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Institute of Scientific Research on Vedas
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Summary of the Proceedings of

INTERNATIONAL SEMINAR

on

“Determining Cultural Continuity since Vedic and Epic Eras: Through Sequential Dating of Astronomical References and other Corroborating Scientific Evidences”

(23-24 February, 2014)

(Important Note: This Seminar was an attempt at finding scientific answers to the following questions-

- 1. Do astronomical references in Rigveda refer to the period 7000 BC to 4000 BC?*
- 2. Was Lord Ram born on 5114 BC and what is the truth behind Ramsetu?*
- 3. Was Mahabharata war fought in 1792 BC?*
- 4. Are the astronomical dates corroborated by other scientific evidences?*
- 5. Has there been a cultural continuity in India for last more than 9000 years?)*

The Seminar was organized by Delhi Chapter of I-SERVE at the auditorium of the Civil Services Officers Institute, Chanakyapuri, New Delhi. Hon'ble Dr. Karan Singh, Member of Rajya Sabha and Chairman of ICCR, delivered the Inaugural Address on 23rd February.

Smt. Saroj Bala, Director, I-SERVE Delhi Chapter, while welcoming the Chief Guest and all the participants, gave a brief description of the objectives and activities of I-SERVE and explained the theme of the seminar. I-SERVE was established in 2004 under the chairmanship of Prof. K. V. Krishna Murthy, with Shri R. Venkataraman, former President of India, as its Patron-in-chief. She informed that I-SERVE Delhi Chapter has been working on a research project titled, ***Scientific Dating of Ancient Events from Rigveda to Aryabhatiyam: through astronomical dating of planetary references by making use of planetarium software and corroboration with archaeological, anthropological, paleobotanical, geological, ecological, oceanographic and remote sensing evidences.***

Smt. Saroj Bala, as the Chief Research Coordinator, briefed the participants about the achievements of the research carried out so far. She informed about the immense success of the previous seminar titled: "Scientific Dating of Ancient Events before 2000 BC" held in July, 2011 (inaugurated by H.E. Dr. A.P.J. Abdul Kalam) and its outcome in the form of the book '**Historicity of Vedic and Ramayan Eras: Scientific Evidences from the Depths of Oceans to the Heights of Skies**'. Pointing to a lot of inconsistencies in the modern writings on India's heritage, she said that serious injustice had been done to our understanding of the antiquity and richness of India's cultural heritage by scholars having a colonial mindset. She gave the example of books that place the time of *Mahabharata* earlier than *Ramayana*. In order to dispel this belief, she drew attention to 'An Index of Names in *Mahabharata*, by S. Sorensen, 1904', which lists more than 600 references to *Ramayana*, spread over thirteen *Parvas* of *Mahabharata*.

She added that I-SERVE is striving hard to bring the truth of India's rich heritage to light. Encouraged by the response from scientists and scholars, I-SERVE Delhi Chapter has organized the present seminar to showcase the results of its recent researches covering *Scientific dating of astronomical references from Rigveda to Mahabharata* and determining cultural continuity since those times along with corroborating evidences from other scientific disciplines. Besides astronomical dating, the presentations include human Genome studies of populations, Geological and Seismo-tectonic evidences, Archaeological findings on human settlements, Radio-carbon dating, Paleo-botanical studies, Remote-sensing studies of paleo-channels of Vedic river Saraswati, continuity in arts and crafts through ages and Science and Technology since Vedic time.

Hon'ble Dr. Karan Singh, Member of Rajya Sabha and Chairman, ICCR, while delivering the inaugural address, said that Vedic civilization was probably the oldest civilization of the world and that Vedas were not only superb poetic compositions but also contained the divine truth perceived through the elevated consciousness of great seers. He said that people tend to take the achievement of the past to the extreme—either dismissing the achievements completely or going hyperbolic. Neither is correct. He lauded the efforts of I-SERVE and added that the critical approach will help in enhancing our knowledge for looking at things objectively.

Shri Ashok Bhatnagar, Technical Director, I-SERVE (former Director, Positional Astronomy Centre and Additional DG, India Meteorological Department) presented his research on determining the time of *Mahabharata* war to put it in proper perspective with reference to the time of Rigveda (-7000), *Ramayana* (-5114) and *Shatapath Brahmana* (-2174), determined by I-SERVE earlier. In the past, various scholars have worked out numerous dates for *Mahabharata*, ranging from 5600 BCE to 800 BCE based on a few events picked up from the epic. This is the first time that a date is determined by I-SERVE that reproduces/explains all the astronomical events taken from 27 *Slokas* covering six different *Parvas*, all consistent with each other, falling in correct sequence accurately.

The strategy adopted was to first narrow down the search period by tying up *Kartik* month to autumn season as described in great detail in the epic. Shri Bhatnagar used the *Planetarium Gold* software for sky simulation to obtain this period, ranging from the year -2150 to -1280, beyond which, *Kartik* loses its connection with autumn season. Next, a search was made for the eclipses as described in *Mahabharata* over this period (actual available from -1999 onwards; searched up to -740), using the latest Canons of eclipses published by NASA. Finally, he used the calendric details about Winter Solstice as given in the text, determined the precession in longitude of Magha (α Leonis) and simulated the details to obtain the date, from where the rest of the sequence of events in *Mahabharata* followed accurately. He, then, analyzed the planetary positions described in the text on the basis of their astrological context and usage and resolved most of the ambiguities found by earlier scholars in the original text. Shri Bhatnagar has determined 14 October, -1792 (1793 BCE) (Gregorian) as the date of beginning of *Mahabharata* war. This date was corroborated by other scientific presentations on Archaeological, Paleo-seismic and human genome studies. Such accurate description of astronomical and seasonal events, which, on simulation is found to match sequentially, shows that the events were actually observed and recorded in *Mahabharata*. Shri Bhatnagar showed that the astronomical and calendric framework that evolved from the Vedic times through *Mahabharata* has survived until the present and forms the backbone of Indian cultural life to this day.

Prof. B.N. Narahari Achar of University of Memphis, USA made the next presentation on Astronomical dating of *Mahabharata* era. He stated that he first made this presentation elsewhere thirteen years ago. In his presentation, he examined the work of dating of *Mahabharata* by four scholars, namely, Kochhar (showing the date as 955 BCE), Sidharth (1131 BCE), Sengupta (2449 BCE) and Raghavan (3067 BCE). He chose a set of astronomical data from *Udyoga Parvan*, viz., (i) *the month and nakshatra of Krishna's departure for peace talks*, (ii) *talks fail on Pushya*, (iii) *Amavasya falling after seven days* and (iv) *Position of Saturn and Mars*, and tested the work of these scholars against these benchmark data using planetarium software. He said that the benchmark data could be reproduced only for Raghavan's date of 3067 BCE. He has also tried to explain the alternate positions of Jupiter and Saturn as given in *Bhīshmaparva* by introducing the term 'sons of' before them and interpreting the same as comets.

Out of the above two dates, I-SERVE is inclined to favour the date (Gregorian) 14 October -1792 i.e. 1793 BCE [equivalent to Julian 28 October 1793 BCE] for the beginning of *Mahabharata* war. This date has been determined by Shri Bhatnagar and I-SERVE team after carrying out in depth research for several years, during the course of which astronomical dates of *Mahabharata* war determined by almost all the scholars and scientists had been verified with sequential references in *Mahabharata*, by generating sky views using planetarium software. The reasons for this assertion are stated as under:-

Bhatnagar has conducted a more exhaustive study analysing the events described in 27 slokas from six different Parvas of Mahabharata, all reproduced sequentially with full internal consistency, whereas Prof. Achar has tested Raghavan's date (3067 BCE) based on 4 events data from one *Parva* alone. Raghavan's date (Julian) for Krishna's departure does not conform to end of autumn season as clearly described in the same *sloka* used by Prof. Achar as benchmark, but falls nearly 22 days earlier in the rainy season over Delhi/Hastinapur. The other dates determined by Raghavan are in error by 3 to 12 days, e.g., Winter Solstice is shown to occur on Magha Sukla 5 instead of Magha Sukla 8 at the time of Bhishma's demise. The time elapsed from the beginning of war upto the time of Bhishma's demise, from Raghavan's dates, comes out as 56 days instead of 68 days quoted in many slokas. Further, the date -1792 worked out by Shri Bhatnagar was corroborated by other scientific studies too. Interestingly, marine scientists of National Institute of Oceanography, Goa have discovered remains of the lost city of Dwarka lying 3 to 5 m below the present sea level. They have determined the fluctuations of the sea level during past 15000 years and produced the 'Holocene Sea Level Curve'. This curve shows that the sea level was about 3 to 5 m below the present level around 3700 years ago. Thereafter it rose to about 5 m above the present level indicating Dwarka's inundation as given in Mahabharat. The time matches perfectly with the year of -1792, as the date of Mahabharat war determined by I-SERVE.

In the next presentation, **Dr. Gyaneshwar Chaubey**, a well-known Genome Scientist from Estonian Biocentre, stated that several tribes mentioned in Ramayana and Mahabharata, e.g. Bhil, Gond and Kol etc., have existed and developed in India for thousands of years. Supported by research data, he announced that this ancient gene pool matches the gene pool of modern populations of India and that there was no influx from outside. He also confirmed that signature of internal migration of population from western India towards east can be found around 18th century BCE in the data, suggesting sudden natural calamity leading to drying up of rivers near their settlements.

Dr. C.M. Nautiyal, Scientist, Birbal Sahni Institute of Palaeobotany, Lucknow, made a presentation on plants mentioned in Epics and correlated these with paleobotanical remains of plants which have been found in India, for thousands of years. He showed the sites in the Gangetic plains where early farming tradition continued from 7000 BCE to 2000 BCE followed by advanced farming phase.

Dr. B.K. Bhadra, eminent scientist from ISRO presented the satellite images of paleo-channels of ancient Saraswati river from Mansarovar to Dwarka. These revealed that 6000 to 8000 years back (during Ramayana Era) Saraswati was flowing with full majesty; however it almost dried up by Mahabharata time i.e. around 1700 BC, visible only as ponds and sub-surface drainages. Their findings corroborated the astronomical dates of these Epics.

Dr. K.S. Valdiya of Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, made an interesting presentation on the Puranic description of Asian landmass, identified major geological features on it with the description, people inhabiting different parts and their close interaction and the underlying efforts from the ancient times to unify the populations residing in different parts of India. He stated that the time of Mahabharat was most likely around 3500 BP (Before Present) as three independent lines of evidence led to almost the same conclusion. He supported the new finding by I-SERVE of the exact year of Mahabharata war as -1792.

Dr. Kapil Kapoor, former Pro- Vice-Chancellor of the JNU, New Delhi, in a special address showed how, with the development of language, the thought process has evolved and pointed to the continuity of knowledge in India for thousands of years and related it to the great wisdom found in the most common Indian.

Shri Kulbhushan Mishra & Dr. Vimal Tiwari, eminent Archaeologists, spoke on the signatures of human settlements before 1500 BC in the Indian subcontinent and discussed the archaeological investigations carried out during last 3/4 decades in the Indian subcontinent have shed significant light on the beginning of village settlements and development of civilization from the northwest frontier on the west through Kashmir and the dried-up river beds of Saraswati–Drishadvati divide to the Ganga plain on the east.

In their presentations they said that remains of cities, houses, plants, metallurgy from several sites such as Mehrgarh, Kot Diji and Nausharo in Indus valley in the north-west; Bhirana, Banawali and Kalibangan in the Saraswati valley; Lothal and Dholavira, Padri, Prabhas, Dwarka and Bet Dwarka in the west; Lahuradeva, Jhusi, Tokwa and Hetapatti in Ganga Valley in the east are dated more than 5000 years old. The excavations in 1974 onwards at Mehrgarh, Lahuradeva, Jhusi and Tokwa have further pushed back the antiquity of settled village life to 9th millennium BP. Mehrgarh excavations have revealed seven occupational levels, giving striking evidence of continuous occupation and cultural development from 7th to 2nd millennium BC.

While speaking on Harappan civilization it is shown to mainly confine to the plains of entire Indus and Saraswati Valley. The excavations at many sites, particularly at Harappa, Mohenjodaro, Kot Diji, Amri, Kalibangan, Dholavira and Bhirana have revealed that by 4th millennium BC the settled village societies started developing into urban settlements and this story of indigenous development of civilization continued thereafter up to late Harappan period (1600/1700 BC).

They elucidated material testimonies found at these excavations throwing sufficient light on various aspects of Indian culture such as a female figurine of terracotta having vermilion on her medial portion of hair (a sign of being married amongst Hindu women); an ivory comb from Mohenjo-daro; agricultural field of Kalibangan; terracotta model of a plough from Banawali; games objects like terracotta gamesmen from Lothal,

stone gamesmen from Dholavira and a terracotta cubical dice from Mohenjo-daro; painted jars having depictions of the story i.e. 'The Thirsty Crow' and 'The Cunning Fox' from Lothal. Thus it is very clear that most of our cultural traits have their deep roots and still continue in various forms in the day today culture of India.

Prof. Vasant Shinde, V.C. of Deccan College Post Graduate Research Institute, Pune made a presentation on art and craft from Rig Vedic and Harappan time. He elucidated in detail the cultural developments and the advancement of civilization by showing evidences of artifacts found at different sites and showed continuity from Vedic times through Harappan period and upto the present.

Dr. N.S. Rajaram, an eminent author and indologist, said that archaeology and literature had been kept separated through an imagination known as the Aryan invasion theory, of which there is no scientific basis. He showed that there was no discontinuity and Harappan and Aryan civilizations were part of the same continuous development. He explained that there were references to three famous Harappan seals (namely Unicorn, Humped Bull and Three Animal Headed Mudra) in Mahabharata.

Prof. Krishna Bihari Pandey, Former Vice-Chancellor of C.S.J.M. University, Kanpur and former Chairman of U.P. Public Service Commission, made very interesting presentation on the achievements in the field of science and technology in ancient India. He reminded the participants about the inventions of Sushrut, Charak, Aryabhata and Bhaskaracharya etc. and emphasized the need for disseminating the scientific knowledge contained in ancient Sanskrit books. He explained in detail the scientific inventions of Vedic period in the fields of Astronomy, Mathematics, Ayurveda, Chemistry, Technology, Aeronautics, Physics etc. reproducing the relevant *slokas*. Hundreds of discoveries which are attributed to the modern scientists of Europe were actually documented thousands of years back by the scientists / *rishis* of ancient India.

Known worldwide for their knowledge of respective subjects, these scientists claimed that civilization and culture have been constantly developing for last ten thousand years and it is possible to scientifically determine the exact dates of events of the remote past. Most of the presentations clearly pointed towards indigenous development of civilization during last more than 8000 years and continuity of culture through all these years. Vedas represented the compilation of knowledge whereas Epics reflected the corresponding historical events of ancient India.

The general consensus was that the subject 'History' should be now placed under the Faculty of Sciences as a multi-disciplinary science subject so that true and precise history of the world, particularly of Indian subcontinent, is reconstructed based on multidisciplinary scientific evidences. As a result Vedas and Epics are likely to shift from realm of the mythology to the realm of history. This is also likely to result in raising the self esteem of all Indians in the antiquity of their cultural heritage. There is need to

disseminate the knowledge through universities, research institutions, schools and colleges. Through this seminar I-SERVE has taken second step in this direction. There is need to carry this research to its logical conclusion by launching at least 100 Ph.Ds on the subject by accepting the recommendation of His Excellency Dr. A.P.J. Abdul Kalam.

During Valedictory Function, **Shri Manbir Singh, Member of UPSC**, opined that while religion may be a matter of faith, researching into the true heritage is of utmost importance. **Justice Som Nath Aggarwal**, while delivering the Valedictory address, spoke about the antiquity of India's rich cultural heritage and threw light on our legal inheritance, particularly in family laws and principles of governance under Ram Rajya. He added that cultural heritage of India is much older than what is normally believed and a lot of efforts are yet to be made for unearthing the true facts. While lauding the efforts made by Smt. Saroj Bala and her team members from I-SERVE Delhi Chapter for carrying out multi-disciplinary scientific research, he highlighted that much remains to be still done and that 'there are miles to go before you sleep'.

I-SERVE is committed to work wholeheartedly in pursuit of its objectives.

I-SERVE Delhi Chapter Team