

Introduction to Vedic Knowledge

fourth volume:

**The Secondary Vedas
Vedanga and Upavedas**

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Vedangas and Upavedas

The secondary Vedic texts called *Vedangas* ("limbs of knowledge") and *Upavedas* ("secondary knowledge") or even *Upangas* ("secondary limbs") are also considered *shastra* ("sacred scriptures") and sometimes are called *sutra* ("aphorisms"). Many among the most ancient texts have gone lost and we have only quotes related in more recent books (which of course, are still centuries old).

The traditionally recognized *Vedangas* are:

- *Siksha* (rules for pronunciation)
- *Vyakarana* (grammar)
- *Chanda* (intonation and metric to ensure proper understanding)
- *Nirukta* (derivation and meanings of words)
- *Jyotisha* (astrology)
- *Kalpa* (practical details of rituals)

Traditionally, the *Upavedas* or *Upangas* (subsidiary parts of the *Vedas*, required for the good performance of rituals) are:

- *Ayur Veda* (medicine) connected to the *Rig Veda*
- *Dhanur Veda* (military science) connected to the *Yajur Veda*

- *Gandharva Veda* (music, dance and figurative arts) connected to the *Sama Veda*
- *Artha shastra* (sociology, politics and economy) connected to the *Atharva Veda*

In turn, these include more subsidiary texts. Sometimes the *Sulba shastra* (mathematics and geometry) is considered a part of the *Vedanga* called *Kalpa* because it is required to calculate the measurements of the altars, and sometimes it is considered part of the *Jyotisha* to make the astrological calculations, or part of the *Artha shastra* as it is a basic knowledge for many social occupations.

The *Kama shastra* (sense gratification and quality of life) and the *Krishi shastra* (agriculture and care for animals) belong to the field of *Ayur Veda*, while the *Vimanika shastra* (construction and utilization of airships) is considered part of the *Dhanur Veda*.

Within the field of *Artha shastra* we can mention the *Niti shastra* (good behavior), *Silpa shastra* (architecture and crafts) and the *kalas* or arts.

The scriptures that deal with the *darshanas* ("perspectives of vision") on the *Vedas* are:

- *Nyaya* (the science of logic)
- *Yoga* (control of body and mind)
- *Sankhya* (analytical philosophy)
- *Vaisesika* (cosmology and physics)

- *Purva mimamsa* (commentaries to the *Kalpa sutra*)
- *Uttara mimamsa*, also known as *Vedanta sutra*

Sometimes Yoga, Sankhya and Vaisesika are considered parts of the Nyaya because they are logical and philosophical interpretations of the Vedic knowledge. These are the 6 *darshanas* called *astika* ("orthodox") or faithful to the authority of Vedic knowledge.

There are also 3 more *darshanas* called *nastika* ("heterodox") that do not recognize the authority of the *Vedas*, although in a certain measure they deal with the fundamental knowledge presented in the *Vedas*. The *nastika darshanas* are the systems of Charvaka (atheistic materialism), the system of Buddha (Buddhism in its forms *sunyata*, *madhyamaka*, *yogachara*, *sautrantika* and *svatantrika*) and the system of Mahavira (Jainism both *anekantavada* and *syadvada*).

Siksha

The most famous and complete texts on this subject have been written by Panini and Yajnavalkya.

The *Samana siksha sutra* (in appendix to *Rig Veda*) specifically focuses on *visarga* (the letter represented by aspirated *h*), the *Bharadvaja siksha* contains an alphabetical index of the definitions used in *Yajur Veda*, the *Narada siksha* discusses about the accents in

Sama Veda, and the *Manduki siksha* about accents in *Atharva Veda*. Other texts, known as *Pratisakhya siksha*, are in appendix to the four *Samhitas* and explain the modifications in chanting or reading the *samhita* (or *mula*) *patha* (the original form of the Vedic text) into the *pada patha* (the reading that separates words) and the *krama patha* (reading with the words and their meaning), as we have seen in the 3rd chapter of this book speaking about Sanskrit.

Two more modalities of recitation of the same hymns, called *jata* and *ghana*, are considered particularly powerful and are used in rituals proper rather than in the learning exercises. The secret of this power resides in the rhythmic tone, combined with the awareness of the meaning of the *mantras*; the tonic sequence of the *jata* ("braid") is 1-2, 2-1, 1-2, while the tonic sequence of the *ghana* ("cloud") is 1-2, 2-1, 1-2-3, 3-2-1. We have already mentioned these in the chapter about the 4 main *Vedas*.

The word *siksha* refers to the technique for teaching the scriptures, based on phonetics and memorization.

These are the other fundamental definitions:

* *varna* refers to the pronunciation of the individual letters, classified as guttural, palatal, lingual, dental and labial according to the physical point of articulation in the vocal apparatus.

* *svarah* refers to the tone - *anudatta* ("low" that is low frequency), *udatta* ("high" or high frequency) and *svarita*

("medium") - in the pronunciation of vocals; in the manuals used for study and practice these three signals are represented respectively by a horizontal line under the vocal, and by one or two vertical lines above the vocal.

Other very specific tones, that are not used any more, were called *prachaya*, *hrasva*, *dirgha* and *pluta*.

* *matra* is the duration of vocalization in reference to time, that is short (*hrasva*), long (*dirgha*) or echoed (*plutam*), consisting of 1, 2, or 3 units of time (*matra*); the *ardha matra* or "half time" refers to consonants that are not accompanied by vowels

* *balam* refers to the forcefulness of pronunciation, to the vocal effort, both internal (*abhyantara prayatna*) and external (*bahya prayatna*) - that is before pronunciation and during pronunciation

* *samah* refers to the correct space between letters during pronunciation, which must not be too short or too long

* *santanah* is the pronunciation flow obtained through the correct combination in the union (*sandhi*) of letters.

Sanskrit is an extremely complex and precise language, and each small intonation and difference in pronunciation and accent can change the meaning of the sentence, even substantially. The *Siksha* of Panini tells a story from *Taittiriya samhita* (2.4.12) in which Tvasta performed a ritual to evoke an Asura who could

destroy Indra (*indra satrur vardhasva*) and because of a pronunciation mistake (emphasizing "tru" instead of "dra") he obtained an Asura (Vritra) who could be destroyed by Indra.

On the other hand it is well known (and it has also been demonstrated even in our own times) that the correct pronunciation of the Vedic hymns has a considerable influence on atmospheric phenomena, and especially it brings rains. It is even said that the repeated and correct recitation of the *apratiratha sukta* is able - by itself - to repel aggressors and even hostile armies, while the *akamathya sukta* produces a feeling of peace, harmony and cooperation. Recent studies on the chanting and singing of Vedic *mantras* have shown a close relationship with mathematics and geometry, as well as with the binary logic used in computers.

Vyakarana

This term is defined as *vyakriyate anena iti vyakarana*: "grammar is what enables us to form and examine words and sentences". In Sanskrit there is a precise and logical system to form declinations, conjugations, composed words and derivatives, which enables us to systematically understand the deep meaning of the words. The nine traditional grammatical systems are those compiled by Indra, Chandra, Kasakritsna, Kumara, Sakatayana, Sarasvati Anubhuti Svarupa acharya, Apisali and Panini.

The text entitled *Astadhyayi* ("8 chapters") written by Panini is certainly the most famous, and has commentaries written by Patanjali (the author of the famous *Yoga sutras*), Katyayana and Bhattoji Dikshita. It is said that the basic 14 aphorisms of Panini's grammar, called *Mahesvara sutra*, were originated by the same number of fast beats of the *damaru*, Shiva's hand drum, during his cosmic dance. They contain the basic 43 Sanskrit letters, organized in their precise esoteric meaning.

Chanda

It is the science of intonation and metrics, required to ensure the correct understanding of the text. The most important traditional text is Pingala's *Chandovicitī*, in 8 chapters, followed by Kedara's and Gangadasa's work. Sanskrit poetic compositions are made of *pada* ("verses") each with a specific number of *aksharas* ("letters-syllables") each with a precise length (*matra*).

These are the main Vedic metrics:

- * Gayatri, with 3 *padas* of 8 syllables each
- * Ushnika, with 4 *padas* of 7 syllables
- * Anustubha, with 4 *padas* of 8 syllables
- * Brihati, with 4 *padas* of 9 syllables
- * Pankti, with 4 *padas* of 10 syllables
- * Tristubha, with 4 *padas* of 11 syllables
- * Jagati, with 4 *padas* of 12 syllables

Nirukta

This work by Yaska is the most famous text dealing with development and meanings of the words; however, it quotes passages from a previous text called *Nighantu*, that is presently lost except for the 5 chapters copied in the *Nirukta*. Besides *Nirukta* there are other *koshas* ("vocabularies") and *anukramanika* ("indexes").

Nirukta has 12 chapters: from chapter 1 to 3 there is an explanation of synonyms (words of different forms but having the same meaning), from chapter 4 to 6 we find the homonyms (words with identical forms but different meanings), and from chapter 7 to 12 there is the explanation of the names of the Deities. Words are categorized as *nama* (nouns), *akhyata* (adjectives), *nipata* (adverbs) and *upasarga* (prepositions).

To examine the origin and meaning of the words, it is important to consider the pronunciation characteristics and the grammatical formation. All nouns develop from a "root" (*mula*). For example, the word *karma* comes from the root *kr*, which means "to do". Sometimes a superficial similarity can be deceitful; for example the word *hasta* ("hand") does not originate from the root *has* ("to laugh") but from the root *han* ("to strike"). The root *has* instead forms the words *hasa* ("smile, laugh") and *hasya* ("amusing"). To establish the precise meaning and the formation of the various families of words we need a dictionary.

Kalpa

Visualizing the *Vedanga* as the various parts of the body of the Virata Purusha, the *Kalpa sutras* represent the hands - while *Siksha* are the nostrils, *Vyakarana* the mouth, *Chanda* the feet, *Nirukta* the ears, and *Jyotisha* the eyes. In fact the word *kalpa* ("intention, desire") expresses the passage by which after acquiring the knowledge of the ritual we take the initiative of performing it practically.

There are two types of *Kalpa sutra*: the *Srautas* explaining the rituals and ceremonies for the kingdom, and the *Smarta* (or *Grihya*) explaining the daily rituals for individual families. The two names derive from the fact that the first category is prescribed in the texts known as *Sruti* (the 4 main *Vedas* and their direct commentaries, such as *Brahmanas*, *Aranyakas*, *Upanishads*) while the rituals of the second category are only mentioned in the *Sruti* but they are prescribed in the *Smriti*.

Apart from the simple *agnihotra* (that should be performed as a daily practice), the majority of the traditional sacrificial rituals have been abandoned in Hindu society, because the rampant degradation of Kali yuga makes their correct performance almost impossible. In the 1800s the British scholar Martin Haug convinced some *brahmanas* in Pune (Maharashtra) to perform a Soma Yajna as described in the ancient texts; he took a lot of photographs and brought the used utensils in Europe.

In 1969 there was a Soma Yajna in Shivapuri, under the direction of Sri Gajanan. In 1975 (from 12 to 24 April) the indologist Fritz Stal financed and documented one Agnichayana yajna performed by the Nambudiris (traditional *brahmanas* from south India).

These episodes awakened the interest in the orthodox Hindu community of Kerala, that was inspired to continue with an Agnistoma in 1984 at Trivandrum, an Agnichayana in 1990 at Kundoor, an Agnistoma in 2003 at Trichur, an Atiratra and an Agnistoma in 2006 at Sukapuram, a Soma yajna in 2009 (from 25 April to 1 May) at Aluva, and an Atiratra in 2011 at Trichur.

Furthermore, in 1996 (from 11 to 22 December) a Pravargya yajna was performed.

The traditional *Srauta sutras* are:

- * *Asvalayana* and *Sankhyayana* (*Rig Veda*),
- * *Apasthamba*, *Baudhayana*, *Hiranyakesi*, *Bharadvaja*, *Vaikhanasa*, *Vadhila*, *Manava*, *Varaha* (*Krishna Yajur Veda*)
- * *Katyayana* or *Paraskara* (*Sukla Yajur Veda*)
- * *Khadira*, *Latyayana*, *Drahyayana*, *Jaiminiya* (*Sama Veda*)
- * *Vikhanasa* (*Atharva Veda*)

The traditional *Griha sutras* are:

- * *Asvalayana* and *Sankhyayana* (*Rig Veda*)
- * *Apasthamba*, *Baudhayana*, *Hiranyakesi*, *Vaikhanasa*,

Manava, Katha (Krishna Yajur Veda)

* *Katyayana or Paraskara (Sukla Yajur Veda)*

* *Khadira, Gobhila, Gautama, Jaiminiya (Sama Veda)*

* *Kaushika (Atharva Veda)*

The traditional *Dharma sutras* are:

* *Vasishtha (Rig Veda)*

* *Apasthamba, Baudhayana, Hiranyakesi (Krishna Yajur Veda)*

* *Gautama (Sama Veda)*

Naturally this classification of the *Dharma sutras* is only indicative, because this definition can be applied to a great variety of texts, as they deal with religious or social duties. Thus some scholars list even *Mahabharata* and *Ramayana* among the *Dharma shastras*.

There are other Smriti scriptures that further elaborate the topic of rituals, in the categories called *Pratishakhya, Padapatha, Kramapatha, Upalekha, Anukramani, Daivatsamhita, Parisishta, Paddhati, Karika, Khila* and *Vyuha*.

The *Prayogas* deserve a special mention because they are in turn sub-divided in *hotru* (on practical details), *adhvaryu* (on general organization) and *udgatra* (on the chanting of *mantras*) depending on the type of officiant that will utilize them.

Always within the *Smriti* category, but on the topic of personal and social duties, we have the 18 main texts such as *Manu Smriti*, also known as *Manu samhita* or *Manava Dharma-Shastra* (meant for the Satya yuga), *Yajnavalkya Smriti* (meant for the Treta yuga), *Sankha-Likhita Smriti* (meant for the Dvapara yuga) and *Parasara Smriti* (meant for the Kali yuga), as well as the texts written on the subject by the Rishis Vishnu, Angirasa, Daksha, Yama, Samvarta, Shankha, Ushanas, Katyayana, Devala, Brihaspati, Narada, Vyasa, Harita, Satatapa, Vasishtha, Yama, Apastamba, Gautama, Atri and Saunaka. Because it is not possible here to analyze these texts one by one, we will simply offer a general view on the topic of the rituals that are described in the *Kalpa sutras* and in the *Smriti* literature.

The rituals of purification and auspiciousness (*samskaras*) that create "good impressions" of *sattva* and *dharma* in the mind of the individual and the collectivity are 40, of which 14 are performed for the benefit of society at large (*srauta yajnas*) and 26 for the benefit of the individual (*smarta yajna*).

"Just like a painter creates an image by using various colors, the correct performance of the *samskaras* develops the character that is typical of the *brahmanas*." (*Parasara smriti*, 8.19)

These rituals are aimed at eliminating the negative tendencies (*dosa apanayana*), to create an affinity (*gunadhana*) towards the spiritual qualities (*atma guna*) such as compassion (*daya*), tolerance (*kshanti*),

absence of envy (*anasuya*), purity of body and mind (*sauca*), inner peace (*anayasa*), a positive attitude (*mangala*), absence of greed and miserliness (*akarpanya*), and absence of attachments (*asprha*).

Here are the 40 *samskaras* listed in the *Kalpa sutras*:

1. Garbhadhana, for conception.
2. Pumsavana, for the beginning of awareness in the embryo.
3. Simantomnayana, to reassure the fetus before birth.
4. Jatakarma, at birth.
5. Nama karana, the ceremony in which the newborn is given a name.
6. Annaprasana, the first meal consisting in food grains.
7. Chuda karana, the first hair cut.
8. Upanayana, the awarding of the sacred thread (*upavita*).
9. Prajapatyam, the beginning of the study of Vedic scriptures.
10. Saumya, the recognition of the student's personal progress.
11. Agneya, when the student begins the practice of the *samidha dhana*, the offering into the fire (the special firewood for the sacrifice is called *samidha* or *idhma*).
12. Vaisvadeva, the first direct offering to the Devas.
13. Samavartana, the completion of the studies (a sort of graduation ceremony).
14. Vivaha, marriage (4 days of rituals); the sacred fire

for the ceremony is brought from the house of the husband's father.

After marriage, a family man regularly performs the Pancha Maha yajna ("5 main sacrifices"):

15. Brahma yajna: the study and the teaching of the scriptures (*svadhyaya*) and the spiritual practice (*sadhana*) for the realization of Brahman - to repay one's debt towards the Rishis and the *Vedas*.

16. Pitri yajna, or the offerings to the Pitris (ancestors) during the Agnihotra, the *tarpana* etc. Besides these rituals, the Pitri yajna include the duty to beget at least one son who will continue the family line, and to behave in such a way to bring glory and good name to the family.

17. Deva yajna, or the offerings to the Devas (the administrators of the universe) during the Agnihotra, the ritual worship to the family Deities (*upasana*), the Sandhyavandana etc.

18. Bhuta yajna, or the offering of food to the animals and the living beings in general; this consumes one's past negative karmic reactions. It includes the regular practice of nonviolence, compassion and harmony with nature, and even good relationships with ghosts.

19. Nri yajna, that consists in assistance to guests (*atithi*), a category that includes all travelers, as well as in the regular practice of charity, compassion, tolerance and forgiveness towards other human beings.

Another group of sacrifices is called Sapta Paka yajna ("the 7 cooked sacrifices"):

20. Astaka anvastaka, to the ancestors, 4 times a year.
21. Parvani, to the ancestors, once a month.
22. Sravani, to the snakes (on the day of Naga panchami).
23. Agrahayani, at the end of the Sravani ritual.
24. Chaitri, to the Mother Goddess, during the month of Chaitra.
25. Asvayuji, offering the first products of the harvest.
26. Sthalipaka, the regular offering of rice to the family Deity.

These rituals are based on oblation of food grains, alone or boiled with other ingredients, especially milk, butter, yogurt, fruits or rice pudding, and sometimes special steamed cakes called *purodasa*. Especially for the departed ancestors, the family prepares balls of cooked rice called *pindi*.

The next group of *samskaras* consists of the Sapta Havir yajna ("7 sacrifices to the fire"):

27. Agnyadhyana, the consecration of fire (that is "installed" as the personal presence of Agni) both for the public rituals and the house rituals. The first installation of the fire for family is performed at the marriage ceremony, and the fire is solemnly carried into the new house of the married couple and is

subsequently divided into Garhapatya agni (for the *srauta yajnas*) and Aupasanagni (for the *smarta karmas*), from which the family kindles the fire for the daily cooking of meals.

The Aupasanagni is further divided into Akshinagni and Ahavaniyagni, that kindles the lamp (*dipa*) and the fire for the daily Agnihotra ("offering to the fire").

28. Agnihotra, the daily ritual of oblations that constitutes the first step for the public rituals as well as for the home rituals.

29. Darshapurnamasa, performed at each *paksha* (moon fortnight) for Agni and Soma, with the offering of the *purodasa* cakes, milk, yogurt and butter.

30. Agrayana, with oblations of the first products of the harvest (barley and rice) 2 times a year, in spring and autumn.

31. Chaturmasya, every 4 months.

32. Nirudha pasubandha, in which one acquires a cow.

33. Sautramani, the offering to the *kshudra devatas*: Indra, Sarasvati and the Asvini kumara.

In these *yajnas* the ritual focuses on the sacred fire, in which one offers *ghi* (clarified butter), firewood chosen from specific trees, and a mixture of uncooked whole grains (especially rice, barley and wheat).

The Agnihotra is performed at dawn and sunset (together with the Sandhya rituals) and consists in the

offering of pinches of uncooked rice, mixed with a small quantity of clarified butter (from cow milk), that are put in a small fire within a copper container in the shape of a half pyramid.

The next group of *samskaras* consists of the Sapta Soma yajna ("7 sacrifices of *soma*"):

34. Agnistoma, a purification and "new birth" for the *yajamana* (the author of the ritual), of which the Jyotistoma is a variation for the *vratyas* ("those who take the vows") who enter Vedic society by leaving their *anarya* society of origin.

The Jyotistoma also includes the Prayascitta ("atonement") that generally consists in consuming the *pancha gavya* ("the 5 pure substances from the cow").

35. Atyagnistoma, with the recitation of the 16 *suktas* of *Soma* after the Agnistoma.

36. Ukthya, accompanied by other *mantras* of *Sama Veda*.

37. Sodasi, accompanied by other *mantras* of *Sama Veda*.

38. Vajapeya, for health and longevity; it requires 40 days of rituals.

39. Atiratra, accompanied by *mantras* of *Sama Veda*.

40. Aptoryama, accompanied by *mantras* of *Sama Veda*.

In these ceremonies, that are usually long (from 5 days to several years) and complex, with the participation of many officiating priests (up to 16 *ritvikas*), the main offering consists in the juice of the *soma* plant, of which we have already discussed in the chapter on the 4 main *Vedas*. Some of these *samskaras* are performed every day (such as the Agnihotra, the Pancha maha yajnas and the Sthalipaka), others twice a month (such as the Darshapurnamasa and the Sthalipaka), once a month (the Parvani) or once a year (Sravani, Agrahayani, Chaitri, Asvayuji, and Sthalipaka). The others are generally performed once in a lifetime, obviously for those who can afford them from the financial point of view. All these rituals, from marriage up to this point, are meant for family men as *nitya karmas* (regular duties), *naimittika karma* (occasional or "instrumental" duties) and *kamya karma* (duties performed to satisfy a particular desire, or "optional" duties).

The *naimittika karmas* also include the daily bathing and purification activities, the cleaning of the temple and house, and the performance of one's professional/occupational duties and family duties.

At the age of 50, when the family man retires entering the order of *vanaprastha* and leaves his home to travel in the pilgrimage places or to live in solitude in the forest, his religious duties are sized down to the study of the *Vedas*, the chanting of *mantras* (*japa*, *patha* etc) and to the worship of the Deities with the simple ingredients he can find. These practices are described as Kakshagni yajna.

One who enters the order of total renunciation, called *sannyasa*, further reduces the religious ceremonies to the Jnanagni yajna, the "sacrifice in the fire of knowledge".

Actually according to the *Bodhayana Grihasutra* (1.1.18.21), the performance of sacrifices gives better results when it is done mentally, as long as it is done with the proper concentration and knowledge. The *bahir yajna* (external sacrifice) of *svadhyaya*, *japa* and *karma* (each with benefits 10 times greater than the previous one) has a lesser effect compared to the *manasa* or *bhitar yajna* (inner sacrifice), for which it simply functions as a practical support.

Other important factors are *bhavana* (good motivation), *tyaga* (detachment from the sense of possession of what is offered), *deva* (the actual presence of the Devas, that manifests in different ways) and *phala* (the effect, that must be actual and verifiable).

The funeral rites, called Antyesti karma, are not considered *samksaras* but rather *naimittika karmas* (as it is for example the daily bathing process).

The public sacrifice ceremonies for the benefit of collectivity are performed by the king and involve a considerable number of officiating priests or *ritvikas* (up to 16), with the distribution of food and gifts of various types to all the participants, public lectures and readings. Usually they last several days and require the temporary building of a series of structures that are specifically meant for the rituals - something that

already constitutes an important ritual in itself, called Atiratna Agnichayana that lasts for 12 days.

The most famous ritual in this category is the *asvamedha*, performed by kings on the occasion of the *rajasuya yajna*, which officially establishes their position of power. The ritual proper, that lasts for 3 days but requires a preparation that lasts for one entire year, has a deeply symbolic meaning that superficial translators motivated by biased considerations have sometimes presented as a mere animal sacrifice. Actually, in all the sacrifices of this type (*asvamedha*, *gomedha*, *purushamedha*), the main "sacrificial victim" (the horse, the cow or the human being) and the secondary ones (goats etc) are released at the end of the ceremony, and are purified and strengthened by the ritual.

In the *sarvamedha yajna* one sacrifices all one's possessions, by distributing them to those who attend the ritual, in order to enter the order of *sannyasa*. The *pitrimedha yajna* constitutes a permanent offering to the Pitri, that liberates one from all obligations towards them. Finally the *pravargya yajna* grants a subtle body of a higher quality, by which one can access the heavenly planets.

Jyotisha

The science of astrology/ astronomy is required for the correct study and application of the Vedic hymns, because the success of a complex and delicate ritual

also depends on the proper moment for its performance. Surya himself, the Deva of the Sun, is considered the original author of the texts on astronomy, that have reached us especially in the compilation by Garga Rishi.

The *Jyotisha shastra* can be divided into 3 categories:

* *Siddhanta*, with particular importance to mathematics, geometry, trigonometry and algebra for the precise calculation of the positions of the planets, from which one must build the altars and the temporary structures for the sacrifice rituals, as well as the permanent buildings such as houses, temples etc.

* *Hora*, with particular importance to the evaluation of the individual's karmic journey, also indicated by the position of the planets at the time of birth and at the important passages of life. This factor, too, has some importance in the performance of the ritual ceremonies, because it helps in stabilizing the procedures and the auspicious moments in a personalized way.

* *Samhita*, with various useful information, such as the localization of subterranean springs and water bodies, the agricultural calendar, the rules for the construction of buildings and the methods to prepare extracts that are influenced by the season and the position of the planets.

The Vedic astrological calendar is called *panchanga* ("composed by 5 parts) or *panjika* or *panji*, because it considers 5 different astronomical movements of the

sun, the moon, the stars, the planets, and the Earth itself (as the inclination on its axis).

Like in the western system, the solar month lasts about 30 days and is marked by the passage of the Sun in the 12 signs (*rasi*) of the Zodiac - called Mesha (Aries), Vrisha (Taurus), Maithuna ("the couple", or Gemini), Karkata (Cancer), Simha (Leo), Kanya (Virgo), Tula (Libra), Vrischika (Scorpio), Dhanus ("bow" or Sagittarius), Makara ("crocodile" or Capricorn), Kumbha ("vase" or Aquarius) and Mina (Pisces).

The day of passage from one sign to another is called *sankranti* ("change") and is different from the day calculated by western astrology, because it considers the precession of the equinoxes. For example the winter solstice, called Makara sankranti, falls around the 15 January instead of 21 December.

Just like in western astrology, the week days are connected to the planets - Sun for Sunday (Ravi-vara), Moon for Monday (Soma-vara), Mars for Tuesday (Mangala-vara), Mercury for Wednesday (Budha-vara), Jupiter for Thursday (Guru-vara), Venus for Friday (Sukra-vara), and Saturn for Saturday (Sani-vara).

The lunar month however lasts about 2 days less than the solar month, because the lunar day (*tithi*) and the solar day (*vara*) do not correspond exactly. The festivals are calculated generally according to the lunar calendar, that is easier to observe directly in the sky by following the phases of the moon.

Each lunar month is divided into 2 fortnights (*paksha*) called *sukla* ("white", or waxing) and *krishna*, ("black" or waning moon) ending respectively with the full moon (*purnima*) and the new moon (*amavasya*).

The lunar days are simply called first (*pratipat*), second (*dvitiya*), third (*tritiya*), fourth (*chaturthi*), fifth (*panchami*), sixth (*sasthi*), seventh (*saptami*), eighth (*ashtami*), ninth (*navami*), tenth (*dasami*), eleventh (*ekadasi*), twelfth (*dvadasi*), thirteenth (*trayodasi*), fourteenth (*chaturdasi*), to which we must add the days of full and new moon, for a total of 16 lunar days, corresponding to 14 solar days.

Precisely because the lunar day is 4 hours shorter than the solar day, sometimes a solar day overlaps on two lunar days. To adjust the lunar calendar to the solar year and to the earth cycle of seasons, we regularly add a lunar month called Purushottama adika masa, considered particularly favorable to spiritual life, that may fall at different times of the year.

In the Vedic system, seasons (*ritu*, "regulation", from which the word "ritual" derives) are rather different from the western system. They are 6: spring (*vasanta*), summer (*grishma*), monsoon (*varsha*), autumn (*sarad*), winter (*hemanta*), and cool (*sisira*).

Both the solar and earthly year begin with Mesha sankranti, known in the west as spring equinox. Actually in the Indian calendar it opens the summer season around the middle of April, connected to the first sowing of the grains. The first month (April-May) of the Vedic

calendar is called Vaisakha, the second (May-June) is Jyestha, then come Asadha (June-July), Sravana (July-August), Bhadra (August-September), Asvina (September-October), Kartika (October-November), Margasira (November-December), Pausha (December-January), Magha (January-February), Phalgun (February-March) and Chaitra (March-April).

These names come from the stars with which the Moon associates, and are considered particularly important in the calculation of the personal horoscope of an individual or of the auspicious moment to begin a specific activity - something that is very interesting because this concept does not exist any more in western astrology (that considers practically only the members of our solar system) although the popular language still preserves some sayings in regard, such as "being born under a good/bad star", "what the stars say", and so on.

While examining the names of the stars, we need to consider the modifications due to the grammatical declinations of Sanskrit; for the correspondences with western astronomy we have chosen to use the Latin name that constitutes the standard international reference.

Visakha corresponds to the star Alpha Librae, Jyestha is Antares, Purva asadha is Delta Sagittari and Uttara asadha is Sigma sagittari, Sravana is Alpha Aquilae, Purva bhadrâ pada is Alpha Pegasi and Uttara bhadrâ pada is Gamma Pegasi, Asvina is Beta Arietis, Kritika is

Eta Tauri (associated with the constellation of the Pleiades), Mrigasira is Lambda Orionis, Pushya is Delta Cancri, Magha is Regulus, Purva phalguni is Delta Leonis and Uttara phalguni is Beta Leonis, Chitra is Vegas or Spica Virginis. Other important stars are Rohini (Aldebaran), Revati (Zeta Piscium), Anuradha (Delta Scorpio), Dhanishta (Beta Delphinum), Ardra (Alpha Orionis/ Betelgeuse), Satabisha (Lambda Aquarius), Aslesha (Alpha Hydrae), Punarvasu (Beta Geminorum), Hasta (Delta Corvi), Svati (Arcturus), Mula (Lambda Scorpionis), Bharani (35 Arietis), Asvayuja and Punarvasu (Castor and Pollux), Abhijit (Vega) etc. On the other hand, it is not clear which contemporary astronomical names correspond to the stars called Radha, Sunrita, Sravistha and Prostha pada.

The 28 main stars are mentioned in the *Atharva Veda* (19.7); each one of them is ruled by one of the 9 *grahas* ("celestial bodies") - Ketu (Cauda draconis), Sukra (Venus), Ravi or Surya (Sun), Chandra (Moon), Mangala (Mars), Rahu (Caput draconis), Guru or Brihaspati (Jupiter), Sani (Saturn) and Budha (Mercury). These determine the periods called *dasa*, that are very important for the development of the circumstances in the individual's life.

Rahu and Ketu are particularly important in Vedic astrology/ astronomy because they are connected to the solar and lunar eclipses, that are calculated with great precision.

The *jyotisha* offers various solutions for the unfavorable situations and defects (*dosha*) in the birth horoscope and in the important moments in an individual's life; the simplest remedy consists in chanting *mantras* and offering prayers to the Lord of the concerned lunar mansion. It is also recommended to cultivate a specific sacred plant for each of the *grahas* and perform ritual ceremonies (the *grahas* are always offered oblations during all fire sacrifices as well).

Another traditional remedy is gemology, that utilizes precious and semi-precious stones (as well as corals and pearls) to strengthen the required influences. Vatsyayana Rishi's *Ratna pariksha*, considered one of the accessory texts or *kalas* ("parts") of Vedic knowledge, describes 24 types of gems with their specific characteristics and 32 methods to verify their genuineness.

Another practice connected to astrology is palmistry, on which there is a classical text entitled *Samudrika shastra*, attributed to the personification of the ocean (Samudra raja) who observed the auspicious signs on Vishnu's body (and especially hands and feet) while Vishnu was laying on Sesha naga over the waters.

The text also includes teachings of Varaha, Kartikeya, Narada and Mandavya.

Kartikeya (Skanda) is considered the author of the *Kala shastra*, dealing with the classification of the various periods of time, and especially auspicious and inauspicious moments.

Ayur Veda

Literally "the science of life", it traditionally includes the *Kama shastra* or *Kama sutra*, that we will examine separately. The Ayurvedic system is closely connected to the other forms of Vedic knowledge, such as Yoga (especially the practice known as *surya namaskara*), music (applied as music therapy), ritual ceremonies, astrology, gemology, etc.

Famous *mantras* for health are the *Maha mrityunjaya*, the *Aditya hridaya*, the *Shiva kavacha*, the *Indrakshi kavacha* and the *Dhanvantari mantra*. The Deity that presides over this science is Dhanvantari, the Vishnu *avatara* who appeared to give the nectar of immortality to the Devas.

Ayur Veda gives great importance to what is called today "spiritual healing", or the psychological wholistic aspect that enables healing and health already at a subtle and mental level, which normally brings excellent results also on the physical level.

According to the tradition, the original *Ayur Veda* came from Brahma, who taught it to the Asvini kumaras (the physicians of the Devas) who through Indra transmitted it to the Rishis Bharadvaja, Punarvasu Atreya and Agnivesa. Later, this original knowledge was elaborated in the compilations of the Rishis Charvaka and Sushruta, and in a famous commentary by Vagbhatta.

The *Charvaka samhita* is the fundamental and most famous text among those that still survive.

It deals especially with the *kaya chikitsa* (general medicine) and explains about the *pancha bhuta* ("five elements" or earth, water, fire, air, ether or space) that by combining and interacting produce the *tri dosha* ("three components" of the body) and precisely *vata* (movement, nervous system, wind), *pitta* (heat, digestive system, bile) and *kapha* (solidity, lymphatic system, phlegm or mucus). In turn, these three components combine in various ways forming 7 types of different physical constitutions.

There are also 7 *dhatu*s, or substances that compose the body - plasma, blood, muscle tissues, fat, bone tissue, marrow and reproductive fluids.

The secret to good health consists in maintaining the proper balance among all these elements, first of all by following a diet that is suitable to one's constitution, to the climate and the season, and to one's personal and occupational needs, by choosing appropriate life habits (including going to sleep and waking up, the hours and circumstances of the meals, personal hygiene, abstention from damaging behaviors etc), by facilitating the elimination of primary and secondary waste (*ama* and *mala*), practicing regular massage and external applications of natural substances (oils, plant extracts, infusions etc), by regularly exposing oneself to the sun rays especially in the hours when they are milder, by stimulating the immune system with periodical rejuvenation treatments called *pancha karma*, and when required by applying pharmacology, with the internal use of vegetal, mineral or even animal substances,

especially clarified butter and honey, that are used mostly as vehicles for the active principles. There is a great number of medicinal plants listed in the Ayurvedic texts, that constitute the most ancient existing evidence of herbology.

Special attention is given to the knowledge defined as *kumarabhritya tantra*, uniting gynecology, fertility treatments, midwifery and pediatrics, that offer the best possible beginning to the life of a human being, and to the *rasayana tantra*, that includes geriatrics, detoxification, and special techniques for rejuvenation.

The *agada tantra* is the category of toxicology, while the *vajikarana tantra* is the category of sexual stimulants.

The *Sushruta samhita* (also known as *Salya tantra*) deals with the same topics and with surgery, too.

The *Astanga hridaya samhita*, compiled by Vagabhatta, constitutes the third important text in the study of this discipline.

These two texts also deal with reconstructing surgery, cataract removal, and 121 different surgical instruments, treated with a carbon process to make them stronger and sharper. This carbon process consists in applying a coal paste to the blade and to heat it until it becomes incandescent red, and then to suddenly immerse it in cold water to temper the blade.

It also speaks about controlling infections by using antiseptics, about anesthetics and anti-haemorrhagics,

toxicology, classification of burns, psychiatry and medical ethics. Specific sections are dedicated to the restoratives of the immune system, fractures and wounds, bites and stings of poisonous animals, and to the diagnosis through the examination of the 3 different types of pulses that can be felt in the wrist. It speaks about digestion and metabolism, circulation of the life energy (*prana*) and its energy meridians (*nadi*) and crucial points (*marma*), sexual dysfunctions and insufficiencies, the treatment of ears, nose and throat (*salakya*), the sense of taste, ophthalmology, the extraction of foreign objects from the body, the complications that can develop during therapies and so on.

Less known are the texts called *Bhela samhita*, *Madhava nidhana*, *Chikitsa sara sangraha*, *Nava nitaka*, *Roga vinischaya*, *Siddha Yoga* (that contains formulas for mercury-based preparations), *Rasa ratnakara*, *Rasa arnava* (that explains how to reduce gems and metals into ashes for medicinal use), *Saranga dhara samhita* (specifically dealing with the pulse examination) and *Bhava prakasha*, all compiled by various authors.

The *Visha shastra* attributed to the Asvini Kumaras deals with poisons, listing 32 types with properties, preparation, effects and antidotes. Nagarjuna, author of the treatises called *Arogyamanjari* and *Yogasara*, is considered an expert of alchemy applied to medicine.

There is also one *Supa shastra*, compiled by Sukhesha Rishi, that deals specifically with the science of

gastronomy, analyzing the ingredients and presenting 108 different type of preparations (including condiments, preserves, sweets etc) to obtain 3032 different recipes, characteristic of different geographical and cultural regions.

Finally, the *Vriksha ayur veda* is a treatise written by Surapala on the application of medicine to the cultivation of plants, and that can be classified both under the category of the *Ayur Veda* and the category of the *Krishi sutra* ("texts on agriculture"). Similarly there are specific veterinary texts for horses, elephants and cows - the *Asva ayur veda*, *Gaja ayur veda* and *Gava ayur veda*. The knowledge of Ayurvedic medicine has been introduced in western countries since 1978 by pioneers such as Dr. Vasant Lad, Dr. Deepak Chopra, Santosh Krinsky, Dr. Sunil Joshi, Dr. Pankaj, Smita Naram, and Len Blank.

Kama shastra

Many people have heard about the *Kama sutra* or *Kama shastra*, but the ideas that circulate are rather distorted and confused, because the majority of the texts published in the west are actually books written in very recent times on the topic of sexual unions, by utilizing some material from the original *Kama sutra* (by Vatsyayana Rishi) and more often, from commentaries to the *Kama sutra* compiled during the middle ages as sex manuals by courtiers of the muslim sultans that dominated India.

The proof is that such manuals generally contain many illustrations of evident persian and mogul style, that have very little relation to the original *shastra* except for the sexual theme.

A careful reading of the original Vatsyayana text (compiled from the teachings of Nandikesvara, the same author of *Gandharva Veda*) reveals that the main topic is not sex in itself - which constitutes only a part of the subject - but rather the quality of life in general.

The first part of the text (*Sadharana*) explains that sense gratification (*kama*) constitutes one of the 4 primary purposes of human life (after *dharma* and *artha* and before *moksha*), then mentions the 64 arts (*kala*, "parts") that we listed in the chapter of the study of Vedic knowledge in India, particularly in relation to the academic education of women. The text continues with useful teachings on home management, interior decoration, maintenance of gardens and kitchen gardens, and on the daily life of a city dweller (*nagarika*).

After examining all the aspects of home comforts and leisure activities that are considered appropriate to a civilized life, the text defines the categories of friendship and social relationships that one should cultivate, and also those that are to be avoided. It clearly explains which women one can legitimately try to approach for a relationship with sexual implications, and the civilized way to make friends with them and to manifest one's desires. Only the second part of the text

(*Samprayogika*) deals with the sexual union proper, starting with physical compatibility and elegant and refined preliminaries and finally conclude the encounter in a satisfying way.

The third part of the text (*Kanya samprayuktaka*) explains how one should find a wife; it speaks about reciprocal courtship, engagement and the various types of marriage, including very "free" situations such as the Gandharva type of marriage, which although perfectly legal and legitimate, simply consists in exchanging garlands and mutually accepting the couple relationship.

The fourth section of the text (*Bharya dhikarika*) constitutes a sort of marriage manual for a good married life even in polygamous situations. The fifth section of the text (*Pari darika*) speaks about the wives of other people, and particularly of how to understand which women are willing to have extra-marital relationships, and which women are not.

The sixth section (*Vaishika*) is meant for the various categories of women who are normally willing to have promiscuous sexual relationships, listed in more or less respected categories.

The *ganikas* ("society women") were educated and refined, had a place of honor in the city assembly and at the religious functions where their presence was considered auspicious, and maintained friendly relationships - both socially and personally - even with kings, royalty members and religious authorities at the highest level. Their company did not necessarily entail

sexual contacts, but it was rather about an atmosphere of very civilized sophistication. The *ganikas* were highly appreciated as teachers for boys and girls from good families (including princes and princesses) in the subjects of good manners, elegance, attitude, refinement and fine arts, because their behavior and their life style were considered the highest example of quality of life. Sometimes they were requested to manage and administer public or private properties, or to perform diplomatic missions, and their home was often visited by those who wished to improve their social status and to meet important and influential people.

The "independent women" (*svairini*) that are not capable of getting a livelihood from activities at such a high level, could engage in the occupations of *nati* (dancer), *silpa karika* (crafts woman), *kumbhadasi* (water carrier), *dasi* (housemaid in a large mansion), *kliba* (masseur or beautician) or *paricharika* (house help). In the course of their professional activities they had the opportunity to accept lovers in a more or less casual way, and this enabled them to receive gifts in cash or valuable objects as a token of appreciation for their beauty and sexual skills. Such gifts were always offered and accepted in a civilized and respectful way, and the personal relationship was always based on friendship, something that is generally very difficult to understand for those who are used to the present concept of "prostitution".

Those who make a livelihood exclusively by sexual services were defined, in decreasing order of social position and level of personal culture, as *veshtya*,

rupajiva, *kulati*, *prakashavinasta*, or *pumschali*. Such definitions also applied to the *hejira* (transsexual or transvestites) because in Vedic society there is no homophobia.

The section called *Vaishika* in the *Kama shastra* explains the advantages of the use of sexual relationships to obtain personal advantages - which include money, favors or even revenge. It also illustrates how to balance romantic and friendly sentiments with profit, and even how to choose a suitable husband among the worthiest habitual customers.

There are also instructions for stylish dressing and ornaments, beauty and personal hygiene, interior decoration and ornamentation of the house, witty and refined conversation, the exchange of small gifts to develop friendship, the offering of garlands and perfume oils, refreshments and mouth-fresheners, psychological attentions and even modesty, "because excessive exposure will give the impression of a lesser value".

The last section of the text, entitled *Apamshadika*, deals with potions of aphrodisiac and stimulating effects.

It is important to understand that Vedic culture does not consider sexual acts (as long as they are free and based on mutual consent) as illegal or immoral, even when they are performed with the intent of gaining some monetary profit. Actually, sex (*kama*) is considered a positive value (*artha*) as long as it is not contrary to the universal and fundamental principles of *dharma*:

truthfulness, compassion, cleanliness and self control. So, as long as a relationship is not based on physical or psychological violence, on betrayal or hypocrisy, on some type of psychological or physical perversion, or on mere animal lust, it is considered legitimate from the moral point of view.

We need to clarify here that this scenario refers to the original Vedic civilization, not to the present situation in India, where these ideals and values have been much distorted by the cultural superimposition forced by the invaders, to the point that they have been forgotten or turned upside down. The same consideration applies to the next topic - the *Veda* of military science.

Dhanur Veda

The *Veda* of military science, attributed to Visvamitra Rishi, presently contains 4 chapters entitled *Diksha*, *Sangraha*, *Siddhanta* and *Prayoga*. It speaks of the preliminary qualifications for the students, the moral, mental and physical discipline, about weapons, how to make them and use them, but also about strategy and sociology, that may be considered "preventive" methods, preferable to violent action.

In Vedic logic there is no space for imperialistic or religious wars; when we speak of "empire" (as in the case of the *maharaja* who celebrates the ritual of the *rajasuya yajna*) the authority of the emperor is based on a system of tributary alliances rather than on direct

domination. Under no circumstance the emperor can arbitrarily replace the local monarch of a vassal kingdom, or give him orders. If during the *rajasuya* a local king refuses to ally with the emperor and opposes him with weapons, and is killed on the battlefield, his legitimate heir ascends the throne and in turn he can choose whether to accept the alliance or reject it. Usually he will accept it, because the defeat of his father's army has already demonstrated that it is better to establish a good relationship with the emperor, who has a stronger army and a greater power. The purpose of the imperial structure is to facilitate trade, transportations and cultural exchanges, and especially to better protect the various kingdoms, building a common front against external aggressors.

The emperor utilizes the allies' tributes to build and protect the roads between the kingdoms, to organize and perform great ceremonies and rituals of sacrifice for the prosperity of the entire land, for the benefit of all the concerned kingdoms. However, he never interferes in the internal matters of the allied kingdoms, and especially he is not interested in introducing or imposing his own way of life or his cultural or religious beliefs. For example we see in the *Mahabharata* that many among the kings who allied with the Pandavas or Kurus belonged to non-Vedic cultures, but they were never pressurized in that direction.

A *kshatriya* has the duty to protect the kingdom and the subjects from internal and external aggressions, and while engaging in such activities he must follow a very

strict ethical "chivalry" code that binds him to the use of the minimum required force. We have mentioned these rules in our summary of the *Mahabharata*. However, the *kshatriya* must always be prepared for any emergency, and therefore he has the duty to train himself constantly to the use of weapons and military expeditions.

The simplest method consists in hunting those wild animals that belong to the category of "aggressors" towards the human beings and their means of livelihood - tigers and lions who eat people and cattle, but also deer and rabbits that (without an adequate number of natural predators) multiply and spread outside the forests, damaging the cultivations. On the other hand, Vedic ethics condemn the hunting for birds and other inoffensive animals, and the killing of animals that are friendly and useful for human society, and in any case all those actions that produce unnecessary physical or psychic suffering in animals, including the wild animals, such as imprisonment or non-lethal wounds.

The most common conventional weapons (*manava sastra*) are described as *dhanur* (bow), *kunta* (spear), *khagda* (sword), *churika* (knife), *gada* (mace), *chakra* (disc), and the same importance is given to the training in hand and body wrestling (*bahu*), that survives in some styles presently called Gatka, Kabadi, Thang-ta, Kuttu varisai, Varma kalai, Adithada, Kalaripayat, Malyutham and Mallayuddha. In the battles with the participation of many warriors, the generals utilized the *vyuha* or battle formations of which we discussed in the *Mahabharata*.

We have already mentioned, speaking about *Ayur Veda*, how surgical instruments were carbon-treated to make them more durable and sharper. Obviously the same process was used to temper and sharpen conventional weapons, thus giving them legendary quality and value, and making them practically indestructible. The process is described in details in the *Loha shastra* by Patanjali Rishi and in the *Brihat samhita* by Varahamihira.

As demonstration of this extremely ancient science, we still have today some extraordinary pieces, such as the famous Ashoka pillar at Mehrauli (pure iron of superior quality), the Kodachadri pillar in Karnataka, the Dhar pillar in Madhya Pradesh, and the beams from the Sun temple in Konark, Orissa: all made of iron and all extraordinarily free from rust, in spite of the many centuries of exposure to the atmospheric elements. In the case of Konark, the environmental atmosphere is particularly destructive for ordinary iron because of the high level of saltiness and humidity in the air.

The second category includes the chemical or mechanical weapons including explosives, called *agnibana* ("fire arrows") because they were generally shot with the bow.

In *Niti Cintamani* the gunpowder, with its effects and composition, is called *aurvagni* from the name of Aurva Rishi (preceptor of emperor Sagara, a forefather of the *avatara* Rama) who is said to have invented or discovered it.

Other mysterious "arrows" are the *Kamaruchi*, that can change direction during its course, and the *Sabdaveditva*, that can hit a hidden target by following sounds. Among the "arrows" that attack the enemies' nervous system we find the *Naga pasa*, which acts on human consciousness by rendering the adversary senseless, and the *Nadana* and *Murchadhana*, that create confusion and loss of psycho-physical control.

It is important to explain here that the bows mentioned in the Vedic texts are extremely powerful instruments, very large and heavy, that can shot a great variety and often a great quantity (simultaneously) of projectiles with a speed and penetration force that supersede our contemporary firearms.

The third category of weapons (*divya astra*) is even more difficult to understand, as it entails the conscious control of vibrational frequencies and electro-magnetic fields that are able to alter the state of matter. For example the Brahmastra is described as a nuclear weapon that seems to be much more controllable than the nuclear weapons of the modern western science. The properties and power of the Brahmastra may appear legendary to those who do not know the precise and deep explanations on atomic and subatomic reality of matter offered by Yoga and Vaiseshika, that enable those "paranormal powers" that modern western science is still unable to explain and that reside in the considerable percentage of the brain that most modern people never utilizes (from 70 to 85% in different individuals).

At the level called *chittakasha*, or the vibrational space where human awareness can operate, sound (*mantra*) can be modulated and applied with a logic that is similar to the logic of the laser instruments, that focus simple rays of light into a truly terrifying weapon. Already ordinary sound is more powerful than ordinary light, so much that some tones are able to shatter the glass and move objects even for a considerable distance; we can just imagine what can be produced by a scientific modulation (of which *Siksha* and *Chanda* have given us some preliminary examples) when it is applied with the required knowledge and practice to the modification of the simplest and most primary elements.

Thus we have the *Agneyastra* that produces the phenomenon known as self-combustion (presently considered as possible even spontaneously, although in extremely rare cases) and the *Varunastra* that condensates atmospheric humidity causing sudden rain in the absence of clouds. The descriptions of the *Vayuvashtra* seem to suggest a telekinetic manifestation where a sort of "wind" throws the opponents to the ground. However, we need to understand that such "wind" is not necessarily the ordinary physical manifestation that naturally moves the windmills, but it could be that kinetic energy (*chi*) of which the martial arts from the far East still have some cognition.

Particularly famous in this category are the *Narayana astra*, *Pasupata astra* and *Naga astra*. Obviously such techniques require extreme preparation and tireless practice. The *mantras* of the *astra* require a minimum of

50 billion correct repetitions in order to be brought to perfection.

In his *Doomsday 1999 A.D.*, Charles Berlitz comments various passages of the *Mahabharata* (in the translation by Protap Chandra Roy), recognizing in the description of the Brahmastra the effects of an extremely sophisticated nuclear weapon: "... an incandescent column of flames and smoke, as bright as 10 thousand suns, a gigantic messenger of death that incinerated the entire race of the Vrishnis and Andhakas. The bodies were burnt beyond recognition, hair and nails falling, and to escape from this fire the warriors dived into the water to wash themselves and their equipment".

Also Oppenheimer (1904-1967), the protagonist of the famous "Project Manhattan", was convinced that the Brahmastra was a nuclear weapon. To a student of Rochester University who asked him whether the bomb detonated in the locality of Alamogordo, New Mexico, was the first of its kind, Oppenheimer replies, "Well, yes. In modern times, naturally."

Another text that is considered a part of the *Dhanur Veda* is the *Malla shastra*, dealing with 82 types of exercises in gymnastics and sports that are required to keep the body in perfect shape, and 24 types of close combat, "hand to hand".

A treatise attributed to one Agnivarma illustrates the knowledge about horses - physiology, breeding, training and so on - and another attributed to Kumarasvami illustrates the same knowledge but about elephants.

One Virabahu, lieutenant of Kartikeya, is said to have written a treatise on *Mahendrajala*, the science of magic, that explains how to walk on water, fly in the air on a stick, and so on.

Another practical-mystic text, compiled by Agastya Rishi, is the *Shakti tantra*, consisting in 8 chapters illustrating the 64 *shaktis* or *yoginis* of the natural elements (air, fire, sun, moon etc) and how their knowledge enables one to modify the structure of matter. Matanga Rishi is the author of the treatise called *Soudamini kala*, that explains the subtle connection between thought and ideas, and the etheric blueprint of their tangible manifestation. It also includes an elaboration on how it is possible to utilize the perception of the subtle level to see inside the mountains or within the subterranean strata. Garga Rishi is the author of the *Sakuna shastra*, dealing with the auspicious and inauspicious omens that we can read in the environment, as for example from the flying and crying of birds, from the conversations of the human beings etc.

Vimanika shastra

The knowledge of the construction and utilization of space ships can be considered a branch of the *Dhanur Veda*. The most famous text presently available is the *Vimanika shastra* or *Brihad vimana shastra*, that is part of the *Yantra sarvasva* by Bharadvaja Rishi. The text illustrates 339 types of land vehicles, 783 types of boats

and ships, and 101 types of airplanes and space ships - of which 25 types (including the Puspaka vimana) are *mantrika vimanas* and are used in Treta yuga, 56 types (including the Bhairava and the Nandaka) are *tantrika vimana* and are used in Dvapara yuga, and 25 types (including the Sundara, Sukana and Rukma, of which the schematics are given) are *krtitaka vimana* (engine based) and are used in Kali yuga.

Airplanes are described in 8 chapters for a total of 3 thousand verses; the text explains how to make the vehicle unbreakable (*abhedyā*), fire resistant (*adahya*) and invisible, and how to intercept the conversations from the cockpit of another airplane (*para sabda graha*). The chapters called *vastra adhikarana* and *ahara adhikarana* explain the type of clothing and food for the pilots and the passengers.

Bharadvaja also quotes a bibliography of 6 texts that preceded his work: *Vimana Chandrika* by Narayana Muni, *Vyoma Yana Mantra* by Shaunaka, *Yantra Kalpa* by Garga, *Yana Bindu* by Vachaspati, *Kheta Yana Pradipika* by Chakrayani, and *Vyoma Yanarka Prakasha* by Dundi Natha.

The *Agastya samhita* describes a *chatra* ("umbrella") flying on hydrogen extracted by electrolysis from water, and a *vimana dvigunam* ("secondary airplane") resembling our contemporary para-gliders, and that can be opened and closed by using cables.

We find innumerable passages mentioning airships in a great number of Vedic texts, starting from *Rig Veda*,

that lists the categories of vehicles as *jalayan* (running both in air and in water, 6.58.3), *kara* (land-water, 9.14.1), *tritāla* (3 tier vehicle, 3.14.1), *trichakra ratha* (airplane with 3 wheels, 4.36.1), *vayu ratha* (jet airplane, 5.41.6) and *vidyut ratha* ("power" airplane, 3.14.1). Flying vehicles are also mentioned in the hymns 1.116.3-5, 1.112.20, 1.117.14, 1.119.4.

The *Artha shastra* by Kautilya (also known as Chanakya Pandita) mentions the professional category of the *saubhikas*, "pilots of air vehicles" (a name that echoes the name of Saubha, the flying city of king Harischandra), and the *akasha yodhinah*, "air fighters". Several passages mentioning flying machines are found in *Mahabharata*, *Ramayana* and *Puranas*.

Based on the information supplied by the *Vimanika shastra* prof. Dongre, of Benaras Hindu University, has conducted some experiments, obtaining a glass-like material that is not perceived by radars.

Besides, already in 1895 (8 years before the historical flight by the Wright brothers at Kitty Hawk, North Carolina) Shivakar Bapuji Talpade and his wife gave a public demonstration on Chowpatti beach, Mumbai, with the flight of a vehicle run by a ione-motor (a type that would be invented in the west by Goddard in a future not earlier than 1906) that was also exhibited in the city hall by the Bombay Art Society. The event, attended by the Maharaja di Baroda Sri Sayajirao Gaekwad and Justice Govind Ranade, was reported by the daily paper *Kesari* (in marathi language).

The flying machine rose up to about 500 meters, then descended again automatically; later it was sold by Talpade's relatives to the British organization Reilly Brothers.

Gandharva Veda

Music must naturally have a primary role in a civilization based on harmony, on the careful and precise modulation of meanings and expressions, and on the communication of knowledge through sound, that gives such importance to beauty and pleasure.

The main texts, the *Vedas*, consist in hymns to be chanted harmoniously (*Rig, Yajur, Atharva*) or even sung with a polyphonic musical accompaniment (*Sama*) in 5 stages - *prasthava* (performed by the Udgata called Prastotha) with a basic sound for tuning (*hun kara*), *udgita* (performed by the main Ritvik) beginning with *om kara* and continuing with the first part of the *rik* ("hymn"), *pratihara* or the chant of the middle part of the *rik* (performed by the Pratiharita), *upadrava* (taken up again by the Udgata Prastotha) and *nidhana* or the final part of the hymn (performed by all the 3 priests together). The repetition of these passages for 3 times is called *stoma*, a definition that gives its name to many rituals.

Also Vedic cosmogony highlights the fact that *nada* or *sabda*, sound, is the first manifestation from which all the rest is created. Not only that: sound is the force that

is able to penetrate awareness most effectively, even during sleep and in conditions of minimal evolution, as in the case of children and animals, who are therefore fascinated by it. Even plants respond to different types of sounds or music with a more luxuriant growth, and even the water molecules considerably modify their shape. Sound, chanting, and music get through the conscious level and easily touch the subconscious, instantly reprogramming it, as it is demonstrated by the effectiveness of music therapy, also considered a part of *Ayur Veda*.

Yoga, too, gives importance to the modulated and musical sounds, as we can see from the syllables assigned to the various *chakras* during meditation, and especially to the sacred vibration of the *pranava omkara*. The Deities play musical instruments and dance - especially Shiva Nataraja ("king of the dancers") with his *damaru* drum and Krishna in the *rasa* dance with his flute.

Ganesha is often portrayed dancing and playing *mridanga* (2 headed drum) and Kartikeya (also called Skanda) is famous for his dances, including the *kudai* and the *tudi*.

The Goddess of knowledge Sarasvati holds the *vina* (a kind of lute with a long handle), the characteristic instrument of the *udgatas*, the officiating priests in charge of singing the hymns of the *Sama Veda* with musical accompaniment during the sacrifices. The *vina* is also the preferred instrument of Narada Rishi, son of

Brahma, who constitutes an important link in the chain of transmission of knowledge to mankind.

Tradition says that the knowledge of *Gandharva Veda* was transmitted by Brahma to Sarasvati, who taught it to Narada; Narada transmitted the knowledge to Kasyapa, who instructed Bharata Rishi, the author of the text of about 36 thousand verses, dealing not only with singing and instrumental music (*gita*) but also with the rhythm created by percussions (*vadya*) and dance (*nritya*). Bharata Rishi explains the origin of the 7 notes (that in the Vedic system are called *sa, re, ga, ma, pa, dha, ni*) from the 3 primary tones *udatta, anudatta* and *svarita* (that we have seen in the *Upaveda* on the *mantra* pronunciation, and are also called *udara, mudara* and *tara*).

Udatta originated *ni (nishada)* and *ga (gandhara)*, *anudatta* gave origin to *re (rishabha)* and *dha (dhaivata)*, while *svarita* was the origin of *sa (sharja)*, *ma (madhyama)* and *pa (panchama)*, when the sound is anatomically produced from above or under the palate (*talv*). The observation of the sounds in nature has associated notes with the calls of animals who also have a deep symbolic meaning - the elephant, the goat, the bull, the horse, the peacock, the heron and the cuckoo.

The number of musical instruments is limited because the greatest importance should be given to the sound modulated by the human voice, while the instruments should be just an accompaniment.

Besides the Indian lute (*vina*) in its different forms having 3 to 100 strings, the flute (*vamsi*), and the small drum (*damaru*), the Vedic system utilizes a drum proper (*karkan*), a metallic flute (*nali*), a sort of trumpet (*nadesvara*) and a sort of harp (*ksheni*). All ritual ceremonies also utilize a small bell (*ghanti*) and a conchshell (*sankha*), and the *kirtana* or *bhajana* is traditionally accompanied by cymbals of various dimensions (*karatala*, *jhanja*, *ghanta* etc).

Some musical instruments are used especially on the occasion of battles, royal processions and other occasions where the *kshatriya* element predominates - for example the *dundubhi* (a large drum), the *panava* (a smaller drum), the *dhol*a (tamburine), the *tanava* (trumpet), and so on. The great variety of instruments used by our contemporary Indian music developed from these ancient basic instruments, that have been joined by "imports" such as the typically western (British) violin and harmonium.

The different types of music are classified as:

- * *uha gana*: sacred music or song meant for the celebration of ritual ceremonies, especially the *soma yajna*
- * *grama geya gana*, ordinary music or song, meant for the life in the city of village
- * *aranya gana*: contemplative music or song, meant for meditation, especially in the forest

* *uhya gana*: spontaneous music or song, meant for oneself, secret or in any case personal

The text that deals specifically with dance, called *Natya shastra*, is part of the *Gandharva Veda*. Panini Rishi, who also wrote a commentary to the *Gandharva Veda*, mentions some earlier texts called *Sailali* and *Krishasva*, that unfortunately have been lost.

The first chapter of the *Natya shastra* speaks of the origins of dance, and tells how Bharata Rishi organized a theatrical entertainment for the Devas, entitled *Lakshmi svayamvara*, and on that occasion Shiva requested his companion Tandu (Nandikesvara) to help Bharata in developing the art of dance. In turn, Bharata instructed the Apsaras, beginning with Rambha. The Apsaras are the heavenly *ganikas* or courtesanes, that sometimes are sent to Earth to seduce some Rishi or some powerful king: for example Menaka had a daughter (Sakuntala) from Visvamitra, and Urvasi had a relationship with king Pururava.

Other heavenly beings dedicated to dance and music are of course the Gandharva (after whom this *Veda* is named) and the Kinnaras, that are part men and part horses (like the centaurs) and part woman and part bird (like harpies) respectively.

The chapters from 2 to 5 deal with the stage and the preparation, chapter 4 speaks of the movements of the body (*angahara*), of the postures (*karana*) and hand movements (*rechaka*).

Chapters 6 and 7 deal with the *sattvika abhinaya*, or the facial expression of the various poetic emotions and sentiments (*bhavas* and *rasas*) that the actors want to communicate to the public.

Chapters 8 to 13 teach how to express these emotions and sentiments through the body language (*angika abhinaya*) to tell stories. This includes the study of the main limbs (*anga*) and the secondary limbs (*pratyanga*), the use of the *hasta mudras* (hand postures), *chari* (leg movements), *gati* (steps) and *ahangara* (combination of expressive gestures).

Chapters from 14 to 19 deal with the *vacika abhinaya*, or the verbal expression, dialogues, intonations, dialects and pronunciations, etc.

Chapters 20 to 22 speak of the different types of drama and 4 types of presentations, chapter 23 speaks of costumes and ornaments (*aharya abhinaya*) and their symbolic meanings, chapters 24 to 25 of the various feminine characters, chapters 26 and 27 of the duration of the show and the factors for success with the public, chapters 28 to 33 about the music and musical instruments accompanying the show, and the chapters 34 to 36 explain the roles within dramatic performances.

One of the most ancient popular theater events was the Indra dhvaja maha, also called *jarjara puja*, focused on the celebrations around the "sacred pole" (similar to the *jupa* present in most classic ritual ceremonies) topped by the flag that represented Indra's presence.

It was also a general habit among the residents of cities and villages to gather in the *samitis* ("clubs" or "associations") and dancing constituted a much appreciated pastime. The *Ramayana* says that the city of Ayodhya had 4 *mandapas* or dancing halls, one of which was reserved for women only. In the *Virata parva* of *Mahabharata* we see that Draupadi entices Kichaka into the dancing hall to have him killed by Bhima, and that Arjuna in the garb of Brihannala taught dancing to the princess Uttara in her private apartments.

Specifically the *Shiva purana* recommends, regarding temple construction, to provide to the needs of a group of sacred dancers (*devadasi*) "married" to the Deity, that will take care of the personal aspects of worship (bathing, decorating, fanning etc) and dance for his pleasure. It is important to understand that the tradition of the sacred dancers has been terribly distorted and damaged during Kali yuga and especially during the centuries of Muslim invasion and domination, so much that it does not exist any more, in any temple.

More recent treatises on dance are the *Dasarupaka*, *Abhinaya darpana* and *Sangita ratnakara*. Some great poets, such as Kalidasa, Bhavabhuti, Visakhadatta, Asvaghosa, Sudraka and Bhasa have written some famous works, such as *Sakuntala*, *Uttara rama charita* and *Mudrarakshasa*. Let us examine some of the technical terms that are most frequently used in this field. The word *natya* includes all the aspects of dance, while *nritta* defines pure dance without any expression of meaning.

The *tandava* style is the energetic, "masculine" style of Shiva's dance at the time of the destruction of the universe (in its 108 versions, such as *sandhya*, *samhara*, *tripura*, *urdhva* and *ananda*), but may normally be executed also by female dancers. In contrast, the *lasya* ("languid") style is characteristic of female sentiments, and as such it is traditionally depicted in the temple decorations as an auspicious decoration.

The word *raga* indicates the particular type of melody created by the combination of notes, while *tala* indicates the rhythm of music, and *laya* indicates the velocity. There are *ragas* that are suitable for the various moments of the day - from early morning to deep night - that underline the natural energies we can perceive.

We take this opportunity to explain the iconographic symbolism connected to the dance of Shiva, which is rather difficult to interpret. The image of Shiva Nataraja is at the center of the worship in the temple of Cidambaram (Tillai), where Shiva manifested his *ananda tandava* to attract the attention of a group of Rishis who lived in that area and were spreading teachings that are contrary to the fundamental principles of *dharma*.

The tiger, the snake and the black dwarf represent the negative forces evoked by these deviant Rishis - cruelty, deceit and attachment to the lower pleasures - and Shiva neutralized them and then wore two of them as trophy ornaments, and danced on the third.

The hand holding the *damaru* represents creation (that originates from sound, word, harmony) while the hand holding the fire represents dissolution; the foot standing on the dwarf represents the submission of the lower instincts, while the raised foot symbolizes the elevation towards the higher levels of awareness. One of the other two hands shows the *bhaya mudra*, a symbol of protection, and the other points at his raised foot, symbolizing surrender to the Divine. The snakes that decorate his body represent the primeval forces that are channeled for a higher purpose, and the 3 eyes symbolize the past, the present and the future, as well as the sun, the moon and the fire. The two ear rings are different from each other: one is masculine style, and the other is feminine, to symbolize the androgynous nature of the Divine. Among those who were present at Shiva's dance there was Sessa Naga, who expressed the wish to see it again; thus Sessa Naga took a partially human form as Patanjali Rishi and remained at Chidambaram in the company of Vyaghrapada Rishi, a great devotee of Shiva. Both are usually depicted at Shiva's sides, in the act of offering their homage.

Artha shastra

This *Upaveda* dealing with sociology, politics and economy also includes the *Niti shastra* (pedagogy, social ethics etc), the *Shilpa shastra* (handicrafts and architecture) and many other minor texts known as the 64 *Kalas* ("parts").

The word *artha* literally means "something valuable" and includes everything that contributes to a high level of quality of life. In the Vedic system there are no banks, and money consists in coins made with valuable and useful metals, bearing a seal or mark that guarantees the genuineness of their physical value on the word of the jewelers that make them. In this way the ornaments made with those metals, that constitute the normal "savings" system can be easily fractioned in pieces of smaller value to purchase essential commodities at a moderate price. This is the origin of the dowry tradition - a certain capital in ornaments and valuable object was given by the father to the girl when she left for her new home after marriage, and remained strictly the girl's property as emergency reserve. In fact the scriptures very explicitly condemn anyone - husband or in-laws - who dares to touch this wealth. Presently the system has been completely turned upside down and the dowry is paid directly to the future husband and in-laws even before the marriage, and it often the girl is harassed or physically abused by her new family to force her parents to pay more.

There are also many cases when the girl is "suicided" or falls victim to some "kitchen accident" or goes "missing" so that the husband's family can organize a new marriage with another girl and obtain more dowry. This is a typical example of adharmic mentality born from ignorance and degradation, that becomes "normal" and is even outrageously presented as the traditional system.

We have seen that the genuine Vedic system is very much different, and that simply by returning to its genuine and honest application we will be able to solve all the present social problems. The same principle applies to the other problems that contemporary societies of a western model are facing today - exploitation, poverty, class frictions, unemployment, existential confusion, consumerism, psychological imbalances, and so on.

The *Upavedas* illustrate the occupational duties of the social categories. We have seen how the *brahmanas* (the head of society) perform the ritual ceremonies for the kings, for the benefit of the entire population, maintaining harmony between the various levels of existence - the Devas, the human beings and the universe in general - also caring for the health and individual and collective progress of people, through teaching and consultancy in all the fields of knowledge.

We have seen how the *kshatriyas* (the arms of society) constantly engage for the benefit of the kingdom and the subjects, protecting the innocent and all those that cooperate to the prosperity of the social system, both human beings and animals.

In the *Artha shastra* we will see how the *vaisyas*, the entrepreneurs in all fields of activity (the belly of society) work to nourish the social body and circulate the goods that are necessary for a high level of the quality of life. As jewelers and merchants of precious metals, the *vaisyas* minted the coins and made valuable objects

fructify by using them to produce considerable quantities of clarified butter, food grains, spices and other goods, to increase the cattle herds and manage mining expeditions. With these metals they also made weapons, pots and plates, containers, instruments for agriculture and specialized tools of many kinds, and of course the personal ornaments that are suitable for the different types of individuals according to the recommendations of the *brahmanas*.

They also used precious metals (gold, silver, copper) and gems (pearls, diamonds etc) to finance their trade in distant regions, where they traveled preferably by river or sea, or by utilizing the roads protected by the imperial garrisons, and brought back useful goods.

In ancient times Indian *vaisyas* normally traded with China, Egypt, Arabia, Greece and Rome by using the monsoon winds and brought back incense, olive oil, medicinal substances, arsenic (used not only as a poison but also to make explosives, as an ingredient for paints and tanning agent for leather, and even as hair remover for personal hygiene) and antimony (that extraordinarily has both fire-resistant and explosive properties in its different manipulations, and was used as a cosmetic as black eye liner as well as to make ink and medicines), vases made from silica glass, wool and blankets, flax linen, amber, purple dye, copper, tin, lead, storax (a resin used as fixative in perfumery), wine, melilotus (a plant also known as sweet clover, containing a powerful blood anti-coagulant used both as medicine and poison) and so on.

But especially they sold spices, sandalwood, myrrh, cosmetics, Chinese and Indian silk, valuable and embroidered clothes (we may mention here the famous brocades originated at Kanchi in south India), ivory (both Indian and African), ebony, lapislazuli and turquoise (especially from the regions now known as Iran and Afghanistan), jewels and special artefacts (such as valuable weapons), indigo (an excellent dye, that remained a very popular commodity until the times of the East India Company), nard oil (intensely scented, used as sedative incense and royal ointment for the priests in the temple of Jerusalem, as well as anesthetic medicine especially for child birth, added to wine or beer), costus (a medicinal plant containing vegetal progesterone, also used as special fodder for silk worms), *gulgulu* (a resin known in the Mediterranean as bdellium and used in perfumery and medicines - in Rome and in Greece it was mixed to the wine for the offerings to the Gods), lycium (a plant from the nightshade family, with berries known as the "longevity fruit"), rice and sugar, and even exotic fruits. They brought back fabulous quantities of silver, gold and gems, especially the corals, that are typical of the Mediterranean. As they lived between China and the Mediterranean, they also acted as intermediaries between the two markets, because rarely the Chinese ships reached the Mediterranean, or the Mediterranean ships reached China.

Merchants often welcomed paying passengers both on ships and in caravans, because many people wanted to

go to India to study and sometimes even to start a new life, individually or collectively, establishing a small colony in a country that was legendary for its tolerance and hospitality, as well as for its prosperity and high level of knowledge.

These exchanges and journeys to Europe started to decline during the first plague epidemics in Europe in 542, that coincided with the final establishment of Christianity in the entire area of the ancient Roman empire. We will discuss more of these events in a separate publication, focused specifically on the history of the development of Abrahamic cultures.

The Islamic conquest of the middle east, that followed about one century later, became a new good reason to avoid traveling to the west, but Indian merchants continued to commerce with China and the region that was called Indo-China until last century. Still today on the east coast of India, especially in Orissa, there is a popular ceremony at the end of the rainy season; people put small lamps in rudimentary boats made with banana tree bark and send them to float into the ocean. In the old times when sea trade was very active, this sweet tradition constituted for sailors a first sign of the approaching coast, a message of welcome from the families that were anxious to see their husbands, brothers and sons again.

Originally Vyasa composed a work on *Artha shastra*, constituted by 3 chapters, illustrating 82 ways to produce wealth, but unfortunately this text is now lost.

The *Santi parva* (12.59.80-86) of *Mahabharata* says that the knowledge manifested by Brahma on the subject consisted of 100 thousand chapters that extensively illustrated *dharma*, *artha* and *kama*, but Shiva reduced the collection to 10 thousand chapters known as *Vaisalaksha shastra*, to which another text was added, composed by Indra and known as *Bahudantaka*.

Later on, Brihaspati summarized the work reducing it to 3 thousand chapters known as *Barhaspatya shastra*, and finally Sukracharya (also known as Usana) compiled a compendium of 1000 chapters called *Ausanasa shastra*. Unfortunately, all these texts are now lost.

There are various passages in different scriptures, as in the teachings of Vidura and Bhishma in *Mahabharata*, in the conversation between Rama and Bharata in *Ramayana*, in the *Agni purana* (218-242) and in the *Smritis* of Manu and Yajnavalkya, but what we have today as *Artha shastra* is merely a text that has been compiled much later (about 2500 years later) by Kautilya, also known as Vishnugupta or Chanakya Pandita, who lived in the times of Chandragupta Maurya (contemporary of Alexander the Macedonian) and became his prime minister. Chanakya is especially famous for his *Niti shastra*, a treatise on government ethics.

Kautilya's *Artha shastra* is meant primarily for the king, who by distributing wealth and protecting the subjects enables the *vaisyas* to produce sufficient prosperity for

all. A solid and dynamic economy is the most important foundation for a good government.

In Kautilya's times, the role of the government had already shifted from the celebration of ritual ceremonies to the collection of taxes and the control of economic power, therefore his treatise elaborates especially on these topics. Nonetheless, his instructions are generally in accordance to the Vedic principles, especially in regard to the ethical norms for the behavior of the king towards the subjects.

The text speaks about the discipline and self-control that the king must observe in his personal life, the choice of honest and capable ministers (*mantris*) and their supervision, the division and utilization of lands, the construction of villages and cities, the work of subordinate officers engaged in public law and order, law and magistrature, assistance in case of national calamities, training and supervision of informers, alliances with neighboring kingdoms, war management, and the duties of the four *varnas* and *ashramas*.

Economic development is based on trade and cattle raising, food grains, gold, the products of the forest and manpower: for all these enterprises, the protection supplied by the king is essential.

The future king must be trained through a strict discipline. He must study sciences and scriptures, and the art of government that consists mostly in administering the right punishment (*danda*) and supporting the cultivation of prosperity (*vatra*).

The *danda niti* (the ethical rules for the punishment of evil doers) is as important as the *raja niti* (the ethical rules that the king must observe in his personal behavior). The king must strive to conquer his inferior tendencies - lust, anger, greed, vanity, arrogance and intoxication - that are his worst enemies, and must be available to the subjects and do good to everyone. He must always be faithful to truthfulness and to the principles of ethics, avoid waste, respect the counselors that warn him against negative ideas and behaviors, and recognize those who are capable administrators. Similarly he must choose the general (*senapati*) of his army based on ethical principles and skills.

The choice of the *purohita* or court priest must be based on the character, scriptural knowledge and morality of the candidates; if this *brahmana* refuses to teach the *Vedas* to a person of humble origin or to perform a ritual for a person of a lower social condition, the king will immediately sack him.

The ministers should be offered opportunities for treason and corruption, so that those who are dishonest and unfaithful will be exposed. The king will also employ informers chosen among religious persons of solid principles, orphans raised by the State and trained for this purpose, widows of *brahmana* families who entered the order of renunciation, servants of lower rank, traveling actors and other people who do not have strict responsibilities and ties, or familiar or social duties. Each information must be separately collected from 3 different sources, and if the versions coincide in

meaning and details, they are considered reliable. When the versions are different from each other, the informers are sacked.

The meetings of the king's counselors must be secret, and each time only a maximum of 4 trusted and intelligent people can take part in them. The total number of ministers can vary from 12 (according to Manu) to 16 (for Brihaspati) or 20 (for Sukracharya) or even more, according to the need. It is said that Indra has 1000 Rishis as ministers, and this is the meaning of his name "he of the 1000 eyes". The king must listen to everyone because a wise man is able to accept good advice even from a child.

The text also speaks about messengers and ambassadors, of their qualities and training, the rules they must follow during their mission, the protection of the royal family, the evaluation of the factual qualifications of the heir to the crown for the purpose of ensuring a good succession. A prince that has fallen out of favor with his father can ask his permission to go and live in the forest or take shelter at a neighboring king who is virtuous and honest, and there build himself a solid position, then acquire gold and wealth working as a merchant until he is strong enough to win the respect and reconciliation with his father.

Follows the ideal program for the king's day. The king should directly administer justice and personally receive all those who want to see him, without making them wait, especially if they are learned *brahmanas*, women,

very young or very old people, or people who are suffering or desperate.

There is the description of the royal palace, where the king lives with his wives; how its walls must be built with clay mixed with the ashes produced by lightning and hail water. The building must be surrounded by plants that repel snakes - *jivanti*, *sveta*, *mushkaka pushpa*, *vandaka*, *pejata* and *asvattha* - and have a certain number of cats, peacocks, mongooses and spotted deer, that naturally keep away both rats and snakes. Also parrots and the birds known as *mina* and *bhringaraja*, herons, pheasants, quails and cuckoos are useful, because they reveal the presence of snakes.

The palace should be well equipped with medicine supplies, have a large kitchen garden and sufficient water tanks, apartments for princes and princesses, an area for body care (practically a beauty and wellness center), a council hall, a court hall, the sitting room of the crown prince and the officers' rooms. Nearby there must be the quarters for the garrison of the royal guards and the queens' body guards.

There are several ways to protect oneself from poisons, especially by observing the behavior of servants and other people around, by the marks appearing on metal plates and cups (for the poison added to the foods), on fresh fruits and vegetables, on the surface of drinks, in smoke and fire within the braziers and in their luminosity, on clothes and by the death of small insects in the environment.

The danger of assassination also lurks in all weapons, even non-conventional ones, carried on the bodies of servants or unfaithful wives. Musicians and actors must do their work without using fire, weapons or other dangerous instruments, and all musical instruments and the accessories and equipment of chariots, horses and elephants must always be kept inside the palace under strict guard. Furthermore, the king will approach the chariots and the animals only after they have been personally checked by his charioteer, and will only board a ship that is equipped with safety boats.

He will not bathe or swim in waters infested by crocodiles, serpents or large fish, and will go hunting only with a sufficient escort. He will meet ascetics and ambassadors from other kingdoms only in the presence of his ministers, and will go to attend the sacrificial ceremonies and public festivities escorted by his body guards.

It is important to understand that Vedic monarchy is not absolute, but it is subject to the popular consensus, both of the *brahmanas* and of the subjects in general. A king who behaved badly could be removed at any time by the assembly of the *brahmanas* and a worthier ruler was crowned in his place.

The ideal king is the *raja rishi* ("wise among the kings") wise and virtuous, expert in the scriptures and detached from material gratification, always concerned only about the well being and the happiness of his subjects. He is always active and dynamic, cultivates his own

intellectual faculties in the company of evolved persons and constantly tries to increase his culture, he always gives a good example to the subjects with his public and private behavior, and wins the love of the people by treating his subjects with kindness and affection.

He practices non-violence, that consists in remaining free from all negative sentiments towards other living beings. He does not desire to acquire the wives of other people or the properties of others, he avoids unnecessary luxury and whimsical pursuits, he does not waste time in fantasies and avoids the company of degraded or wicked people. He is always honest and truthful, he always keeps his word, he is resolute and never postpones his work, he shows gratitude to those who helped him, he is always enthusiastic and positive, he listens carefully and reflects properly.

He takes his decisions without hesitations and acts in a considerate way, he is eloquent and has good memory, he knows how to face the moments of crisis and patiently goes through the routines. He is always dignified, he does not laugh loudly, he speaks gently, looking directly in the face of his interlocutor, and he avoids frowning.

In foreign affairs, the king must first of all invest sufficient resources in the work of collecting information, sending both official ambassadors and secret agents that will present themselves as merchants or travelers. Once they have sufficiently understood the customs, the mentality, the resources and the strong and weak points

of the foreign kingdoms, the king will negotiate with their rulers according to a strategy that is suitable to the situation, choosing among the actions defined as *upeksha* (showing lack of interest), *sanmana* (non-aggression pact), *dana* (sending gifts and offerings of friendship), *maya* (illusion, especially pretending to have greater military strength than what it actually true), *bheda* (creating divisions between enemies), and only in extreme cases he will resort to *danda* (military force and war).

Sulba shastra

We have already mentioned the fact that the *Sulba shastra*, or the science of mathematics and geometry, constitutes the most important among accessory sciences. Various historical sources confirm that Vedic culture was the first to adopt the decimal system that superseded the Babilonian system (based on the number 60) which survived into the contemporary cultures only in the calculation of time (hour, minute, second). The decimal system is mentioned in the *Taittiriya samhita* of *Krishna yajur Veda* and was already used in the urban settlements of the Indus valley, such as Mohenjo daro and Harappa.

Another characteristic of Vedic mathematics is the concept of zero (*sunya*) as opposed and complementary to the concept of infinite (*ananta*), with the description of the relative properties and their connection (division by zero gives infinity). Even the

present symbol that represents infinity, that is a kind of 8, corresponds to the serpentine form of Ananta Sesha coiling on himself. The first text of modern arithmetics is Bhaskacharya's *Lilavati*, followed by the treatise by Aryabhata, that also explains algebra and gives the rules to find the area of the triangle, which creates the basis of trigonometry. Aryabhata also calculated the moments for upcoming eclipses, and had very clear ideas about the movements of the heavenly bodies. Here, too, we see the natural connection between the various fields of Vedic knowledge - which makes different categorization more difficult - because mathematics is needed not only for astrology, architecture, construction of altars and the correct chanting of *mantras*, but also to navigation (to triangulate the positions of the stars and establish the ship course). It is also closely connected to the knowledge of physics and cosmology, that are normally classified as texts of the Vaiseshika darshana, but also concern the experts of other fields.

Varahamihira clearly states that Earth is a sphere and rotates on its own axis - which is described by the mathematician Latadeva in his *Surya siddhanta* as the Sumeru. The spherical shape of Earth is depicted in many iconographic representations of the *avatara* Varaha, who specifically appeared to lift up the planet that had deviated from its proper orbit.

In his *Siddhanta siromani*, Bhaskaracharya speaks about the "attraction" force described as gravity.

Many teachings on physics and cosmology are also found in other texts that we have already mentioned. For example, the *Aitareya Brahmana* (3.44) states: "The Sun does not set and rise as people think. At the end of each day it produces two opposite effects, creating the night under itself and the day in what is on the opposite side. Actually the Sun never sets."

The *Markandeya Purana* (54.12) states that the Earth is not a perfect sphere, but is slightly flattened at the poles and swelling at the equator, and that the Sun is at the center of the solar system (106.41).

The *Puranas* (for example the *Bhagavata*) speak of atomic time and calculate the age of Earth (a complete day of Brahma) at 8.64 billions years, a figure that is rather close to the one proposed by our contemporary western scientists. Not only that: the vision of time offered by the *Vedas* goes even beyond that and calculates the entire lifetime of Brahma, that constitutes the complete cycle of one universal manifestation, as 311,040 billion years, considered as a mere breathing cycle of Maha Vishnu.

Vedic scriptures speak of *ritu* ("rule") as the "cosmic law" of the cycles that regulate the universe, and of the law of gravity as *sankarsana* ("that attracts") sustaining all the planets.

Brahmagupta (that according to western academia lived around 628 CE) clearly commented, "All things fall to the ground according to the law of nature, because it is the nature of earth to attract and retain things."

Shilpa shastra

Connected to the *Sulba shastra* (the science of mathematics) is the *Shilpa shastra* (the science of architecture, sculpture, painting and crafts) that utilizes the mathematical calculation and rules of geometry to make building precise and stable, and give harmony and symmetry to useful images and objects.

The presently available text is attributed to Kasyapa Rishi and consists of 22 chapters, illustrating 307 varieties of buildings or constructions; however it gives references to a more ancient knowledge compiled by Visvakarma, Maya Danava, Maruti and Chayapurasa.

The word *shilpa* derives from the root *shil*, "to focus" and refers to the concentration required to visualize the final result of the work already from the very beginning of the process. The block of stone already contains the complete image, and the chisel must only eliminate the excess material. The eyes are completed last, to symbolize that the Deity is still sleeping in the form that is developing, like a fetus in the stone's womb.

When the material has been chosen, the ritual called *ankurarpana* is performed, consecrating it for that specific work, and before starting to sculpt, the artist meditates on the form of the Deity described in the *dhyana slokas*, with the position of the body, the number of arms, the different symbols in the various hands, the clothes and the ornaments, and the *vahana* or vehicle on which the Deity travels.

The measures and proportions of the Deity are codified with great precision in unities of measure called *angula* ("finger", about 2 cm), *yava* (a fraction of *angula*) and *tala* (equal to 12 *angulas*).

Traditionally the images of Vishnu and Shiva are 10 *talas* tall, while the images of their companions are 9 *talas* and those of their devotees are 8 *talas* tall. The images of the Mother Goddess standing alone are not subject to these measures. Often the dimensions of the sacred image are calculated on the basis of the height of the *yajamana* (the person who establishes the installation and the worship of the Deity) and especially of the temple room where it will be installed. The proportions of the sacred images are detailed carefully, to shape a body that is "aesthetically perfect" and symmetrical.

The sacred images (generally called *murti*, *vigraha*, *archa-vigraha* etc) can be fashioned out of stone, gems, metal, wood, clay, or in a painting or in sand. Each of these materials has a specific duration in decreasing order of time, and therefore the image will have to be "un-installed" within a certain period of time and replaced with a new one. The process of installation and un-installation is rather simple, as it constitutes a respectful and affectionate request to the Deity (that is not limited to any material form) to manifest personally and to withdraw his/her presence respectively.

This withdrawal of the direct and personal presence of the evoked Deity happens automatically when the

image is damaged or defiled, as in the case of the iconoclastic aggressions by Muslims and Christians to Indian temples in the course of centuries.

Stone is described as good quality, medium quality and mediocre quality according to the grain, the color and the hardness. For the images of the Deities the best choice is a stone that produces a metallic sound when it is hit with an iron bar, even better if sparks are produced. This description corresponds to the classification of igneous rocks. For general decorations, less valuable stones can be used. The most frequently utilized stone is a variety of basalt, magnetite or iron silicate, that in India can be found in a black color and becomes shiny and even blacker with the application of scented oils and clarified butter that are used in ritual worship. The color is similar to the Salagrama sila (fossil ammonite), a special stone that is found only in the bed of river Gandaki in Nepal and is considered a direct manifestation of Vishnu, and as such it does not need to be installed. Often ordinary stones (that do not have the characteristic *chakras* or "discs" spontaneously embedded in the stone) are passed for Salagrama silas, when they could actually and genuinely be Shiva lingas. A Salagrama sila is never carved artificially. The same principle applies to all the sacred *silas* ("stones") characteristic of some specific places, such the Dvaraka sila, Govardhana sila, etc.

On a separate note, the Shiva lingam can be carved or in a natural form (*svayambhu*, "manifested spontaneously") in a considerable variety of forms.

In the last few centuries there has been a growing popularity for sacred images sculpted in marble, especially white or black, that can be colored easily and have a realistic look. In the same way, there has been an increase in sacred images that are "naked", i.e. sculpted or modeled without clothing or ornaments, that are easier to wash and clean, and that a devotee can dress and decorate with outfits and jewelry in a more realistic way. The most ancient images are rather different, although the offering of clothes and ornaments has always been part of the ritual of worship.

The reason for this change should be traced to the fact that in the last centuries the emphasis in Deity worship has moved towards the most intimate form of *bhakti*, the sentiment of devotion that prompts the worshiper to contemplate the Divine in an "inferior" position compared to him/herself, as a child or an intimate friend that depends on the worshiper for the basic activities such as bathing, dressing etc. This tendency is found especially in krishnaite devotion, that in the medieval period (subsequently to the Muslim invasions) became widespread among the popular masses playing on the simplest and most immediate sentiments of the human soul, without having to develop on the deep and expert cultivation of spiritual knowledge or Self realization.

The sacred images installed in private houses and those that are taken to procession outside the temple during the festivals (called *chalanti pratima*, "mobile representatives") as substitutes for the Deity that is installed permanently in the temple, are traditionally

made from metal. The materials recommended for this purpose are gold, silver and copper, but more often bronze and brass are used (as they are much more economically viable) or special alloys such as the *panchaloha* ("5 metals" - copper, gold, silver, brass and lead) or *ashta dhatu* ("8 materials" - gold, silver, copper, mercury, iron, aluminium, lead and brass).

In this case the fashioning of the image is based on the system of "lost mould": the original image is prepared with bee wax mixed with coal powder, and then it is covered with a thick layer of clay. When the clay has dried properly the mould is heated and the liquid wax is collected; its place is taken by the molten alloy of metals, and when this has cooled completely, the clay mould is broken. The weight of the metal to be poured into the mould is carefully calculated on the basis of the weight of the used wax and considering the specific weight of the required metals.

The images fashioned in clay are installed and worshiped on the occasion of annual festivals. At the end of the festival period, traditionally the images are immersed in a water reservoir, so that the clay can melt and return to the environment. Traditionally the colors were natural (mineral or plant based) and the internal support structure (that is essential for an image made with non-baked clay) was completely biodegradable (made with straw and wood). The clothes and ornaments were recovered and recycled after the dissolution of the image, to be used by the devotees as *prasada*.

Unfortunately in the last centuries the craftsmen working with clay have become ignorant and arrogant, and they consider themselves as "free artists", not subject to any rule or limitation. Therefore the images are often made with baked clay, that does not dissolve in water and thus remains around even after the end of the festivities - damaged, broken, dirty and torn - sometimes abandoned in a garbage dump, or on the beach together with other waste: a terrible testimony of cultural degradation that has totally lost the meaning and purpose of the original tradition.

The same disastrous tendency is also demonstrated in the type of activities that are performed around the temporary temples or *pandals* ("canvas pavilions") that are erected during the festival for these temporary clay Deities: often the collected funds are mostly misappropriated by the organizers or utilized to purchase alcoholic drinks (that Vedic ethics consider impure, inauspicious and detrimental to physical, mental and social health) or to procure the services of prostitutes, and above all provide a noisy loudspeaker background of materialistic songs (generally Bollywood "filmi" songs) that have nothing to do with religion or spirituality, and other similar entertainment products that do more damage than good both to the individuals and to society.

The advent of plastics in its various forms has created a proliferation of cheap sacred images made from this material; these cannot be installed in the traditional way and are simply considered "decorative". It is possible to

consider them "genuine" only by remembering that the Deity can also manifest in a form simply made from "mental" material in the contemplation of the devotee: in this case the Deity manifests, but not in plastic itself (which is not a suitable material) but in the mental projection that the devotee superimposes (consciously or unconsciously) to the plastic form. As in all forms of *manasa puja* ("mental worship"), this practice can be very effective and meritorious, but only if the awareness remains honestly and solidly consistent in a genuine meditation. Wooden images are rather rare and are sculpted by specialized artists, while the images made of sand or ordinary earth (provided it is clean and collected from a pure place) are worshiped in very short rituals, especially by those who live in the order of *vanaprastha* or those who cannot afford anything more expensive.

Painted images (*chitra*) are considered on the same level with those made from clay or mental substance, and they are generally worshiped on particular occasions, such as annual festivals or as temporary substitutes of the main Deities of the temple when these remain hidden from the public of devotees, as in the case of the Jagannatha Deities in the period called *anavasara*. During these 15 days the main *vigrahas* of Jagannatha get a fresh coat of paint away from public view, and the temple visitors offer their homage to the *patta dia* ("the painted Deities") that replace them in the temple hall. Painted images are mentioned in many texts - *Vishnu dharmottara*, *Citralakshanam*, *Silpa*

ratnam, *Aparajita priccha*, and especially *Chitrakarma shastra*, that in 12 chapters explains about 200 types of drawings, including the reconstruction of the looks of a person of whom only a small particular is known. The colors to be used for the painted sacred images must be natural, vegetal or mineral, and usually are the primary colors - red, yellow, black, white and green or blue - each one filled with symbolic meanings. For example black is the color of beauty (*sringara*) or opulence (*aisvarya*), red is the color of anger (*raudra*) or power (*virya*) or energy (*prana* or *shakti*), while white is the color of merriment (*hasya*) or purity (*sveta*).

In time, when artists lost the awareness and understanding of this symbolism, they started to mix the primary colors in a more and more complex way, sometimes with very distorted results, as in the depictions of Krishna or Vishnu with a complexion of a very pale turquoise or even white, or the Mother Goddess (Radha, Durga etc) with a pink hue, or Shiva with a blue complexion

The *Samarangana sutradhara* is an encyclopedic treatise on classic Indian architecture, compiled by king Bhoja of Dhar in relatively recent times (about 1000 of the Current Era). Its 83 chapters deal with city planning, temple architecture, palaces and ordinary housing, as well as sculpture and painting, and mechanical vehicles (called *yantra*). Chapter 31 is totally dedicated to the *yantras* or "machines" and speaks about *vimanas* ("airships") in the form of birds, and robots or mechanical men used as security guards.

According to this text, the *sthapati* ("architect" or "artisan") must be expert in planning and preliminary design, in the field measurements, both vertical and horizontal, in the making of maps, in the 14 types of technical drawing, in the cutting of stones and wood, in the 7 types of circular sections, in the 4 fields of engineering, in the 8 specializations within the building work, including carpentry and metal working.

The *Dhatuvada*, attributed to the Asvini kumaras, deals with the materials (*dhatu*s) both natural and artificial, of their combinations and transmutations and the science of alchemy.

Vastu shastra

The *Shilpa shastra* also includes the *Vastu shastra*, that has become rather famous in western countries during the last decades, together with its more recent offshoot that developed in the far east - Feng shui. The word *vastu* derives from the root *vas*, "to dwell", and specifically applies to the knowledge that enables us to choose the land, the orientation and utilization of the buildings, to align human settlements in harmony with the energy of the environment.

According to the *Brihat samhita*, Brahma manifested the original knowledge of the Vastu, that was later elaborated by 18 Rishis including Brighu, Atri, Vasistha, Sukracharya, Brihaspati, and especially by Maya Danava and Visvakarma.

The *Matsya purana* says that the Vastu purusha, the personification of human settlements, was born from a drop of Shiva's sweat. This Vastu purusha is honored before the beginning of constructions and at the moment of inaugurating the completed building, and also in case some signs of disharmony or imbalance become apparent.

In the planning stage, the land plot is divided into 64 or 81 squares, within which the body of the Vastu purusha is designed, with the head in the north-east corner and the two feet in the south-west corner, while the knees are in the other two corners. The various parts of the Vastu body are related to 45 guardian Deities and to the various human activities that will be performed when the building will be utilized.

Beginning from the north-east corner (the head of the Vastu purusha), we first find the *isana kona* or "corner of Isa", guarded by Shiva. This area should be dedicated to the worship of the house Deities and the sacred fire; it consists of a wide space, almost completely empty, where energy can circulate freely. Besides, in this direction one should dig the well or build the main water tank.

The east side (*purva*) is guarded by Surya and should be utilized for ablutions and all the activities for cleanliness and purification. The next corner, in the south-east, is called *agni kona* or "the corner of fire" and is guarded by Agni. This is the ideal place for the kitchen.

The south side (*dakshina*) is guarded by Yama, the Lord of Dharma, and should be utilized as bedroom or study room. The south-west corner is called *nirriti kona* or "corner of consumption" and it should be used for storage; it is presided by the Pitris or forefathers. The west side (*pascima*) is guarded by Varuna and is used as dining room. The north-west corner called *vyavaya kona* is guarded by Vayu, the God of Wind, and is the best for the cow's shed. The north side (*uttara*) is guarded by the Lord of wealth Kuvera, so it's the best place to keep one's valuable things.

The *Vastu shastra* also deals with city planning; it describes 20 types of cities with specific characteristics in regard to layout, location, number of streets, size, utilization of neighborhoods, and so on. It describes residential areas for the different *varnas* or professional categories, explains the optimum proportions between the various buildings, the construction of water tanks, parks and gardens. It also describes lecture halls and cultural centers and markets. It has areas for cow grazing, for the threshing of food grains and for the pressing of oil - all activities that were performed locally.

The temples were located in the center of the city and also in the suburbs, preferably on a river bank, at the foot of some hill or mountain, near a forest or a park - so that they could be easily located even for foreign pilgrims. For a medium-sized city the calculated number of temples was 25, each one of them in a specific area, dedicated to various forms of the Deity.

The *Silpa ratnam* and the *Aparajita priccha* explain the symbolism in the building of a temple, that as a dwelling for the Divine represents the *Virata rupa* (universal body) as well as the body of the *yajamana* (the devotee who built or financed the temple; the *garbha griha* (inner chamber of the Deity) represents the head, on which the *sikhara* (the tower) stands like a head-dress, while the *mandapas* (halls or pavilions) are the arms and the *gopura* (entrance arch) represents the feet.

After walking through the *gopura*, the visitor arrives at the *bali pitha*, the place where the external sacrifices are offered, marked by the presence of the *dhvaja stambha* ("pillar or pole for the flag") on top of which in the last centuries images of the *vahanas* (vehicles) of the Deity have been installed in place of the traditional flag that was raised especially during the festivals. Then the visitor enters one of the *mandapas* (pillared halls) for the sacred dances and the *kirtana* (singing or *mantra* chanting) and arrives at the *mukhya mandapa* (main hall) in front of the *garbha griha*, which traditionally is small and enclosed, to avoid distractions and to make the experience more dramatic.

The *garbha griha* can only accommodate one or two persons besides the images of the Deities, so that the devotee can have a very intimate and personal relationship with the Deity. Generally there are no side windows, and the circulation of air is provided only through the large front opening, that is closed with suitable doors for the night and at the times when the Deities are not to be seen by the public - as for example

during meals, and for the bathing and dressing of the Deity.

During the construction of the temple, a process that is solemnized with several rituals, there is the installation of a copper vase containing various auspicious substances, called *garbha* ("embryo"), that is later covered by a slab of stone before the foundations are filled with soil. The position of this "temple embryo" is directly under the Deities' room, at a depth that can vary according to the foundations system. Sometimes the "embryo" is "guarded" by the image of Ananta Sesha or another similar protective personality. Then the *garbha griha* is built, and then the tower, topped by a *kalasa* (copper vase for water). Often there is a secret subterranean passage that leads to a closed chamber guarding some treasures, or where private rituals are performed, or where we find a tunnel or several tunnels that lead to a royal palace or other particularly important places.

Lighting is dramatic, because it is produced by a limited number of lamps burning oil or clarified butter, hanging from hooks by the ceiling or standing on a high stem that keeps them at a certain height from the floor. The hooks on the ceiling may also be used to suspend a royal umbrella or the traditional water container constantly dripping down to bathe the Shiva lingam.

During the times of *darshan* the lighting is increased by the offering of temporary lamps of *ghi* and camphor presented by the priest (in the *arati* ceremony) and often

by the devotees in the public, each one putting a small clay lamp on a specific structure in front of the Deity room. Around the *garbha griha* there is a corridor for the *pradakshina*, the ritual homage that consists in walking around the object of worship, proceeding clockwise. Finally, after the construction of the various smaller shrines for the *parsva devatas* (the "companion Deities" for the main Deity in the temple), the artisans build the *prakara* or general enclosure of the entire area of the temple.

Besides the *Griha vastu* for houses, palaces and housing buildings in general, including the temples that are the house of the Deity, there is a section called *Silpa vastu* dealing on the nature of the materials in relation to the environment, the *Jala vastu* about the springs and the water bodies including the subterranean ones (it explains how to locate them, evaluate their depth, pressure and quality of the water) and the *Garbha vastu* that deals with the geological formation of the soil and gives important instructions on the mining work.

Krishi shastra

The most ancient and famous text on the science of agriculture, consisting on 243 verses, is attributed to Parasara Rishi, who is also considered a great expert on astronomy, astrology and climate science, all fields that are required to understand agriculture.

In this regard, we would like to note that the present discipline of biodynamic agriculture developed by Rudolf Steiner has its roots in the contact that theosophists had with Vedic culture in the British colonial period and that a rigorous, direct, serious and careful study of the original Vedic knowledge would certainly lead to greater and more important improvements to the knowledge and practice of organic and biodynamic cultivations in the west.

The main subject in agriculture is obviously about tilling the fields. The traditional plough used for hand tilling or with the help of oxen is considered the symbol of power over the land, and therefore it is connected to the iconographic image of the king, especially in regard to the function of forceful action.

Vedic culture respects and honors Earth as the Mother of all beings, and the traditional daily rituals include a prayer to Mother Earth, that she may forgive us the inevitable offense of touching her with our feet.

The symbol of the plough and tilling naturally evokes the inevitable suffering that we inflict not only to the earth that is "lacerated" by this action, but also to the small animals that live in the soil and on the ground, and are wounded or killed in the process. So much that the Jains, extreme supporters of the sentiments of non-violence towards all living beings, abstain from all agricultural work and all types of work connected to agriculture, and prefer to engage in the trade of inanimate objects, especially precious stones and

gems. Still at present, the great majority of jewelers in India are members of the Jain community. However, this does not stop them from eating agricultural products, albeit with a certain sense of guilt - in fact Jain philosophy considers voluntary fasting to death as a meritorious action on the religious level.

The original Vedic concept is much more consistent and logical, because it prescribes the daily *pancha maha yajna* in which the living beings in general are honored by offering them some food, it recommends offering one's food to the Deity before consuming it, and orders to perform one's duty within society and within the universe by supporting the material and spiritual progress of everyone.

According to the system of karmic accounting, when one performs a good and meritorious action, all those who have cooperated to it, more or less consciously, are benefited.

Because the human body must support itself by consuming foods produced by agriculture, each human being who works in favor of the universal community has the right to take the share of food that has been assigned to him/ her and that s/he needs. The same rule applies to all living beings, including more or less ferocious and fearsome carnivorous animals: Vedic ethics and logic do not condemn tigers for their natural instinct to kill to feed, and do not strive to turn them into vegetarians at all costs, because that would be contrary to the proper natural universal order.

When the *kshatriya* fights and kills the animals that damage human society, he does not do so with the idea of "punishing" them or to prevent some "horrible action", but to protect those who - humans and animals - have taken shelter in the king to live a prosperous and happy life.

Vedic sensitivity embraces both the sweet and the terrible aspects of life and thus of the Deity that represent life and constitutes its very foundation, and the ferocious and dangerous animals like tigers, lions, snakes, etc, are even depicted as vehicles for the Deity.

The Vedic vision of agriculture can be summarized in the aphorism *annam bahu kurvitha, tad vratam* expressed by *Taittiriya Upanishad* (9.1): "we vow to produce abundant food for everyone", and the more the food is delicious, attractive, beneficial and healthy, the more merits it produces on the religious level, too.

According to the classification under the 3 *gunas* or qualities of nature, the sattvic or virtuous food, is "satisfying, energetic, pleasant, juicy or succulent, fatty, sweet and attractive" (*Bhagavad gita*, 17.8). Obviously such food must be consumed with great moderation by accepting only what is strictly needed and by purifying it according to the prescribed rituals, but the fact remains that contrarily to what happens in other ideologies, the pleasures of good food (like the other natural and beneficial pleasures) are celebrated and not condemned by the Vedic religion.

Kalas

The encyclopedic text known as *Akshara laksha* contains the description of 325 arts or sciences, including mathematics, geometry, algebra, trigonometry, physics, mineralogy, the measuring of air, heat and electricity, geography, and also the science of sound (propagation and characteristics), of the structure and balance of energies in the various animate and inanimate beings, down to the art and technique of making garlands of flowers, female head-dressing in floral style and even love messages written on flower petals (as for example found in the *Malini shastra*, compiled by Rishyasringa Rishi).

The Darshanas

Other famous texts in classic Vedic literature are the *Vedanta sutra* (also known as *Uttara mimamsa*, *Vedanta* or *Brahma sutra*), the *Yoga sutras*, *Nyaya sutras*, *Vaisesika sutras* and *Sankhya*.

Together with the *Purva mimamsa* (a general definition that includes all the texts dealing with the traditional ritual ceremonies, that we have already examined), these Vedic texts constitute the *Sad darshana*, "the six

perspectives of observation" of knowledge or reality - knowledge and reality that the Vedic system considers one reality only: Brahman.

As we have already mentioned, these six perspectives of observation or "philosophical schools" as they are defined by western academia, are *astika*, or based on the acceptance of the authority of Vedic scriptures. On the contrary, the *nastika darshana* separate themselves from such authority by denying some of its principles - as for example the existence of God or the soul, the value of ritual ceremonies or Deity worship, and even dedication to the benefit and progress of human society.

It is interesting to note that the Vedic system has never tried to eliminate any ideology, not even agnosticism, atheism or materialism, because it considers them as legitimate and respectable points of view... of course as long as such ideologies do not require their followers to act on some criminal type of behaviors that damages innocent and good people who are under the authority of the king. Here lies the boundary line between the legitimate freedom of thought and religion on one side, and the danger from which the *kshatriya* is duty bound to protect the people and the kingdom.

Even in such case, however (as we have seen in the second chapter regarding the difference between *arya* and *anarya* communities) the duty of the *kshatriya* is not to persecute, imprison or physically eliminate those who profess doctrines of the criminal type, but to ensure that such people will not damage the civilized population...

and this is obtained easily by organizing separate settlements that have little or no contact between them, to guarantee the maximum freedom and happiness possible to all.

Nyaya

We start the study of the Darshanas with *Nyaya* ("logic"), that according to some also includes the philosophy called *Vaiseshika* ("of the universal variety" that covers cosmology and physics) formulated by Kanada Rishi and the *Sankhya* ("analytic enunciation of categories") formulated by Kapila Rishi. In a more indirect way, *Nyaya* is connected to the science of *Yoga* ("union") and to the elaborations of the *Uttara mimamsa* or *Vedanta sutra*, with which it shares some categories.

First of all it is necessary to understand that these philosophical systems, although apparently different, are not considered opposed or contradictory to each other, but they are rather complementary as perspectives of the same truth or reality. According to the Vedic ideology, the Absolute Truth is that multi-dimensional harmonious vision of Reality that includes and reconciles all the various perspectives or relative truths.

The purpose of the existence of the variety of perspective is to allow the philosophical debate (*vagvada*) that helps to widen and deepen the vision and to expand the mind, thus making people *mahatmas*

("great minds") and leading them to *prakasha* ("enlightenment") and then *moksha* ("liberation").

The *Nyaya shastra* ("text on logic") is attributed to Akshapada Gautama Rishi and contains 538 *sutras* or aphorisms divided in 5 sections or books. After this texts, a number of commentaries have been written, such as the *Nyaya bhasya* by Vatsyayana, *Nyaya varttika* by Udyotakara and *Nyaya varttika tatparyatika*, *Nyaya suchinibandha* and *Nyaya sutraddhara* by Vachaspati Mishra. Other later texts have been compiled by Udayana: *Nyaya tatparyaparisuddhi* (commentary to the work of Vachaspati Mishra), *Nyaya kusumanjali* (demonstration of God's existence), *Atma tattva viveka* (analysis of the nature of the spiritual Self), *Kiranavali* and *Nyayaparisistha*.

An important ramification is the Buddhist tradition, that developed a system of logical debate meant to propagate its doctrine independently from the Vedic authority, that Buddhism does not accept (being a *nastika darshana*). Later, the traditional Hindu school of *Nyaya* merged with the *Vaiseshika* school and therefore the two Darshanas have practically become one only.

We need to spend a few words also to clarify the difference between the concept of logic in the Vedic system and the concept of logic in the contemporary academia of western type.

Vedic logic does not start from the hypothesis or opinion but from a real substance or reality, whose existence has never been questioned, and aims at understanding

this reality on a level that transcends logic itself, with the result of attaining identification with pure reality, that is eternal and happy. In other words, knowledge and reality are one and the same.

Nyaya classifies reality and the experience of reality in 16 *padarthas* or categories: *pramana* (proof or evidence), *prameya* (objects of knowledge), *samsaya* (doubt), *prayojana* (purpose), *dristanta* (example), *siddhanta* (conclusion), *avayava* (syllogism), *tarka* (hypothetical reasoning), *nirnaya* (compromise), *vada* (discussion), *jalpa* (shallow argument), *vitanda* (specious argument), *hetvabhava* (illogical argument), *chala* (changing the topic), *jati* (elegant rebuttal) and *nigraha sthana* (point of defeat).

The valid methods to obtain knowledge are *pratyaksha* (direct perception), *anumana* (deduction), *upamana* (comparison) and *sabda* (verbal testimony). The fallacious arguments are *smriti* (memory), *samsaya* (doubt), *viparyaya* (error) and *tarka* (hypothetical reasoning).

The meaning of *pratyaksha* refers to the immediate awareness of a factual reality, that can be ordinary - as the evidence presented by the senses or the mind - or due to generalization (*samanya*), the knowledge acquired through study or by special perception abilities that have been developed through the practice of Yoga. It can also be a precise feeling that can be defined with a name (*savikalpa*) or indetermined or "without name or description" (*nirvikalpa*).

Anumana, or deduction, can be spontaneous (*svārtha*) or attained through a specific method (*parārtha*) of 5 passages. It can refer to the effect of a known cause or the cause of a known effect, or a simultaneous existence where there is no relation of cause and effect.

The 5 passages of the deductive method are the initial declaration (*pratijñā*, "what must be demonstrated"), the reason that sustains the declaration (*hetu*, or the reason why we believe that the initial declaration is true), the reason by which we connect the two ideas (*udāharana*), the application to the first statement (*upanaya*) and the conclusion (*nigamaṇa*).

To make an example: 1. there is a fire on the hill, 2. because we see some smoke, 3. smoke is always associated with fire, 4. therefore the presence of smoke demonstrates the presence of the fire, 5. therefore there is fire on the hill. In this case the hill is the minor term of comparison (*pakṣha*), the fire is the major term of comparison (*sādhyā*), and the relation between smoke and fire is the connection (*vyāpti*). For the reasoning to be valid, the reason (*hetu*) that supports the reasoning must be present in the minor term of comparison, it must be universally valid (it must be always present in the positive case and absent in the negative case), must not be incompatible with the minor term of comparison (for example, if we had a lake instead of a hill) and must be free from any contradictions.

The reasoning must be free from defects (*asiddha*), that would manifest if the minor term of comparison is unreal

in itself (for example if instead of a hill we have a cloud formation that looks like a hill), if the reason is incompatible with the minor term of comparison (for example, the presence of the hill must be perceived by the sound and not by the image) and so on.

Upamana can be defined as comparison or parallel, and it refers to the recognition of something that we have heard about in the past.

Verbal evidence, *sabda*, is defined as the declaration of a trustworthy person, preferably from the *sruti* or original scriptures (*sabda brahman*).

Declarations from other persons (*laukika*) are considered questionable or anyway of lesser value compared to the teachings of the scriptures.

The objects of knowledge are: *dravya* (substance), *guna* (quality), *karma* (activity), *samanya* (similarity), *visesha* (difference), *samavaya* (connection or union) and *abhava* (non-existence).

In the category of *dravya* we find the Self (*atman/ brahman*), the mind, time, the 8 directions, space, air, fire, water and earth. The first 2 elements are subjects, and the others constitute the world of objects. The last 4 elements have an atomic structure, where the atom is defined as an invisible and non-divisible particle. Space is characterized by sound, air by touch, fire by heat, water by the cold feeling, and earth by smell. *Guna* and *karma* are the qualities and activities that are found in substances (*dravya*). Qualities are described as taste,

dimensions, fluidity and pleasure, while the activities are defined as contraction, expansion and movement.

The category of *samanya* defines objects according to their common qualities, for example the definition of "human being", while the category of *visesha* defines the differences among the various substances.

The meaning of *samavaya* (connection or union) refers to a relationship that exists in a permanent way, as for example between fire and heat, while *abhava* indicates a state of non-being, something that does not exist, as for example light in darkness.

Vaiseshika

The "study of differences" compiled by Kanada Rishi is based on the material composition of the universe, that can be reduced to a calculable number of atoms. Because it is a philosophical system based on Vedic authority, *Vaiseshika* recognizes a transcendental reality constituted by a supreme and universal awareness.

Besides the original *Vaiseshika sutra* and other texts that have gone lost, there was a treatise entitled *Dasa padartha shastra* compiled by Chandra, of which an ancient Chinese translation survives. The objects of experience and the methods for acquisition of knowledge contemplated in this philosophical system are very similar to the *Nyaya*, and we cannot elaborate

much on these subtleties because that would entail a long and complex elaboration that cannot be done within this book.

The special peculiarity that we should mention here is about the definitions of *paramanu* (atom endowed with specific individuality) and *trasarenu* (groups of 3 dyads of atoms, that are the smallest visible particle of matter).

Sankhya

Unfortunately the original *Sankhya sutra* by Kapila Rishi is now lost, and we only have its commentaries written by Isvarakrishna (*Sankhya karika*), Gaudapada (*Sankhya karika bhasya*), Vachaspati Mishra (*Tattva kaumudi*) and Vijnana Bhikshu (*Sankhya pravachana bhasya*).

The focal point of this philosophical system is the interaction between *purusha* (spirit) and *prakriti* (matter), that gives origin to all the things manifested in the universe both at a gross and at a subtle level.

Prakriti is absolute, eternal, independent and original; it is composed by the 3 subtle elements called *gunas* - that are *sattva* (reality), *rajas* (desire) and *tamas* (ignorance) - three inseparable powers compared to the flame, the wick and the oil in a lamp.

Sattva is light, radiant, lively and illuminating; it produces pleasure, happiness, satisfaction, power for reflection and movement upwards.

Rajas has a sanguine (blood-based) character and produces suffering, restlessness, excessive stimulation, constant movement and lack of peace.

Tamas is darkness, the principle of inertia, and produces apathy and indifference, ignorance, confusion, and negativity. It is heavy and envelops the consciousness, covering and extinguishing its light.

This is the process of manifestation of the 25 elements listed and analyzed in detail by the Sankhya: *prakriti* or *mahat* ("the great", or the non-differentiated principle of matter), *ahankara* ("identification with matter"), *manas* (the mind), the 5 senses of perception, the 5 senses of action (or movement organs - mouth, hands, feet, anus and genital organ), the 5 *tanmatra* (sense perceptions), the 5 *mahabhuta* (gross elements), and the *purusha*, the spiritual Self, that is never touched by matter.

Sankhya teaches that knowledge can be obtained through *pratyaksha* (direct perception), *anumana* (logical deduction) and *sabda* (verbal testimony).

The fundamental characteristics of the Self (the *purusha*) are *dharma* (ethical virtue), *jnana* (knowledge), *vairagya* (detachment) and *aisvarya* (power).

Under the influence of ignorance, these qualities turn into their opposites, producing the 3 types of sufferings (*klesha*) called *adhyatmika* (caused by one's own body and mind), *adhibhautika* (caused by other living beings) and *adhidaivika* (caused by the natural elements).

Yoga

Among the Sanskrit words that have entered the global vocabularies in the last decades, *yoga* is probably the most famous, yet the original knowledge and the real meaning of Yoga are generally unknown.

The most famous text on the subject is Patanjali's treatise entitled *Yoga sutra* and composed by 4 chapters or *padas*, with a series of aphorisms illustrating *samadhi* (perfect contemplation), *sadhana* (spiritual practice), *vibhutis* (the faculties that are acquired through the practice) and *kaivalya* (liberation). *Bhagavad gita* is a still wider and more practical source, and each chapter deals with a step in the understanding and the practice of Yoga.

The word *yoga* literally means "union" and derives from the root *yuj*, that means "to unite, connect, control, discipline", exactly as yoking horses or oxen to a cart to pull it. In this sense, *yoga* has the same primary meaning of the word "religion", deriving from Latin *re-ligare*, or "to connect, unite" the human being to God.

The various "yoga paths" are actually complementary aspects of the same discipline. They are classified as *karma* (action), *jnana* (knowledge), *bhakti* (devotion), *buddhi* (awareness), *sankhya* (analysis of reality), *hatha* (balance of energies in the body and the mind).

The various steps of Yoga are described as *yama* (abstention), *niyama* (prescriptions), *asana* (control of the body), *pranayama* (control of breathing), *pratyahara*

(withdrawing the senses from the sense objects), *dharana* (mind concentration), *dhyana* (active meditation) and *samadhi* (constant absorption, where ignorance and illusion are completely vanquished).

Specifically, the abstentions are: *ahimsa* (non violence), *satya* (truthfulness), *asteya* (honesty), *brahmacharya* (sexual abstinence), *aparigraha* (detachment). The prescriptions are *saucha* (cleanliness), *santosha* (contentment), *tapas* (self control), *svadhyaya* (study of the scriptures) and *isvara pranidhana* (dedication to God).

Vedanta sutra

As we have already mentioned, the 3 basic texts of Vedic knowledge are *Bhagavad gita*, *Upanishads* and *Vedanta sutra*.

The *Upanishads* are known as *sruti pramana* ("authority transmitted by listening" as part of the *sruti* scriptures), *Bhagavad gita* is known as *smriti prasthan* ("authority transmitted by remembering" as part of the *smriti* scriptures) and *Vedanta* is known as *nyaya prasthan* ("authority transmitted by logic" as part of the *nyaya* scriptures).

The text of the *Vedanta* is not very large - it is only 555 aphorisms divided into 4 chapters (*adhyaya*), each consisting of 4 sections (*pada*), containing groups of sentences (*adhikarana*).

The first chapter is entitled *Samanvaya* ("concurrence") and explains that the common harmonious purpose of all the texts of Vedic knowledge consists in the realization of Brahman - the transcendental universal awareness.

The second chapter is entitled *Avirodha* ("absence of conflict") and examines the possible objections, resolving apparent contradictions. This is the chapter on which the various commentators have focused more extensively; Adi Shankara's commentaries are meant especially against the Buddhist and Jainist philosophies

that were preached in his days, but also against the distorted perspectives of the late followers of *sankhya*, *yoga*, *pancharatra* and so on.

In turn, the *vaishnava* commentators that appeared later have analyzed those philosophical and logical distortions they were facing in their time, including those produced by those followers of Adi Shankara who had already lost view of the original meaning and purpose of the discussion: to re-establish the original Vedic authority.

The third chapter, *Sadhana* ("the method") describes how to attain the transcendental realization, and the fourth chapter, *Phala* ("the fruits") speak about the results of liberation.

The *Vedanta sutra* is also called *Vedanta*, *Brahma sutra*, *Uttara mimamsa*, *Brahma mimamsa*, *Bhikshu sutra*, *Sariraka mimamsa* or *Nirnayaka shastra*.

Vedanta means "the conclusion of the *Vedas*", *brahma* refers to the Supreme Brahman, *mimamsa* means "pursuit", *bhikshu* refers to *sannyasis*, *nirnaya* means "investigation", and *sariraka* means "of the body", intended as a body of knowledge or *jnana kanda*, as opposed to the treatises on ritual procedures or *karma kanda*.

It is a deeply philosophical text based on the logical method (*nyaya*), consisting in very condensed aphorisms, difficult to understand because they can be interpreted in many ways. Actually it is not easy to find

editions of the *Vedanta sutra* that are not accompanied by one of the commentaries of the various *acharyas*.

The first and most famous commentary is the *Sariraka bhasya*, written by Adi Shankara, in turn elaborated and commented upon in very famous texts such as the *Panchapadika* by Padmapada Acharya, *Bhamati* by Vachaspati Mishra, *Nyaya nirnaya* by Anandagiti, *Bhasya ratna prabha* by Govindananda and *Bhasya bhava prakasika* by Citsukhacharya.

These commentaries, too, have been commented in subsequent times, thus creating a considerable amount of philosophical material - which however does not constitute an objective scriptural evidence to be accepted as *apaurusheya*, "above the human level" like the *Vedanta* and the other original texts.

The *vaishnava acharyas* too have written commentaries to the *Vedanta*: Ramanuja is the author of the *Sri bhasya*, while Madhvacharya wrote the *Brahma sutra bhasya*, *Nyaya vivarana*, *Anuvyakhyana Brahma sutra anubhasya*. Vallabha wrote the *Anu bhasya* and Nimbarka the *Vedanta parijata saurabha*.

Less famous commentaries to the *Vedanta* have been written by Bhaskara, Yadavaprakasha, Vijnanabhikshu and Baladeva Vidyabhushana.

Among the commentaries to the commentaries in the *vaishnava* field, the most famous author is Jayatirtha, who analyzed Madhva's commentary.

The process of analysis on the *Vedanta sutras* is based on logical discussion composed by *vishaya*, *samsaya* or *sandeha*, *purvapaksha*, *siddhanta* and *sangati*.

Vishaya is the "object" of discussion, for example (as in fact in the *Vedanta*) the pursuit of the knowledge of Brahman.

Samsaya or *sandeha* means "doubt" - in this case if it is actually possible to know Brahman, considering that our original awareness is already Brahman, and that the existence of Brahman does not depend on the result of our research.

After the statement of "doubt" we find the *purvapaksha* ("objection" or "discussion"); *Vedanta* answers that the pursuit of the knowledge of Brahman is necessary, because by dissipating the ignorance and illusion that cover the eternal and independent awareness of the Brahman takes us to the level of liberation, that is the natural and happy state of Self realization, to which everyone spontaneously aspires.

Follows the *siddhanta* or "conclusion": the perfected form of the initial statement, that through the process of discussion has been liberated from all possible misconceptions, and finally we come to the agreement or *sangati*, "common goal", where all the participants to the debate recognize the objective truth and share it.

The conclusion of Adi Shankara's *Sariraka bhasya* is summarized by the famous declaration (in the *Brahma jnanavali mala*): *brahma satyam jagan mithya, jiva*

brahmaiva na parah, anena vedyam sat sastram, iti vedanta dindima, "Brahman is reality, the universe is illusion, and the living being is non-different from Brahman. By understanding these (three points) (we understand) the scriptures: this is the message of the *Vedanta*."

The fundamental difference between the two existences - Brahman and material universe - consists in the fact that Brahman is consciousness (*chit*) while matter is inert and devoid of consciousness (*jada*). While consciousness is unitary, or free from duality, matter manifests in innumerable different forms and elements.

By utilizing logic applied to the understanding of the ultimate reality, we can demonstrate that the material objects, devoid of awareness (that are a temporary variable) depend for their existence on the transcendental Reality, that is a constant and permanent substance.

It is important to understand what we mean by "illusion" (*mithya*). Some believe that this definition indicates the complete falsity of matter, that simply "does not exist", but this is incorrect. Matter "is not" (*maya* precisely means "what is not") what it seems to be, but it exists (it is real) as a projection of the transcendental Reality, the Brahman.

It is like the shadow of an object, that manifests in some particular circumstances of lack of light, and disappears when the light is present on both sides of the object - that is, when duality has been overcome.

We cannot say that the shadow is completely devoid of existence: its existence is secondary because it depends on the object proper, but when it manifests we observe a perceptible effect, as for example a drop in temperature in the area that is covered by the shadow.

Another classical example is the cloud, that is a temporary manifestation created by the energy of the sun, that evaporates water from the surface of the planet. The existence of the cloud depends on the existence of the sun, that is permanent and independent, and manifests in a cyclic way moving humidity from the surface of the land up to the sky and then down to earth again. In other words, it is a temporary transformation (*vivarta*) that appears to be different from the substance that creates it, and that is always the same.

If we want to use the language of atomic physics, matter is simply a temporary manifestation of energy, that is eternal and all-pervading. Even though our senses perceive matter as having a solid existence while energy escapes sensory perception and may seem to be an abstract concept, the facts are exactly the opposite: energy is permanent, while matter is always in a transient condition. Everything that exists in this world consists of various forms of condensation and manifestation of energy, and the supreme reality is constituted by the primary energy of consciousness - Brahman. Translating this concept into the vedic language, we will say that *pradhana* (matter) is nothing by Maya, the divine illusory manifestation that

constitutes the inconceivable potency of Brahman. By overcoming duality we can understand that Maya, illusion, is nothing but the "hidden face" of Vidya, knowledge. Just like electrical energy produces apparently different effects in a fridge and in an oven, in a fan, a radio, a computer and a light bulb, the primeval Shakti of Brahman, that is non-different from Brahman itself, manifests many forms that appear to be different.

In the same way, Brahman ("transcendence") is one but manifests as Atman ("Self"), that appears to be localized as Jiva ("individual being"). It is not easy to understand how this happens, and in fact the entire *corpus* of Vedic scriptures has been compiled to help the sincere researcher who wants to attain this sublime and fundamental realization.

The "missing link" of this mysterious equation is the figure of Shiva, of whom Adi Shankara is considered a direct incarnation, precisely appeared to re-establish the authority of Vedic knowledge after several centuries of Kali yuga. In fact Shiva is the supreme Guru, the personal manifestation of Brahman in the material world, and occupies an intermediate position between Brahman and Atman, as Param Atman (Supreme Self).

Here we need to understand that Shiva and Vishnu are the same Person, but they simply have different Personalities. Vishnu or Narayana is the Personality of Godhead that is the One without duality and is in a completely transcendental dimension called Vaikuntha ("without anxiety"), while Shiva manifests in a form that

appears to be dualistic - the androgynous *ardha-naresvara* ("the Lord that is half woman").

Adi Shankara states, *narayanah aparo avyakta*, "Narayana is Supreme and non-manifested", precisely because he completely transcends matter. When Narayana manifests in the material world in the form of Maha Vishnu, lying on the Ocean of Causes (Karanodakasayi Vishnu), is called Sadashiva, "the eternal Shiva".

This immense divine form simply remains lying on the waters (that are the Prakriti) and while he is immersed in his mystic sleep (also called Yoga Nidra, that is another name of Mahamaya) Maha Vishnu emanates all the unlimited universes that appear as seeds from the pores of his body. At each exhalation of Maha Vishnu all the Brahmandas ("the Brahman eggs") are emanated and at each inhalation they are absorbed again into Maha Vishnu's body, again through his pores. Therefore the entire cycle of cosmic manifestation of the universe, lasting for billions of our years, is included in one mere breathing cycle of God.

During the cosmic manifestation period, within each Brahmanda or "universal egg" there is the manifestation of a secondary form of Vishnu called Garbhodakasayi Vishnu, who is "pregnant" with Brahma (the first created being), who is born from the lotus flower growing from Vishnu's navel. *Garbha* precisely means "fetus, embryo". From his own body (that is very different from the human bodies of this planet), Brahma manifests the

14 planetary systems or galaxies of this universe, and Vishnu appears inside each atom of creation and in the heart of each living being.

These three manifestations of Vishnu are called Purusha avatara ("manifestations of the Self principle descended into the universe") and are the Param Atman (supreme Self) of material manifestation (Prakriti). The devotees of Vishnu call them "Vishnu" while the devotees of Shiva call them "Shiva", but they are exactly the same Person, just like a human being can be called in different ways by different persons (for example by his mother, his wife or his son), although he remains the same person.

The third element of the divine Triad that constitutes the focus of the Vedic of hindu tradition is Prakriti, Nature, the Mother Goddess, who is power and form through which Vishnu/Shiva manifests both in the material and the spiritual worlds. In the spiritual world it is known as Para ("supreme") Prakriti, while in the material world it transforms and manifests also as Apara ("non supreme") Prakriti in the form of the material elements.

Here, too, we must be very careful to understand this transformation of Prakriti, because in the material universe Prakriti appears both as Para Prakriti (in the form of *chit shakti*, the awareness of the living beings) and as Apara Prakriti (in the form of the *pradhana*, the 8 elements that are merely material or *jada*).

Therefore the living beings in this world are both Jiva Atman (individual sparks of Brahman) and Prakriti

(marginal potency of Brahman); we could say that they "possess the genetic chromosomes both of the father and the mother of the universe", that is to say the masculine identity or modality and the feminine identity or modality at the same time.

To summarize these deep technical concepts, we can say that:

- * Brahman includes all beings and all things.
- * The Atman (the "Self") is of the same nature and existence of Brahman - pure consciousness, pure existence.
- * The Jiva ("living") or Jiva Atman ("living Self") is the Atman that by taking birth has become individually localized - not in a geographical or spatial sense, but at the conceptual level.
- * The Supreme Brahman, Narayana (Vishnu), is the transcendental, non-manifested Reality.
- * Shiva is the Brahman that descends in this world and enters the heart of each living being as their Param Atman ("Supreme Self" or "Self of the Self").
- * Prakriti ("Nature") is the inherent potency of Brahman, and also manifests in the Atman. She is described as *sat*, "existence", *cit*, "awareness" and *ananda*, "happiness". But she is also *rupa*, "form", *shakti*, "power", *vidya*, "knowledge", *buddhi*, "intelligence", *trishna*, "aspiration", *tushti*, "satisfaction", *kshanti*, "benevolence", *daya*, "generosity", *shanti*, "peace", *jala*, "water" and *matri*, "the Mother".

Due to abrahamic ideological infiltration, some people have come to think that the cause of the problems of the conditioned soul is Mahamaya, the Divine Mother in her function of illusory projection, and therefore we find some confused people who delude themselves of having the power to conquer illusion "by waging war against it" and disrespecting Prakriti in her various manifestations. This offensive approach cannot work, and in fact brings disastrous results because it only amplifies the illusory tendencies of *ahankara* (false ego) and bends the mind towards the lower *gunas* of *rajas* (passion) and *tamas* (ignorance). This program is not recommended by any scripture.

To understand the futility and foolishness of this attitude, we can bring the example of a person who is keeping his eyes tight shut and tries to "wage war against darkness" by trashing and beating around in the environment where he lives, instead of simply opening his eyes to the light.

The problems due to illusion are created by ourselves only, by our own perception, and it is only by working on our own perception ability, by eliminating mistakes and misconceptions, that we will be able to overcome them effectively.

The problem of illusory perception is caused by the superimposition (*adhyasa*) of two distinct concepts, as for example a rope and a snake: this makes us see a rope as a snake, and the other way around. It is a false perception, not a "false reality", because the two

concepts of falseness and reality are exactly opposite to each other. Mistaking a rope for a snake is *maya*, "what is not", but the rope exists in front of us, and the snake exists, too, albeit in some other place.

Thus the Atman is perceived as the material body because of the material identification (*ahankara* or false ego) and material attachments (*mamatva* or sense of possession). This superimposition of the two concepts - Atman and matter - is due to ignorance (*avidya*), which is merely lack of knowledge (*vidya*) in one's awareness. Ignorance is therefore the cause of mistakes and misconceptions (*apavada*) and must be removed by the proper knowledge received from the scriptures and from the Guru.

This is the main purpose declared by *Vedanta*, beginning from its first verse: "now we enter the study of Brahman".

The four objectives expressed in the text are defined as:

1. *adhikari*, the person who engages in action or study,
2. *vishaya*, the nature or subject of action or study,
3. *prayojana*, the effect or result of action or study,
4. *sambandha*, the relationship between the object of action (or study) and its effect.

The first 4 aphorisms of the text, known as *Chatus-sutri* ("of 4 *sutras*") directly elaborate on these topics and in fact are considered the most important.

The answers to these 4 objectives are known as *jijnasa* ("the pursuit of knowledge"), *janmady asya* ("since birth"), *shastra yonitva* ("being the origin of the scriptures") and *samanvaya* ("the general conclusion"). Such conclusion is the "end of the Vedas" indicated by the word *Vedanta*.

Here is the first *sutra*: *atha atah brahma jijnasa*, "Therefore, this is the moment to try to understand Brahman." (1.1.1)

A person who engages in the study of the *Vedanta sutra* is one who wants to know Brahman; this desire is sufficient to qualify a human being as worthy of seeking the knowledge, because it cannot manifest in someone who has not attained the required level of evolution. To dissipate illusion and ignorance, and to qualify to attain knowledge, one must engage in the following practices (*sadhana catushayam*):

1. *viveka* ("ability to discriminate between *sat* and *asat*"),
2. *vairagya* ("renunciation" to the subjective ego and to the attachments that prevent us from seeing objectively),
3. *satka sampatti* (the "six qualifications of the mind", that are *sama*, "equanimity", *dama*, "self-control", *uparathi*, "detachment from sensory distractions", *titiksha*, "tolerant perseverance", *sraddha*, "faith" in the scriptures and in the teacher, *samadhanam*, "peacefulness") and

4. *mumukshutva* ("strong desire to attain liberation").

This is the second *sutra*: *janmadi asya atha, tat brahma*, "Brahman is what originated all this" (1.1.2)

Brahman has been described in various *Upanishads*.

Taittiriya upanishad states: "That from which the world has been created, in which the world exists and in which the world will re-enter at the time of dissolution, is known as Brahman."

Kena upanishad declares: "That which cannot be expressed by words, but from which words themselves obtain the power to express - know that is Brahman."

Brihad aranyaka upanishad tackles the subject by the *neti, neti* system - by explaining what is not Brahman.

The *acharyas* explain that this method is called *vyavritta lakshana* ("by elimination").

The second method, *tatastha lakshana* ("intermediary") consists in explaining Brahman as the witness of all the activities in the world. The word *kutastha* derives from *kuta*, "anvil", and offers the image of a stable, solid, unchangeable support on which all things take shape. Brahman is therefore the existence that sustains the three changing phases (*avastha*) of wakefulness, dream and deep sleep.

The third method for explaining Brahman is *svarupa lakshana* ("direct") and consists in understanding its

components of *sat*, "existence", *chit*, "consciousness" and *ananda*, "happiness". Unlike the two previous methods, that are considered instrumental (*nimitta*) for the preliminary elimination of misconceptions, this method takes us directly to the contemplation of the Absolute. These qualities that constitute Brahman are not its "parts" but they are its very nature, that is inseparable (*akhanda*). They also are the same fundamental qualities of our real Self (*atman*), that can be directly perceived as soon as ignorance and illusion are dissipated.

Here is the third *sutra*: *shastra yonitvat*, "it is the origin of the scriptures". (1.1.3)

Brahman is the sum total of consciousness and therefore omniscient, and this complete knowledge originated the expression of knowledge that we find in the scriptures. At the same time, the knowledge contained in the scriptures is the testimony or evidence of the existence of Brahman, that can be known through the scriptures.

Here it is important to understand that the definition of *shastra* does not refer specifically to a certain number of written texts compiled in particular historical periods - because these can be tampered with, distorted, or lost in the events of this world.

This idea, that is rather widespread in some milieus, derives from the mistaken concept of authority according to the followers of the so-called "historical religions", by which the existence of the text itself

(irrespective of its contents) constitutes evidence of the validity of their faith.

In the Vedic system the concept of "scriptural evidence" is rather applied to the *original knowledge* of which such text simply constitute a record. The texts that were compiled "historically" come and go, but Knowledge itself remains, eternal and always attainable independently by any self-realized soul in any time and place.

For this reason, a person who tries to know Brahman should study the scriptures through the direct contact with a genuinely qualified Guru - a person who has actually realized the Self. Without this fundamental qualification, any other favorable quality (disciplic lineage, scholarship, birth in a good family, ability to attract many disciples, fame etc) becomes irrelevant and can even constitute a detrimental factor when it causes an increase in material identification and material attachments. These can be easily seen in the public and private behavior of the person who wants to pass as Guru.

An important note to this effect is about the physical presence of the Guru. In the initial stage of his/her search, a neophyte generally needs a guide that s/he can clearly hear. Such guide must carefully watch the progress of the student, and therefore the traditional method consists in physically approaching a Self-realized soul and residing in his/her *ashrama* for a certain period, directly interacting at a personal level

especially with questions and answers and engaging in his/her service.

Later, the relationship with the Guru becomes established at a deeper level and the disciple becomes able to directly connect to the Guru in his/ her own heart. Because the relationship with the Sat Guru ("the spiritual teacher") is eternal and continues lifetime after lifetime, we can see that some people seem to be "beginning their spiritual life" without having any direct visible interaction with a physically present Guru or with the official representatives of the disciplic succession founded by such Guru.

Actually these people are simply resuming their spiritual journey that began in previous lifetimes, where they already met the Sat Guru and therefore they do not need to accept "a new eternal Guru to whom they will remain faithful lifetime after lifetime".

It is not easy to understand the nature of the concept of Guru - the *guru tattva* - especially because in Kali yuga there are many dishonest people, who are unqualified and greedy for fame and followers, and who confuse the ideas of less knowledgeable people, ruining the lives of their followers and creating enormous damage to society in general.

Actually all genuine and qualified Gurus speak and act exclusively as representatives of the supreme Guru, the Param Atman, who resides in the heart of every being. A realized soul does not have "his own personal material" (created by the egotism of *ahankara* and

mamatva) that obstructs the pure transmission of knowledge by inserting some material motivations. Therefore s/he is simply a "transparent medium" or a "messenger" of the supreme Self.

Thus all the genuine Gurus must say the same thing... there cannot be genuine Gurus who do not agree with each other and/or with the conclusions of the scriptures.

When such contradictions appear, the disciple has the duty to ask all the necessary questions until s/he is fully satisfied, and the Guru must continue to explain, also using examples and practical applications, how apparent contradictions are merely differences of vision, due to the particular space-time perspective of the observer. If the Guru refuses to give such explanation by claiming a dogmatic authority, or even by resorting to silence or intimidation, s/he is simply demonstrating his/her own lack of qualifications.

Here is the fourth *sutra*: *tat tu samanyayat*, "but through the agreement (of the statements of the scriptures)".

Studying the scriptures and hearing the Guru's teachings we find a great quantity and variety of statements, that sometimes may seem contradictory. In the original scriptures and in the genuine Guru such contradictions are only apparent and are meant to widen our field of understanding, eliminating the mental barriers consisting of prejudiced and limiting patterns.

For example, we read that Brahman is both *nirguna* ("without attributes") and *saguna* ("with attributes"), that

it is unlimitedly small and unlimitedly big, very far and very near, and so on.

By widening our understanding we see that such apparent contradictions are reconciled in a multi-dimensional vision - for example, when we understand that the attributes of Brahman are not the ordinary material type that can be observed in matter, but they are of a spiritual type, transcendental and absolute. In other words, Brahman possesses both the specific quality and its opposite. For this reason, it is important to become detached from mental patterns and identifications, and overcome the limitations of duality.

Here is the origin of the long controversy between the supporters of the *advaita* ("non-dual") philosophy and the *dvaita* ("dual") philosophy, generally described as "impersonalists" and "personalists" respectively. Actually the contradiction between the two perspectives is simply due to a lack of understanding of the subject. The great *acharyas* of the Indian middle ages have amply elaborated on this problem to help us overcome the limitations of the dualistic material logic.

Adi Shankara has explained the nature of Brahman simply as *advaita*, "non dual", which is amply confirmed also in *Bhagavad gita* and *Upanishads*.

However, it is not easy to understand that this non-duality possesses unlimited qualities, although having no qualities. The great *acharyas* who appeared later have continued the teaching work by presenting the same Knowledge in perspectives that are slightly

different from each other, so that we can have a vision that is as multi-dimensional as possible.

Ramanuja, who appeared a few centuries after Adi Shankara, proposed the vision called *visista advaita*, "non-duality characterized by variety".

More than one century later, Madhva presented his perspective called *visista dvaita*, "duality with variety", that constitutes an extreme vision, at the opposite side of the *kevala advaita* ("pure and simple non-duality").

The perspectives called *dvaita advaita*, or "simultaneous duality and non-duality" and *suddha dvaita*, or "spiritual duality" have been presented respectively by Nimbarka and Visnusvami, the other two *vaishnava acharya* that are most famous for their teachings on *Vedanta*.

Still more recently we find Chaitanya's perspective, defined as *acintya bhedabheda*, or "inconceivable simultaneous diversity and non-diversity (duality and non-duality)" that rightly puts the issue of Brahman realization on a level that goes beyond mere intellectualism, in which the students of *Vedanta* risk falling because of the fascination of logical debate in itself.

In fact Chaitanya preached the primary importance of *bhakti*, devotion towards the Supreme Brahman in its forms of Paramatma and Bhagavan, that enables us to cross the abyss of intellectual elaborations beyond which we can find the pure perception of Reality. In turn,

the basic teaching of Chaitanya has been elaborated by his followers, especially by the six Gosvamis of Vrindavana - Rupa, Sanatana, Jiva, Raghunatha dasa, Raghunatha Battha, Gopala Bhatta - who compiled a great variety of philosophical texts on the subject, commenting the teachings of the original Vedic scriptures in the light of Chaitanyas' vision.

More specifically it was Baladeva Vidyabhushana, with his *Govinda bhasya*, who applied Chaitanya's vision to the interpretation of the *Vedanta sutra*, albeit in relatively recent times - in the 18th century.

It is important to understand that according to the perspective of the genuine *acharyas*, the differences of opinions expressed in their commentaries are meant to offer a variety of perspectives on the same reality(*tattva*), that are not in competition between themselves, but rather should help us to widen our field of understanding by reconciling apparent differences, exactly like the statements of the various genuine scriptures. Of course this applies only to the teachings of the realized souls, not to the mental speculations of those "empirical" philosophers that are simply grappling for answers or want to establish their beliefs in a dogmatic form, as an "absolute truth", considered as such only because it destroys other truths by stamping them as falseness *a priori* because they are presented by the "opponents".

Unfortunately this negative tendency is supported by the western-type mainstream academia, where the study of

philosophy has completely lost the view of the purpose of the acquisition of knowledge of reality, and has become a "history of hypothetical speculation" that leads the students to conclude that reality does not exist, that the knowledge of reality is not possible and that anyway nothing really makes sense.

According to this perspective a seeker of reality must choose a "school of thought" founded by a "great thinker" and become a faithful follower, strictly uniforming his mental structures to adapt them to the dogmatic boundaries established by the "ideological authority", a typically abrahamic concept that has nothing to do with the search for knowledge in its original meaning.

This same tendency to classify speculative opinions as "different philosophies" that are equally worthy of being studied but incompatible among themselves and totally relative, is then applied by the so-called "academic indology" also to the Vedic *darshanas* ("perspectives of vision"), with devastating results. Instead of leading to a greater understanding, the fragmentary and sectarian study of the Vedic philosophical perspectives creates a schizophrenic confusion and directs the energies of the sincere seekers towards a never ending partisan struggle between factions, that become engrossed into the only occupation of abusing each other out of a perverted sense of loyalty for their own "camp", something that is certainly not prescribed by the Vedic texts and that does not help to better understand Vedic knowledge.

The subsequent aphorisms, from 5 to 11, confirm that according to the scriptures only Brahman, the intelligent and conscious principle, can be the cause of the manifestation of the universe.

Here is the famous aphorism 12: *anandamayah abhyasat*, "its nature is constant happiness".

Here *anandamaya* refers to the description of the *Upanishads* by which the living being is "a body" made of happiness, *anandamaya*, surrounded by "bodies" that are increasingly grosser, made respectively of intelligence or knowledge (*jnanamaya*), mind (*manomaya*), life energy (*pranamaya*) and gross matter (*annamaya*) assimilated to the food.

This Atman, made of pure happiness, is non-different from Brahman that is the complete and absolute Reality, except for being apparently and temporarily covered by material identification.

The subsequent aphorisms up to 19 further elaborate on the concept of Atman-Brahman in the light of the declarations of the *Vedas* and the *Upanishads*.

Aphorism 20 presents a new argument: *antah tat dharma upadeshat*, "(Brahman) is within and its essential nature (that supports existence) is (manifested) by teachings".

This description presents Paramatma, the localized manifestation of Brahman that is inside each being as the supreme Self. The same supreme Existence is

worshiped in the Sun, in the Devas and in the *Vedas*. The next aphorisms present it as the life energy (*prana*), light (*jyoti*) and etheric space (*akasha*).

In the second chapter (aphorism 11) we find that Brahman and Atman (*atmanau*, "the two Atmans") enter into "the cave" (*guhā*) of the material body or the cosmos, that is the material body of the Virat Purusha, and Brahman in the form of Paramatma (*antaryami*, "that is inside", aphorism 1.2.18) supports the existence of the body and of all the elements, although it remains invisible to the human eye.

The text further explains that the knowledge of Brahman can only be achieved by the human beings that have purified themselves through the performance of the *samskaras* and the observance of the Vedic rules in life habits. It is important to understand here that the definition of *sudra* does not refer to a birth condition, but to the qualities, the tendencies and the activities that a human being has developed at the time of maturity.

In this regard, we can refer to chapter 2 of this book on the history of the study of Vedic knowledge in India.

After refuting all the misunderstanding created by the distortion of the original doctrines of the scriptures, the text of the *Vedānta sūtra* continues to explain the difference and non-difference between Brahman and Atman, stating that Atman is a reflection (*abhasa*) of Brahman (aphorism 2.3.50). The text speaks also about *prana* and the senses, and the development of the various elements of creation, the incarnation and

reincarnation of Atman, the different states of consciousness, and the practical examples to meditate on Brahman. It explains the rules for the *ashramas* and the condition of those who have fallen from the level of behavior required for their position, the determination needed to attain Self realization and liberation, and existence on the liberated level.

Agamas and Tantras

Another group of traditional scriptures in Vedic knowledge is the *Agamas*, that include *Tantra*, *Mantra* and *Yantra*.

These names have filtered into western culture in the last decades but often the artificial superimposition of different cultural concepts has caused even serious misunderstandings - many of the so-called "courses on Tantra" boil down to a sort of sex counseling to improve couple relationships, often in combination with what passes as "Yoga", but is a system of exotic gymnastics, with a strong tendency to contortionism.

Reality is different, and much deeper and more complex. The word *tantra* means "power" and refers to the divine power that is directly contacted by the *sadhaka* ("adept, spiritual practitioner") through the

precise and scientific technology of archetypal resonance.

Vedic culture teaches the concept of direct correspondence and connection between the macrocosm and the microcosm, offering a specific knowledge that enables one to go beyond theory and to apply the equation also, and above all, to practice.

As we have seen (in the first chapter of this book) in the declarations of the scientists that approached Vedic knowledge, western empirical physics has only recently started to understand this extremely ancient science that constitutes the "instruction manual" of the universe.

The power of *tantra* rests on the two concepts of *mantra* and *yantra*, that are closely connected to it, and equally deep and sublime.

A *mantra* is a very specific sound vibration, while the *yantra* is a very specific geometric diagram.

It is important to understand that these are not artistic creations based on fantasy or aesthetic sense, or on a literal meaning or on the imitation of "natural sounds" as some people imagine.

The aesthetic product of musicians, linguists or painters that whimsically take liberties in freely or vaguely imitating the original *mantras* and *yantras* of Vedic tradition can never have the same results, just like a mathematic equation created by a person who does not know the mathematical rules and the meanings and

functions of the various components can never be considered valid and correct, and cannot bring effective results.

On the other hand, there is a greater freedom of interpretation in the meaning and utilization of the *mandala* ("circle", equivalent to the Tamil word *kolam* and the Prakrita word *rangoli* or *alpana*), that is used to circumscribe the space where the *yantra* or geometrical form of the Deity will manifest. Although it is always better to follow the scientific geometrical shapes of the traditional *mandalas*, it is possible to apply creative modifications by combining the basic schemes. However, this is impossible when drawing *yantras*, which simply "will not work" when they are traced in a way that is not perfectly correct.

The philosophers-scientists of ancient Greece (especially the Pythagoreans) considered music and geometry (and mathematics) as the foundation for the knowledge of the universe, a secret knowledge accessible only to few initiates. In India this knowledge constituted the main foundation of Vedic culture, and was brought to a very complex level.

Galileo took up these studies in the middle ages, as he explains in his *Dialogo dei due massimi sistemi del mondo* (*Dialogue on the two greatest systems in the world*, banned by the Inquisition but published in Holland), a work that was continued by Robert Hooke (1680) and Ernst Chladni (1787). In 1967 Hans Jenny called this science *kymatik* or *cymetics* ("science of

vibrations"), or the study of the visible form of sound and sound vibrations. Experimental observations of this science are conducted on a suitable surface, ideally a "Chladni plate" or a membrane covered with a thin layer of particles in the form of solution, paste or powder. The different sound frequencies immediately create perfect and complex geometrical forms.

In 1999 Masaru Emoto published his research, connecting cymetics with the human biomagnetic field and observed its results on water molecules (crystallized through freezing). As we know, water is the main component of the human body and of the structure of the majority of living organism, both animal and vegetal.

In the light of such information, we will be better able to understand the meaning of *mantra*, *yantra* and *tantra*, whose knowledge is detailed in the *Agamas*.

There are 3 main categories of *Agamas* - called Vaishnava, Shaiva and Shakta - dealing respectively with the worship of the Deity in the forms of Vishnu, Shiva e Shakti. Each of these *Agamas* contains 4 parts, dealing respectively with the philosophical and spiritual knowledge of the Deity (*vidya* or *jnana*), the method of contemplation or *sadhana* (*yoga*), of the ritual aspects (*kriya*) and the general behavior and lifestyle of a devotee (*charya* or *achara*).

The *Agamas'* place within the *corpus* of Vedic knowledge has been a subject of controversy, because they are generally listed separately. However, it is

evident that the knowledge contained in the *Agamas* is directly connected to the Vedic texts and more precisely to the *Atharva Veda*, maybe even constituting its original form.

In fact it is the *Agamas* that originally contain the *bija mantras* ("seed sounds") that is the basis of the ritual worship and the recitation of all *mantras*.

The *Vaishnava Agama* are the *Pancharatra*, *Vaikhanasa*, *Pratistha sara* and *Vijnana lalita*.

In turn, *Pancharatra* is divided into 7 groups of texts, attributed respectively to Brahma, Shiva, the Kumaras, Vasistha, Kapila, Gautama and Narada. In all, these are 215 texts, of which the most important are the *Samhitas* known as *Isvara*, *Ahirbudhnya*, *Paushkara*, *Parama*, *Sattvata*, *Brihad-Brahma* and *Jnanamritasara*.

The *Pancharatra* system is specifically followed in the temple of Venkatesvara at Tirupati and in the temple of Parthasarathi at Chennai (Madras), while the *Vaikhanasa* system is followed especially in the temple of Ranganatha at Srirangam and in the temple of Varadaraja at Kanchi.

The traditional *Shaiva Agamas* were originally 28, of which the most important is the *Kamika*, and each of them has some *Upa-Agamas* or secondary texts; in all only about 20 texts have survived. This knowledge has given origin to the Shaiva siddhanta in south India and to the Kashmiri Shaivism (also called Pratyabhijna) in north India.

There are also 3 other agamic traditions that focus on the worship of Shiva - called Kapala, Kalamukha and Pasupata - that are also connected to the worship of Shakti.

The *Shakta Agamas* are also known collectively as *Tantras* and are considered particularly important because the ritual worship and meditation offered to Vishnu and Shiva cannot be separated from those offered to their Shaktis.

Presently there are 77 *Shakta Agamas*, of which 64 are listed in the *Vamakeshvara* in this order: *Mahamaya*, *Shambhara*, *Yoginijala-shambhara*, *Tattva-shambhara*, *Bhairavashtaka* (*Asitanga*, *Ruru*, *Chanda*, *Krodha*, *Unmatta*, *Kapali*, *Bhishana*, *Sanghara*), *Bahurupashtaka* (the 8 *Tantras* of the 7 *Matrikas* and *Shivaduti*), *Yamalashtaka* (*Brahma yamala*, *Vishnu yamala*, *Rudra yamala*, *Lakshmi yamala*, *Uma yamala*, *Skanda yamala*, *Bhaskara* or *Jayadratha yamala*), *Ganesha yamala*, *Grahay amala*, *Mahochchushya*, *Vatula*, *Vatullotara*, *Hridbheda*, *Tantrabheda*, *Guhya tantra*, *Kamika*, *Kalavada*, *Kalasara*, *Kubjika mata*, *Tantrottara*, *Vinatantra*, *Trodala*, *Trodalottara*, *Panchamrita*, *Rupabheda*, *Bhutoddamara*, *Kulasara*, *Kuloddhisha*, *Kulachudamani*, *Sarvajnottara*, *Mahakali mata*, *Mahalakshmi mata*, *Siddha yogeshvari mata*, *Kurupika mata*, *Devarupika mata*, *Sarvavira mata*, *Vimala mata*, *Purvamnaya*, *Pashchimamnaya*, *Dakshinamnaya*, *Uttaramnaya*, *Niruttara*, *Vaisheshika*, *Jnanarnava*, *Virabali*, *Arunesha*, *Mohinisha*, *Vishuddesvara*.

In the tradition of Tantra the Mother Goddess is called Dasa Mahavidya, "the 10 forms of Great Knowledge":

1. Kali or Kalaratri ("the black night"), Time that devours everything, the rhythmic cycle of the universe and the destruction of all obstacles,
2. Tara ("the bright star" or "she who liberates"), guiding the devotee in his/ her journey and research,
3. Sodashi ("16 years old"), also called Rajarajesvari ("the Lady of the kings of kings") or Lalita Maha Tripurasundari ("the beautiful and playful"), the power of Beauty in the universe,
4. Bhuvaneshvari ("the Lady of the universe") or Maya ("energy"), the power of Creation that generates everything,
5. Chinnamasta ("the beheaded"), Intuition or Inspiration: that immediate and direct intelligence transcending the logical and rational mind,
6. Bhairavi ("the terrible"), the divine Wrath that destroys the negative powers; she is also called Cidagni ("the fire of awareness"), Tejas ("splendor or power") that controls the subtle forms of the senses, and Tapas ("austerity") or the power of the desire to obtain a higher purpose,
7. Dhumavati ("smoke-like") is the Crone, and represents the knowledge gathered through a long and painful experience,

8. Bagalamukhi ("that bridles the mouth"), is Control, the enunciation of the final truth, the hidden presence of opposites one inside the other, the power to turn defeat into victory,

9. Matangi ("whose body is made of thought") is Knowledge, the secret form of Sarasvati, the power of the primeval creative sound,

10. Kamala ("lotus flower") is the secret form of Lakshmi, who fulfills all desires.

In the practical application of the Tantra of Shiva and Shakti there are 3 schools, called respectively Dakshinachara ("of the right hand"), Vamachara ("of the left hand") and Mishra ("mixture").

Another sub-division considers the 7 categories of Veda achara, Vaishnava achara, Shaiva achara, Dakshina achara, Vama achara, Siddhanta achara and Kaula achara. The Dakshinachara or Samayachara path follows the Vedic rules and is generally practiced by *brahmanas*; the form of the Mother Goddess worshiped in this tantric system is Maha Tripura Sundari.

The Vamachara or Kaulachara path (followed for example by the famous Aghoris) observes rules that are diametrically opposite to the Vedic (*arya*) rules, especially in regard to the concept of cleanliness or contamination, and utilize the raw power of the senses and matter to access the heart of material energy and

overcome one's limiting identifications. The form of the Mother Goddess worshiped in this system is Bhairavi.

The path called Kaulachara is particularly famous for the worship method called *Pancha Ma-kara* or *Pancha tattva*, "of the five Ms" or "of the five realities" - *Maithuna* or sexual union, *Madya* or psychotropic substances including alcohol, *Mamsa* or animal meat, *Matsya* or fish and *Mudra* or roasted grains.

Its followers liberally use these elements of sense gratification during the ritual ceremonies to "feed the tiger" of the inner energy with the qualities of *rajas* and *tamas* (passion and ignorance) of which they feel the power. By worshiping this "raw" power in the form of the Divine Mother, they can attain the realization of their own transcendental identity by overcoming the identification with the limitations of body and mind. However, this is a dangerous path on which any shortcoming in knowledge or awareness can cause a downfall into degradation and put one in touch with lower (and not higher) entities, just like we risk being electrocuted by an electrical discharge when we work at a high-voltage transmission line.

When we take Tantra lightly, we may end up depending not on the inner divine power within ourselves, but on the powers of some evil ghost or spirit, that can certainly show up during rajasic or tamasic rituals, and develop a bond with us, of which we may not clearly understand the terms and the rules.

In this category of "black" Tantra we find the 6 arts of control - *shanti* to avoid accidents and diseases, *vasikarana* to keep the minds of other people under control, *stambhana* to obstruct the movements of other people, *vidveshana* to create quarrel and misunderstandings among other people, *ucchatana* to repel or send people away and *marana* to kill. It is important to understand that the exercise of such arts is based on the exploitation of a power that does not come free of charge, and especially when one tries to harm innocent or even good people, the karmic reactions are very heavy.

On the other hand, the Dakshinachara and Mishra path replace these lower energies with more sattvic or even transcendental elements. Thus at an ordinary level the ritual ceremonies include the "five realities" in the form of flowers, green coconut juice, ginger, radishes (or spinach) and boiled grains respectively.

At the level of the Yoga practice, these five realities consist of the mystic union between the male and female energies within one's body, by the liquid that is produced with the tongue tip when it is rolled back and upwards in the Kechari mudra, by the Kechari mudra itself (by which one "swallows" one's own tongue, that is "flesh"), by the activation of the two currents Ida and Pingala within the spinal cord (that move like two swimming fishes), and by the gestures or positions of the body that facilitate the passage of Kundalini in the spinal cord.

At the inner level, they are constituted by the union of the individual ego with the Absolute, by the nectar of the contemplation on the Divine, by silence, breathing control and concentration techniques. These "pure" options are certainly recommended, because in Kali yuga it is extremely difficult to channel and ride the raw energies of matter without being devoured by them: this is precisely the meaning of traditional iconography showing the tiger as the symbol of Tantric practice.

In any case the tradition of Tantra also includes a practice called *dig bandha* ("binding the directions"), a system of *mantras* that, when pronounced correctly, form a protective barrier that cannot be penetrated by negative energies.

A similar effect is given by the *kavacha* ("armour"), also composed by *mantras*, that creates a specific protection for the person rather than for the space as in the *dig bandha*.

Cleanliness and purity are considered very important factors. Each procedure begins with ritual ablutions (complete bath and change of clothes or at least washing hands, face, mouth and legs), then follows the *asana suddhi* ("purification of the sitting place"), the *achamana* (ritual purification with water and specific *mantras*) and only after these, one can begin the ritual proper, in the following order: *anga nyasa*, *kara nyasa* and *dig bandha*, *pranayama* ("breathing control") connected to the *mula mantras*, and then *dhyana* ("meditation"), *bhuta suddhi* ("purification of the gross

elements of the body"), *pratishta* ("installation" of the Deity in the body of the worshiper and in the image to be worshiped) and finally *puja* ("worship" proper) with the offering of various articles expressing affection and respect.

Other very important concepts in the tantric tradition are the *bija mantras* ("seed *mantras*"), *mula mantra* ("root *mantras*") and the process to install the Deity into the body of the devotee, constituted by the two practices called *anga nyasa* ("consecration of the body") and *kara nyasa* ("consecration of the hands"), also performed by applying *mantras*. These practices are utilized universally and daily by all the Hindu traditions for personal worship as well as temple worship, including the fire rituals.

There is a great variety of *mantras* (and connected *yantras*) in all these categories - *bija*, *mula* and *nyasa* - because there are many specific archetypal manifestations or personalities of the Deity. Within the 3 main categories of Vishnu, Shiva and Shakti we find a great number of Divine Personalities, each with their own *yantra*, *bija mantra*, *mula mantra*, and series of *nyasa mantras*. The most famous text collecting all these series of *mantras* and *yantras* is the *Sarada tilaka*, compiled by Sri Lakshmana Desikendra from a great number of ancient scriptures, many of which no longer exist.

The most important and famous text in tantric literature is the *Mahanirvana tantra*, describing in details the

process of *anga nyasa* and *kara nyasa*, and focuses on *sadhana* ("spiritual practice") of worship to the Supreme Brahman in his personal form of Isvara, or Hari-Hara.

The central *mantra* of the *Mahanirvana tantra* states *Om sat chit ekam brahma*, "Om is the eternal and conscious Brahman, that is the only reality". From this *mula mantra* derives the particular *gayatri* ("to be chanted") *mantra* reciting, *Om paramesvaraya vidmahe paratattvaya dhimahi tan no brahma prachodayat*, "Om! We meditate on the supreme Reality, that is known as the supreme Lord; may Brahman inspire and guide us." In this case, the *bija mantra* is the *pranava omkara - om*.

To make a comparison with the Gaudiya vaishnava tradition (that is relatively known in the west thanks to the work of Bhaktivedanta Swami Prabhupada) we can quote Krishna's *mula mantra* that is *Klim krishnaya govindaya gopijana-vallabhaya namah*, and the Krishna Kama *gayatri* accompanying it - *Klim kamadevaya vidmahe pushpabanaya vidmahi, tan no ananga prachodayat*, "Klim! We meditate on Kamadeva, that is known as he who has flower arrows: may Ananga ("he who has no body") inspire and guide us."

The particularity of the Gaudiya vaishnava is the fact that it grows from the roots of the mystic love in the erotic sentiment (*sringara rasa*) of the soul towards God, visualized as Krishna, the all-attractive cowherd boy of Vrindavana.

Back to the *Mahanirvana tantra*, here are some very interesting extracts:

"This *mantra* is the supreme among the *mantras*, that immediately grants *dharma*, *artha*, *kama* and *moksha*. Its practice has no negative side effects and does not require a particularly auspicious astrological moment to be started, or the performance of the 10 *samskaras* (preliminary purification ceremonies) or other circumstances. The only required condition is the purity of the heart - that transcends the rules of external cleanliness, fasting and rituals. It is sufficient to meditate on the Lord and to consume (personally and in the company of friends and family) the consecrated food offered to the Lord.

One who practices this *mantra* has already performed, in previous lifetimes, all the prescribed ritual ceremonies, has already studied all the scriptures and is honored in all the worlds. His parents and ancestors are benefited and do not need any more to receive the traditional offerings (*sraddha*, *pinda* and *tarpana*) or the results of pious activities such as pilgrimages, charity and performance of rituals. A person who practices this *mantra* in full knowledge is always protected against all aggressions or negative influences, and is not perturbed by the power of hostile planets or evil spirits.

Those who may try to harm this person can only damage themselves."

Other extracts from tantric literature:

"A demoniac mentality will consider the Guru as a mere mortal human being, the *mantra* as a mere word or ordinary sound, and the image of the Deity as a stone statue." (*Kularnava tantra*)

"The names of the various Goddesses are actually different attributes of the only one Goddess, and this also applies to the masculine aspects of the Divine." (*Matrikabheda tantra*)

"Shiva said: Tara is the blue form (Matsya), Bagala is the tortoise (Kurma), Dhumavati is the boar (Varaha), Chinnamasta is Nrisimha, Bhuvaneshvari is Vamana, Matangi is Rama, Tripura Lalita is Parasurama, Bhairavi is Balabhadra, Mahalakshmi is Buddha, Durga is Kalki, and Kali is Krishna." (*Todala tantra*)

"Krishna is Durga, and Durga is Krishna. One who sees them differently will not be liberated from the cycle of repeated births and deaths." (*Gautamiya tantra*)

"I am Durga, I possess all virtues. I am not different from Radha, the eternal Goddess of fortune." (*Sammohana tantra*)

Conclusion

In the course of the centuries the original Vedic scriptures have generated a great amount of commentaries in Sanskrit classified as *bhasyas* (original text, word to word translation, literary translation and commentary), *vritti* (analysis and critique of the text besides the *bhasya*), *tika* or *vyakhyana* (study on the style of the text), *anuvada* (summary study) and *tippani* (glossary).

There is also a variety of other texts that our readers might find interesting.

The *alankaras* are texts of rhetorics and aesthetics on the art of language, while the *subhasitas* are collections of educational stories, both in poetry and in prose: the most famous examples are the *Panchatantra* and *Hitopadesha*.

Among the *kavyas* (poetical works) in Sanskrit we may mention the *Raghuvamsa* and *Kumara sambhava* by Kalidasa, *Kiratarjuniya* by Bharavi, *Sisupalavadha* by Magha and *Naishada* by Sri Harsha. There are also *kavyas* in prose (for example *Kadambari* and *Harshacharita* by Bhattabana) and texts that are composed by poetry and prose, like the *Champu Ramayana* and *Champu Bharata*.

The *natakas* are theatre works, composed to express the various *rasas* or sentiments through stories. The

most famous are the *Sakuntala* by Kalidasa, *Uttara Rama charita* by Bhavabhuti, and *Mudrarakshasa* by Visakhadatta.

Brihad aranyaka Upanishad (2.4.10) summarizes this great scenario in the following verse: "Just like the fire kindled with damp firewood produces different types of smoke, similarly the supreme Self emanates, through its breathing, the *Rig Veda*, *Yajur Veda*, *Sama Veda*, *Atharva Veda*, *Itihasaa*, *Puranas*, *Vidyas*, *Upanishads*, *Slokas*, *Sutras*, *Anuvyakhyanas* and *Vyakhyanas*."

The ocean of Vedic literature is unlimited, and has innumerable waves, just like the innumerable divine manifestations (*avatars*) that appear in this world to re-establish the proper knowledge and the principles of religious ethics (*dharma*) according to time, place and circumstance.

According to the Vedic parameters it is also possible that the eternal knowledge continues to be manifested and expressed in all ages, not only in the past but also in the present and the future. However, it is imperative that the next texts must strictly be in accordance to the fundamental teachings of the *Vedas*, and that they express a genuine vision (*darshana*) that can easily be harmonized with all the other previous scriptures.

This is the reason why Vedic scriptures can only be compiled by *rishis* ("those who directly see reality") and not by ordinary people, who could only invent and fabricate imitations of little value.