Mathematics in Vedas

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Abstract—**Popular numerical system including zero and decimal are the great contribution of Indian into the subject of mathematics. India was having a rich knowledge about the mathematics in ancient Vedic era. We can have the decimal numbers mentioned in the holy mantras and religious scriptures in Vedic era. The important numerical system, invented by ancient scholars of ancient India is mentioned in this paper. We can find that the contribution of mathematics in Vedic era is available many centuries before Christ. It's very important that the Indian Mathematics is a great gift to the entire world**

Keywords—*Vedic era, mathematics*

MATHEMATICS IN VEDAS

Vedas have been considered as the first written book in the entire world. When the entire world is not at all having an art of writing, our Indian Scholars written the Vedas and had given the knowledge to the entire world. We still can find the roots of modern mathematics in Vedas. In Taittariya Sanhita [1] the number system is written with decimal numbers.

शताय स्वाहा सहस्राय स्वाहा अयुताय स्वाहा नियुताय स्वाहा प्रयुताय स्वाहा अर्बुदाय स्वाहा न्यर्बुदाय स्वाहा समुद्राय स्वाहा मध्याय स्वाहा अन्ताय स्वाहा... पराधाय स्वाहा

Let's take another example from Rugveda [2]. Again, the decimal number system has been explained in Rigveda which is the oldest written scripture in the world.

आ विंशता त्रिंशता याह्यर्वाङ् चत्वारिंशता हरिभिर्युजानः |
आ पञ्चाशता सुरथेभिरिन्द्रा षष्ट्या सप्तया सोमपेयम्

This means that the sages from Vedic Era are prating to the Lord Indra. They are requesting Indra to come and drink the holy water. The Lord Indra should come by his vehicle called Ratha. This vehicle had been driven by horses. Sages are requesting the Lord Indra to sit in a vehicle which has twenty wheels, thirty wheels, forty wheels, fifty, sixty and seventy wheels.

It includes the decimal numbers. Sages made some calculations and invented this series.

Vedic rishis calculated four-digit numbers as well. This is nicely explained in Rugveda [3]

त्रीणि शता त्री सहस्राण्यग्निं त्रिंशच्च देवा नव चासर्पयन् |

This means that three thousand three hundred thirty-nine Gods worshipped the Lord Agni.

This is such a big four-digit number mentioned in Rigveda.

Another example, we can have from Yajurveda which also proclaimed the decimal number system. Let's take an example from Yajurveda [4]

इमा मे ऽ अग्र ऽ इष्टका धेनवः सन्त्व् एका च दश च दश च शतं च शतं च सहस्रं च सहस्रं चायुतं चायुतं च नियुतं च नियुतं च प्रयुतं चार्बुदं च न्यर्बुद‍ समुद्रश् च मध्यं चान्तश् च परार्धश् चैता मे ऽ अग्र इष्टका धेनवः सन्त्व् अमुत्रामुष्मिंल् लोके ॥

This means that, Oh Lord Agni ! The bricks have been used to construct the Yagya Kunda (Fire Pit). These bricks have been used in a bigger quantity as follows:

eka (एक)	one	$(10^0=1)$
daśa (दश)	ten	$(10^1=10)$
Śata (शत)	hundred	$(10^2=100)$
sahasra (सहस्र)	thousand	$(10^3=1,000)$
ayuta (अयुत)	ten thousand	$(10^4=10,000)$
niyuta (नियुत)	hundred thousand	$(10^5=100,000)$
prayuta (प्रयुत)	million	$(10^6=1,000,000)$
koṭi (कोटि)	ten million	$(10^7=10,000,000)$
arbuda (अर्बुद)	hundred million	$(10^8=100,000,000)$
nyarbuda (न्यर्बुद)	billion	$(10^9=1,000,000,000)$

Samudra (समुद्र)	ten billion	(10^10=10,000,000,000)
madhya (मध्य)	hundred billion	(10^11=100,000,000,000)
antya (अन्त्य)	trillion	(10^12=1,000,000,000,000)
parardha (परार्ध)	ten trillion	(10^13=10,000,000,000,000)

REFERENCES

[1]. Taittariya Sanhita 7.2.49
[2]. Rugveda 2.18.5.
[3]. Rugveda 3.9.9
[4]. Yajurveda 17.2