नैनं छिन्दन्ति शस्त्राणि नैनं दहति पावकः ।
न चैनं क्लेदयन्त्यापो न शोषयति मारुतः ।।

A Journey of Intellect

Tread Past
to
Modern Science

कर्मण्येवाधिकारस्ते मा फलेषु कदाचन।
मा कर्मफलहेतुर्भूर्मा ते सङ्गोऽस्त्वकर्मणि॥

Initiation

Craving for advancement is one of the basic nature of mankind that results in more and more developed human civilization. This hunger gave rise to various innovations that changed the course of human life for time eternal.

Ancient civilization also manifested this craving for development and left various proofs about advanced science and technology of that era. Mentioning of advanced weapons, aircrafts, electricity, nanotechnology, stem cells, advanced communication technology, medicine, etc. in ancient texts like Mahabharata, Vedas, etc. highlights the fact that ancient civilization was much more advanced than our modern day civilization.

Modern science and technology is not only a product of modern era's intellect and imagination but it also has its seed in past. Any innovation and development requires a key element of inspiration, and our ancient texts act as the ocean for the same.

The Mahabharata gives us tremendous examples of the presence of higher intellect at that time. Knowledge of warfare technologies and tactics was restricted to elite class in that period and was not present in the public domain. As an instance, breaking the "Chakravyuh Formation" in a war was only known to handful of people at that time. Also knowledge of many advanced weapons namely "Divyastra" was also restricted to limited number of warriors depending on their capability to handle them. Thus, it can be easily inferred that the knowledge was considered as a "trade secret" and was passed on from a teacher to a particular selected disciple only, without even providing any textual record. This concept of "knowledge as a trade secret" was established in the society even in recent times and this led to the requirement of IPR system where knowledge can be shared worldwide by giving due rights to the creator for overall growth of each and every human civilization.

कर्म ब्रह्मोद्भवं विद्धि ब्रह्माक्षरसमुद्भवम् |
तस्मात्सर्वगतं ब्रह्म नित्यं यज्ञे प्रतिष्ठितम् ||
(the duties for human beings are described in the Vedas, and the Vedas are manifested by God himself. Therefore, the all-pervading Lord is eternally present in acts of sacrifice.)… Gita shloka 3.15

Learn to be Organized

Not only science but the lessons of management are also imbibed in our religion through depiction of division of power among deities as well. We can easily decipher that a particular deity has been assigned a particular task and there is a clear division of power. Apart from deities, certain set of duties are also prescribed in our vedic texts for individuals to practice thus emphasizing more on the managed system. This world can be seen as a company at large where three power centers; Brahma as Generator, Vishnu as Operator, and Shiva as Destroyer, ruling the world as GOD.

For generation, knowledge is required; hence Brahma has Saraswati (goddess of knowledge) as wife. For operation, wealth is required; hence Vishnu has Lakshmi (goddess of wealth) as wife. For destruction, power is required; hence Shiva has Parvati (goddess of power) as wife. All other devas like Indra, Surya, Chandra, Varuna, Agni, Soma, etc. acting as the managers and we as a human being acting as the working employees at the lowest level of this organization.

ये देवासो दिव्येकादश स्थ पृथिव्यामध्येकादश स्थ ।
अप्सुक्षितो महिनैकादश स्थ ते देवासो यज्ञमिमं जुषध्वम् ॥११॥

Gods who are eleven in heaven; who are eleven on earth;
and who are eleven dwelling with glory in mid-air; may ye be pleased with this our sacrifice.
-Rigveda 1.139.11

The fundamental basis of intellect to run an organization is thus very much clearly visible from the presented form of religion.

First Face Off

There was a time when man used to hunt animals to satisfy his hunger or would survive on fruits. But the discovery of fire changed the entire course of human race. Discovery of fire inspired the man to bring changes in the manner of living. Initially, fire was used to cook meal for better digestive purposes but with the course of time it was further used for various other practices such as clearing forests for agricultural practices and gradually it became one of the essential components for living a quality life.

Fire holds a prominent place in various ancient texts. Agni is considered the mouth of the gods and goddesses, and the medium that conveys offerings to them in a ritual. Vedas mention the importance of fire in our daily life. The first sloka of the Rig Veda:

अग्निमीळे पुरोहितं यज्ञस्य देवं रत्वीजम |
होतारं रत्नधातमम ||

(Rig Veda 1.001.01) honors the fire god for his presence and qualities which helps man to fulfill his various needs.

Egyptian mythology identifies Sekhmet as the goddess of fire and describes her as possessing protective and healing powers but at the same time fiercely destructive and retaliating in nature.

I Ching, the oldest book of China also explores the spiritual symbolic aspects of fire and thus helps in better understanding of fire in human life.

The Holy Bible also mentions about the sacred fire and various offerings to god through this fire.

All these texts thus led to the establishment of fire as an ancient global fire religion and inspired man to value the power of fire and use it for his advancement. Man further developed innovative ideas to "make fire" and thus fire became a stepping stone for advancing human race.

First Invention

Cold regions where warm clothing is required led to the invention of bone or ivory needles which were used to stick the animal skin with the help of threads of tendon or leather thongs.

In today's world of heart-warming inventions now and then, 15000 years ago an invention of needle and thread might appear as a piece of a cake but a simple needle and thread threaded the attires we wear as a statement of fashion.

Type of clothing is described in certain ancient texts also. Ayodhya Kand in Valmiki's Ramayana throws some light on the clothing pattern. It describes the use of silken clothes and clothing of fine yarn by the people of higher class and jute-clothes were used by sages and saints.

Garments worn by vedic people did not differ much as worn by present day people. Stitching was not unknown to vedic people as evident from jackets worn by people during winters and other similar clothes.

Fabric used today includes cotton, jute, nylon, silk, leather etc. Various texts describes the use of cotton clothes by ordinary people in ancient times and fabrics like that of silk and leather was used by elite class.

Architecture for Modern Era

Engineering buildings and bridges today are considered as one of the toughest tasks. Various advanced technologies and tools are used today to construct a building or a bridge. But in ancient times there were not any of those tools or technologies, but when we get encountered to Adam's bridge or ram-setu or get evidence of City of Gold- Dwarka in epics like Mahabharat, it gives a strong proof about highly developed science and technology in that time.

The very first architectural knowledge is provided in "Yudh Kand" of Valmiki's Ramayana in which Valmiki described the construction of Ram-Setu by well known architects of that time-Nal and Neel.

sa vaanaravarah shriimaan vishvakarmaatmajo balii | | (2-22-71) babandha saagare setum yathaa caasya tathaa pitaa |

That Nala, the strong and illustrious son of Vishvakarma and an excellent monkey built the bridge across the sea as truly as his father would have built it.

The second major architectural knowledge can be derived from The Mahabharata. Building of city of Hastinapur by Lord Vishwakarma, referred as "mayapuri" and ancient city of gold-Dwarka provides strong evidences of presence of highly advanced architectural knowledge. Dwarka was constructed in the middle of the sea, off the coast of present day Gujarat. The epic infers that Lord Krishna reclaimed about 12 yojanas (96 KM) of land from the sea to build a beautiful city of Dwarka. Also recent archeological findings proclaim the city as city of ports and had several gates to connect to other cities for trading purposes. This is evident from the fact that Greek ancient texts reveals that Greek ruler Agathocles issued coins with images of Krishna holding sudarsana chakra (180-165 BCE).

Trading through sea route thus gives an inference about the knowledge of constructing ships being known to those people. Rig veda also highlights the use and construction of ships. The word "naav" is used for the ships in Rig Veda (1.97.8); comparison to shipwreck is made about destruction of a kingdom in Atharva Veda (5.19.8). Similarly, many other references can be found in vedas in one way or other about ships and trading practices.

Technology Tread Past

Man has always showed urge to get better in technological advancement. This urge led to the development of various technologies today which are innovative in their own way. But on having a face- off with the past, it seems that technology was much more advanced in that era. We get various evidences from Vedas and epics like Mahabharata and Ramayana about highly developed technological processes and tools in all fields of interest.

Electricity

Invention of bulb by Thomas A. Edison was a pioneer towards brighter future. Further inventions like electric motors for drawing water, generators and invention of process of generation of electricity by coal, water and wind further led to the betterment of daily life. But all these inventions were not new to the human race, rather several evidences can be found in Atharva Veda regarding the known of electricity in ancient era.

According to Atharva Veda, various electrical energy applications are mentioned which can be used in various fields like electrical power generation, agriculture, illumination, hydroelectric power supply, biomedical engineering, extraction of medicines etc. For instances,

Chapter 1: Hymn VII
Verse 3: *Sa na Indrah Shivah sakhashwavad gomadvavama Urudhaarev dohate*

These verses clearly refer to the various useful applications of electricity. The mention of horse powered driving machines is a direct reference to electronically powered vehicles like automobiles, aircraft, etc.

Chapter 2: Hymn XV
Verse 3: *Asmay Bheemaaya namasaa samadhwara usho na shubhra aa bharaa paneeyase Yasya dhaam shravase naamendriyam jyotirkaari harito naayase*

This confirms the fact that electricity was a topic that was researched and explored in great detail. Skilled electrical engineers used to devise specific utilities and controls for electric power. Illumination was certainly one of its widely used applications.

Wireless data transmission

The biggest invention of present time is technology of wireless transmission of data. Data can be easily and promptly transmitted from far distant places in very short period of time with the help of satellite transmissions.

Vedic people were not unaware of wireless transmissions and we get various excerpts from ancient texts and inferences which suggested that ancient people used this technology for various purposes.

The very famous example from ancient epic Mahabharata about the use of wireless data transmission or television (to be specific) is the divya-drishti given to charioteer Sanjaya by the sage Vyasa to narrate to Dhritrashtra each and every event of Kurukshetra War between Kurus and pandavas. Sanjaya was able to see and hear the sounds from the war fields with the help of this "divya-drishti". The divya-drishti in this case is nothing other than wireless data transmission using audio-visual receptors, camera based technology, auto focusing, data transmission control through human mind, signal broadcaster with live impact, real time signal generator transponders and hi-end data connectivity.

Knowledge of binary and computers

[Sanskrit is the most suitabe language for computers]

Vedic literature is full of evidences that suggest that vedic people knew the binary systems, language of 0 and 1 and thus were mastered in computational technology as well. Lord Chitragupta can be seen as symbolic of super computer which can store infinite amount of data, has enormous memory, multiprocessing/multitasking, having perfect processor etc., but our modern computers show certain limitations in case of safety and processor. Bhagvadgita indicates many evidences which suggest that Lord Narada used to deliver information to the gods. Lord Narada thus can be seen as symbolic of online data base having knowledge of all the fields by collecting data about all the creatures on earth and the events taking place in the course of time.

Binary system was first used by Pingala in 450 BC to represent meters of songs. Without binary system, invention of computers would have been impossible. Thus, it can be said that the present day inventions are just a mere rediscovery of what was known to us since ages.

Robotics

According to 12th century "Samararingana sutradhara", male and female were designed to perform automatic works and services. Each part of such figures were joined with the help of pins, holes, bolts, screws etc and they can act accordingly to the needs and commands given to them.

Machine man or yantra purush or machine girl, these are various exemplaries in ancient texts which suggests that ancient people knew the robotics technology.

Another essential evidence of robotics being known in vedic era is provided from the epic Ramayana. In Ramayana, Kumbhakaran- brother of Ravana was described as a kind of machine and thus can be inferred as a robot. Following excerpts from the Valmiki Ramayana throws light on the description of Kumbhakaran in Ramayana:

dhruvam loka vinaashaaya paulastyena asi nirmitah |
tasmaat tvam adya prabhriti mrita kalpah shayisyase ||

It is sure that you were created by visravasa for the destroyal of people. On that account, you will be sleeping apparently dead from now onwards.

Here, he clearly uses the word 'nirmitah', which means 'built/created' by Visravasa, who was Ravana's father. When Kumbhakarna was approaching Vanara Army and crushing them

under his toes, they started to runway in fear. Then Ravana's brother Vibhishana reveals the truth of Kumbhakarna to Rama and his army.

uchyantaam vaanaraah sarve yantram etatsamuchchhritam |
iti vijnaaya harayo bhaviSyantiiha nirbhayaah ||

Let all the monkeys be told that it is a kind of machine, advancing forward. By knowing this, they can become fearless by now.

prakSiptaaH kumbhakarNena vaktre paataala samnibhe |
naasaapuTaabhyaam nirjagmuH karNaabhyaam chaiva vaanaraaH ||

Hurled by Kumbhakarna in his mouth which was looking like a hole in the earth, the monkeys again came out from his nostrils and ears.

How can person enter into a gigantic person's mouth and come out of nostrils and ears, unless the giant is a machine with no internal anatomy?

But in same Ramayana, it was clearly stated that Kumbhakarna was married with Vajramala and had kumbh, nikumbh as sons. These sons were killed by Hanuman.

So, Kumbhakarna must be an alive brother of Ravana, who operated a giant robot from its inside. So the robot was known with the same name of its operator.

Infact Kumbha-Karna means the one who has pot(kumbha) like ears(karna). Rama used Vayuvyastra (a wind forced missile) to cut-off Kumbhakarna's arm and later chopped its head.

Greek mythology also provides exemplaries about the use of robots in that time. Greek god of technology Hephaestus is described in Greek scriptures as the constructor of various ancient robots that helped him in his workshops. Greek mythology also states that a bronze giant called Talos was also made by Hephaestus.

Today robots are embedded with artificial intelligence and still the technology has not been used in warfare as in case of Ramayana war. We still have not reached the highest level of advancement in robotics but our ancestors were perhaps much more advanced in this field too as compared to present day technology.

Aircrafts

Man always desired to fly high up in the air and this desire led to the wonderful invention of aircrafts. Wright brothers are credited for the invention of aircraft and today after several years' aircraft technology has changed drastically. But what if we can say that the idea of aircraft is not new to this world rather aircraft technology is known to mankind since ages?

References about various modes of transportation can be easily found in Rig Veda like, Jalayan was the vehicle which operated in air and water (RV 6.58.3); Trichakra Ratha was the three wheeled vehicle which operated in air (RV 4.36.1); Vaayu Ratha was the aircraft operated with the help of gas or wind-power (RV 5.41.6).

Reference about hot air balloon and parachute can be found in "Agastya Samhita". Agastya described "chchatra" (an umbrella or balloon) to be filled with hydrogen gas. Detailed description of formation of hydrogen gas from water is also given in the text. The name given to this air vehicle was "Agniyana". On the other hand, Agastya's "Vimanadvigunam" was operated by opening and shutting of operating chords, showing analogy to present day "parachutes".

Our ancient texts mention about the "flying machines" or "vimana". The very famous vimana of ancient time is "Pushpak Vimana" owned by King Ravana in Ramayana. This flying chariot had various hi-end technologies like GPS and voice activated commands.

कांचनम् रथम् आस्थाय कामगम् रत्न भूषितम् |
पिशाच वदनैः युक्तम् खरैः कनक भूषणैः || ३-३५-६
मेघ प्रतिम नादेन स तेन धनद अनुजः |
राक्षसाधिपतिः श्रीमान् ययौ नद नदी पतिम् ||३-३५-७

That chariot which is decorated with golden ornaments, yoked with monster-faced mules that have gem studded trappings is ride-able by the wish of the rider, and sitting in such a chariot which is wholly golden and which rides with a sound like the pealing of thunder, that celebrated Ravan, the brother of Kuber and the lord of demons, traveled towards the lord of rivers and rivulets, namely the ocean.

Evidence of flying machines are also found in Srimad Bhagavatam which describes a "vimana" being operated by King Shalva and manufactured by Maya Danava (10.72.21-22). Some other verses of Srimad Bhagvatam also give a detailed description of aircrafts (8.10.16-17; 2.9.13).

Ancient Sanskrit texts like Mahabharata also describe "vimana" being used by various warriors in Kurukshetra war. During his quest for celestial weapons before the Mahabharat War, Arjun was invited by Indra to spend some time in Amravati. Indra's charioteer Matali came to pick him up and this is how the description goes:

And on this sunlike, divine, wonderful chariot the wise disciple of Kuru flew joyously upward. When becoming invisible to the mortals who walk the earth, he saw wondrous airborne chariots by the thousands.

And the celebrated Arjun, having passed through successive regions of the heavens, at last beheld the city of Indra. And there he beheld celestial cars by thousands stationed in their respective places and capable of going everywhere at will, and he saw tens of thousands of such cars moving in every direction! - Mahabharat Indralokgamana Parv

Story of Daedalus and Icarus in Greek mythology also highlights the fact that ancient Greeks also knew about the aircraft technology. According to Greek mythology, Daedalus built two flying crafts to escape the king through air.

All these texts prove that the aircraft technology is not a new thing that mankind has encountered, it was only lost in the time and discovered later with the desires and efforts of man.

Nanotechnology

Nanotechnology is the science, engineering and technology dealing at nanoscales of 1 to 100 nanometers. It is one of the most widely researched topics of present day that finds its application in widespread fields like medicine, art and crafts, engineering etc. Nanotechnology is also one of those technologies which is misunderstood by us as an inventive and breakthrough technique of present day but if we dive into the past we can find several evidences that nanotechnology was widely used by our ancestors since ages.

The Iron Pillar in New Delhi is found to be composed of nano-metal alloys and this is one of the reasons that corrosion process is not seen on the pillar since the time of its foundation. Another famous exemplary of nanotechnology is Tipu Sultan's sword which is also found to be made from very unique nano-metal alloy that is not even known to present generation.

Another crucial proof of nanotechnology is found in southern India where Indian craftsmen used carbon nanotubes in "wootz steel". Carbon nanotubes of cylindrical shape and excellent tensile strength and elastic modulus were used to make Ajanta Paintings.

Some ancient artifacts found in Ural Mountains, Russia during geological research suggested that the method used to made those coil-shaped artifacts was not an ordinary one rather they were developed using highly advanced nanotechnology about 300,000 years ago.

Proof of use of nanotechnology was also found by examining the ancient Rome artifacts. The Roman goblet, the Chalice and the Lycurgus Cup are some mysterious artifacts which showed the possibility of use of nanotechnology in their creation. The Lycurgus Cup dated from 4th century AD is the only complete example of dichroic glass which changes its colour from green to red on coming in contact with sunlight.

Reproductive Methods and Organ Transplant

Dealing with infertility few decades back was almost impossible, but after the invention of IVF technology in the field, the infertility problem is dealt with quite ease. In-vitro fertilization is the fertilization of ova outside the uterus (test tube baby) and the zygote after observation for a specific period of time is implanted back to the mother's womb. However, how so ever new this technique might appear to us but the fact is that ancient people were well aware of IVF and had expertise in the same.

The birth story of Pandavas and Kauravas in Mahabharata is the best exemplary of IVF technique used in that era. Kunthi used her boon given to her by Rishi Durvasa to give birth to three sons from God of Dharma, God of Wind and God Indra. Same boon was shared with Madri by Kunthi and Madri gave birth to twins which were the sons of God Ashvins. On the other hand, birth story of hundred Kauravas describes one embryo being split into 100 parts and the jars of ghee being used to develop the embryos in fully developed babies outside the womb. Thus, we can infer that the people of that era not only knew about the test tube babies and embryo splitting but they also had the knowledge of growing foetus outside the human body which present science has still not been able to achieve.

Another story of Mahabharata shows that the knowledge of embryo transfer was also used by those people. Balarama, elder brother of Krishna was earlier conceived by Devki but embryo transfer was done into Rohini's womb (another wife of Vasudev) by Yogamaya on the command of Lord Vishnu.

Hindu mythology also provides the knowledge of asexual reproduction in nature as well. Lord Ganesha was born by breathing life into the turmeric paste applied on the body of Goddess Parvati.

This could be considered as an analogy of asexual reproductive processes by which offspring arise from a single organism and possess genes of that parent only.

Also Lord Ganesha could be considered as the first one to had an Organ Transplant. Ganesha received his "elephant head" from his father Lord Shiva and this could be considered as one of the first successful head transplant in the history of mankind. There are several references found in Hindu mythology where people were transplanted with the body parts of some other animal. Thus the knowledge of organ transplant that existed at that time was far more advanced and developed than the present knowledge as today many organ transplants are not considered very much safe as patient has to suffer various complications afterwards.

Cloning

Cloning is a type of Genetic Engineering for producing identical beings. "Dolly" the sheep is the first cloned animal of present era. Although the science of producing identical beings is not new to humans rather we get several instances from ancient texts that prove that cloning was well used in ancient times.

In vedic age cloning of animals like cows and horses was done by sages for higher production of animal products and services. This could be inferred from hymns of Rig Veda. Rig Veda gives the story of cloning of Rubhus by seven different sages in seven different verses of Rig Veda indicating that the technique was known for several years. Some verses from Rig Veda about cloning of a cow by Rubhus are as follows:

Rigveda, Book 1, Hymn 20, verse 3: They for the two Nasatyas wrought a light car moving every way: They formed a nectar-yielding cow.

Rigveda, Book 1, Hymn 110, verse 8: Out of a skin, O Rubhus, once ye formed a cow, and brought the mother close unto her calf again.

Rigveda, Book 1, Hymn 111: As for a year the Rhubus kept the Milch-cow, throughout a year fashioned and formed her body. And through a year's space still sustained her brightness, through these their labors they were made immortal.

Rigveda, Book 4, Hymn 33, verse 5: Two beakers let us make- thus said the eldest. Let us make three - this was the younger's sentence.

Rigveda, Book 1, Hymn 111, verse 1: Ingenious Rubhus prepared a chariot for Indra, prepared two powerful horses (2nd being cloned from 1st), made their old parents youthful again and gave new mothers to orphaned calves or children.

In another story from Hindu mythology, a ferocious king named Vena was killed by a sage because of his un-religious practices. But when the law and order of his kingdom was not maintained after his death, sages decided to "create" a new king from the dead body of Vena. Sages formed the "dwarf clone" of Vena by churning the thighs of dead body of Vena. Now from the right hand of Vena, sages formed another clone named "Prithu" who finally ruled the kingdom with his good qualities. So there was a concept of creating multiple clones for the benefits of society.

The story of "Rakhtbij" from Hindu mythology is another very famous depiction of cloning. Rakhtbij was a powerful demon who could create his clone from his blood cells. Because of his wrathful activities, Goddess Kali pierced his body and swallowed each drop of his blood, thus preventing him from making any clone of his own.

Our ancient texts tell about "maya danavas" and "maya manavas". Rig Veda describes Lord Indra taking various different forms of himself thorough "MAYA". This "maya" can be closely related to the technique of cloning being used by Indra. From a story of Buddha's life, Mara the devil tried to distract Buddha while he was meditating by "creating" many ferocious figures to frighten him and some most beautiful females to distract him.

In another instance from a regional version of Ramayana, God Agni requested Lord Rama to entrust real Sita to him and Agni will give Rama an exact replica of Sita. This was done to protect the piousness of Sita and to trick Ravana. Also Marici took the shape of golden deer to allure Sita.

These instances clearly depicts that the knowledge of cloning and genetic engineering is well known to mankind since ages. Man has been playing with genes and DNA since time immemorial.

Medicine and Human Health

Way before Hippocrats it was the expertise and knowledge of Maharishi Charaka which enlightened the world with the knowledge of medicines and maintaining good health. Charaka is considered as the Father of Medicine and wrote his famous book on medicine called Charaka Samhita in 500 BC. In his book he described in detail, eight major disciplines of Ayurveda: Shailya Chikitsa (Surgery), Shaalakya Chikitsa (Head, Eye, Nose, Throat), Kaaya Chikitsa (Mental Health), Kaumarbhrutya Chikitsa (Pediatrics), Agada Tantra (Toxicology), Rasaayana Tantra (Pharmacology), and Vaajeekarna Tantra (Reproductive Medicine).

It is also interesting to know that the first surgeon in the world is also from India. Sushruta is regarded as Father of Surgery and he carried out first ever successful brain surgery in that time. Also he was known for his immense knowledge about plastic surgery as well. Various aspects of surgery are described in his book Sushruta Samhita. Chanakya's Arthashastra describes post-mortem in great details.

Ayurveda, deriving from Atharva Veda, is the indigenous system of medicine in India. It is mainly focused on diseases, diagnosis and cure. Ayurveda medicines are composed of only herbs and natural plants with medicinal properties. Ayurveda not only focused on curing a disease but it also establishes the way of increasing longevity of life.

Healing Power of Sound

We are surrounded with many types of frequencies which can alter our emotions in a great way. Some frequencies can induce the feeling of relaxation and calmness in us while some other can cause irritation, restlessness and agitation. Recent studies have shown that sound frequencies of a particular range can be used to heal our bad health. For example, 0.5 Hz of frequency is very much effective against headache, lower back pain, thyroid, reproductive problems;

frequency of 5.8 Hz reduces fear and dizziness and so on.

Some researchers concluded in their study that the Pyramid of Giza possess a constant frequency of 6.8 Hz running through it and this frequency is the most beneficial of earth's frequency as well.

Vedic mantras are also known to possess certain specific frequencies which are the reason behind their successful application in a person's life reciting them. For example, the Gayatri Mantra produces 110,000 sound waves per second and is considered as the most effective mantra in the world imparting its positive effects on physical and mental health. Similarly, the sound of universe- "OM" is known to exhibit huge effects on conscious and sub-conscious level of brain. It is known to be a brain stabilizer and chanting of "OM" can lead to relaxation, lowering of blood pressure, relief from various heart diseases, alteration at genetic levels thus improving physical and mental health of human being. It is also found that "OM" when chanted in different ways by emphasizing on different sounds like more on "O" of OM or more on "MMMM" of OM, it would result in different states of consciousness and relaxation. Interestingly, the Schumann resonance (resonating frequency of earth) and frequency of "OM" are in close relation with each other, both the frequencies are nearly 7.83 Hz.

Our Vedic texts give several instances which show that Vedic people knew the secret of sound healing. Specific mantras of specific frequency were used for different purposes like changing weather, healing a person, producing a living being and in some cases even building palaces with the help of sound waves. Mantras were also used to operate weapons like Brahmastra, Nagastra, Vayuastra, Agneyastra etc. thus embibing those weapons with certain frequencies which were destructive in nature. Mantras were also used to attain the spiritual level and for meditation. It is thus clear that Vedic people were much more advanced in science and technology than this modern time.

Weapons

Today world has advanced in the military technology manifold. Weapons ranging from short range targets to long range targets have been designed and are used in military operations. Not only missiles and machine guns contributes to the security of a country but more devastating weapons like nuclear weapons also created their place in today's world. The technology of weapons was far more developed at the time of Mahabharata as we can easily find the knowledge of many destructive weapons used in that war. Many present day weapons can be related to the weapons of Mahabharata era.

Ancient Weapons	Features	Similar Present Day Weapons
Brahmastra & Pashupatastra	Highly destructive weapon; never missed its mark; caused severe environmental damage; land became barren for several years ahead and infertility was seen for next generations; Components of Brahmastra: According to the Ramayana this astra "contains air, fire and cosmic poison, two goat-like fangs full of poison, weighty, emits air containing mercury, is fiery, sparkling sky is filled with air, enemy killing greatly radiant and it is projected with three hymns with the Gayatri mantra at the centre.	Present day nuclear weapons involving nuclear fission are considered equivalent to Brahmastra.
Varunastra	Releases torrential rains; used in 2 ways: to drown the enemy army and to extinguish the fire	Similar to artificial rain creation or cloud seeding in drought affected areas using planes or ground generators.
Vayuastra	Harnessed the power of wind to drive away the enemies i.e. artificial generation of storms.	Atmospheric Vortex Engine made by electrical er. Louis Michaud that generates a tornado in the bottle with the top uncorked.
Manavastra	Created by Manu; could overcome supernatural protections and carried the target hundreds of miles away	Shaurya missile, a surface to surface ballistic missile having hypersonic speed, range of 600km and can carry a payload of one tonne. Agni missile can also do the same job and can take the target upto a more distant range.
Vajra / Thunderbolt	Very powerful weapon of Lord Indra capable of thunder and lightning without rain and generating millions of volts in one go.	Van de Graaf generator is capable of generating 2 million volts of potential between its two metal spheres.
Vasavi Shakti	Dart of Indra that would come back only after hitting its target; sort of laser-guided missile; used by Karna on Ghatotkach	Sudarshan, an indigenously developed laser guided bomb used by Indian Army.
Brahmashirsha Astra	4 times stronger than brahmastra; could cause complete destruction in the areas where it strikes, nothing would grow in that area for next 12 years, drought conditions and everything becomes poisonous.	Hydrogen bomb or thermonuclear fusion bomb.
Narayanastra	Weapon of lord Vishnu in his Narayana form; fires millions of deadly missiles simultaneously	Multiple Rocket Launchers launch rockets of varying range simultaneously.

ॐ भूर्भुवः स्वः तत्सवितुर्वरेण्यं ।
भर्गो देवस्य धीमहि धियो यो नः प्रचोदयात् ॥

Power of Mantra

The word, Mantra is originated from man – "mind" and tra-"tool or instrument". Thus, the Mantra is a combination of different syllable which acts as a tool to transport the mind to a place of calmness or at the ultimate solace. Most of the mantras are written in Sanskrit, one of the oldest languages known to mankind. Sanskrit is now regarded as the perfect language that resonates with the microcosm of our bodies and the macrocosm of the universe.

Mantra is worked on the understanding of the science of sound. Each sound of the Sanskrit alphabet creates a unique vibration that resonates with the natural energies of the body and provides inner peace. When we chant a mantra, for example 'Shanti,' Sanskrit word for 'peace,' the vibration of peace is created in one's whole being, dissolving duality and evoking a sense of interconnectedness with all beings.

The Buddhist Handbook describes mantras as, "highly compressed, power-packed formulas, usually of Sanskrit origin, which are charged with deep meaning and magical potency."

Mantras also have the power to cleanse our environment, develop mindfulness, and when we sense the vibration of each word we utter in complete awareness, even if we aren't aware of its meaning, we will notice a shift in our consciousness. For example,

The Gayatri Mantra

ॐ भूर्भुवः स्वः तत्सवितुर्वरेण्यं भर्गो देवस्य धीमहि
धियो यो नः प्रचोदयात् ॥
We worship the word that is present in the earth,
the heavens and that which is beyond.By meditating
on this glorious power that gives us life,
we ask that our minds and hearts be illuminated.

Gayatri is the Mother of all Vedas. Gayatri Mantra is considered as the most auspicious mantra to heal our senses, speech, and life.

Secret of Symbols

Hindu mythology depicts various symbolic representations of things that can be easily related to certain scientific principles and fundamentals. These symbols if seen in minute details lead us to the hidden scientific knowledge imbibed in them. Following are the explanations to some of the frequently seen symbols and analogous:

Shivlingam and Nuclear Energy

Shivlingam is the representation of immense energy in its purest form. Shivlingam has a cylindrical or dome like structure having coils around it and a constant supply of water above it with the help of a pot hanging over it. Nuclear reactors of present day can be easily considered as an analogy of Shivlingam as both depicts striking similarities in their structural framework.

Nuclear reactor also has a dome like structure with coils around it helping in water disposal. Also, nuclear reactor too needs a constant water supply for cooling purpose. Most interestingly, bel leaves which are offered on shivlingam are found to be radio-protective in nature and nuclear power plants are also surrounded with plants having radio-protective qualities. Similarly, water disposed off from shivlingam is not consumed, same as water disposed off from the reactor is not consumed because of the presence of radioactive elements. Thus, it can be concluded that shivlingam is the depiction of energy in its purest form, a symbol showing mankind the devastating as well as beneficial of the energy.

Swastika: A symbol of prosperity and life

Swastika is the oldest symbol we are using since vedic civilization. The swastika is derived from two Sanskrit words "Su" and "Asti". Su means "good" and asti means "existence" or "life". The overall context of the symbol is peace, good health, prosperity and happiness. However, the symbol swastika is not merely a symbol but it represents origin of civilization through flow of four rivers from an elevated point. The Mount Kailash, a mountain from which four rivers- the Indus, the Sutlej, the Brahmaputra and the Karnali (a tributary of the Ganga)- flow down and outwards. Even today the Mount Kailash is considered a sacred place in four religions-Bon, Buddhism, Hinduism and Jainism. Many of the world's greatest stories and civilizations have their origin right here from Mount Kailash.

In Yajurveda, Swastika is appraised as:

सवस्ति न इन्द्रो वृद्धश्रवाः ।
सवस्ति नः पूषा विश्ववेदाः ।
सवस्ति नसताक्षर्यो अरिष्टनेमिः ।
सवस्ति नो बरुहस्पतिर्दधातु ।
ॐ शान्तिः शान्तिः शान्तिः ।।

Om, May we hear what is Auspicious with our ears, Oh Gods. May we see what is Auspicious With our eyes, Oh holy ones worthy of Worship. May we live a life of satisfaction with strong organs and Healthy body. May we praise the Lord during the life span given to us by the Gods. May God Indra of Great fame bless us. May the Omniscient Poosha bless us. May the Protector Garuda bless us. May Lord Brihaspati protect us. Om, Peace, Peace, Peace!

Swastika also represents the four stages of any life. It is amazing that the life of anything in the universe is divided into four stages- be for human or day or night or era.

Shree Yantra

In Hindu religion, the Shree Yantra is considered one of the ultimate source of all energy, power, and creativity. The Shree Yantra possesses a complex sacred geometry used for worship, devotion and meditation. The Sri Yantra is the king of power diagrams and describes its energetic effect as seventy times greater than pyramid construction. Three centimetres Sri Yantra possesses a greater energetic effect than a two metre pyramid. This energetic power depends upon its exact geometry elements. The Sri Yantra includes various geometry elements, complex and detailed symbols like squares, triangles, circles and floral patterns.

The Sri Yantra consists of three concentric parts. The interpenetrating triangles symmetric in its vertical central axis, contains both upward and downward pointing triangles.

The upward-pointing triangles are called VAHNI, symbolizing the male element ("Purusha") and downward pointing triangles are called SAKTHI, symbolizing the female element ("Prakriti") of divinity. There are four of the male triangles represent Lord Shiva or the Masculine and Five of the female triangles represent Shakti or the Feminine. Sri Yantra also represents the union of Masculine and Feminine divine. It is also known as Navayoni Chakra. Together the nine triangles are interlaced in such a way as to form 43 smaller triangles in a web symbolic of the entire cosmos or a womb symbolic of creation. The two concentric circles represent a regular lotus design. The inner pattern has a period of 8 petals and the outer pattern has a period of 16 petals. The petals symbolize the sanctity of the inner diagram, used in Yoga meditation as a linear Yantra. The triangles and petals are surrounded by an earth square resembling a temple with four doors.

The Shree Yantra architecture is based on the ancient Vedic Science of India. It removes all the unconstructive vibrations and adds constructive celestial energies into our surroundings. By nature it picks up scrupulous cosmic ray wave emit by the planets and other universal objects and convert them into positive vibrations.

Seven horses draw the chariot of Surya

The sun is the ultimate source of energy of the life. Hence, in Hindusim, Sun is regarded as God, Surya and they find Surya, the force of vital Universal energy that passes through the chakra system and results in karma. The God Surya is portrayed as a red man with 3 eyes and four arms, who is riding into a one-wheeled chariot pulled by 7 horses.

सप्ताश्व रथमारूढम् प्रचंडम् कश्यपात्मजम् ।
श्वेत पद्मधरम् देवम् तम् सूर्यम् प्रणमाम्यहम् ॥

The sun God who is mounted on a chariot driven by seven horses, the resplendent one, the son of sage Kaśyapa, holds a white lotus in the hand, I offer salutations to Him.

यस्यैकं चक्रं द्वादशारं षण्नेमि त्रिणाभि संवत्सरात्मकं समामनन्ति तस्याक्षो मेरोर्मूर्धनि कृतो मानसोत्तरे कृतेतरभागो यत्र पुरोतं रविरथचक्रं तैलयन्त्र चक्रवद्भ्रमन्मानसोत्तरगिरौ परिभ्रमति ॥१३॥ Srimad Bhagavat Purana Canto 5, Chapter 21

The chariot of the sun-god has only one wheel, which is known as Saṁvatsara. The twelve months are calculated to be its twelve spokes, the six seasons are the sections of its rim, and the three cātur-māsya periods are its three-sectioned hub. One side of the axle carrying the wheel rests upon the summit of Mount Sumeru, and the other rests upon Mānasottara Mountain. Affixed to the outer end of the axle, the wheel continuously rotates on Mānasottara Mountain like the wheel of an oil-pressing machine.

These seven horses represent the seven colors light. These seven colors become visible in a rainbow or when light passes through a prism.

Modern physics confirmed that the sun's rays travel in a curved way, but not in a straight line. The chapter on light says that there are seven colors in the white ray of the sun. Artharveda says that there are seven types of sun's rays, sapta surayasya rasmayah.

Incarnations of Lord Vishnu and Evolution

It is significant to note that only Lord Vishnu incarnated again and again and to teach us the basic understanding of our duty and appreciation towards life. It shows the highest level of devotion of Lord Vishnu towards his role and responsibility as Operator. Giving lesson of life is not the role of Brahma as Generator and Shiva as Destroyer but it is the role of Vishnu as Operation Head to incarnate himself. Krishna indicates towards it and says in Gita:

<div align="center">

यदा यदा हि धर्मस्य ग्लानिर्भवति भारत ।
अभ्युत्थानमधर्मस्य तदात्मानं सृजाम्यहम् ॥७॥
परित्राणाय साधूनां विनाशाय च दुष्कृताम् ।
धर्मसंस्थापनार्थाय सम्भवामि युगे युगे ॥८॥

</div>

Whenever there is decay of righteousness, O Bharata, and there is exaltation of unrighteousness, then I Myself come forth. For the protection of the good, for the destruction of evil-doers, For the sake of firmly establishing righteousness, I am born from age to age.

We all are familiar with the seven important incarnations of Lord Vishnu but what we might have ignored till today is that these incarnations depict the perfect order of evolution of life as the theory of evolution given by Darwin. We can relate the incarnations and Darwin's theory of evolution as follows:

Matsya (form of fish)	**Life started in water**
Kurma (form of tortoise)	**Evolution leading to Amphibians**
Varaha (form of Boar)	**Amphibians evolved to form land animals**
Narsimha (half man-half lion)	**Evolution of land animals**
Vamana (a dwarf)	**Evolution in the way of life**
Parshuram (a warrior)	**Struggle for the existence**
Rama (civilized)	**Law of Dominance**
Krishna (politician)	**Survival of the fittest**

Ritual Conclusion

Our universe is an ultimate source of all inspiration and intellect. To harness the best from the universe, we have to identify the various tools which are already created by the ultimate creator of the Universe. As we are locating and identifying those tools, we are harnessing and opening the secret of knowledge mine layer by layer which already existed for us for the betterment of mankind and ultimately for the betterment of universe of the mighty GOD.

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