

## Report

### INTERNATIONAL CONFERENCE ON RECONSTRUCTING THE HUMAN POPULATION HISTORIES OF SOUTH ASIA USING ARCHAEOLOGY AND GENETICS

June 7–9, 2023

THE International Conference on ‘Reconstructing the human population histories of South Asia using Archaeology and Genetics,’ was held during 7-9 June 2023 at CCAS, University of Kashmir, Srinagar. The conference was held under the umbrella of Emerging Insights on Human Histories and Past Environments in South Asia and was funded by the Ministry of Culture, Government of India under *Azaadi ka Amrit Mahotsav*. It was jointly organized by Birbal Sahni Institute of Palaeosciences, Lucknow, India and University of Kashmir, Srinagar, India.

The conference aimed at exchanging research works and ideas from different fields of archaeology, genetics,

anthropology, computational biology, geosciences, archaeobotany and zooarchaeology, encouraging a multi-disciplinary approach towards investigations in palaeosciences. This meeting was an opportunity to discuss modern scientific research as well as analysis tools. The conference was attended by ~60 experts in different associated fields of palaeosciences from all over the world, including UK, Chicago, Texas, and South Korea and several participants from India.

The Inaugural Session began with the National Anthem and Kashmir University Taraana, followed by lighting the lamp by the Chief Guest, Minister of State for Culture and External Affairs, Government of India, Smt Meenakshi Lekhi. The Honorable Minister was accompanied by Shri Sanjeev Sanyal, Member, Economic Advisory Council to the Prime Minister (EAC-PM), Government of India, Prof. Partha Partim Majumder, Founder Director, National Institute of Biomedical Genomics, Kalyani, India, Prof. Nilofer Khan, Vice Chancellor, University of Kashmir, and Prof Kumarswamy Thangaraj, Director and Chief Scientist, Center for DNA Fingerprinting & Diagnostics, CSIR-CCMB,



Smt. Meenakshi Lekhi, Honorable Minister of State for Culture and External Affairs, Government of India, in the inaugural session

Hyderabad, India. Prof. Kumarswamy Thangaraj delivered a special remark followed by an introduction and significance of the conference convened by Dr Niraj Rai of BSIP, Lucknow.

Shri Sanjeev Sanyal delivered a key-note lecture focussing on rethinking human movement along maritime routes. Prof. Partha Pratim Majumder's key-note threw light on the genetic structure of contemporary populations in South Asia: Learning more from ancient DNA research. Both key-note talks were concluded with a special remark by Prof. Nilofer Khan. With a memorable talk by the Honourable Minister of State for Culture and External Affairs, Government of India, Smt Meenakshi Lekhi, the inaugural session concluded.

More than 25 posters were presented from different studies by representatives of BSIP, University of Chicago, BHU, ASI, IITB and more. These studies exhibited different aspects like genetics, archaeology, archaeobotany, bioinformatics, palaeopathology, bone archaeochemisrty, and forensics from varied ancient sites.

Dr. Lalji Singh Memorial Talk, a Special Lecture on Human origin, culture and consequences: ancient and contemporary DNA perspectives, was delivered by Prof. Kumarswamy Thangaraj in which he explained the ANI

ASI ancestral components. Prof. B.R. Mani delivered an interesting talk on the Indian and Indo-Tokharian populations in Central Asia.

The post-lunch session was held at the archaeological site of Burzahom. The panel was chaired by Prof. Ravi Korisettar and Dr. Ajmal Shah, with a discussion by eminent speakers- Dr. R.S. Fonia, Prof. B.R. Mani, Dr. Mumtaz Yattoo and Dr. Niraj Rai. Dr R.S. Fonia gave an insight into the site of Burzahom. He gave a very detailed overview of the time period of the site and the importance of this neolithic site. He told the site is very important as it shows both aceramic and ceramic stages. The day ended with cultural programs showcasing the Kashmiri dance forms like 'rouf' and Kashmiri songs presented by the students of University of Kashmir.

In the first session of day two, four presentations were from the Trans and tethyan Himalaya. Dr. S.B. Ota presented a talk on the archaeology of mountain crossing and human adaptation in Ladakh during the Holocene'; Dr. Binita Phartiyal talked about 'Climatic variations in the last 20ka in Ladakh; Dr. Sonam Spalzin talked about the tribes Brokpa and Changpa of Ladakh and; Dr. Ekta Singh presented the archaeological investigations at Spiti Valley. Prof. J.S.



Group photograph (taken by renowned photo-journalist Mr. Pablo Bartholomew) at the archaeological site of Burzahom

Kharakwal talked about Archaeometallurgy in Zavar, Aravallis. Dr. Manjil Hazarika presented population prehistory of eastern Himalaya and adjoining areas of Northeast India. Dr. Nagendra Rawat talked about the spatial distribution of forts, their networking system, the strategic locations and architecture that contribute to their three rings of defence and Dr. Rayees Ahmad Shah discussed the palaeoenvironment of the Kashmir Valley from Last Glacial Maximum to Holocene. The session was moderated by Dr. Mumtaz Yattoo.

The session “New Frontiers in South Asian Archaeology (Part 1)”, was chaired by Dr. Maanasa Raghavan, with talks delivered by eminent speakers- Prof. Gamini Adikari, Dr. V.N. Prabhakar, Mr Kevin Viji. Dr. Prabhakar talked about ‘The Prehistoric Context of Khadir Island and its Contemporaneity with the Karachi and Omani Coast: Implications in Understanding the Antecedent Phases of Harappan Culture’. Mr Kevin Viji discussed the multiculturalism at the Early Historic port of Pattanam and the recent ceramic, skeletal and Iconographic evidence.

The next session focused on the genetic aspect of human history, was chaired by Dr. Biswajit Roy and Bhavna Ahlawat. Dr. Guy Jacob explained the signals of Neanderthal and Denisovan genetic variation in Asia. Dr. Niraj Rai presented works from different archaeological sites genetic ancestries and movements of the human population in temporal as well as spatial aspects. Dr. Maanasa Raghavan talked about the power of ancient and modern genomics in the South Asia. She also discussed an ethical framework that promotes transparent, inclusive, and sustainable scientific practices.

Human Genetic Histories using modern DNA session was chaired by Dr. Amit Kaushik. Dr. Ruwandi Ranasinghe discussed the overview of the genetic landscape of Sri Lanka. Dr. Florin Mircea discussed the evolution of human diversity in admixed populations in terms of skin colour diversity. Dr. Swarkar Sharma talked about the genetic structure of the population of Jammu and Kashmir. Prof. Mustak discussed the founder lineages of Lakshadweep Archipelago. The last session of the day on animal and crop domestication in South Asia discussed the horse in Harappan archaeology by Prof. Vijay Sathe. Prof. Joglekar discussed the archaeozoological studies in India while Dr. Pankaj Goyal talked about complex interactions between humans, animals and the environment. Dr. Jennifer Bates delivered an interesting talk on the history of rice in India. Dr. Sharada Channarayapatna discussed the multi-method investigation of Bhagatrav’s circular osseous artefacts and how to look if something is ivory or bone.

Chaired by Ms. Disha Ahluwalia the Day 3 session discussed the painted grey ware culture of India, the archaeological geography of Karmansa Valley and recent advances in mapping and documentation of archaeological sites by Prof. D.P. Tewari, Dr. Vikas Kumar Singh, Dr. Rabindra Nath Singh and Prof. KP Rao respectively.

The next session began after a visit to the Archeological Museum of Kashmir University. The session was chaired by Dr. Maanasa Raghavan. Dr. Sheela Athreya discussed the Paleoanthropological aspects in South Asia. Prof. Jayanta Kumar Nayak talked about the genetics and social histories of the Bondo Highlanders (PVTG) of Odisha. Dr. Umesh Kumar threw light on the adaptation of Jarawa to the island ecosystems. Dr. Amita Gupta talked about the Copper and Iron smelting remains in the Garhwal Himalayas. The eighth session on Paleo-environmental proxies and climate change in the deep past was chaired by Dr. R.S. Fonia. Dr. Vandana Prasad discussed ‘Mid-late Holocene monsoonal variations from mainland Gujarat as a means to evaluate climate culture relationship’. She discussed the de-urbanization of Harappan culture and the abandonment of urban cities, followed by the inception of small village communities.

Dr. Anjali Trivedi discussed about Climate Change and Human History in the Central Ganga (CGP) Plain during the Late Pleistocene-Holocene transition the lens of environmental archaeology. Dr. Firoze Quamar discussed the Vegetation Response to the Hydro-Climatic Changes during the Holocene from the western Himalayas. Dr. Gaurav Srivastava talked about the floristic diversity and climate during the Last Glacial Maximum in the Himalayas. Dr. Mahi Bansal presented her work on the role of the tip-dating method and the conventional methods to decipher the phylogenetic methodologies in resolving the incongruency between the molecular divergence ages and the fossil evidence. The last session was chaired by Dr. Sonam Spalzin. Prof. Ravi Korisetar talked about the potential of the Western Ghats of Karnataka for Palaeolithic settlements. Dr. Pradeep Srivastava discussed the application of molecular proxies in lake sequences. Prof. K. Krishnan talked about the archaeology of ceramics through petrographic approaches and Dr. Parth R. Chauhan talked about Palaeoanthropology and its potential role in the northern zone.

Later in the day Padma Shri Pablo Bartholomew, an Indian photojournalist and an independent photographer based in New Delhi, India, presented a very interesting work titled the ‘colourful thread of DNA’. The magnificent photographs of genetically different tribal populations accompanied by the splendid behind the scene stories mesmerized the audience.

The conference concluded with the Valedictory Session chaired by Dr. Vandana Prasad and Dr. B R Mani, who owed the success of the conference to the organizing teams and the need for such conferences, to provide an excellent platform for the young researchers as well as to hold student-scientist interactions.

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