

**Third National E-Seminar on
“Achievements in Chemistry, Materials Science and Metallurgy in Ancient and Medieval India”
held on 25 February 2026**

Bhagini Nivedita College, University of Delhi, through its Indian Knowledge Systems Centre (IKSC) – Brahmadini, successfully organized the Third National E-Seminar under the banner of Viksit Bharat Abhiyan on 25 February 2026 at 6:30 PM in the online mode. The seminar was conducted on the theme “Achievements in Chemistry, Materials Science and Metallurgy in Ancient and Medieval India.”

The programme was chaired by Prof. Ruby Mishra, Principal, Bhagini Nivedita College, while the keynote address was delivered by Dr. V. Ramanathan, Department of Chemistry, IIT (BHU), Varanasi. The seminar was coordinated by Prof. Sushma Rana and organized under the guidance of the Organising Committee comprising Dr. Seema Gupta, Dr. Ashutosh Kumar, Ms. Anju Rani, and Mr. Sanjay Kumar Tiwari.

In his keynote lecture, Dr. Ramanathan presented a fascinating overview of India's rich scientific heritage in the fields of chemistry, materials science, and metallurgy. Drawing upon classical Indian texts alongside modern scientific interpretations, he demonstrated how ancient Indian scholars developed sophisticated techniques for the extraction, purification, and processing of metals. He explained the functioning of the Dola Yantra, a traditional metallurgical apparatus used for heating and purification, highlighting the advanced technological knowledge of early Indian laboratories.

The speaker further illustrated the scientific principles behind alloy formation through the modern Copper–Gold (Cu–Au) phase diagram, explaining how ancient Indian metallurgists controlled the purity of gold by adding precise quantities of copper, a practice corresponding to the early concept of the carat system. He also referred to historical records from the Chinese Sui Dynasty (581–618 CE), which acknowledged that the knowledge of zinc extraction and the manufacture of white copper (zinc–copper alloy) originated in India before spreading to China and West Asia. These examples underscored India's pioneering contributions to global metallurgical science and technological innovation.

The seminar witnessed enthusiastic participation from more than 100 scholars, teachers, and students from across the country. The interactive discussion that followed the lecture generated meaningful academic dialogue on the relevance of India's scientific heritage in contemporary scientific research and education. E-certificates were awarded to all registered participants upon completion of the programme. The seminar concluded with a vote of thanks, marking another successful academic initiative of the Indian Knowledge Systems Centre in promoting interdisciplinary understanding of India's knowledge traditions.



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deokant



Prof Mamta



Priyanshi



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20:06



zxp-zrga-kgz



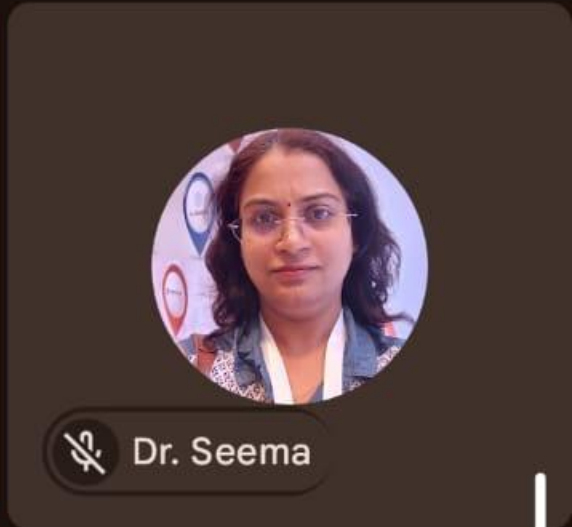
Dr V Ramanathan



Sushma



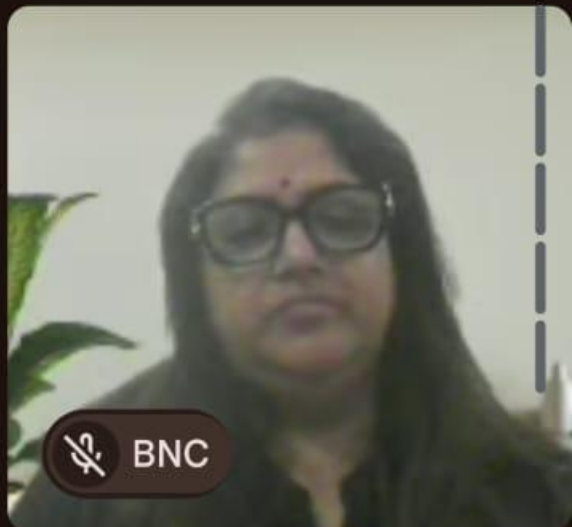
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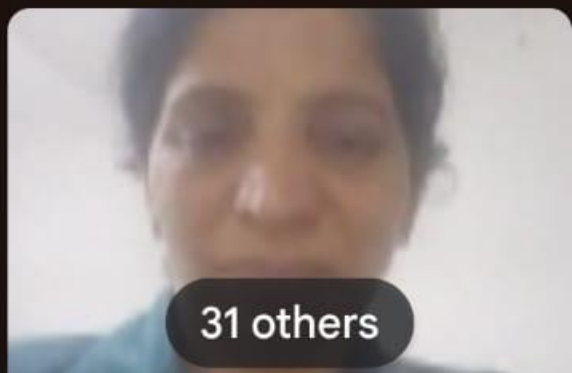
Dr. Seema



Raj



BNC



31 others

20:02

VoLTE 42%



zxp-zrga-kgz



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Prof Mamta



Priyanshi



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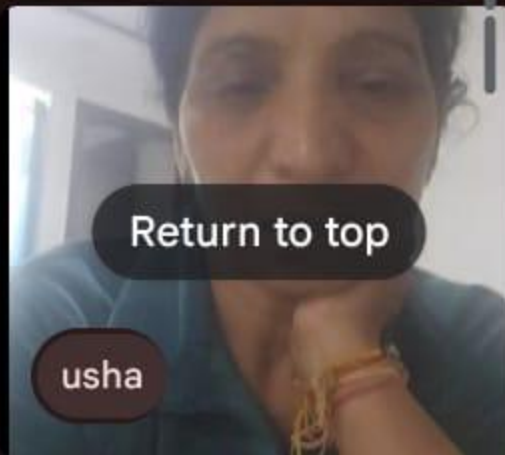
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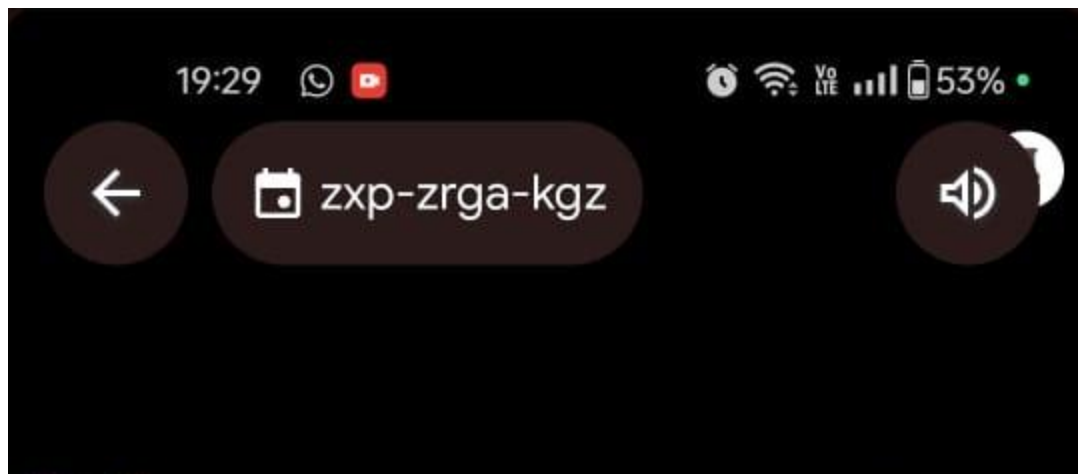
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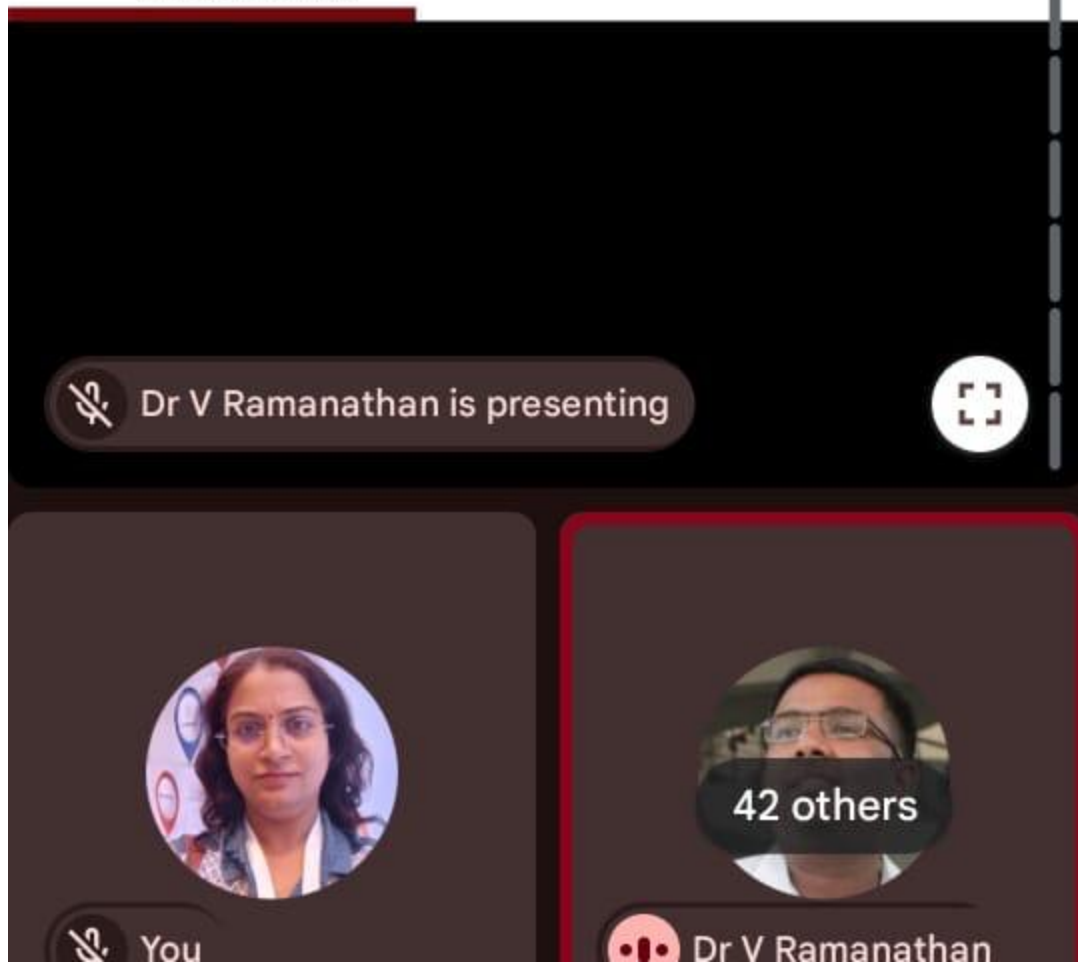
The Chinese verses that credit and acknowledge India for knowledge about zinc can be found in the Sui Shu or the Book of Sui, which was written during the Sui Dynasty (581-618 AD) in China. The relevant passage from the Sui Shu is as follows:

"在天竺國（印度）所產之白銅，有銅色而輕，故人多以為錫，又或以為白鐵，及其至大秦國（波斯）方知為白銅。其制法，即取銅礦，煉化而成。或用以鑄銅錢，或製銅器，其利出於銅。又有鉛礦，取其汁煉之，為五采之漆，故風俗喜用，蓋皆天竺所傳也。"

The English translation of the passage is as follows:

"The country of Tianzhu (India) produces a kind of white copper that is the color of copper but is light in weight. Therefore, people often mistake it for tin or white iron. It was not until it reached the country of Daqin (Persia) that people realized it was white copper. The method of production involves taking copper ore and refining it. It is used to cast copper coins or make copper utensils, and its profit exceeds that of copper. There is also lead ore, which, when extracted and refined, can be made into five-colored lacquer that is much admired by the people. All of these techniques were transmitted from Tianzhu."

"A History of Technology and Invention: Progress Through the Ages" by Maurice Daumas,
Crown Pub (1 March 1969)



19:56

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सत्यमेव जयते
Ministry of Education
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भद्रायां सुमतौ यतेम ॥

The Indian Knowledge Systems
Relevance and importance in a changing world

धन्यवाद!

BREAK THE MOULDS OF THE
PAST, BUT KEEP SAFE ITS GAINS
AND ITS SPIRIT, OR ELSE THOU
HAST NO FUTURE.

Contact Information

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Dr V Ramanathan is presenting



You



Sushma

43 others



19:45

Vo 48%



zxp-zrga-kgz



Dr V Ramanathan



Yantras/Instruments



सुखे तिर्य्यक्कृते¹ भाण्डे रसं सूत्रेण लम्बितम् ।

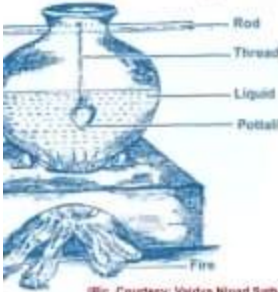
तं² स्वेदयेत् तल्लभगतं दोलायन्त्रमिति स्मृतम् ॥ ७ ॥

दोला यन्त्र

Dolā Yantra

इन्द्राग्नेयं धारयन्तं दुरितहारीविकल्पः सः।
सुखलब्धीभयसोऽङ्गात्तुल्यं कृत्वा इन्द्राग्नेयः॥
सर्वेषां निश्चिन्तनं तन्मार्गे रश्मिदालीयः।
काण्डे तु स्वेदयेत्तल्लभगतं यन्त्रमिति स्मृतम्॥

(सामान्यमुद्रण, १/३-४)



(Pic. Courtesy: Vaidya Nizad Sathya)



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12:00





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Prof Mamta



Priyanshi



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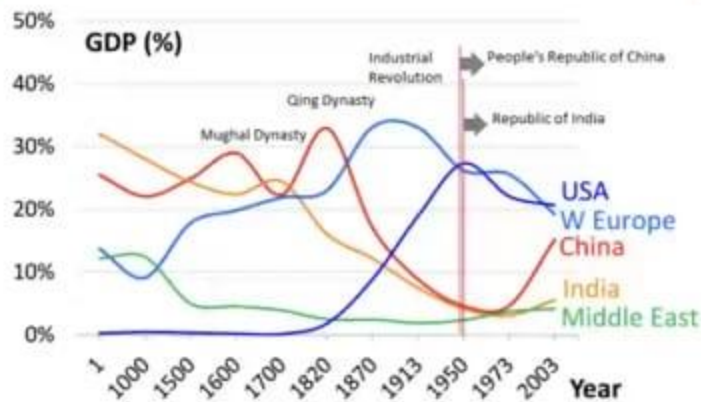


19:12

VoLTE 57%



zxp-zrga-kgz



Data from Angus Madison [Taken from the site: <https://www.nipfp.org.in/blog/2016/11/15/empire-and-extraction/>]

6



Dr V Ramanathan is presenting



49 others

Several participants joined the meeting

