EVOLUTION OF THE UNIVERSE
AS REVEALED BY SAINT AND THE SCIENTIST

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ABSTRACT
While the man himself was evolving from stone age
to the present clone age, the SAINT, a great spiritual and
intellectual perceiver since about 5000 yrs. of the Vedic pe-
riod, and the SCIENTIST a great philosophic and intellectual
observer since about 250 yrs, beginning of modern science,
have been revealing the Divine secrets of Nature’s greatest
and most wonderful design of the cosmic Universe. The saint,
with his intuitive knowledge through Meditation and con-
templation, sitting in his forest abode gained more deeper
understanding of the universal evolution. The modern sci-
cientist, who, with his intuitive thoughts and establishing
through observation and measurements at his laboratory has
also been trying to unveil the secrets of the visible universe.

In this article the author has attempted to bring out
the similarities (or otherwise) of some concepts of the evolu-
tion of the universe as revealed by the saint and the scientist.
Some of the concepts such as COSMIC COMPOSITION OF
THE UNIVERSE, ORIGIN OF THE UNIVERSE, AGE OF THE
UNIVERSE, COMPOSITION OF THE MATTER, ATOMIC
THEORY OF MATTER, CONSCIOUSNESS AS UNIVERSAL
FORCE etc as revealed by the two schools of thought were
discussed.

More deeper study on such aspects can be brought
out only when spiritual masters with analytical approach,
and scientists with respect for Vedic knowledge sit togeth-
er and discuss in depth and bring out most useful knowledge.

TRUTH is always one and universal whether re-
vealed by saint or the scientist, and so is with the evolution
of our universe. Even today we are not knowing the secret
behind the Divine creation of such a wonderful and colossal
cosmic universe. This universe is supposed to have originated
some billions of years back (15-20 billion). Human species
existed only since about 2-3 million years, and civilized man,
only about 6-8 thousand years.

Earliest thoughts on the universal creation seem to
have originated during Rig Vedic period (4500 yrs).
Maharshis, great spiritual masters, with their deep medita-
tion and contemplation (TAPO-DHYANA) revealed many
secrets on the above concept as occurred to them from their
inner conscience. The revelations were in the form of
hymns(MANTRAS) and Aphorisms (SUSTRAS), later on forming
the texts of the 4 Vedas.

The knowledge on universal creation could be traced
in Rig Vedic hymns, and subsequent scriptures Nyâya,
Sânkhya, and Vaiseshika Darsanas (VEDIC COSMOLOGY),
and in Vâyu, Vishnu, Mastyâ, and Bhâgavat puranas
(PURANIC COSMOLOGY). Great scholars, sâyana, Kanâda,
prasthapatda and many others contributed to the subject. Aryabhata in his Aryabhatiya dealt with the size of the Universe, planetary orbits etc.

Sayan (14th century) while writing commentary on the 4th verse of Rig Vedic hymn 1.50, (Table-V).

Calculated the speed of light as 185,783 miles/sec. This value closely coincided with Roemer's (17th century) calculations of 184,000 and the modern calculation of 186,000.

Maharshis however did not give much importance for materialistic pursuits (BHAUTIK-list). All their knowledge is aimed at realizing the SELF and BRAHMAN the ultimate (ADHYATMIKA). As such all Vedic knowledge is called BRAHMA VIDYA. When Vedanta, the spiritual essence of all Vedas was being encouraged, the materialistic pursuit was practically ignored. This is the main reason why a foremost country in the world with great intellectuals, who formulated the seeds of science and technology did not develop them as was done in the west and other parts of the world.

Great philosophers in western countries like Aristotle, Ptolemy, Copernicus, Kepler, Galileo, Newton, and many others between 16th and 19th centuries initiated the development of SCIENTIFIC COSMOLOGY. Later on Herschel, Hubble and recently in 20th century Friedmann, Stephen W Hawking, Prof. Chandrasekhar, and presently prof. Jayanth Narlikar were trying to perfect the model of the modern cosmic phenomenon.

In this forum of world congress on Vedic sciences, some comparison has been attempted between the two schools of thought on few concepts on the one truth of evolution of the universe. It is however to be remembered that they arrived at the concepts from an entirely different planes of thinking and at different times of development of human intellect. Spiritual approach was by deep meditation and contemplation (TAPODHYANA), and scientific approach was by RESEARCH AND THEORY verified by observation and Measurement. Spiritualism is thought process and science is quantum process.

A few inquisitive scientists have been trying to bring out the scientific and technological knowledge hidden in Veda Mantras and sutras from the scriptures. A successful attempt seems to have been made in Vedic Mathematics. Ayurveda and siddha medicinal knowledge is also from the Upa Vedas. Forums such as this might bring in more light on other important and useful subjects for the benefit of all.

Here we shall find out some concepts related to the evolution of the Universe as revealed by the saint and the scientist.

1. COSMIC COMPOSITION OF THE UNIVERSE
2. ORIGIN OF THE UNIVERSE
3. AGE OF THE UNIVERSE
4. COMPOSITION OF MATTER
5. ATOMIC THEORY OF MATTER
6. CONSCIOUSNESS AS UNIVERSAL FORCE

1. COMPOSITION OF THE UNIVERSE:
A Great Maharshi Gargayana in his scripture ‘PRANAVA VADA’ dealt with the whole Universal process (Srishti KRAMAM). While relating it to the 4 Vedas, he writes as “Maha Vishnu ideates, places before him the Atharva Veda and deals with summation. Vishnu the Rig Veda and cogni-

tion, Brahma the Yajurveda and action, and Siva the Sama and desire”.

He writes on the formation of the cosmic universe as follows –
1 Brahmana - 1 surya with 7 grahas - 1 solar system
7 Brahmana - 1 Jagat - 1 constellation
1000 Jagats - 1 Viswa - 1 super constellation
15 million Viswas - 1 Mah Viswa - 1 Galaxy
Group of Maha Viswas - 1 Loka - 1 cluster of galaxies
Group of lokas - 1 Maha Loka - 1 super cluster of Galaxies
100 Lotuses of Maha Lokas - 1 Samsara - Quasars?

The above is close to the modern concepts on the cosmos. Present studies by probing the space with the Hubble Telescope, is revealing farthest hot areas with billions of galaxies, which are being studied by the scientists.

2. ORIGIN OF THE UNIVERSE:
Vedas have declared that the universe evolved (Created) out of BRAHMAN, who (Which) is omnipotent, omnipresent, and omniscient. It evolved out of HIS WILL as BRAHMA PADARThA (DIVINE MATTER) or MAHATTATWA. It is characteristic of Maya (Illusory-Uncertain) and is composed of DRAVYA (MATTER), associated with Kala (TIME), GUNA (SPECIFIC NATURE), and AHAMKARA (SELF CONSCIOUS). The whole universal creation is supposed to have evolved in 10 steps as DASHA VIDHA SARGA. The above concept is shown in Table-I for easy understanding.

We can infer the following from the above as -
A. The universe evolved out of all pervading supreme prime energy, which is ever potential, ever present, and ever knowing. That is, all matter in the universe is energy in different forms.

Interestingly, in 1905, a great scientist Dr. Albert Einstein arrived at his famous formula E=mc2 which reveals the same fact that all mass is energy.

b. All matter in the universe, including we the humans are governed by Kala(SpecificTime), GUNA(Specific nature-Trigunatmakra) and Ahamkara (self consciousness) as they are the very qualities of the whole creation.

c. There are two distinct types of matter, SUKSHA (Subtle) and STHULA (gross). Our human body is composed of 16 parts of gross matter and 19 parts of subtle matter.

d. Human species evolved only after all the vegetable and animal life was created.

Regarding the scientific concept on the origin of the Universe, until the early 20th century, Modern scientists could not get to any solution to explain the origin of the universe. Finally as on date they are believing that at one stage, the universe emerged out of SINGULARITY with a BIG BANG. They define singularity as a stage when an infinite mass merged on to zero space, infinitely dense and infinitely hot. They explain that the singularity expanded (a kind of Titanic eruption) which they call it as Big Bang, forming the whole cosmos in the course of time. They are-believing in the Big Bang theory based mainly for three reasons. a). The universe is ever expanding. b). Existence of cosmic radiation pervading the whole space. c). About 25 percent of mass of the universe is in the form of helium.

The scientific concept of the origins is shown in Table-II. Briefly explaining the phenomenon –
a. Brahma Padartha and singularity look similar in their concepts.
b. Science knows only Gross matter and no knowledge on the subtle matter.
c. Here also Human species evolved only after vegetable and aminal species were evolved.
d. OKARKA-BIG BANG. Spiritual concept is that the whole creation evolved out of OKARKA as OMYEKAKSHARAM BRAHMA. Sound is the characteristic of AKASA, the space. Scientific concept of BIG BANG also is the same, as the whole space is filled with cosmic radiation, detected as noise, Sound.

3. AGE OF THE UNIVERSE:
According to Vedic concept, this creation is 100 yrs of BRAHMA, and after that new Brahma creates new Universe. Their calculation by Manava Samvatsaras is 311,040 Billion yrs. At present half the age is over and we are in the 51st yrs of Brahma, age at present of the creation is appr. 157,372 billion yrs. The details are shown in table-III.

Scientific calculation from the Big Bang time is only 15 to 20 billion yrs of the cosmic Universe, and only 4.6 billion yrs of our solar system and our planet earth.

4. COMPOSITION OF MATTER – DRAVYA:
Vedas mention that the whole matter is made up of 5 basic elements, AKASA(SPACE), VAYU(AIR), AGNI(LIGHT/HEAT), APA(WATER), and PRIDHVI(EARTH). They are of two kinds, Pure and Mixed in a specific proportion. Mixed Pridhvi is half pure and one-eighth of the rest four elements.

Vedas mention that in our human body, the 5 sense organs, 5 action organs, 5 Vital airs, and the 4 mental faculties mind, intellect, thought, and ego are all made up of subtle matter. The bones, bone marrow, skin, nerves, blood vessels, Muscles, blood, fat are all made up of Gross matter. Subtle matter is called as such as it cannot be defined in terms of any parameters.

5. ATOMIC THEORY OF MATTER:
Rig Veda refers many times, of “PAMSU”, elementary particle or PARAMANU. On the construction of the Universe with atoms, it quotes.
IDAM VISHNU VICHAKRAM TREDHA
NIDADHE PADAM
SAMUDHAMASYA PAGUMSURE. R.V 10.2.17,
(also Vishnu Sukta).

Great Vedic scholar Kanada formulated in Vaiseshika Darasna and dealt extensively on paramanu, Anu, and explaining different kinds and characteristics of Anus forming the whole cosmic matter.
Even the scales of measurement of both space and time were formulated with Paramanu as the basic unit. This is shown in Table-IV.

Starting with Dalton’s atomic theory, today scientists have practically perfected in knowing structure of matter, with fundamental particles as quarks.

6. CONSCIOUSNESS CHAITANYA:
Vedas mentions Chitta as the very basic nature of Brahman as SAT CHIT ANANDA SWARUPA, ever existing, ever conscious and ever blissful.

Patanjali Maharshi (4th BC), father of Yoga Sastra begins his sutras as
YOGA CHITTA VRITTI NIRODHAHA (y.s1.2).
CHITTA Works in four ways, Mano (Mind-action-reaction), Buddhi (Intelects-sense Of discrimination), Chitta (Consciousness-Thought process), and Ahankara (ego-sense of I, self conscious).

A man with pure consciousness is SIVAM(divine), and deprived of it is SAVAM(Corps).

We can in a way interpret Chaitanya as Unified field acting on all matter, as is being envisaged by modern scientists.

According to scientific theories all matter is being acted upon by four natural forces-Weak and strong nuclear forces, Electromagnetic force and Gravitational force. They have been working on arriving at Unified field theory combining all the above four forces.

Recently one of the leading physicists, Dr. David Bohm was trying to explain consciousness as a force and on the basis of quantum theory.

CONCLUSION:
From the above discussions, we find that same concepts as revealed by the saint and the scientist are both not complete in their interpretations. Highly knowledgeable spiritual masters with analytical approach, and modern scientists with respect for Vedic concepts should work together on important subjects and bring out the best from both the schools for the benefit of all concerned.

Both spiritual and scientific knowledge is necessary for the man to realise the value of human life, and for making the life more comfortable.

We pray to that supreme power which created this universe to give us the strength to contribute in our own humble way for the good of all.

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Table-I

**VEDIC CONCEPT-UNIVERSAL CREATION**

**BRAHMAN**

OMNIPOTENT, OMNIPRESENT, OMNISCIENT

(SUPREME (PRIME) ENERGY).

**MAYA**

(ILLUSORY-UNCERTAINTY)

1. **MAHATTATWA**

(BRAHMA PADARTHA)

**DIVINE MATTER.**

- **KALA**
  - (SPECIFIC TIME)

- **DRAVYA**
  - (MATTER)

- **GUNA**
  - (AHAMKARA)
    - (SENSEOUS NATURE)

- **SUHSHMA**
  - (SUBTLE)

  3. **5 PURE ELEMENTS**
  
  (A PANCHIKRITA

  PANCHABHUTAS).

  4. **5 SENSE ORGANS**

  5. **ACTION ORGANS (SOLOAR SYSTEMS, GALAXIES)**

  6. **MENTAL FACULTIES**

  (MANO, BUDDHI, CHITTA

  AHAMKARA)

  6. **SUBTLE WORLDS**

- **STHULA**
  - (GROSS)

  3. **5 MIXED ELEMENTS**

  (PANCHIKRITA

  PANCHABHUTAS).

  6. **PHYSICAL WORLDS**

  5. **VITAL AIRS**

  7. **VEGETABLE LIFE (6 KINDS)**

  8. **ANIMAL LIFE (28 KINDS)**

  9. **HUMAN LIFE (1 KIND).**

  10. **DIVINE LIFE (8 Kinds)**
The number in circle denotes chronological evolution of the universe in 10 steps, called DASA VIDHA SARGA.

### SCIENTIFIC CONCEPT-UNIVERSAL CREATION.

1. SINGULARITY

SUPREME (PRIME) ENERGY
(INFINITELY SMALL, INFINITELY HOT, INFINITELY DENSE)

**TITANIC ERUPTION (BIG BANG) 15 or 20 B Yrs**

- RADIATION
  - fundamental (PARTICLES) 2.
    - PHOTONS, ELECTRONS, POSITRONS
    - NEUTRINOS, QUARKS
    - PROTONS, NEUTRONS

- COSMIC RADIATION BACKGROUND

- ATOMS
  - MATTER
  - PHYSICAL WORLDS (6)
    - (GALAXIES, SOLAR SYSTEMS)
    - OUR SOLAR SYSTEM (4.6 B Yrs)
    - PLANETS
    - OUR PLANET EARTH (4.6 B Yrs.)
    - CRUST, OCEANS, ATMOSPHERE (4.3 B yrs)
    - OXYGEN PRODUCING MICRO ORGANISMA (2.7 B Yrs)
    - OXYGEN RICH ATMOSPHERE (2.00 B Yrs)
    - SEXUAL REPRODUCTION ORGANISM (1.00 B Yrs)
    - MULTI CELLED ANIMALS (680 M Yrs)
    - ANIMALS WITH SHELLS & SKELETON (570 M Yrs)
    - LAND PLANTS (435 M Yrs)(7)
    - LAND ANIMALS (410 M Yrs)(8)
    - HOMO ERECTUS (3.5 M Yrs)(9)
    - HOMO SEPINES (.15 M Yrs)
    - NEANDERTAL MAN (.1 M Yrs)
    - PRESENT HUMAN (.03 M Yrs)
    - SPIRITUAL MAN (.005 M Yrs)
    - SCIENTIFIC MAN (.003 M Yrs)
### Table-III

#### AGE OF THE UNIVERSE

<table>
<thead>
<tr>
<th>Yuga/Period</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Krita Yuga</td>
<td>-1,728,000 Years</td>
</tr>
<tr>
<td>Treta Yuga</td>
<td>-1,296,000</td>
</tr>
<tr>
<td>Dwapara</td>
<td>-8,64,000</td>
</tr>
<tr>
<td>Kali</td>
<td>-832,000</td>
</tr>
<tr>
<td>1 MAHA YUGA</td>
<td>4,320,000</td>
</tr>
<tr>
<td>71 MAHA YUGAS</td>
<td>1 MANUKALA</td>
</tr>
<tr>
<td>14 MANUKALAS</td>
<td>1 KALPA</td>
</tr>
<tr>
<td>2 KALPAS</td>
<td>-DAY OF BRAHMA</td>
</tr>
<tr>
<td>360 days is Brahma</td>
<td>1 Year of Brahma</td>
</tr>
<tr>
<td>100 years of BRAHMA</td>
<td>1 SRISHTI</td>
</tr>
</tbody>
</table>

**AGE AS ON TODAY:**

POORVA PARARDHA=50 Yrs of Brahma

Sweta Varaha Kalpa, 6 Manvantaras

Vaivasvata Manvantara (7th Manvantara), 27 Mahayugas

we are in Kali Yuga of 28th Mahayuga.

On calculation it is 157,372 billion years from the origins.

Scientists have put the Age of the Universe at 15 to 20 billion Years, and

our solar System at 4.6 billion years.
### SPACE AND TIME

<table>
<thead>
<tr>
<th>SPACE</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Paramanu</td>
<td>2 paramanus</td>
</tr>
<tr>
<td>8 Trasarenu</td>
<td>3 Anus</td>
</tr>
<tr>
<td>8 Radha renu</td>
<td>3 Trasarenu</td>
</tr>
<tr>
<td>8 Valagras</td>
<td>3 Vedhas</td>
</tr>
<tr>
<td>8 Yukshas</td>
<td>3 lavas</td>
</tr>
<tr>
<td>8 Yavas</td>
<td>3 Nimeshshas</td>
</tr>
<tr>
<td>8 Angulas (Inch?)</td>
<td>5 kshanas</td>
</tr>
<tr>
<td>4 Angulas</td>
<td>15 Kashtas</td>
</tr>
<tr>
<td>3 Bethas</td>
<td>15 laghus</td>
</tr>
<tr>
<td>(12 Angulas)</td>
<td>2 Nadikas</td>
</tr>
<tr>
<td>96 Angulas</td>
<td>6 Muhurtas</td>
</tr>
<tr>
<td>8000 Dhanus (9 Miles or 1.4.4 Kms)</td>
<td>4 Jamus</td>
</tr>
<tr>
<td></td>
<td>8 Jamus</td>
</tr>
<tr>
<td></td>
<td>1 day or night (12 hours)</td>
</tr>
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<td></td>
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</tbody>
</table>

Surprisingly, most modern Quartz Watches are working on the principle of Anu, Which the Maharshi envisaged thousands of yrs. back.

Also the 'meter' (100cm) is defined to be the distance traveled by light in $3 \times 10^9$ seconds as measured by a cesium clock.

### Table-V

**SĀYANA'S CALICULATION OF SPEED OF LIGHT**

SĀYANA (1315-1387) writes on the 4th verse of Rig Vedic hymn 1.50

TATHA CHA SMARAYATE YOJANANAM
SAHASRE DVE DVE SATE DVE YOJANE
EKENA NIMISHARDHENA KRAMAMANA

THUS IT IS REMEMBERED (OH SUN), YOU
WHO WOULD TRAVERSE 2202 YOJANAS
IN HALF NIMESH

Taking 1 Yojana as 9 miles as in Artha Sastra, and time-
15 nimeshas – 1 kashta
30 Kashtas – 1 Kala
30 Kala – 1 muhurta
30 muhurtas – 1 day and night (24 hours).

On calculation 1 nimesha = $86,400 \div 405,000 = 0.2133 = 16/75$ sec.

Speed of light = $2202 \times 9 \times 150 \div 16 = 185,793$ miles/sec

$\equiv 186,000$ miles/sec.