List of VM Consolidated documents of Dr. S. K. Kapoor

List 2 Different aspects of Vedic Mathematics

Article 44
MULTI DIMENSIONAL TIME AND SPACE

VEDIC WISDOM

Vedic wisdom is lively in the consciousness of living saints. It is also well preserved in the Vedic literature. The inner evidence of the available Vedic knowledge of the available Vedic literature makes it out that originally the whole range of the pure knowledge i.e. Vedic knowledge was vibrating from a single wholesome Ved. Subsequently this knowledge was organized by Maharishi Ved Vyas as four Veds namely. Rigved, Yajurved, Samved and Atharvved.

The knowledge of Rigved admitted 21 branches while the knowledge of other three Veds namely, Yajurved, Samved and Atharvved respectively admitted 101, 1000 & 9 branches. The organizational format of each Vedic branch consisted of four folds designated as Samhita, Brahmana, Aryanak and Upanishad. As such 21+101+1000+9=1131 Vedic branches had 1131 Samhitas, 1131 Brahmanas, 1131 Arynaks and 1131 Upanishads. These 1131x4 = 4524 scriptures together came to be known as Vedic wisdom. In addition corresponding to each Ved, as applied value of the pure knowledge of the Ved is Upved. The four Upveds are Ayurved, Dhanurved, Gandharvved and Sthapathyaved. Our present day mathematics, science and technology come within the

range of Sthapatyaupved. Manasara is one such scripture of Sthapatyaupved.

MANASARA : SCRIPTURE OF STHAPATYAUPVED

Sri Prasana Kumar Acharya had done a wonderful job of reconstructing the text of Manasara and preparing its translation in English and by drawing the plates.

The scripture begins with the prayer to Lord Brahma, the Creator, the supreme and ends with the chiseling of third eye of the idol of Lord Shiv. The broad organization of the scripture is of the range of 70 chapters with first eight chapters constituting a primary group-I. The next ten chapters i.e. chapter 9 to 18 constitute a primary group-II. Then comes the central part of the Mansara. Chapter 19 to 30 cover single story building to 12 storied buildings. These 12 chapters constitute a central group-I. Next 20 chapters i.e. chapters 31 to chapter 50 cover central group-II and with it the subject of architecture as such is completed. Then follows the subject of sculptures. The science of sculptures covered in chapters 51 to 70 can be organizationally divided in two sculptural groups. Chapter 51 to 65 constitute sculptural group-I and chapters 66 to 70 constitute sculptural group-II.

SPACE TIME

The above topical division of the text has an organizational message of great importance as in terms of it we may reach at the geometric format of the organization of the knowledge of the scripture.

As the scripture begins with the prayer to Lord Brahma, the overlord of real 4-space and ends with the chiseling of third eye of Lord Shiv, the overlord of real 5-space, therefore, geometric format at the dimensional level is bound to be spatial with the flux of time being solid.

In short, the space time frame at the dimensional level is going to be E^2 (space) $\times$ E^3 (time). In terms of this dimensional order we shall be manifesting working geometric domain within the space time frame $(E^2)^4$ (space) x E^3 (solid time). Here (today) we shall be concentrating upon the concepts and comprehensions of dimensions of space and time in Manasara. In a way, we shall be taking up the topic of space, time and space time in the light of Vedic wisdom. In the context, it may be relevant to note that the modern thought, mathematics, science and technology is speculating the general space time frame as E^3 (space) $\times$ E^1 (linear time).

The modern thought, mathematics, science and technology centre around linear dimensional reality but the Vedic systems avail multidimensional reality. The studies of the organizational formats of various Vedic scriptures reveal that higher dimensional geometric formats are being availed to organize the pure knowledge. Illustratively, we may take the case of the oldest book of mankind namely, Sakla Rigved Samhita.

RIG VED SAMHITA

Fortunately Rigved Samhita is intact with us from first syllable to the last syllable and as the tradition goes, the whole range of Vedic knowledge is lively in this scripture of 432000 syllables, out of which 397265 syllables are manifest text while remaining 34735 syllables go deep as organizational format of the text and as such remain un-manifest.

For the present, we may accept it an axiom that knowledge and organization of knowledge are two distinct aspects of knowledge. Being scriptural text, we get the organized knowledge and as such both organization format and the text are to be accepted as the knowledge content of the scripture. It is like a truck with goods yielding weight of the truck as well as of the goods loaded in the truck.

Organisation of Rigved Samhita

Total knowledge contents	432000 Syllables
Manifest text	397265 Syllables
Mandals	10
Ashtaks	08
Chapters	64
Anuvaks	85
Suktas	1028
Vargas	2024
Richas	10552

Mathematical Basis

Mathematical basis of the organisational format of the Rigved Samhita reveals that the Vedic knowledge is organised on geometric format of real 6-space. It admits 4-space in the role of dimension while modern thought, mathematics, science and technology centre around 3-space reality and as such Veds are invincible fort for the modern mind. As such, we have to learn and understand the Vedic wisdom. For this we have to re-examine the rationale and basis of our axioms and postulates for accepting the reality as linear dimensional one. It is only by approaching the Vedic knowledge, the Vedic way, that we may have real bliss of Vedic wisdom.

PART II : HIGHER DIMENSIONAL REALITY

MATHEMATICAL BASIS OF VEDIC LITERATURE

Studies of mathematical basis of available Vedic literature reveal that 4 and higher dimensional reality was not only known to the Vedic seers rather the great use thereof was made by them for organization of pure knowledge.

Let us concentrate upon the nature of space around us. We can see that straight line is a track of a moving point while plane is a track of a moving (straight) line. Likewise, moving plane shall be creating solid space. More precisely, if we reinvestigate this phenomenon with the help of a point, interval, square and cube, we shall be noticing that moving point accepts line as its track, moving interval accepts square as its track and moving square accepts cube as its track. This would pose a question: What is the nature of the track of moving cube/solid /3-space body/ 3-space setup or in the general, 3-space it self?
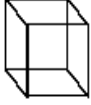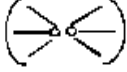
HYPERCUBES 4, 5, & 6

To answer the same let us mathematise this situation as:

Taking point as a representative regular body of 0 space, interval, square and cube respectively as representative regular bodies of 1, 2 & 3 space, we may conclude that moving 0-space (body) accepts 1-space format, moving 1-space (body) accepts 2-space format; moving 2-space body accepts 3-space format, and as a logical consequence the moving 3-space body shall be requiring 4-space format. And in general, moving n-space body shall be requiring (n+1) space format. For convenient handling.

We may define and designate four and higher dimensional bodies in continuation of interval, square and cube as hypercubes. To be precise hypercube 4 shall be a representative regular body of 5-space and so on. Further to facilitate comprehension of main properties of hypercube and for symbolic representation of the set of properties synthesizing hypercube it would be desirable to have suitable symbols for them, particularly for hypercube 4, 5 and 6 for reaching at the concepts and comprehension of multi-dimensional spacetime frame being availed for organization of the knowledge of Manasara.

Let these 3 special symbols of hypercube 4, 5 & 6 be as:

Interval	Square	Cube	Hypercube-4	Hypercube-5	Hypercube-6
——	□				
1-space body	2-space body	3-space body	4-space body	5-space body	6-space body

To have these symbols in continuity of the geometric setup of interval, square and cube, we have to first comprehend these geometric setups. As such, let us have a close look at the geometric setup of interval, square and cube. If we have close look at the geometric setup of interval, square and cube, we may comprehend that interval has length (A^1) and 2 boundary points ($2A^0$) Square has area (A^2) and 4 boundary line ($4A^1$) and cube has volume A^3 and 6 boundary surfaces ($6A^2$).

$A^1:2A^0$, $A^2:4A^1$ and $A^3.6A^2$ suggest a common formulation $A^n.2nA^{n-1}$, n=1, 2, 3.

This formulation would hold for all values of n. In particular, for n=4 5 & 6 we shall be getting $A^4:8A^3$, $A^5:10A^4$ and $A^6:12A^5$. The geometric message is that boundary of 4-space body is constituted by 8 cubes while the boundary of 5-space body is constituted by 10 hypercubes-4 and so on.

The boundary components of interval, square, cube and hypercubes 4, 5 & 6 are in the ratio 2:4:6:8:12.This would help us comprehend, appreciate and have the symbols of hypercube 4, 5 & 6 in continuity of and in that sequential order, hypercube 4, 5 & 6 with boundaries as:

| Cube | Hypercube-4 | Hypercube-5 | Hypercube-6 |
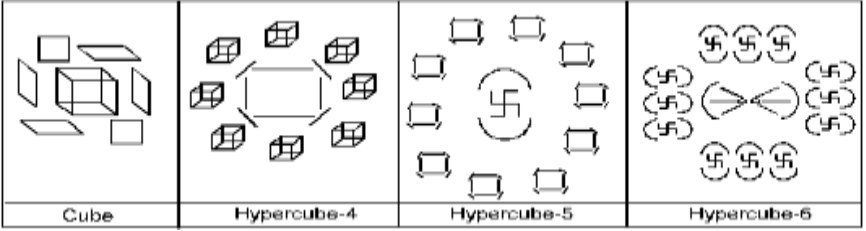
SHAD CHAKRA FORMAT OF HUMAN BODY

Further it would help us comprehend and appreciate the Upanishad knowledge regarding the Shadchakra format of human body as that:

अथ बहिर्लक्षणाम्। नासिकाकग्रे चतुर्भि षड्भिरष्टभि. दशभि. द्वादशभि. कमात्।

The external characteristics, ahead of tip of nose, are four, six, eight, ten and twelve in that sequence.

These, as is evident are parallel to the sequence an order of boundary components of square, cube, hyper cubes-4, 5 and 6 as being four (lines), six (surface plates), eight (solid components), ten (hyper solid-4 component) and twelve (hyper solid five component) respectively.

With this the Shad-Chakra format of human body accepting Sathapatya measuring rod constituted by representative regular bodies of 1 to 6 Space makes the human existence as within human frame of Shad Chakra format is of the order and as of format which is to run parallel to the manifestation and de-manifestation processes of flow of Jyoti from orb of the Sun through its rays.

CONCLUSION:

The conclusion of all conclusions comes to be that Vedic systems have successfully unified whole range of knowledge as a single discipline accepting Sathapatya measuring rod.

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