

INTRODUCTION: HUMAN EVOLUTION IN SOUTHERN AND EASTERN ASIA

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The four papers of Session 1E focus upon recent palaeoanthropological investigations within a geographical belt extending from central India eastward to Southeast Asia and China and within a temporal range from Middle Pleistocene to early Holocene times. Each contributor places his study within a historical perspective of earlier research efforts, thereby enabling readers to appreciate the significance of recent discoveries of prehistoric hominid and faunal remains and associated stone artifacts. The common theme of these papers is the biological and chronological relationships of *Homo erectus* to early and modern *Homo sapiens* inhabitants of Asia.

Kennedy and Chiment discuss the taxonomic place of the Narmada Man calvaria which was collected by Arun Sonakia in 1982 at Hathnora in the central Narmada valley of India and called by him *Homo erectus narmadensis*. Morphometric examination of the specimen by Kennedy in 1988 and subsequent collaboration with Chiment produced a Bayesian Analysis approach to assess the correctness of this taxonomic assignment. It was concluded that it is not appropriate to assign Narmada to a new taxon beyond the trinomial designation of *Homo sapiens narmadensis*, the specimen exhibiting a number of anatomical features shared by early (or archaic) *sapiens*. The dating of Narmada Man to the late Middle Pleistocene is based upon stratigraphic, faunal and artifact data studied by other investigators.

The Lang Trang Caves in northern Vietnam are described by Ciochon and Olsen as yielding a Middle Pleistocene fauna with hominid dental remains and artifacts. Electron spin resonance procedures were employed for dating the stratigraphic levels of four caves, the chronology ranging from 480,000±40,000 years BP to 146,000±2000 years BP. Within the rich faunal deposits, the hominid specimens are attributed to *Homo cf. erectus* on temporal rather than morphological criteria. This work fills in the hiatus in our present knowledge of hominid evolution between Java and China where the fossil records are more abundant. Discoveries of two human teeth attributed to *Homo sapiens* from the Hoabinhian levels dated to terminal Pleistocene times at the upper level of Lang Trang IV Cave places the Ciochon and Olson study within the context of the Sonvian and Hoabinhian culture discussed by Hoàng Xuân Chinh.

The Vietnamese investigator observes that there has been change and development of fauna and associated human cultures in his country from Pleistocene to Holocene times. A series of caves with occupation levels dated to the Upper Pleistocene in the mountain area of northern Vietnam have a rich fauna which is similar to the *Pongo-Stegodon-Ailuropoda* fauna of Yunnan in southern China but distinct from fauna encountered in early Holocene Hoabinhian sites. Hoáng Xuân Chinh suggests that the absence of *Tapirus* in these more recent localities may be attributed to climatic change during the transition from Pleistocene to Holocene times. These faunal changes are well documented at Mái Dá Diêu which has a deep deposit with pointed pebble choppers radiocarbon dated to c.19,000 years BP, and perhaps are as early as 30,000-50,000 years BP. The fauna at this level contrast markedly with the 10,000 year BP levels near the surface of the Mái Dá Diêu site which include Hoabinhian tools. The Sonvian culture occupies this transition period, between 18,000 and 20,000 years ago.

The fossil hominid discoveries at Hexian and Chaohu in southeastern China suggest to Zhang Yinyun a coexistence of *Homo erectus* and *Homo sapiens* populations within the time frame of 190,000-150,000 years BP (Hexian) and 200,000-60,000 years BP (Chaohu). These dates are based upon Uranium Series calibrations. This investigator favors the hypothesis that gene flow from Indonesia to China took place during the Middle Pleistocene. He finds additional support for the *erectus-sapiens* contemporaneity argument in the work carried out by Liu and Ding who claim that the Dali fossil is an early *Homo sapiens* while the Zhoukoudian fossils are *Homo erectus*. Both species had wide spatial distribution in China as well as marked variation of anatomical features.

The new information presented here holds significant implications for research in the broader arena of international palaeoanthropology, particularly at the present time when critical issues of debate include the geographical and biological origins of anatomically modern *Homo sapiens* and the relationship of our species to hominids of the Middle and Upper Pleistocene.