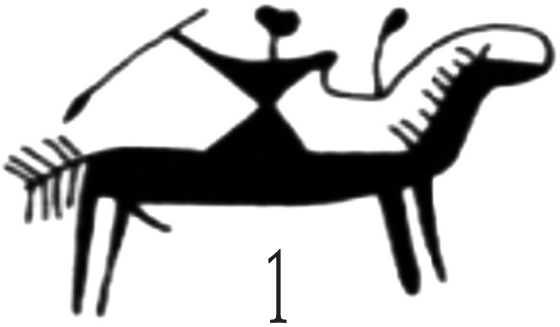

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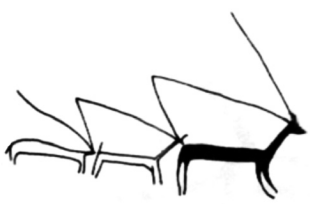
Introduction

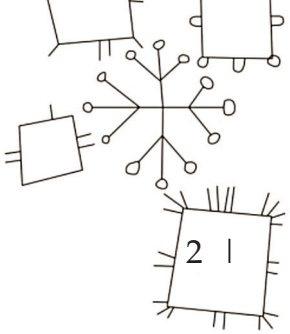
Bansi Lal Malla

THE present volume *Suitable Dating Techniques for Indian Rock Art* is the outcome of a workshop held on the same subject by the Indira Gandhi National Centre for the Arts (IGNCA), New Delhi on 25-26 February 2014. The workshop was inaugurated by Dr Subas Pani, Trustee, IGNCA, who was the chief guest. On this occasion, he also released the Proceedings of the International Conference of Rock Art 2012 brought out in two volumes, i.e. *Rock Art Studies* (vols. I , II). These volumes contain selected articles representing rock art from all over the world. The first volume comprises papers related to the concept, methodology, context, documentation and conservation of rock art. The second volume includes papers related to the interpretation of rock art. The main focus of these publications is on the recent developments in rock art research, documentation and preservation.

Some senior scholars from different parts of India participated in the two-days workshop like A. Sundara and Ravi Korisettar (Karnataka), N. Chandramouli (Pondicherry), G.L. Badam and Kanti Pawar (Maharashtra), Somnath Chakraverty (West Bengal), C.M. Nautiyal (Uttar Pradesh), R.C. Agrawal and K.K. Chakraverty (Delhi) and discussed the problems and challenges related to dating of Indian rock art at length.

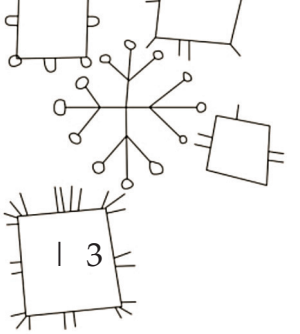
Students from the Institute of Archaeology, Archaeological Survey of India and National Museum Institute attended the workshop and raised some of their concerns on the dating of rock art in India. Their active participation in the workshop was a good sign for this emerging discipline. The participation of many renowned scholars as well as students enriched the deliberations and helped in working out the basic approach/planning for dating rock art sites in India.





Rock art is one of our greatest surviving art treasures. It possesses the largest body of evidence of artistic, cognitive and cultural beginnings of humans. The intrinsic efficacy of rock art lies in its universality of appeal and its capacity to endure and sustain itself in a manner which can be discerned by all. Many international conferences have been held earlier in different countries on the general subject of rock art, but very few on a specific theme within the global context. In India, IGNCA organized a Global Rock Art Conference in 1993. In this conference the main stream of discussion followed seminal issues like "universality" and "chronology". Other problems highlighted were those of conservation and preservation of rock art sites, safeguard of the natural environment and protection of the rights of indigenous peoples inhabiting in the proximity of rock art sites. Subsequently, an Expert Meeting on the "Conservation, Preservation and Management of Rock Art" was organized by IGNCA in 1996. IGNCA organized another important and well-received International Conference on Rock Art in 2012. The present workshop mainly focused on the possible approaches to "Suitable Dating Techniques for Indian Rock Art", which is both topical and significant. Some of the topics which were deliberated in the workshop included the minimum dating by archaeological excavation, radiocarbon analyses of mineral accretions or their inclusions, radiocarbon analyses of paint residues or their inclusions, geomorphological methods, minimum or maximum ages derived from biological accretions, lichenometry, colorimetry of patinae, radiocarbon analyses of charcoal and beeswax figures, and other methods of "direct" dating of rock art.

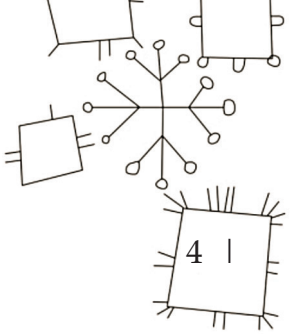
At present, the main focus of investigation of most rock art researchers has been to establish chronologies of different rock art sites, based on pigment analysis to direct dating to stylistic features. While dating rock art, it has been related to stratigraphy. The style also has been used as a formal denominator. As the comparable contexts too have a rather imprecise dating, the precise age is very difficult to identify. However, the relative age is often easier to reach. Moreover, a detailed chronology seems impossible to construct. An endeavour has been made by some scholars to approach rock art with a view to reconstruct the lifestyle and environment of the people who created this art form. While



agreeing that chronology is crucial for rock art, it was admitted that no absolute dating or definite chronological order had been established as yet. Some scholars advocate reassessing the acceptance of chronology as the sole criterion of rock art studies. Doubts have been raised on constructing a universal standard for dating in this field.

Some of the important recommendations made at the end of the workshop included:

1. Rock art should be studied in relation to the environment and archaeological background of the study area.
2. Geographical zones of rock art should be recognized to understand the spatial distribution of rock art sites.
3. Rock art sites should be listed out and the rock art of each zone therein should be classified on thematic grounds from individual sites.
4. Relative chronological sequence should be reconstructed and with the corroborative scientific dates, each site should be given a time range.
5. Use of biological data in the appreciation of rock art chronology as an aid towards the dating techniques.
6. For employing the latest scientific techniques in the dating of rock art, type-sites should be identified from different parts of the country. Lists of such identified sites should be prepared by scholars working in their respective regions.
7. While collecting samples from these sites for dating purposes, C.M. Nautiyal, Birbal Sahni Institute of Palaeobotany, Lucknow should be a part of the team so that the samples are collected properly and the chances of contamination can be avoided.
8. Those sites which are unprotected should be considered for sampling purposes to avoid legal problems.
9. Establishment of AMS-C in India may take a year or two to get grounded. In the meantime, the identification of appropriate sites may be initiated.
10. Protocol(s) for sample collection for the C as well as U-Th series dating and



treatment may be presently discussed, so that we are ready by the time the laboratories are fully equipped.

11. Appropriate projects should be initiated including interdisciplinary experts from palaeontology, anthropology, etc.
12. IGNCA should come forward for collaborative dating projects on Indian rock art.
13. IGNCA, being the premier organization in India having a separate department of rock art, should initiate steps in forming a group of experts from multi-disciplinary backgrounds to formulate a work plan to address the dating problem of rock art.
14. IGNCA should publish the proceedings of the workshop on priority, while examining the importance and relevance of the papers presented in the workshop. Its publication can act as a roadmap for researchers working in the field of the rock art dating in India. While recognizing the genuine concerns of these scholars, IGNCA is proposing to take up a separate programme on dating Indian rock art under its ongoing rock art project.

It would be worthwhile to mention here that IGNCA has conceived a major academic programme, which relates to exploring artistic manifestations from man's primary sense perceptions. Rock art forms its crucial component. A comprehensive database has been compiled in the process of documentation and study related to rock art and its allied subjects since its inception.

IGNCA has, so far, produced eleven well-received publications under the IGNCA Rock Art Series, viz. *Rock Art in the Old World* (ed. Michel Lorblanchet); *Deer in Rock Art of India and Europe* (ed. G. Camuri, A. Fossati, Y. Mathpal); *Rock Art in Kumaon Himalaya* (Yashodhar Mathpal); *Rock Art in Kerala* (Yashodhar Mathpal); *Conservation of Rock Art* (ed. B.L. Malla); *Global Rock Art* (ed. B.L. Malla and V.H. Sonawane); *Rock Art of Andhra Pradesh: A New Synthesis* (N. Chandramouli, General Editor B.L. Malla); *The World of Rock Art: An Overview of Five Continents* (ed. B.L. Malla); *Rock Art: A Catalogue* (ed. S.S. Biswas); *Rock Art Studies: Concept, Methodology, Context, Documentation and Conservation*, vol. I (ed. B.L. Malla) and *Rock Art Studies: Interpretation through Multidisciplinary*

Approaches, vol. II (ed. B.L. Malla). We now have great pleasure in bringing out the twelfth publication of the series.

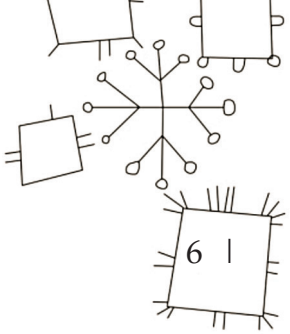
The dating of rock art has long been a key issue of rock art research and continues to be encountered by difficulties about methodology, misinterpretation of findings and overconfidence in the reliability or precision of results. In this volume, it is intended to include not only new insights but also new dating results. The main courses of discussion would be around the multitude of methods and approaches that have been used in securing age estimates, how they compare in determining the timing of rock art depictions, and how results of multiple-method strategies might cluster around the target event.

N. Chandramouli in his paper "Relativity of the Absolute: Dating Indian Rock Art" has given a historical account of rock art studies in India, citing various techniques used in this exercise and has summarized the work of previous scholars like V.S. Wakankar. He has also suggested that the absolute dating of Indian rock art may not be possible due to various limitations and we should depend mostly on the relative dating methodology.

Ravi Korisettar in his paper "Recent Advances in Dating Rock Art of Prehistoric Southern India" has talked about recent advances in two types of dating techniques – (1) AMS, and (2) OSL, with respect to south India. He has also talked about Pleistocene and Holocene landscape art with respect to Bellary and Kurnool rock shelters.

A. Sundara in his paper "Suitable Method for Dating Indian Rock Art: Picture Analysis and Their Distribution" has talked about the problems in the study of Indian rock art and Their chronological successions. While talking about the rock art sites in northern Karnataka, he has suggested picture-wise analysis and divided his data into the following three zones:

1. Eastern zone (individual figures, group – several figures together),
2. Middle zone – wild animals and rhombus design and geometric motifs which correspond to current designs of *mandala,* which people make today in the region, and



3. Western zone – he draws parallels of rock art with later literary evidences.

Somnath Chakraverty in his paper "Principles of a New Proposed Pigment Trace Element Method for Dating Indian Rock Art" has proposed a new pigment trace element method for dating rock art. In this method, the relative dating of rock paintings is primarily possible through digging trial trenches and finding trace materials in the form of remnants of paints and pigments. Such traces ultimately help to relate rock art to a particular layer of deposit accumulated on the floor. It may also reveal some cultural evidences to correlate both.

R.C. Agrawal in his paper "Dating of Artistic Depictions in Rock Shelters: Some Issues" has given an account of various discoveries of rock art and summarized the techniques of absolute dating methodology. There was a discussion on the validity of cup marks and whether they should be interpreted as work of art or not.

Kantikumar A. Pawar and Shaik Saleem in their joint paper "Relative and Absolute Dating of Indian Rock Art: With Reference to the Recent Findings in Central India" have given some information on relative and absolute dating for central Indian rock art found in the Vidarbha region. They have discussed in detail the spatial and temporal aspects in terms of relative and absolute dating of rock art of that area.

G.L. Badam in his paper "Suitable Dating Techniques for Indian Rock Art" has explained the meaning of rock art in terms of its cosmic dimensions and the various aspects of its study. He has stressed on the role of palaeontology in the determination of chronological aspects of rock art vis-à-vis palaeo-ecology imagination patterns, appearance and disappearance of particular species at a site. He has also talked about the relative and absolute dating techniques and has highlighted the lacunae in such studies. He has suggested some ecological pyramids for the chronological aspects.

Ruman Banerjee and Somnath Chakraverty in their joint paper "Absolute Dating of a Time Marker from the Satpuras: An Appraisal through Uranium Series for Central Indian Rock Art" have given an appraisal of the absolute dating of rock art of the Satpuras through the uranium-series dating method. Recent

research into U-series dating has demonstrated significant potential to extend the practical dating limits of speleothems and carbonates to many millions of years, nearly to the age of the earth.

C.M. Nautiyal in his paper "The Quantitative Dating of the Rock Art" has talked about the quantitative dating of rock art, laying stress on the methodology of C14, AMS dating, U-Th dating and their limitations with respect to rock art and its chronology. According to him, some of these techniques were being used for the first time in dating rock art.

B.L. Malla in his paper "Some Key Aspects of Rock Art Dating" has focused not only on new insights but also on new dating techniques. His main course of discussion is around the multitude of methods and approaches that have been used in securing age estimates and how they compare in determining the timing of rock art depictions.

The papers included in this volume highlight the immense potential that rock art possesses in unravelling the mysteries of the past. The data and the interpretations put forward by various scholars are comprehensive and analytical. Most of their views are appropriate and hold good promise in terms of recent trends in dating rock art. They have mainly laid emphasis on two major methods and techniques for dating Indian rock art. One is the existing methodology comprising the study of pictures/engravings at rock art sites. It includes the study of environmental conditions and in relation to this the cultural content, the present condition and the corroborative archaeological remains. The second is the scientific techniques suitable to date rock art.

In the first stage, we may have to recognize geographically the different zones of a given region to understand the favourable and unfavourable situations for human living and progress in the pre and proto-historic periods and to list out all the known rock art sites. Then we may classify, in each zone, the different categories of the pictures and their variants such as humans and their activities, animals and their identification and relate to relevant archaeological materials, if available. In the second stage, we can make a comparative study of the pictures of all the different zones. It may help us to find out the particular behaviour

of the pictures to understand the diffusion of different traditions and finally to put them in a chronological sequence. The result thus obtained will have to be examined in the light of the results obtained from the scientific techniques applied. The end result thus obtained will be more or less final.

The main focus of the present publication is on the recent developments in dating rock art and exploring the possibilities for suitable dating techniques for Indian rock art. This illustrated volume aims to boost and promote the importance of rock art dating/research.

Lastly, I would like to state that the views expressed by the scholars in their papers may not be taken as those of the editor as well.