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A QUEST OF SCIENCE FROM VEDIC RELIGION AND FAITH

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Abstract

Through the ages, many manners and customs have been evolved in the society all over the world for the need of the human being. In the olden days, people were not able to give explanations behind these customs and beliefs as of to-day. They simply used to prescribe 'do-s' and 'do-nots' based on past experience and belief. There are examples from all spheres of social life, e.g. (i) pujas, vratas, marriages, birth day celebrations etc. to be done on particular muhurta only; (ii) turmeric used during marriage ceremony (iii) prohibition on many aspects of life viz.—no in-take of non-vegetarian foods on ekadashi, purnima and amavasya days (preferable to remain on fasting) —no voyage to certain direction on particular days — no marriage between close relatives — no in-take of fish during Chaitra, Vaishakh and Kartika months—no in-take of food during eclipse etc. (iii) use of vermilion by the married ladies on the forehead as per Hindu custom, (iv) isolation of menstruating women from the rest of the family during their period, (v) burning of dead bodies by Hindus, (vi) shaving of head before shraddha ceremony (vii) thread ceremony by Brahmins and some other sects of Hindu society (viii) Omkara uttered during chanting of mantras, (ix) Homa (yagna) in puja and marriage, (x) cow worship by Hindus and clanging house primeses by cow dung (xi) Hindu Caste system (xii) Garbhadhana and other shodasha samskaras (xiii) Dashavataras (xiv) doctrine of rebirth, (xv) sattvic foods prescribed for yogis and spiritual seekers, (xvi) namaskara vis-à-vis hand shake, (xviii) toilet paper versus water (xviii) trident put on the top of the temple, (xix) keeping water in copper vessel considered to be hygienic (xx) purity of the Ganges water and tulasi leaves used in puja and other festivals of Hindus etc. These are not truly superstitions although certain customs like sati, witch crafts etc. were superstitions which came into existence out of self motives of certain group of people in post Vedic period (especially during Muslim regime in India) that must be eradicated. People need to be conscious about it. The faiths and customs were developed through observation over the ages. Important facts of life were depicted in the folklore for popularity. The present paper seeks to find out scientific reasons for many of these manners and customs with an open mind.

Key words : ancient Indian science, philosophy, vedic religion, purana, faith, Hindu samskaras, shastras

1. INTRODUCTION.

Knowledge of science is gained through experiment and observation. It does not come from outside. It is naturally associated with every phenomenon of the world. In this ephemeral world, nothing happens without any cause. Behind every effect, there is a cause. It is known as law of causality in Shastra i.e. *Karya -Karan* relationship. This truth dawned on

the Westerners millenniums latter. Newton explained it in his third law i.e. "Every action has an equal and opposite reaction". Geeta also opines the same thing. Reaction to action is often found in every event of our daily lives. Further, relationship between two events can be revealed through minute studies and observation that is what we call science. Present article attempts to find such science behind many manners and customs of sanatana Hindu religion through tools of reasoning, observations and inferences.

2. ILLUSTRATIONS OF SCIENCE IN SHASTRAS

2.1 Customs and Faiths in the family

* **Water in copper and silver vessel:** As early as the days of Sushruta Samhita 2000 BC, it was considered good to keep water in copper or silver vessels, expose it to sunlight and filter through charcoal. Its importance was acknowledged by science only 50 years ago. The Katadin method now in use purifies water by passing through copper and silver tubes. This method is in actual use in some of the hamlets and little villages on the Southern slope of Alps.

* **Holiness of the Ganges water:** Modern scientific experiments have proved that the Ganges water is really holy in the sense of purity. Whatever impurity i.e. pollution we find now is due to the stupidity of unconscious people who throw garbage and dreadful industrial wastes into the holy water during its flow from Gangotri in the Himalayas to the Bay of Bengal where it ends. Even now water in the upper Himalayas is comparatively much purer than that towards the confluence.

It has been observed by scientific experiment that the Ganges water is really holy as the germs and bacilli do not survive in it. That is why the Hindu pilgrims and spiritual seekers used to drink it while dipping and use it for pujas. Some opinions of the eminent personalities of yore are given below:

(i) The remarkable power of purification of the Ganges water was discovered by **Hoffkne** in the late nineties of the 19th century and endorsed by later day bacteriologists.

(ii) A British physician **Dr. C.N. Nelson**, FRCS reported that ships leaving Calcutta for England take their water from Hooghly river which is one of the mouths of the filthy Ganges, and this Ganges water will remain fresh all the way to England; on the other hand, ships leaving England for India find that the water they take on in England will not stay fresh till they reach Bombay, the nearest Indian port, which is a week closer to England than Calcutta. They must replenish their water supply at Port Said, Suez or at Aden on the Red Sea.

(iii) **Dr.F.C. McGill**, University of Canada wrote: "A peculiar fact which has never been satisfactorily explained is the death (in 3 to 5 hours) of the cholera vibrio in the Ganges water. In olden days, at Haridwar the only treatment of cholera patients was the Ganges water and in most cases they were cured.



(iv) A well known French Physician **Dr. D'Herelle** made investigations and was surprised to find that only a feet below the bodies of persons dead of dysentery and cholera, where one could expect to find millions of this dysentery and cholera germs, there were no germs at all. He then grew germs from patients having the disease, and to these cultures added water from the Ganges. When he incubated the mixture for a period, much to his surprise, the germs were completely destroyed."

(v) In the olden days, the Ganges water was prescribed for skin disease in the West.

*** Sounding of Conch and ringing of Bells:** There is a custom of sounding conch and ringing of bells in every evening in Hindu houses. Christians also in the bell in the Church. Scientific view: Sir J.C. Bose found that the conch sound purifies the air by destroying the germ as far as it goes. In 1928, Berlin University also proved this by experiment. Details are available in the book "Mandir Vijan" by Motila Varman. Prof. P.W. Reley of New York University proved that the vibration created by this type of ringing helps in curing all types of neuro-diseases. There is one interesting story on this theme. One athiest of Burmingham filed a case in a court that his health is deteriorating due to the sound of church Bell. The court took the opinion of three scientists who said that this was not due to bell ringing rather it helped in improving the health. However too much sound beyond threshold limit creates sound pollution which causes deafness, insomnia, blood pressure etc. Similarly **chanting of Omkara** in particular rhythm creates a vibration within the body and purifies the blood.

*** Vermilion on the forehead of women:** As per traditional Hindu customs, women are given marriage only once. So vermilion on the forehead was used as a symbol of married women to distinguish them from unmarried ones. This practice is strictly followed by Bengalee women and some others in the country.

In the olden days, women had no freedom. In the male dominated family, ladies and especially the unmarried girls were victimised by sexual abuse. Many Hindu beauties were forcibly put to harem in Mughal period. By using vermilion on forehead married ladies could indicate that they were already married. Among Muslims, the parda system seems to have come for the same reason.

There is one astrological reason for using vermilion on forehead by married women.

As per astrology, colour of Mars is red. The planet Mars influences very much the happiness and prospect of the married couple including the welfare of the forth coming / new born babe. So, for welfare of couple, Mars should be pleased by his favourite colour red. Besides this, mother Earth is compared with women whose forehead is adorned by red coloured Mars.

*** Bangles made of conch worn by married ladies :** This is used by married ladies for health, longevity, wealth, happiness of the conjugal life as per Bengalee custom and some

others. Conch contains calcium which is essential for a body.

*** Isolation of menstruating women during period:** The ancient Indians prescribed a code of conduct to be observed by the menstruating women as well as by her family for the period of menstruation. Even to-day, tradition and custom insist on complete rest, non-participation in all domestic work and prohibits contact with others.

Many medical researchers of early 20th century e.g. Bartelling (1937) found that the secretion of certain active substances by various cutaneous glands is increased during menstruation which is harmful in many ways.

(i) Schick (1920) found that various cut flowers withered 10 to 20 minutes after being handled by certain women during the first two days of Catamenia. He was also the first to postulate the excretion of menotoxin. Auxiliary sweat as well as systematic blood obtained during menstruation is more toxic to blossoms at this period than at other times. After extended research it was understood that the injurious substance menotoxin circulates in the blood but not in serum; in all probability it is the blood corpuscles which carry this toxin or adherent to them. It must be volatile and must escape from the skin or lungs. Schick thinks that we are on the threshold of a great discovery, this potent volatile poison being a menace not only to the preservation of certain organic substances, but even to growing flowers. It also seems toxic to insects and unicellular organisms. The menotoxin is regarded by Schick as something which female organism must get rid of and that menstruation is a depurative phenomenon

(ii) Poland and Dieel (1924) found that the growth of yeast was retarded after being kneaded by menstruating women.

(iii) The effect of auxiliary sweat from menstruating women on animal tissues was first recorded by Sicberg and Patschke (1923). Lanezos (1930) found that the preparation of frog's gastrocremius loses excitability when the nerve of the muscle is held in the hand of a menstruating woman from 10 to 15 minutes.

(iv) American Journal of Clinical Medicine, May, 1921, quotes from a medical record of February, 1919, p 317: Prof. Schick did an experiment on the fading characteristics of flowers held by two types of women—menstruating and non-menstruating. He asked them to cut off an anemone, a white chrysanthemum and a yellow helianthus. They simply held the flowers in their hands and went to the clinic After 10 minutes it was observed that the flowers in the hands of menstruating woman begun to wither and its heads were hanging while the flowers handled by the non-menstruating woman were as fresh as ever at the end of 24 hours. The menstruation in this experiment was in its first day only. On the following day, the test was repeated and the flowers held in the hands of menstruating woman showed some alteration in 3 minutes after she had taken them. The anemones were specially sensitive and chrysanthemum showed the greatest resistance.

Earlier, in vine yards, menstruating women were forbidden to enter and this prescription, even extended to orchards; for



this women were not allowed to climb upon fruit trees when in bloom and even later, lest the fruit crop should spoil. There was a belief that the menstruating woman in an orchard could cause the insects to drop from the trees, and even in classical times there were tales of the use of partially exposed women for expelling the cantharis beetle from the trees. Now this experiment brought out astounding facts and belief. Prior to this experiment Prof. Schick also looked upon this phenomenon as a superstition. (ref. (Truth Vol. XVII p 630).

*** Prohibition on Eating during Eclipse:** Many people think that it is a superstition. But recently scientists have observed that during eclipse harmful ultraviolet rays are emanated from the sun. This is likely to give poisonous effect on the food we take during that time. Our digestive system also is affected by the influence of the sun or the moon then.

*** Fasting on purnima (full moon), amavasya (new moon) and ekadashi days :** Hindus believe that there is strong influence of moon on human body and mind. So some aged people feel giddiness and rheumatism in this period if they take food. Not only living beings, but also everything on earth is attracted by moon due to its nearness to the earth during those days. Tide on earth during full moon is an example of this influence. Changes in natural phenomena also influence the animal kingdom. So they behave abnormally in those periods.

It is also advisable not to eat meat in amavasya and purnima days, because it has been found that at that time certain germs of disease are created in meat which harms our health. Further it is advised not to take fish during Chaitra, Vaishakh and kartika months, because fishes suffer from one kind of pox at that time.

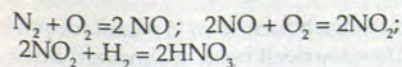
*** Prohibition on eating of onion and garlic by widows:** -In the olden days child marriage was prevalent. Again tender aged girls were married to old people. So many of their husbands used to die in their youthhood. Onion and garlic may excite sensuality. So these were prohibited to them.

*** Masoor dal** is recommended by Ayurveda for fever and weakness at all times,

" Yatha suranamamritam sukhaya, tatha naranam bhuvitakramahuh",

on the other hand khesari dal (one kind of pulse available in north India) is prohibited because it was found to be the source of creation of abnormal limbs. In 1829-30, there was no paddy in UP due to draught and storm, human being survived eating khesari dal only. The British pointed out that many new born babies at that time were abnormal due to intake of this pulse. But this was known to Indian Rishis long ago.

*** Drenching in first rain water prescribed to protect from skin disease:** All rain waters are not good. When lightning occurs, it is more useful, because lightning ionises nitrogen (N_2), oxygen (O_2) in air and hydrogen (H_2) in water and produces nitric acid which kills the germs on the skin and also cleanses cloth



*** Grand mothers used to lay down the children in the sun :** Grand mothers did not know the science but they knew that it was for the good of health of the children and to make the bones strong. Scientific reason is that the Sun's rays give Vitamin D which protects children from ricket and makes bone strong.

*** When any relative dies, head is shaven and khadi is worn:** Is it a superstition? Health care including hair care is difficult at this time. When head is shaven, some amount of ego is annihilated. Ego annihilation is necessary for complete surrender to God to bring peace in one self and also to the departed soul. Moreover this can avoid any germ that may be transferred to the person from the dead body if the cause of death is some serious contiguous disease. Khadi looks less dirty

*** Cow dung is used to clean the house premises in village:** Since in olden days, any germicide like phenol was not available, so cow dung was used. Recent investigations by scientists have shown that cow-dung has enough power to kill the harmful germs.

*** Sacredness of tulasi plant :** Every orthodox Hindu grows tulasi plant in the house premises and worships. This is because tulasi has tremendous power for germ killing. In ayurveda it is used for cough, cold, dysentery, fever, gas problem, poisoning, wet dream, vomiting etc. Because of its so much versatile applications, it is used in pujas and other ceremonies.

• **White sandal wood:** There is a custom of smearing sandal wood paste on the body which is considered in Ayurveda as

'Sharira kaanti karitvam, shrama shirsa roga naashitvam'

Now a days doctors have found that sandal is a very good medicine for skin disease, it keeps the skin soft and kills many types of germs. Dr. Ghosh's Materia Medica has prescribed it for applying to scallories for good effects. Jyotisha Shastra also advocates for containing root of white sandal on the body for good effect. Ayurveda prescribes for swallowing sandal paste in certain disease like gonorrhoea and diabetes.

*** Sadhus should not be returned without alms when they come for alms:** This is believed more by villagers than the urban people. The sadhus who are found in the society, leave samsara not only for self salvation but also for the welfare of the society. He has neither any asset nor any means to earn. For his livelihood he needs some minimum amount of food. So he should not be sent without any alms. Vedic injunction was "Atithi devo bhava"

*** Sattvic food preferred to other foods:** Three types of food have been mentioned in Geeta Shastra-Sattvik, Rajasik and Tamasik.

"Ayuh satvavalaarogyasukhapreeti-vivardhanaah, rasyaah snigdhaah sthiraah hridhya ahaaraah satvikapriyaah" (Geeta 17/8)



That food which does not need extra secretion of pancreatic and other digestive glands is satwik food. Example: vegetables, fruits, peanuts, cashew nuts, milk, curd etc. Nature of this food is juicy, moist, cooling, pleasant, not heating and free from impure animal matter e.g. It increases longevity and helps to beget virtue, strength, health and cheerfulness. He who virtuously takes this food is gifted with satwik quality.

"Katvamlalapanaaatyushna teekhnah rukshabidaakshinah, ahaara rajasasyesta dukkhashokaamaya pradaah" (Geeta 17/9)

That food which needs extra secretion of pancreatic and other digestive glands is Rajasik food. Example, e.g. fish, meat, egg etc. This type of food gives sufficient proteins and gives strength but brings on anger, enmity, jealousy. Nature of this food is very hot, pungent, drying, burning, bitter or sour. *"Yatayaamam gatarasam pooti paryusitam cha yat, uchhistamapi cha amedhyam bhojanam taamasah priyam"* (Geeta 17/10).

That food which is stale, dried up, putrid, impure is known as Tamasik food. Example, rotten foods, meat, egg, wine etc. This type of food is not easily digestible and needs extra secretion for digestion and also it weakens the body in course of time and brings about unholiness, brutality, hallucination, idleness, loss of intellect. It stimulates sensuality and bring in tremendous harm to the human system. As per Yoga Shastra intellectuals should take sattvik food.

2.2 Social customs

*** Hand shaking versus Namaskara:** The Reuter reports from Scarborough (Yorkshire) on 19.4.1954, (H.S.1.5. 1954) that the habit of hand shaking spreads polio epidemic. Delegates attending a National Health Conference here were urged to campaign against the silly Western habit of shaking hands with friends on every possible occasion. Dr. G. Chesney, former medical officer of health for Poole, South Coast resort, said, "We should copy the people of the East who more wisely bow in acknowledgement or pat the brow. One third of the people in this country are going about with infection in their hands. If polio is about, they can have the infection of polio virus on their hands". So the Western habit of hand shaking with friends is silly whereas Hindu salutations increase the longevity, learning, fame and strength.

*** Prohibition of marriage between close relatives:** Among Orthodox Hindu families especially in North India, marriage among relations within seven generations are banned. Scientifically speaking, due to genetic reason children of such couples having close relations are likely to become abnormal (physically or mentally). Even there is a risk of homophilia disease. Husband and wife having same blood group is not congenial for having good children.

*** Turmeric used in marriage:** It is a germicide. It is beneficial to take raw turmeric in empty stomach which helps to remove worm. This is extensively used in cooking food items that helps in preventing many gastric problems. This is also smeared on the bodies of bride and bride groom before marriage (practised in many parts of the country), not only for imparting golden colour on the skin but also to remove odd odours and etchings on the body and acne on face.

*** Toilet paper versus water:** The use of toilet paper instead of washing with water and earth has been held responsible for poliomyelitis. The paper used for wiping becomes moist and the faeces-soaked water infects the finger and the hand.

*** Cow worship by Hindus:** Since ancient times, milk was the diet for children and sick people. In those days there was no dearth of pasturing land. Even cow dung was used for cleaning house premises, marriage and other ceremonies. This is also used as fertiliser and fuel for cooking in the village areas. Cow gives service to the mankind even after death. Their skin, bones, horn are used for shoes and fertilisers respectively. Cows were compared with mother who rears her children with various types of caresses. So cows were worshipped as Goddesses.

*** Caste System of Hindus:** Bhagavad Geeta has defined the caste system very scientifically, where Lord Krishna said, *"Chaturvarnang mayaa srista guna karma vibhaagashah"* Originally caste system was evolved based on quality and profession of the family e.g. Brahmanas are worshippers/ pujaris of Gods and Goddesses; Kshatriyas are warriors i.e. community in charge of defence, Vaishyas are business community, Shudras are cultivators. Similarly, Vaidyas are physicians, Goldsmiths are makers of gold ornaments, Blacksmiths are makers of iron articles, Dhobis are washermen, malis are care takers of garden, goals are milkmen, fishermen are those who catch fish and live on fish trade etc.

* Trishul in Temple:

Trident is used by Lord Shiva, three arms of which signify sristi, shtiti and laya. It is very sacred to all Hindus. Seeing a Trishul on the top of a temple from long distance, one can understand that there is a Hindu temple at that spot. This may also act as a lightning repeller/ arrester.

*** Houses should be south facing:** To get southern breeze and more sun light, this is prescribed by Indian Vastu Shastra. Indians were aware of the Chinese Feng Sui.

*** Shayana Shameeksha:** As per custom, there is a prohibition on sleeping with head towards north and west. A medical investigation by Dr. Sharada Subramanyam of Chennai and Dr. P.V. Shankarnarayanan, Dy Director of national Physical Institute, Hyderabad revealed that sleeping with head towards north and west causes headache, despair, restlessness of the mind, while sleeping with head towards east gives tranquility of mind. This is due to the north-south alignment of the magnetic effect of the earth on the body. (Ref. Ananda Bazar Patrika, dated 30.8.1983).

2.1 Hindu Samskaras:

Hindus have 16 Samskaras. Each Samskara is meant for particular purpose. Only a few are dealt here. Elaborate discussions are given in Vivekananda Kendra Patrika.



* **Garbhadhana:** The first among the Samskaras, Garbhadhana, is very important and always neglected in practice. The personal traits of a man depend on the time of the conception and germination of the seed. During Garbhadhana, mantra is chanted. Again the quality of the child will also vary depending upon the date and time of copulation. For example, union on 5th day after menstruation results to the birth of an ordinary daughter, on 7th day—birth of a daughter who would not have a son, 8th day—birth of a commanding son, 9th day—birth of a good daughter, 10th day—birth of a good son, 11th day—birth of an unrighteous daughter, 12th day—birth of an excellent son, 13th day—birth of a wanton daughter, 14th day—birth of a righteous son possessing knowledge of the soul, 15th day—birth of a girl who would get married in a good family, 16th day—birth of a son endowed with good qualities. Sexual union within 1st four days, on new moon, full moon, eclipse time are prohibited as the new born will be short lived or faulty (lame or blind etc.).

For procreating a good progeny, both husband and wife should be cheerful and pious during their sexual union. When their minds are perturbed or agitated, they should avoid copulation. If they keep in mind an image of Arjuna, they have a chivalrous and wise son, If they have an image of Lord Buddha, the progeny will be a son with mercy and other good virtues. If they have the image of Dhanvantari before them, they will beget a son who will turn to be a reputed Ayurvedic doctor. If they think of Surya, or the sun God, they will bring forth a lustrous son with splendour and effulgence. For a devout Hindu, the sexual union is not for the sake of mere sense enjoyment. Further, when doctors of modern time are not able to control the sex of the foetus as desired, Vedic seers prescribed the above rules of mating for desired results.

* **Cremation versus burial:** Cremation, the Hindu method of disposing the dead is more hygienic and reverent than burial. There are chances of pollution during flood or other natural calamities in burial. Moreover at one time there will be space problem for keeping the dead bodies under ground. Another explanation is that transfer of soul from one body to another becomes easier in subtle form of astral bodies.

2.2 Hindu Faiths

* **Rebirth :** Hindus believe that man is reborn after death. Geeta (Sloka II/) says,

"Vasangsi jeernani yatha vihaya, nabani grihmati naroharparani, tatha shareerani vihaya jeernai anyani sangati nabani dehi"

Man takes a new body after death just like a new clothe is worn throwing out the torn clothe.

In Rigvedic Mantra 4/26/1, Maharshi Bamdeva clearly said that he took birth as Manu, Sun, Kaleshivan Rishi and Ushana sometimes in previous birth.

In Samaveda's Chandogya Upanisad (5/10/7) it is said that man is reborn as Brahmin, Kshatriya, Vaishya or Shudra or even inferior animals and plants according to his or her Karma in previous birth.. In Yajurveda, rebirth is recognised. There

are supports on this based on the report of *jateesmara*. Several references are already available. Detailed discussion is beyond the scope of this article.

* **Praarabdha:** It is the stored energy accumulated throughout past life but not spent then but to be consumed in the present life.

"Karmanaa jaayate jantuh karmanaiva bileeyate, sukham dukkham bhayam kshemam karma naivaavipadyate". Living beings take birth by virtue of karma and they are bound to die because of the karma itself. They get happiness or misery depending upon the nature of karma itself. Birth and death is a continuum till we reach the goal.

* **Shristi, Sthiti and Laya :** The Hindu Puranas give lot of information about the genesis of the world. Puranas are the narrative stories of the cosmology and creation, geneology and dynasties of Gods and rulers and sages. These are in fact the expansion of the teachings of Vedas. There are five characteristics of purana:

"Sargashcha pratisargashcha vamsho manvantaraani cha, vamsaanucharitam chaiva puraanam pancha lakshanam"

'Sarga' deals with the creation of the universe, 'Pratisarga'—destruction and fresh creation, 'Vamsha'—geneologies of Gods, Sages and Kings, 'Manvantara' - ages of different Manus who are the rulers in different ages, 'Vamshanucharitam'—history of the dynasties that originated from the sun and the moon.

According to Purana, God creates a Brahma . who lives for hundred Brahma's years i.e. *Mahaakalpa*, at the end of *Mahaakalpa*, there takes place *Mahaapralaya* or total annihilation including the Brahma. This is followed by another Brahma created by God for hundred Brahma's years, again *Mahaapralaya*; again Brahma, so the cycle goes on exactly same every time and equal in all respects. Such a Brahma creates this

present creation everyday of his life in the morning and destroys it in his night. This reminds one about the story of Noya in Bible. During great flood, when all living beings on the earth were about to be destroyed, he collected one pair from each species on his boat from which more species were born again on Earth.

"There is popular belief shared by people of all faiths that someday world will come to an end". The end is also sometimes thought of as an end of all lives on Earth brought about by some devastating fire and flood engulfing the whole world. To-day these popular beliefs may be examined in the light of knowledge gained by astrophysical and geophysical researches. When so examined it is seen that these beliefs are not unfounded. The possibilities of such catastrophes occurring some day do exist, though, fortunately it will happen in a very remote future. A catastrophe involving total extinction of life on Earth or of the destruction of the Earth itself may have its origin in the sun due to an increase of its luminosity. Besides, internal heat of Earth also may cause a catastrophe.



In radio active materials heat is generated by annihilation of minute quantities of matter from the atoms. The storage of radio active energy is, therefore, enormous almost inexhaustible. Now the radio active heat generated in the interior of the Earth cannot escape with equal facilities everywhere across the surface of the Earth.

The heat that is generated under the sea readily escapes into the cold water. That generated under the continents cannot do so. This is because rocks of the continental masses are themselves radioactive and are very hot. As a consequence, the heat accumulates under the continents and the accumulation proceeding through Geological epochs ultimately melts the underlying magma. As the magma melts and becomes less dense, the continents which are, as it were, floating on the magma, sink in it to maintain gravitational equilibrium. As the ocean levels are unaffected the ocean beds remaining solid the seas transgress into the continents and flood all the low lying lands leaving only the high lands dry. Besides the flood by water, there is also flood by hot molten lava. As the magma in the interior is heated, it increases in volume and presses against the overlying crust with tremendous force. The crust, where it is weak, bursts and through the fissures so produced great quantities of lava are poured out spreading devastation over vast regions of Earth. A period of comparative rest then follows for a few tens of millions of years allowing time to the radioactive heat to again accumulate.

The apprehension therefore that the earth will be dead one day due to the exhaustion or over accumulation of its internal heat is only partially true. This heat of radio active origin endows the Earth as it were with perpetual youth. She is being endlessly rejuvenated by revolutions which are apparently catastrophic.

These cycles of rejuvenation, quiescence and destruction of the world and life strongly remind one of traditional beliefs in India of the three phases of the cosmic process, Srishti (creation), Sthiti (consolidation) and Pralaya (destruction). The Hindus know that Maya is the root of creation. And that there can be no knowledge without faith. Human knowledge can never reach truth and that only Apta Purusha can know everything correctly.

Trishula tattva: There are many opinions about this.

- (1) Puranic story says, Lord Shiva made this to kill Tripurasura to bring peace in the world.
- (2) Trishula indicates three principles of gunas (qualities/properties) e.g. sattva, raja and tama. When we talk about guna, the state of gunaateeta also comes. Lord Shiva is both gunamaya and gunaateeta. Trishula is said to be the key to unveil these tattvas.

There are three prongs of a Trishula like a tuning fork, but the stem is only one.

The stem = Ekamebadviteeyam nirguna Brahma
Middle prong = Tamoguna belonging to the Lord Rudra who is the Lord of destruction called "Laya"

One of the side prongs = Sattva guna belonging to Lord Vishnu, the care taker of this world i.e. "Sthiti" and the other side prong signifies Rajah guna belonging to the creator of the progeny Lord Brahma i.e. "Srishti" as told in an earlier section.

Thus Brahma-Vishnu-Rudra — all these three tattvas have merged into one single Shiva Tattva in Trishula

* Significance of the weapon in the hands of Hindu Gods and Goddesses

Hindu Gods and Goddesses hold weapons in their hand to destroy evil forces and establish peace in the world, "Paritranaaya saadhunaam, vinaashaaya cha dushkritaam".

* **Samudra Manthanam:** When Kshiroda Samudra was churned with Mandara Parvata as described in the Samudra Manthana of the Hindu Shastras, the first thing that came out was *Kaalkuta*, the deadliest poison imaginable and at the last *amrita* came out. In 1932 modern chemistry discovered heavy water with characteristic properties of its own. Shashtra says "Nectar sometimes acts like a poison and a poison like a nectar, their action depending upon the will of the God".

"Visaayate amritam kutra visam chaapyamritaayate, visatvam amritatvam cha jaayate heeshwarechhayaa".

Eminent scientist like Rowntree, Helwig, Schutz, Kurry and Jolly had to admit that 9000 cc of water administered through rectum in 30 hours i.e. 8 oz per hour which is equivalent to 4 oz administered orally, killed people of water intoxication.

Dasha Avatars: *Matsya (fish), Kurma (tortoise), Varaha (pig), Nrisimha (a man with lion's head), Vamana (dwarf), Parasurama (with axe as weapon), Srirama, (with Bow and arrow as weapon), Balarama (with plough), Buddha (seated on lotus in abhaya mudra) and Kalki (on horse back). The Dashavatara stotra* tells about the story behind the appearance of these Avatars.*

***Matsya charita:** Pralaya payodhi jale dhritavaanasi vedam, bihita bahitra charitram akhedam, Keshava dhrita meena shareera, jaya Jagadeesha Hare!

***Kurma charita:** Kshitirihavipulatare tava tishthati pristhe, dharani dhaarana kina chakra garisthe, Keshava dhrita kurma shareera jaya Jagadeesha Hare!

***Varaha charita:** Vasati dashana shikhare dharani taba lagna, shashini kalanka kaleva nimagnaa, Keshava dhrita, shukara rupa, jaya Jagadeesha Hare!

***Nrisimha charita:** Tava kara kamalabare nakhamadbhuta sringam, dalita Hiranya Kashipu-tanu bhringam, Keshava dhrita Narahari rupa, jaya Jagadeesha Hare!

***Vamana charita:** Chhalayasi vikramena Valimadbhuta Vaamana, paada nakha neera janita jana paavana, Keshava dhrita Vamana rupa, jaya Jagadeesha Hare!



* *Parasurama charita*: Kshatriya- rudhiramaye jagadapagata paapam, snapayasi payasi shamita bhava taapam, Keshava dhrita bhrigupati rupa jaya Jagadeesha Hare!

* *Rama charita*: Vitarasi dikshu rane dikpati -kamaneeeyam, dashamukha mouli balim ramaneeeyam, Keshava dhrita Raghupati rupa, jaya Jagadeesha Hare!

* *Balarama charita*: Bahasi bapusi basana jaladaabham, halahati bheeti-milita jamunaabham, Keshava dhrita Haladhara rupa, jaya Jagadeesha Hare!

* *Buddha charita*: Nindasi jagna bidheyarahaha shruti jaatam, sadaya hridaya darshita pashughaatam, Keshava dhrita Buddha shareera jaya Jagadeesha Hare!

* *Kalki charita*: Mlechhanibaha nidhane kalayasi karabaalam, dhumaketumiva kimapi karaalam, Keshava dhrita Kalki shareera, jaya Jagadeesha Hare!

This signifies the evolution of human civilization. This is depicted in puranic story. Avatars are born when there is tyranny by some one or by some group over others, or when some species face danger. God incarnates Himself to rescue the sufferers ages after ages. So says the Lord Krishna in Geeta,

"Yadaa yadaa hi dharmasya glaanirbhavati bhaarata, abhyuthaanam adharmasya, tadaa aatmaanam srijaamayha; paritraanaaya saadhunaam vinaashaaya cha dushkritaam dharma sangsthaapanaarthaaya sambhavaami yuge yuge".

At the beginning there was water and water everywhere in the world. The God appeared in the form of a fish. Thereafter land was formed on the surface of the earth, when God appeared in the form of a tortoise. The story goes like this. During Samudra Manthanam, Mandar hill was used as a stirrer and Vasuki Nag (snake) as the rope for churning. The hill was sinking into the sea. Then Kurma Avatara appeared with a huge body and supported the hill. (There are puranic stories behind all the other Avatars as well, found in puranic texts). This is followed by Varaha Avatara which means pig came on the earth after the tortoise. Before man, apelike species with animal faces but human feet were born, example simpanjees, orang otang etc. Nrisimha Avatara appeared to kill the demon king Hiranya Kashipu, the father of Prahlada. Vamana Avatara appeared to kill the proud Valiraja. In those period, people started learning the art of making good houses with trees. So axe was needed to cut and size them. Parasuram's weapon was axe. Cultivation still did not come in a big way. Thereafter men learnt cultivation, so the Lord Balarama appeared with a plough at that time. When birds and animals were being killed ruthlessly, Lord Buddha came with compassionate heart and rescued them by his powerful verdict of Ahimsa. Animal power was being utilised for transportation. Kalki Avatara appeared on horse back.

* *Birds and animals are used as the vehicles of Gods and Goddesses: In order to see that the animals are not indiscriminately put to death by human beings, the Hindus provided them as modes of conveyance for some Gods and Goddesses. For example, bull for Shiva, peacock for Kartika, owl for Lakshmi, swan for Saraswati and so on. Detailed discussions are available in the book "Debdevi O Tader Vahan" by Swami*

Nirmalananda of Bharat Sevashram Sangha, Kolkata. Birds and animals are selected according to the nature of Gods and Goddesses.

* **The science of religion**: Ancient Indians used the word "dharma" for religion in a wider sense. This is originated from the sanskrit root "dhri"—literal meaning is to sustain or to rear "dhriyate iti dharmah". They gave verdict to pass this life in a systematic manner with an aim of attaining immortal bliss through all kinds of activities. So they surrendered to God and tuned the body and mind with the nature, the universe which gave them tension free longer life. They showed the path of ascending to higher life step by step through Brahmachariya, Garhastya, Vanprastha and Sannyas. They realised that "Shareeramaadyam khalu dharma saadhanam". They invented the method of keeping the body hale and hearty. Those methodologies were established on scientific basis. So they had the verdict of getting up from bed at dawn when air remains pure and full of life giving oxygen, they prescribed yogic exercises and sattvic food for prevention of disease and increase of vital energy of body and advised doing prayer for mental health. They realised that observing fasting after some days interval e.g. on amavasya, purnima and ekadashi, rejuvenates the body. Unlike to-day, they gave verdict to lead a natural way of life. They were aware that the five elemental physical world is born out of nature. If connection is maintained with nature, it remains alive, otherwise it gets destroyed. Plants and animal kingdom remain alive as long as they can keep contact with nature. They do so through their body only. But man is led by the mind, intellect and knowledge. When man fails to think, and fails to do naturally, they suffer and bring about chaos within and out side. Once George Bernard Shaw asked one Indian intellectual, "All the ancient civilizations of the world have extinct, why the Indian civilisation is still alive even though it is very old, what is the mystery behind it?"—The mystery is the scientific rules for leading personal life, social structure and customs. Simple living and high thinking is the eternal ideals of India.

2.3 Science in folklore:

• Knowledge of Chemistry from dialogue between Hara and Gouri

The Rasarnava, a tantra of the Saiva cult, is chronologically the earliest of the works on metallurgy. It is profusely quoted and read by Vagbhatta in his Rasendra Sara Sangraha. In fact the tantras are the repositories of chemical knowledge, dealing with the compositions of parada (quick silver), mica, in beautiful dialogues between Hara and Gouri. Science in folklore will be dealt in details by the author in an article.

* Astronomy and Arithmetic from the dialogue between Narada and Sanatkumar

Mathematics is considered as Aparavidya in the Vedic lore and is introduced in the scriptures as an aid and adjunct to Paravidya, the spiritual knowledge of Brahman.

In Chhandogya Upanisad VII.I there is a dialogue between Narada and the sage Santkumar. As Narada approaches the



sage for supreme knowledge, Sanatkumar asks what sciences and arts he already knows. Thereupon, Narada tells him that he has learned Astronomy and arithmetic (Rasi Vidya).

He replied, "Oh Lord, I have read the Rigveda, the Yajurveda, the Samaveda and the Atharvaveda, the Itihasa, the Purana, Grammar, Rituals, the science of numbers (Arithmetic and Algebra), physics, Chronology, Logic, technology, the sciences cognate to the vedas, the science of Antidotes and the fine arts". "All these have I read, O Lord". Details are given in the book 'Twelve Principal Upanisads Vol. 3, by Mitra and Cowell, Theosophical Publications House, Adyar'.

* Science from the fairy tales and love stories on moon

In the olden days, in poems and love stories, moon got a prominent place. Here the term 'Chandra Kala' was often used. This was also used in the context of 'Tithi'. Those romantic stories no longer existed after the landing of the space craft and man on the moon. In Vedic language "Kala" means 1/16th fraction.

Fairy tales about the moon were being told to the children by the then grand mothers. They used to say that there is a hare on the moon. The scientific reason behind this is that the mountains and their shadow on the moon look like a hare.

2.6 Positive Science from Vedas and Puranas:

* Arithmetical principles from Vedic Mantra

The vedic hymns make several references to arithmetical principles.

(i) Consecutive Number system from 0 to 10:

"Ya etang devamekavritam veda, na dvitiyo na triteeyashchaturtho naapyuchyate, na panchamo na sastah saptamo naapyuchyate, naastamo na navamo dashamo naapyuchyate" (Atharva Veda XIII,4)

(ii) Additions of numbers with multiple of 10, 1+10=11, 2+20=22 etc.

Atharvaveda V, 15

(iii) Additions of 2, Yajurveda XVIII,24

(iv) Additions of four, Yajurveda 25

(v) Mention of the digit 99, Rigveda I,84, 13

(vi) Multiplication by 11, Atharva veda, XIX,47

(vii) Vedic Numeral System, Yajurveda XII, 2

(viii) Reference to fractions, Rigveda X,90

Nomenclature and counting of Vedic numerals up to billion is depicted in the following hymn (Yajurveda XVII, 2) at the time when Arabia and other Nations knew counting only up to thousand.

"Ima me agna istaka dhenavah. Santvekaa cha dasa cha, dasa cha shatang cha, shatang cha sahasrang cha. Sahasrang chaayutang cha, chaayutang cha niyutang cha, niyutang cha prayutang cha,

arbudang cha nyarbudang cha, samudrashcha madhyang chaantshcha paraardhashchaitaa me agna istakaa dhenavah santvamutraamusmin loke" (Yajurveda XVII, 2).

Oh Agni! May these bricks be mine : one and ten; ten tens a hundred; and ten hundreds a thousand; and ten thousands a myriad; and then million, and an ocean, middle and an end and a hundred thousand millions, and a billion.

The sense of fraction is available from Veda and Purana stories. Lord Vishnu wanted three quarters of the world from one king Mahavali to place His three legs in Vamana Avatara. Again in Rigvedic Samhita the word 'Pada' is found to mean one quarter.

* Age of the Earth from Vedic Sankalpa Mantra:

Age of the Earth is depicted in Sankalpa Mantra of Hindu priests:

"Om tatsat advaitasya brahmano dvitiya paraardhe srishvetavaraahakalpe saptame baivasvate manvantare astaavimshatitame kaliyuge kaliprathamacharane jambudvipe bharatakhande ityaadi"

To-day is the second half of Brahma's life in Shvetabaraha Kalpa of Vaivasvata Manvantara i.e. of the 7th Manu in the 28th Kaliyuga of this Manvantara, and in the first quarter of kali, in Jambudwipa, in the holy land of Bharata, I resolve to do etc.

As discussed in a foregoing paragraph, one day of Brahma is equal to one kalpa which is equal to 14 manvantara = 1000 cycles (Chaturyuga). Satya, Treta, Dwapara, Kali together constitute one cycle. This constitutes the wheel of the time with which time roles on. The extent of yugas as given in Shastra is as follows:

Kali = 1 X 432000 human years,

Dwapara = 2 x 432000 "

Treta = 3 x 432000 "

Satya = 4 x 432000 "

Adding, one cycle = 10 x 432000 years = one day of Brahma So, 1 Kalpa = 1000 cycles = 1000 x 10 x 432000 = 432 crore years.

That means 14 manwantaras = 432 crore years

Hence 1 manwantara = 432/14 = 30.858 crore years.

Now is the 7th Vaivasvata manwantara. So 6 manwanataras i.e. 6 x 30.858 = 186 crore years have elapsed since the beginning of the creation of the Earth

To-day is the 'Astavimshatitama Kaliyuga'. So 27 Kaliyugas have passed in 27 cycles, which means 10 x 432000 x 27 = 11.664 crore years have passed. Again in 18th Kaliyuga, few thousand years have passed. Hence the sum total i.e. about 198 crore years have passed since the beginning of the present creation of the earth, which is the present age of the Earth.



3. DISCUSSION AND CONCLUSIONS

Present article has attempted to give scientific explanations of some beliefs and customs of the Hindu societies as were practised in Vedic period (6000 to 600 B.C. according to Tilaka) and post-Vedic period. Innumerable such examples are strewn among the Hindu codes and customs which need scientific investigation; e.g.

*Urination should not be done facing the sun as it causes headache; while doing this in standing position reduces strength and vigour (semen); facing the moon causes urinary disease; urinating standing in water causes diabetes.

*Impregnation on the even days from 6th to 16th day after menstruation are recommended for male child, and odd days between this period gives rise to female child.

*In the olden days for reversing the artery blockage in the heart, a juice of the mixture of louki (one kind of gourd), tulasi pudina and bale leaves, ginger and ayurvedic shyut is prescribed. Central stem of fruity banana plants are good for high blood pressure.

Researchers of various fields are requested to ponder over many untold issues like these with an open mind. There may or may not have superstitions. It is our duty to judge them in the light of modern science or scientific reasons. Hopefully, we may learn many things from the vast knowledge of yore for our present and future use. One renowned scientist said, **"The past has a future"**.

One by one the truths of Hinduism are being acknowledged by modern science, but very slowly and grudgingly. For example, the truth about the age of the Earth (198 crore years), was known to the Hindus much before the modern science. It has to be admitted that human knowledge can never reach to the absolute truth. Shastra says that it is the Apta Purusha who only knows the reality. The admission of modern scientists make it plain that truth. In thick and enveloping gloom of materialism, broken now and then by flashes of intuition, modern science faintly perceives that it has strayed from the right path and is puzzled to find a glimmer of truth in the traditional belief in India, say for example, of Sristi, Sthiti and Pralaya. Science now describes that the destruction of the world would be brought forth by the radioactive materials where heat is generated by annihilation of minute quantities of matter from the atoms. Shastras are said to be God spoken words which, the Hindu believes, cannot but be the treasures of eternal and changeless truths. Truth is constant everywhere.

Unlike others, Indian philosophy finds science in everything in a broader sense. Even a chaotic phenomenon in nature arises out of certain rules. Spirituality is also a science. It is related to behavioural aspect and the thought process of individuals in the past or present life. In this regard some valuable quotations are given below:

(i) Swami Vivekananda said,

"Before flooding India with socialistic and political ideas, first del-

uge the land with spiritual ideas. The first work that demands our attention is that the most wonderful truths, confined in our Upanisads, in our scriptures, in our puranas, must be brought out".

(ii) Our scientist Rastrapati Hon'ble Dr.A.P.J.Abdul Kalam in his speech at National Metallurgical Laboratory, Jamshedpur on 13th February, 2004 also stressed upon the character building first. He said,

"Where there is righteousness in oneself, there is beauty in character; where there is beauty in character, there is harmony in the family; where there is harmony in the family, there is order in the Nation; where there is order in the Nation, there is peace in the world. God bless you".

(iii) Einstein affirms that science is inadequate to grasp the spiritual virtues. Further he said, *"A little science takes us away from God, more science brings us towards Him. Science without philosophy is lame, but philosophy without science is blind"*.

(iv) Prof. Haldane said, *"Science without philosophy is apt to be misleading"*.

(v) Sanyasini Mate Mahadevi of Vishwa Kalyan Mission, Bangalore said in her lecture at Samskrita Sangha, IISc., Bangalore (1978),

"Spiritual science is the need of the hour. A universal man is he who thinks 'Truth' as his mother, 'Knowledge' as his father, 'Dutifulness' as brother and 'Kindness' as friend. He thinks 'Patience' as his wife and 'Forgiveness' as son. Based on the belief of fatherhood of God, it is possible to achieve the brotherhood of humanity. This ideal can be achieved only through the harmonious marriage between scientific and religious values".

In fact in ancient days, science and philosophy were complementary to each other. Ancient scientists were sages and rishis. Narada Samhita lists 18 earliest scientists e.g. 1.Brahma, 2.Surya, 3.Vasistha, 4.Atri, 5.Manu, 6. Poulastya, 7. Lomasha, 8. Marichi, 9. Angira, 10. Vyasa, 11. Narada, 12. Shounaka, 13. Bhrigu, 14. Chyavana, 15. Yavana, 16. Garga, 17. Kashyapa, 18. Parashara.

Science has no conflict with Vedic Religion or its philosophy and vice versa. There is harmony between them naturally. Science is inherent in nature.

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