad
- 55 Panchabrahma Upanishad
- 56 Pranagnihotra Upanishad
- 57 Varaha Upanishad
- 58 Yogakundalini Upanishad
- 59 Kalisantarana Upanishad
- 60 Saraswatheerahasya Upanishad

### **Upanishads of Sama-veda (numbered as 61 to 76)**

There are sixteen Sama-vedic Upanishads. They are

- 61 ena Upanishad
- 62 Chandokya Upanishad
- 63 Aaruni Upanishad
- 64 Maitrayanee Upanishad
- 65 Maitreyee Upanishad

- 66 Vajrasuchika Upanishad
- 67 Yogachoodamani Upanishad
- 68 Vasudeva Upanishad
- 69 Maha Upanishad
- 70 Sanyasa Upanishad
- 71 Avyakta Upanishad
- 72 Kundika Upanishad
- 73 Savitri Upanishad
- 74 Jabhala Upanishad
- 75 Darsana Upanishad
- 76 Rudraksha Jabhala Upanishad

### **Upanishads of Atharva-veda (numbered as 77 to 108)**

There are thirtytwo Atharva-vedic Upanishads. They are:

- 77 Prasna Upanishad
- 78 Mundaka Upanishad
- 79 Maandukya Upanishad
- 80 Atharvasira Upanishad
- 81 Atharvasikha Upanishad
- 82 Bruhat Jaabhala Upanishad
- 83 Sita Upanishad
- 84 Sarabha Upanishad
- 85 Mahanarayana Upanishad
- 86 Ramarahasya Upanishad
- 87 Ramatapini Upanishad
- 88 Sandilya Upanishad
- 89 Paramahamsa Upanishad
- 90 Annapoorna Upanishad
- 91 Surya Upanishad
- 92 Aathma Upanishad
- 93 Pasuptha Upanishad
- 94 Parabrahma Upanishad
- 95 Tripuratapini Upanishad
- 96 Devi Upanishad
- 97 Bhavana Upanishad
- 98 Bhasma Jaabhala Upanishad
- 99 Ganapati Upanishad
- 100 Mahakavya Upanishad
- 101 Gopalatapini Upanishad
- 102 Sreekrishna Upanishad
- 103 Hayagriva Upanishad
- 104 Dhaththathreya Upanishad
- 105 Garuda Upanishad
- 106 Narasimhapurvatapini Upanishad

107 Naradapariprajaka Upanishad  
108 Narasimha Uththaratapini Upanishad

Besides this 108 Upanishads, many Upa-Upanishads are also available.

## ***APPENDIX – D***

### **VEDAANGAAS & UPA-VEDAAS**

#### **VEDANGAS**

The Vedangas and Upavedas are collections of texts that augment and apply the Vedas as a comprehensive system of sacred living. There are six Vedangas.

##### **Siksha** (The nose of the Vedas)

Siksha means Vedic phonetics and lays down the rules of phonetics - sounds of syllables, of pronunciation- euphony. It lays down the parameters of Vedic words. Phonetics are very important in Vedic language because a slight change in sound may lead to change in the meaning of a mantra and consequently have undesirable effects on the sacrifice. Siksha explains how the sound of each syllable should be produced, how high or low should be its pitch and for how much duration (maatras) the sound must last.

##### **Nirukta** (The ears of the Vedas)

Nirukta is the Vedic dictionary. Nirukta may be regarded as the Vedic equivalent of etymology i.e. the study of words. Nirukta explains the origin of each Sanskrit word in the Vedas. In Sanskrit, names or words are not assigned ad-hoc but there is a systematic way of forming words. Every word has a deep meaning and may sometimes be formed by the combination of two or more nouns. All words are derived from the basic roots or *Dhatus*. As Nirukta breaks each word into its component roots and analyses its meaning, so it is likened to the ear, which distinguishes speech by breaking words into its component words. It is also regarded as the World's first Encyclopedia.

##### **Vyakarana** (The mouth of the Vedas.)

Vyakarana deals with grammar and so is very important. There are many books on Sanskrit grammar, but the most famous and most extensively used is the Vyakarna of Sage Paanini. Paanini's grammar is in the form of aphorisms (Sutras).

##### **Chanda Saastra** (The feet of the Vedas)

Chanda Saastra deals with metric composition. Any verse has to have a specified 'metre' and number of letters in it, for a good fit. Chanda Saastra lays down the rules for this. It defines the boundaries of metrical composition into metre, rhyme, etc.

##### **Kalpa Saastra** (The arms of the Vedas)

Kalpa Saastra is a collection of books of Shautasutra, Dharma Sutra, Pithrumedha Sutra, Sulbasutra, Grihyasutra and Prayaschiththam. All our customs and rituals are explained in Kalpa saastra.

Kalpa Saastra answers the questions like:

How should a ritual be performed?

What are the duties of the child, student, householder, King, mendicant etc?

Which ritual involves which mantra, which material and which Deva?

How many priests should be employed for a sacrifice?

What objects should be used in various rituals?, and so on.

The Kalpa Saastra details the vedic rituals to be performed from the time the embryo forms in the womb to birth leading upto the final sacrifice of death. Cremation or *Antiyeshiti*, meaning the last rite is seen as a sacrifice of the whole body to Agni, the fire god. The Namakarana (naming ceremony), the Upanayana (sacred thread investiture ceremony), Vivaaha (marriage) are also described within the Kalpa. The Vedic system of architecture i.e. *Vaastu Shastra* is also described in Kalpa. The entire Kalpa Saastra weighs more than 250 Kilograms. (i.e., 500 pounds)

**Jyothisha** (Astronomy + Astrology) The eyes of the Vedas

Jyothisha includes Ganitham, Kalakriya, Golam, Jatakam, Muhurtham, Prasnam and Nimiththam.

Perhaps the most famous of all Vedangas, it is the science of astrology. Jyotisha gives rules to calculate the positions of the planets and stars at any instant in the future or past. Based on these positions and certain well defined rules, the fate of a person can be reasonably determined provided his/her birthdate, time and place of birth are accurately known. Vedic astrology is based on lunar signs in direct contrast to the solar sign system prevalent in the west. The premise is that the moon being closer to the Earth, extends a greater influence on mankind than the distant Sun.

## **UPAVEDAS**

There are four Upavedas

### **Arththasastra**

Unfolds statecraft. It can be called as the Hindu science of governing by Kings.

### **Dhanur Veda**

Discusses military science. Discusses different kinds of weapons and war rules.

**Gandharva Veda**

The science which enlighten music and arts. Discusses different kinds of music, musical instruments and arts. **Saapadhyaveda** (Tachchu Saastra ) Deals with the architecture. Vasthu Saastra also comes under this. (Some include Saapadhyaveda as a seaparte category and claim that there are five Upavedaas; here it is included under Gandharva Veda and Upavedaas are set at four).

**Ayurveda**

Means “things to be known (veda from the root ‘vid’ to know) about ‘ayu’ which word means life”, thus Ayurveda literally means ‘all you need to know about life and living’. Deals with medicine, health and longevity.

## ***APPENDIX – E***

### **PURAANAAS AND SMRITIS**

#### **PURAANAAS**

Puranas are compiled from related historical facts, which explain the teachings of the four Vedas. The Puranas explain the Vedic truths and are intended for different types of men. All men are not equal. There are men who are good, others who are driven by passion and others who are under the veil of ignorance. The Puranas are so divided that any class of men can take advantage of them and gradually regain their original nature and get out of the hard struggle for existence

#### **Mahapuranas**

There are eighteen Mahapuranas. They are

1. Vishnu Purana
2. Bhavishya Purana
3. Garuda Purana
4. Agni Purana
5. Mahabhagavata Purana
6. Siva Purana
7. Markandeya Purana
8. Linga Purana
9. Brahmavaivarththa Purana
10. Matsya Purana
11. Kurma Purana
12. Varaha Purana
13. Vamana Purana
14. Skanda Purana
15. Brahmaanda Purana
16. Patma Purana
17. Vayu Purana
18. Naradheeya Purana

#### **Upa-puranas**

There are eighteen Upa-puranas (numbered as 19 thru 36). They are

- 19 Samba Purana
- 20 evibhagavata Purana
- 21 Kalika Purana
- 22 Lakhunaradheeya Purana
- 23 Harivamsa Purana
- 24 Vishnudharmmoththara Purana

- 25 Kalki Purana
- 26 Mulgala Purana
- 27 Aadhi Purana
- 28 Aathma Purana
- 29 Brahma Purana
- 30 Vishnudharma Purana
- 31 Narasimha Purana
- 32 Kriyaayoga Purana
- 33 Surya Purana
- 34 Bruhat Naradheeya Purana
- 35 Prushoththama Purana
- 36 Bruhat Vishnu Purana

## **ITIHASA PURAANAAS**

**Itihasas** (*Iti-ha-asam* meaning “It happened thus, certainly”) are literatures describing historical events pertaining to either a single hero or a few heroic personalities in a lineage: for example, Ramayana describing the pastimes of Sri Ramachandra and Mahabharata describing the pastimes of the Pandavas in the lineage of the Kurus. In these books there are topics on transcendental subjects along with material topics. The whole idea of the Mahabharata culminates in the ultimate instructions of the Bhagavad-Gita that one should give up all other engagements and should engage oneself solely and fully in surrendering unto the lotus feet of Krishna. The conclusive teaching of the Ramayana also is to fully surrender and take shelter of Lord Sri Ramachandra.

### **1. Ramayana**

The traditional author of this Epic, is the sage Valmiki. This Epic is regarded as the first poetical work in the world, purely of human origin.. The verses have great diffusivity, simplicity and charm. There are totally seven books of this great epic.

### **2. Mahabharata**

This epic is traditionally authored by the sage Vyasa. It is a rich collection of many histories and legends. The scene of the poem is the ancient kingdom of the Kurus; and the central story - ' the germ of which is to be found in the Vedas ' - concerns a great dynastic war. A very important portion of the Mahabharata is the Song of the God (called the Gita). Bhagavad Gita, as it is called, is the essence of all the messages to mankind contained in the Veda.

## **SMRITIS**

Smriti means memory and are writings devised to fix in memory, the practical use of the messages stated or implied in the Vedas. ' Smritis ' embodies the teachings of Divine Incarnations or prophets, saints and sages. It is an explanation of the 'Srutis' ' Srutis ' are the revealed scriptures, as mentioned in the Vedas and ' Smritis ' are the commentaries and derived literatures, based on the messages of the Vedas; Some of the Smritis are in the form of Laws formulated by saints and sages for mankind. There are eighteen important Smritis.They are

1. Usana Smriti
2. Yanjavalkya Smriti
3. Vishnu Smriti
4. Manu Smriti
5. Angeerasa Smriti
6. Yama Smriti
7. Atri Smriti
8. Samvarththa Smriti
9. Bruhatparasara Smriti
10. Bruhaspati Smriti
11. Daksha Smriti
12. Saataatapa Smriti
13. Likhita Smriti
14. Vyasa Smriti
15. Parasara Smriti
16. Sanka Smriti
17. Gautama Smriti
18. Vasishta Smriti

***A P P E N D I X – F***  
**Selected Verses from the Bhagavad Gita**  
**(Work-in-progress)**

***A P P E N D I X – G***  
**Introductory Overview on Brahma Sutra**  
**(Work-in-progress)**