Foreword

Few questions have excited as much interest in recent years as who the ancestors of present-day Indians were, where they came from, and when. Studies that address this theme have been carried out in a range of disciplines including archaeology, climatology, history, linguistics, anthropology and, most recently, molecular biology. However, with regard to the broader conclusions that have been drawn, there are significant differences among scholars who approach the issue from diverse areas of study. In a famous paper on the event that led to the extinction of the dinosaurs, Luis Alvarez listed the central questions as What, When, Where, How and Why. It would be interesting to see how much common ground can be found in the way students of the peopling of India respond to them. One reason for discordance has been a lack of agreement on what exactly the objects of study should be, how they should be categorised, what the relevant questions are, how one should go about answering them, and how much leeway is permissible in sifting and weighing the evidence – in short, on methodological issues. Further, the set of observations on which these methodologies are to be applied, is extremely heterogeneous. The simplistic attitude could be expressed by saying that since a unique series of events must have led to the present, all that one needs to do, in order to identify and order those events is to invest sufficient time, effort and skill. That expectation is belied by the fact that cross-disciplinary expertise is hard to come by. The ‘units’ and terms of discourse used in archaeology, linguistics, history anthropology and genetics are very unlike, and it is not obvious to what extent they can be reconciled. On top of that, disputes regarding classification, sampling, standards of accuracy and interpretation abound within each area of study.

As a step towards addressing the state of affairs, a Discussion Meeting titled “Human Diversity and Ancestry in India” was held in Bengaluru during 19–21 September 2018. An aim of the meeting was to bring together experts from a range of disciplines and get them to engage in critical exchanges on the theme. The minimal expectation was that this would lead to clearing the air. Beyond that, the hope was that once some of the underlying issues had been clarified, a consensus would be reached on how to move ahead. The meeting consisted of thematic sessions comprising formal talks followed by discussions initiated by a small set of panellists. Comments and questions from the audience were interspersed throughout. Gratifyingly, the discussions were quite intense. Differing viewpoints, not just between researchers in the social and natural sciences, but also among those within each broad area, were openly expressed. Therefore, to some extent, the first aim, to clear the air, was achieved. But it was obvious that achieving the second aim would require several such meetings.

The meeting was split into five thematic sessions under the heads Archaeology and Prehistory, History and Language, Anthropology and Sociology, Genetics – Ancient DNA and Genetics – Modern DNA. Each session consisted of formal lectures by ‘discussion leaders’ followed by comments and critiques by ‘lead panellists’. Most discussion leaders agreed to provide textual versions of their talks. The primary papers in this special issue of *Journal of Biosciences* consist of surveys of various aspects of the theme of the meeting. Accompanying each paper is a Commentary. The task assigned to the commentator (who may or may not have attended the meeting) was to tease apart features of the main paper and draw attention to what remains to be done; and to do so from a specialised but subjective viewpoint – rather like a traditional Bhashya, in fact. It is for the reader to judge to what extent these goals have been met.

The papers that follow appear in the same order as the talks, moving – so to speak – from ancient history to modern DNA. Shireen Ratnagar (*Trails, footprints, hoofprints*; commentator, Barun Mukhopadhyay) outlines the archaeological and textual evidence for early Indo-Europeans and Indo-Iranians and draws attention to pitfalls in the conventional manner of naming tribal groups. Michael Witzel (*Early ‘Aryans’ and their neighbors outside and inside India*; commentators, Shyam Sundar Bhattacharya and Satarupa Dattamajumdar) tells us why Indo-Aryan speakers are likely to have had a western Central Asian origin followed by gradual migration and acculturation. Rajesh Kocchar (*Ancient Indian history: What do we know and how?*; commentator, Asko Parpola) points out discords in the evidence from archaeology and sacred texts and draws attention of the importance of studying the archaeology of Central Asia for developing a synthesis. Sonal Kulkarni-Joshi (*Linguistic history and language diversity in India: Views and counterviews*; commentator, Pritha Chandra) outlines the methods of historical linguistics, compares the relative strengths of the ‘substratum’ and ‘Aryan migration’ explanations as an illustrative example, and concludes that the latter comes off better. K. C. Malhotra and T. S. Vasulu (*Development of typological classification and its relationship to microdifferentiation in ethnic India*; commentary by A. J. S. Bhanwer) outline the origins
of racial classification in British India and how it led to entrenched but mistaken attitudes that persist to this day. Shalina Mehta (*Contested domains of biological similarities and sociocultural diversity; commentary by Rajat Kanti Das*) points to divergences between the approaches adopted by natural scientists and students of the humanities in their attitudes to the existence of human groups, which can lead to misunderstandings caused by differences in readings of the same texts. Michel Danino (*Methodological issues in the Indo-European debate; commentary by Silva et al.*) takes issue with the claim that the sum total of evidence, including from ancient DNA studies, strengthens belief in the ‘Aryan migration’ hypothesis, on the grounds that methodological issues and problems with interpretation remain to be sorted out. K. Thangaraj and Niraj Rai (*Peopling of India: Ancient DNA perspectives; commentary by Ranajit Das*) describe the current status and future prospects of the nascent field of ancient DNA research in India. Ajai Pathak *et al.* (*Historic migration to South Asia in the last two millennia: A case of Jewish and Parsi populations; commentary by R. M. Pitchappan*) illustrate how modern DNA studies have helped to unravel the contrasting histories of the Jewish and Parsi communities of India, both conventionally traced to historical migrations. The last paper, by Saikat Chakraborty and Analabha Basu (*Reconstruction of ancestral footfalls in South Asia using genomic data; commentary by Andrew Peterson*) surveys the current state of knowledge regarding the peopling of India as inferred from the analysis of modern DNA, and reaches the conclusion that five ancestral groups were likely responsible for the main differences seen in a large proportion of present-day Indians.

To our regret, texts of two lectures delivered in the meeting are missing from this collection because the speakers were not able to submit their manuscripts on time. A lecture by Shanti Pappu of the Sharma Centre for Heritage Education, Chennai, provided a prehistorical perspective on the question ‘Where we have come from?’ She highlighted recent inferences from archaeology, palaeo-anthropology and genetics that have pushed back the date of human occupation of Eurasia, with implications for the peopling of South Asia. Pranay Lal (International Union against Tuberculosis and Lung Disease, Paris) delivered a talk titled ‘Ancestry of people of India – confounding the legacy.’ He highlighted some reasons why dates of divergence of contemporary human populations from ancestral populations were sometimes extremely different when based on different sets of evidence, archaeological, anthropological and genetical. He emphasised the need to reconcile such dates based on joint evidence provided by various scientific domains. Lal then went on discuss the impact of climate and ecology on population size, and the need to carry out focused studies in this area.

In ending, we thank the Indian Academy of Sciences for sponsoring the meeting and providing the necessary administrative support, National Institute of Biomedical Genomics for organising the meeting, Jawaharlal Nehru Centre for Advanced Scientific Research for offering their seminar hall for the talks, and the staff of the *Journal of Biosciences* for assisting in bringing out this publication.

---

Guest Editors

**Partha P Majumder** and **Vidyanand Nanjundiah**

1National Institute of Biomedical Genomics, Kalyani

2Centre for Human Genetics, Bengaluru

(Emails: ppm1@nibmg.ac.in; vidyan@alumni.iisc.ac.in)