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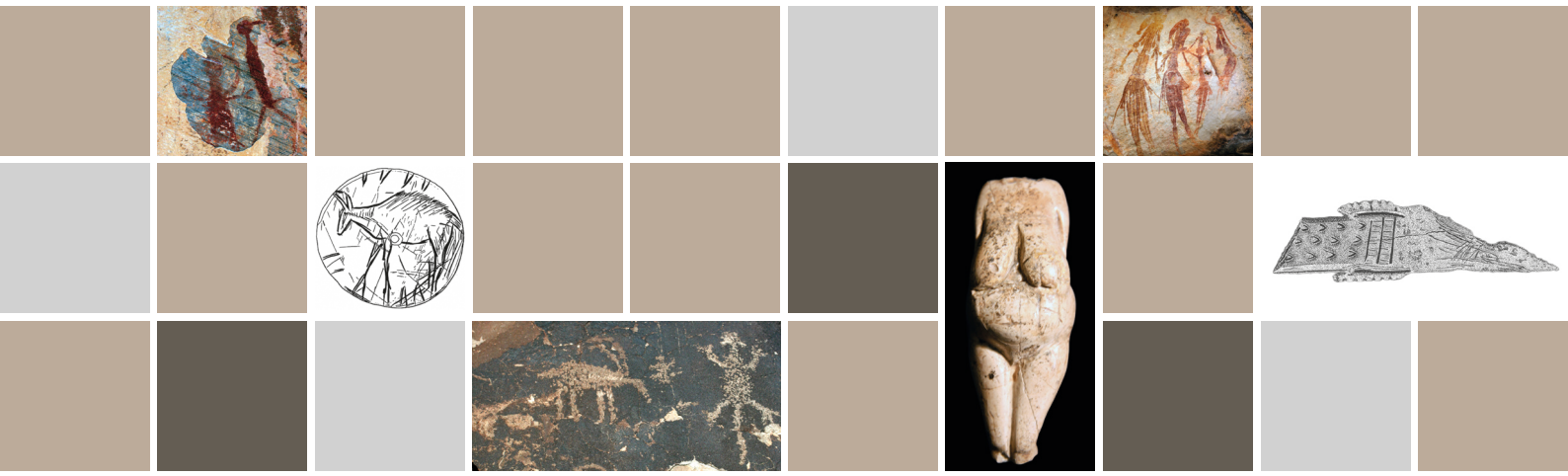
Short articles



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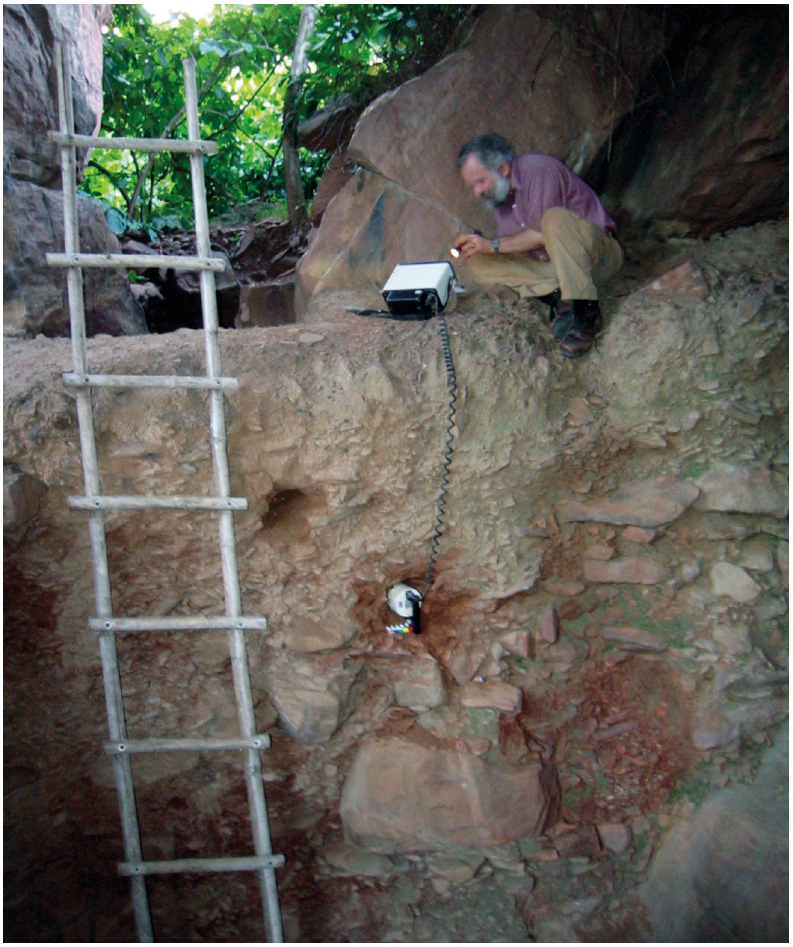
DAT8 Kumar-Bednarik
Full article, pp. 1157-1166

THE DIFFICULTIES OF DETERMINING THE APPROXIMATE ANTIQUITY OF LOWER PALAEOLITHIC PETROGLYPHS IN INDIA

Giriraj KUMAR, Robert G. BEDNARIK

The EIP Project has produced unambiguous evidence of Lower Palaeolithic petroglyphs in the excavations at Bhimbetka and Daraki-Chattan in central India. In order to obtain absolute dates, efforts have been made, through IFRAO and involving Indian and Australian scientists, to meet the challenge since 2001. We have tried OSL dating of the sediments from the excavated sections at both sites, AMS ^{14}C dating of amorphous silica, U-Th series dating of ferromanganese accretions deposited on petroglyphs and stratified boulders and microerosion dating of cupules. We encountered a variety of problems while employing these methods and could not obtain satisfactory results.



Robert G. Bednarik recording the radiometric measurements
in the process of sample collection for OSL Dating from V.N. Misra's trench at Bhimbetka.

So far we have only secured minimum ages, some of which are extremely conservative. We have not determined the actual time of the execution of the petroglyphs, which according to the distribution of exfoliated rock slabs with detached cupules and the presence of the cupule-making hammerstones in the Oldowan-like industry must be of Lower Palaeolithic provenience. So the obtained minimum dates are irrelevant, particularly in the case of Daraki-Chattan. The only satisfactory result is a conservative indication that the Lower Palaeolithic petroglyphs at Bhimbetka are much older than 100 ka.

Secondly, the laboratories analyzing materials such as accretions can give estimations of the ages of such features directly related to the rock art, but not the actual date of the artefact in question. Hence, scientists working on obtaining dates for Lower Palaeolithic petroglyphs have to consider many complicating factors. With increasing antiquity of the art object or artefact, taphonomic issues become more crucial and must be clarified properly. The possibility of survival and finding evidence of palaeoart activity of such great antiquity becomes incredibly remote with increasing age.

Further, in any such dating endeavours we have to make sure that we are studying the original ancient surface of a petroglyph, which is almost impossible in the present case, or in the case of an exfoliating surface. In Daraki-Chattan the surface has experienced a regular series of deposition and micro-exfoliation as well as largescale exfoliating through insolation. These processes are continuing today. Finally, all radiometric dating methods are subject to specific sets of qualifications and limitations; they provide scientific propositions, not factual age information, and always need to be tested.

Our efforts to use various dating methods in this regard have failed so far, particularly at Daraki-Chattan. As rock art scientists we have to continue our efforts of exploring and try other methods in future. We are awaiting the results of the U-Th method and we are exploring the possibility of using the ^{26}Al-^{10}Be cosmogenic method. Until satisfactory results can be secured we can only rely on the traditional archaeological evidence we have obtained, which unambiguously demonstrates the Lower Palaeolithic antiquity of these cupules.

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