A new human fossil find from the Central Narmada Basin and its chronology

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We report here a clavicle fossil finding of the Early Stone Age Man from the Central Narmada basin in its bio-cultural context that sheds new light on the evolution of Homo sapiens in South Asia.

FOLLOWING the discovery of a partial cranium of Fossil Man from the Central Narmada Valley, the Anthropological Survey of India launched an extensive hunt for the fossil and lithic relics of the Palaeolithic Man in the Central Narmada basin. Explorations were conducted during 1983 to 1992 between Jabalpur and Punasa (Khandwa) covering 50 sites that yielded a rich assemblage of over 700 lithic artifacts, mammalian fossils and a hominid clavicle. A monograph on these findings is in preparation. A brief reporting of the important hominid fossil finding in its bio-cultural context is made here retaining the detailed account slated for elsewhere.

The present hominid fossil (Figure 1) was recovered from the unit I of the Boulder Conglomerate bed at Hathnora that previously yielded the hominid partial cranium. Hathnora is located 22 km crow-flight distance north-east of the town of Hosangabad along the right bank of the Narmada in Sehore District (Madhya Pradesh). The specimen is a fully fossilized right hominid clavicle and is well preserved except for a minor erosion near the medial end. The robust and rugose character of the specimen and the fused medial epiphysis indicate an adult person in the age group of about 25 to 30 years.

Figure 1. Inferior view of the Narmada hominid right clavicle.
overlying Pink Clays. As such, although our collection from the Boulder Conglomerate horizon of the Central Narmada basin elsewhere is very rich in Early as well as Middle Acheulian tools, yet the Narmada Man at Hathnora could be associated with the Late Acheulian culture on the evidence available at present.

The cultural, biostratigraphic and absolute chronology of the Narmada Man at Hathnora is, however, debatable. The appearance of Acheulian culture in India is considered an event of earlier to 0.4 million years\(^{10}\) BP on \(^{14}C\) dating. The mammalian fauna in our collection from the Boulder Conglomerate horizon include cranial, dental and postcranial material belonging to *Bubalus* *palaeindicus*, *Bos* *namadicus*, *Equus* *namadicus*, *Elephas* *namadicus*, *Stegodon* sp., *Hexaprotodon palaeindicus*, *Cervus* *duvacuici*, etc. These are indicative of a Middle/Late Middle to early Upper Pleistocene age, as also inferred by other workers. Coupled with the biostratigraphic and cultural evidence, the youngest Toba Ash horizon (ca. 75000 yrs BP) in the Narmada basin provides an estimate of 0.2 to 0.3 Myr\(^{12}\) for the Hathnora Man. But considering the upper age limit of 0.7 Myr\(^{12}\) for the Narmada sequence based on palaeomagnetic dates, the current opinion on Hathnora Man’s dating is of an age above half a million years BP. This now seems reasonable in view of a K–Ar date of 0.67 ± 0.03 Myr\(^{13}\) for the Early Acheulian culture at Bori, Pune.

Our detailed Narmada Report would attempt reassessment of the evolutionary relationships of the Narmada Man in a global framework.


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The mode of epibiont attachment on molluscs in Chandipur Beach, Orissa and its palaeontological implications

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Epibions attach themselves on hard parts of other organisms so as to complete their own life cycles. Host organisms may be dead or alive during the attachment time. Chandipur coast in Orissa, offers to study various types of marine epibiont attachments on other animals, particularly on molluscs. The nature of attachments provides clues to deduce life modes of the host molluscs and timing of attachments. Its palaeontological implications are also explored.

Epibionts attach themselves on live or dead shells of other organisms. The host may be sessile or mobile. Even in rock records there are numerous examples where epibions are attached to diverse groups of host animals. The relationship between them is usually symbiotic or may be, in some cases, parasitic. In any case, it is possible to determine the life habit and timing of attachment from the nature of attachment. By drawing analogy from the recent epibiont attachment we can have better insight into the problems encountered in the rock records.

The present study concerns observations on various epibiont attachments on different kinds of host organisms which help in determining the life habit of the latter and the timing of attachment, i.e. whether host was alive or dead during the epibiont infestation.

The Chandipur coast in Balasore district, Orissa (Figure 1) is characterized by very wide (~4 km) tidal flat fringed by a narrow beach on the northern side. The Buribalam river and its emerged terrace now covered with marsh is on the east; southward beyond the tidal flat and shoreface of the Balasore shelf is planer\(^{1}\). The beach is skirted by aeolian dunes beyond which, further landward lies recent alluvium bordered by Nilgiri hills which are situated about 40 km from the studied coastline\(^{2}\). The coastal zone is presently undergoing intense