

ent component of the ash material, which is closely associated with the artefacts. Thus the age of Bori Acheulian site is unclear from these radiometric dating records.

The Palaeolithic stone implements in the Indian subcontinent generally occur in two biostratigraphically recognizable gravel horizons. The older gravel bed, characterized by Middle Pleistocene fauna, till now provides the oldest stratigraphic record of Lower Palaeolithic tools represented by hand axes, cleavers, choppers, etc. This gravel bed has also yielded the only fossilized calvarium of early man from India<sup>9</sup>. The gravel bed is assigned late Mid Pleistocene age (200–300 ka)<sup>7</sup> based on the evolutionary grade of *Cuon alpinus tripathii* and the archaic *Homo sapiens*-like characters of the Narmada calvarium.

The younger gravel bed and overlying sand is assigned Upper Pleistocene age on the strength of younger extant mammalian assemblage, the presence of the 75 ka Toba Ash Bed marker and association of Middle Palaeolithic tools. But correlation of the older and younger gravel beds often becomes problematic as the diagnostic mammalian faunal elements are rarely preserved.

A significant improvement in the status on correlation of Quaternary sediments and Palaeolithic sites had resulted after the recognition of the 75 ka Youngest Toba Ash Bed (YTA) from the Narmada and Son basins<sup>10</sup> and subsequently from several other alluvial and ocean basins from the Indian region<sup>6,11</sup>. Although partly reworked, they still represent isochronous event marker<sup>6,7</sup>. However, the ash bed at Bori was regarded by some to be much older and different ages were assigned to it<sup>2,4,8</sup>. Additional studies on geochemical characterization of Toba Ash Beds, and fission-track dating of its two samples from Pawlaghat in Narmada and Gandhigram in Purna basins, reaffirm that all Toba Ash occurrences in India belong to 75 ka youngest event<sup>12</sup>. The Acheulian tools from Bori area occurring in close association with the Toba Ash Bed are thus reworked material in younger sediments<sup>7,12</sup>.

Evidence of reworking of stone implements has often remained unrecognized. Therefore, the 'discovery' of oldest Acheulian culture in the Indian subcontinent, whether at Isampur or at Bori based

on their primitive character alone as yet remains illusive and undated.

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SUBHRANGSU KANTA ACHARYYA

*Department of Geological Sciences,  
Jadavpur University,  
Kolkata 700 032, India  
e-mail: skacharyya@yahoo.com*

### Response:

It is conceded that Isampur excavation has produced only limited amounts of faunal material which cannot be identified to the species level. So Acharyya is fully justified in saying that the Isampur Acheulian site has no characteristic Lower/Middle Pleistocene fauna.

But the smallness of faunal collection from the site and its fragmentary nature does not mean that it has no dating value. Acharyya's doubts about the contemporaneity between the cultural material and faunal remains associated with it are devoid of justification. Both these materials occur together in a thin sedimentary unit (20 to 30 cm) consisting of stone blocks and artifacts, all set in a carbonate-rich silt matrix. The thinness of the

horizon suggests that the time involved in its formation is not a prolonged one but rather a short one – probably some years or some tens of years. Close to this site we have other and equally rich Acheulian sites covered by silt deposits. Thus the inference comes up that once the cultural level at Isampur was covered up by silt deposits washed down from the surrounding uplands, the hominids shifted to other limestone outcrops in the vicinity. So there is no reason to postulate any time gap or dissociation between the cultural materials and faunal remains. It is here that the use of faunal material for dating the site assumes importance.

In terms of lithic technology and tool typology, the Isampur Acheulian assemblage certainly presents features which are quite archaic as compared to known Acheulian assemblages in the country. Thus the ESR dating of the site to 1.2 million years is not surprising at all. Some additional dates for the site by ESR method are being processed. As has been rightly recognized by Acharyya, this date of 1.2 million years is the average between the lower and upper limits. Our purpose has been to suggest that even South Asia could have very early sites of the Acheulian. Obviously more work and more dates are required to place this on a firm basis. The other and probably the more important contribution made by Isampur excavation lies in the new insights it has given about early hominid behaviour, but unfortunately this aspect has been overlooked by Acharyya.

Acharyya mentions at length that alluvial deposits of the Narmada and Son rivers have cultural material and Middle Pleistocene fauna. Unfortunately, to the best of my knowledge all these materials are obtained from secondary contexts. These contexts probably involved long distance transportation, and provide no guarantee of contemporaneity of cultural and faunal materials. Use of alluvial contexts for cultural and chronological purposes in Indian prehistory is already *passé*. On the contrary, the real emphasis now is on identifying and studying primary or original context sites.

K. PADDAYYA

*Deccan College,  
Pune 411 006, India  
e-mail: dakshina@pn2.vsnl.net.in*