

observation that fruits bagged for improving quality and shelf life had significantly lower borer damage, and thus it would be worth assessing the feasibility and cost effectiveness of the practice.

The deliberations threw open the action points to be considered for chalking out the modules for management of litchi borers. Resolving species complex using both the conventional and molecular taxonomy was agreed upon as the most immediate need of the hour. It was suggested that all the AICRP (Fruits) centres dealing with litchi should be provided with pheromone traps of *C. cramerella* to understand the biodiversity of borer complex. Another lacuna in the present understanding of borer is its biology. For this, it is essential to develop

a protocol for laboratory rearing of fruit borer. For example, the site of pupation and off-season survival are still ambiguous and they should be established to understand the positive impact of rainfall on the infestation of fruit borer. Regular monitoring of fallen fruits was suggested to find stage-specific infestation. Krishnamoorthy was optimistic that egg parasitoids (*Trichogramma* spp.) could help in minimizing the borer incidence, and both indigenous and exotic species are to be evaluated. Before the long-term measures start yielding implementable results, it was felt that safer molecules like IGRs, *Bt* and entomopathogens should be evaluated to be included in the IPM package. Since spraying of systemic insecticides like thiacloprid and imidaclo-

prid is reported to be effective against fruit borers, residue analysis of these chemicals is mandatory before recommending the schedule. Responsibility of executing these activities was assigned to different institutes and centres according to the expertise and infrastructure available with them.

The meeting was followed by a visit to experimental plots and laboratories of NRCL Litchi.

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MEETING REPORT

Palaeoanthropology*

In comparison to other subjects in Indian archaeology and Quaternary studies, palaeoanthropology has declined significantly in recent decades as a prominent academic discipline in the Indian subcontinent. Most archaeological research and teaching in South Asia are largely focused on younger time periods, primarily the protohistoric/Chalcolithic and historical phases. In addition to lack of general interest as well as popularization, another major reason for the decline in palaeoanthropology may be the methodological challenges in interpreting complex palaeoanthropological records, e.g. landform assemblage, palaeoenvironmental reconstructions, assessing contextual integrity of the archaeological evidence (compared to younger sites), etc. Due to inadequate preserved evidence compared to younger archaeological sites, the study of human history during the Quaternary demands a multidisciplinary approach with highly sophisticated and extensive field-based surveys and integrated scientific analyses from geological perspectives. In comparison to those periods where individual sites are

extensively studied, Quaternary research involves geological and geochronological questions in relation to landform-based climatic interpretations and ecological reconstructions. In the past, palaeoanthropological research has often focused on just reporting new Palaeolithic or palaeontological occurrences and artifact descriptions and basic assemblage compositions. What is now required from palaeoanthropological sites are data and interpretations from within Quaternary studies such as palaeoenvironmental reconstructions, geochronology, palynology, sedimentology, geomorphology and vertebrate palaeontology. Unfortunately, very few academic departments and institutions are able to offer students and researchers a platform to learn and apply the practical and multidisciplinary methodological aspects of palaeoanthropology, such as, surveying for lithic and fossil sites; excavating and documenting palaeontological, palaeolithic and rock art sites; proper logging of relevant stratigraphic sections and correlating regional stratigraphy; proper sediment sampling for relevant geochronological applications, etc. Moreover, most students who learn about such topics through classroom lectures are rarely given opportunities to visit relevant sites to understand first-hand information and

appreciate geological contexts, geographic and ecological settings, and the manner in which such sites are identified. The lack of such multidisciplinary applications and knowledge centres may also be responsible for lack of interest in palaeoanthropological research.

To address all these issues, a multidisciplinary palaeoanthropology field school was conducted with the primary objective of planting an 'anthropology' seed in the minds of the young researchers for developing future research in this field. The Central Narmada Basin near Hoshangabad, Madhya Pradesh was selected for field lectures and demonstration of methods, as the region preserves evidences of a rich diversity of prehistoric archaeology, Quaternary geology and fossil sites. Thirteen participants were selected on the basis of their areas of interest/study, geographical locality and statement of purpose. They included faculty, doctoral researchers and post-graduate students in diverse areas such as geology, archaeology and history. The participants hailed from different states of India and also from Bangladesh.

All participants were taken to key palaeoanthropological sites and Quaternary type-sections in the region such as Hathnora, Surajkund, Dhansi and other comparable occurrences to teach them

*A report on the 'Palaeoanthropology Field School' held in Central Narmada Basin near Hoshangabad, Madhya Pradesh, from 23 to 29 December 2015.

about section documentation, geological contexts, stratigraphy, geomorphology, geological interpretations and sampling for luminescence dating. In addition, they were also taken to the Indira Gandhi Rashtriya Manav Sangrahalaya (IGRMS) in Bhopal and the sites of Bhimbetka, Sanchi and Ginnaurgarh, so that they can appreciate the full temporal, contextual and cultural breadth of the regional archaeological record. Parth R. Chauhan (IISER Mohali) and Shaik Saleem (IISER Mohali) gave lectures on Palaeolithic archaeology and rock art respectively, while Prabhin Sukumaran (CHARUSAT, Anand) delivered lectures

on basic methods and observations in Quaternary geology.

The overall interest shown by the participants from different parts of the sub-continent, their active participation and discussions during the field school and their positive feedback justify the scope for holding such events on a regular basis, with methodological thrusts in Palaeolithic archaeology, vertebrate palaeontology and various Quaternary studies. Not only will such efforts motivate students to pursue new research avenues, but will also result in greater appreciation and knowledge of the various theoretical aspects in palaeoanthro-

pology through first-hand observations of empirical data directly in the field.

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