The Evolution and History of Human Populations in South Asia

Vertebrate Paleobiology and Paleoanthropology Series

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The Evolution and History of Human Populations in South Asia

Inter-disciplinary Studies in Archaeology, Biological Anthropology, Linguistics and Genetics

Edited by

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Preface

The two editors of this volume have spent considerable portions of their careers investigating the prehistory of the Indian subcontinent, though our research trajectories have different histories. One of us (Bridget Allchin) has been involved in study of South Asian prehistory for fifty years, conducted through various institutions, including the University of Cape Town, the Institute of Archaeology, London, the University of Cambridge, and the Ancient India and Iran Trust. On the other hand, the senior editor began his archaeological work in India a little over fifteen years ago, mostly under the affiliation of the Smithsonian Institution, in Washington, D.C. It was not until 2001 that the editors of this volume first met, as a consequence of Petraglia's appointment at the University of Cambridge. Our presence in Cambridge provided us with the opportunity to discuss our mutual interests in South Asian prehistory and to discuss plans for contributing to the future growth of archaeological investigations in the subcontinent. Our professional organizations, the Ancient India and Iran Trust, and the Leverhulme Centre for Human Evolutionary Studies, provided us with the institutional settings to facilitate our research plans. The Ancient India and Iran Trust, an independent charitable educational center dedicated to ancient culture and language, has facilitated the research of numerous South Asian scholars since the 1970s. The Leverhulme Centre for Human Evolutionary Studies is a university-affiliated center devoted to global studies of hominin evolution and culture change, with particular interests in expanding archaeological research projects in the subcontinent. Our mutual interests are to encourage research on human evolution and cultural diversity in South Asia and to promote the international exchange of scholars and students.

One of our first, collective projects was the organization of the joint conference, "South Asia at the Crossroads: Biological, Archaeological, and Linguistic Approaches to Cultural Diversity". On the 26th and 27th of November of 2004, two full days of talks were given at Brooklands House, Cambridge. Our goal was to reconsider what we knew about South Asian prehistory and begin to develop new ways of examining human evolutionary processes and cultural change. The 'crossroads' theme was a metaphorical representation, intentionally selected for our conference title for several reasons. One aim of our conference was to assemble a group of scholars who had never been brought together before, despite the fact that their research centers on, or directly bears upon, the biological and cultural record of South Asia. Researchers were brought together who had specialized experience in fields as diverse as archaeology, ethnography, biological anthropology, population genetics, linguistics, geology, and mammalian paleontology. Hence, by encouraging an inter-disciplinary examination of biocultural processes on the subcontinent, the editors felt that we could achieve a new 'crossroads' of understanding. Research both in and outside of the subcontinent have demonstrated that the region served as a dispersal route during multiple periods in the Plio-Pleistocene as well as a central region for culture contacts amongst agricultural communities to the west and east. Therefore, in this sense, the subcontinent certainly served as a 'crossroads' for hominin dispersals, population exchanges, and cultural interactions. And, finally, the 'crossroads' theme was selected to represent our feeling that while past and current investigations have shown that the prehistory of the subcontinent is remarkable in many respects, the record remains under-studied in comparison to other regions, and, unfortunately, the results continue to be downplayed in global syntheses. Thus, the editors feel that research on the biological and cultural history of the region is at a critical threshold, or 'crossroads', which requires fresh outlooks and new inter-disciplinary investigations to extend, improve and widen the scope of further research.

The "South Asia at the Crossroads" conference would not have been implemented without the administrative and financial assistance of the Ancient India and Iran Trust and the Leverhulme Centre for Human Evolutionary Studies. For their organizational help in the planning and execution stages of the conference, we would particularly like to thank James Cormick, Jose John, Ursala Sims-Williams, Madeline Watt, and Richard Wielechowski. The financial support of the British Academy and the Society for South Asian Studies was invaluable for the development of the conference, providing us the opportunity to invite scholars from Europe, North America, and South Asia.

The production of *The Evolution and History of Human Populations in South Asia* benefited from the guidance of Eric Delson, one of the Senior Editors of the Vertebrate Paleontology and Paleoanthropology Series. Eric's enthusiasm from the start of this project paved the way for a speedy publication. Tom Plummer, an Advisory Editor of the Series, introduced us to Eric at the Montreal meetings of the Paleoanthropology Society, and is thus responsible for initiating contacts. While on sabbatical from Cambridge, Petraglia made use of the facilities of the Maison de l'Archéologie et de l'Ethnologie (Universite de Paris, Nanterre). Françoise Audouze and Hélène Roche are thanked for providing office space during the height of our editorial review.

A number of scholars helped in the execution of the conference and academic enhancement of this book. We would like to particularly thank Ken Kennedy for providing opening remarks at the conference, including his fascinating personal reflections about the growth of bioanthropological research in South Asia. François Jacquesson provided us with an excellent introduction and overview of languages of the subcontinent. Conference chairs (Ken Kennedy, Greg Possehl, Graeme Barker, Martin Jones) helped to keep the sessions organized and conference discussants (Rob Foley, Paul Mellars, Colin Renfrew, Chris Stringer) provided their views on the contributions of the South Asian record and how it fit with the global picture of human evolution and culture change.

Chapters in this book underwent formal peer-review, and we thank the following individuals for providing comments on draft papers: P. Ajithprasad, Stan Ambrose, Mumtaz Baig, Larry Barham, Chris Clarkson, Eric Delson, Nick Drake, Peter Forster, John Gowlett, Colin Groves, Sudeshna Guha, Brian Hemphill, Christopher Henshilwood, Joel Irish, Lynn Jorde, Kriti Kapila, Mark Kenoyer, K. Krishnan, Curtis Larsen, Bob Layton, Richard Meadow, V.N. Misra, Rabi Mohanty, Rajeev Patnaik, Martin Richards, Phillip Rightmire, Derek Roe, Jerry Rose, Garth Sampson, Franklin Southworth, Richard Steckel, Sarah Grey Thomason, Martin Williams, and Michael Witzel. We thank Greg Possehl for providing concluding remarks in the closing section of this book.

Our spouses, Raymond Allchin and Nicole Boivin, deserve special recognition for their unwavering support of our research and their intellectual contributions to our research in South Asia. We dedicate this volume to them.

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1. Human evolution and culture change in the Indian subcontinent

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Given the extraordinary discoveries of human fossils in Africa, the fascinating finds of cave art in Western Europe, and the antiquity of agriculture in the Fertile Crescent, one may wonder, why study the South Asian record at all? The simple answer is that South Asia has its own remarkable finds, and an archaeological record that rivals in richness those in better known regions of the world. The more complicated and important reply, however, is that South Asia in addition has a distinctive archaeological record that challenges many of the models and theoretical frameworks that have emerged on the basis of findings made in these other regions. South Asia provides the opportunity to re-evaluate, refine and in some cases revise a number of major conclusions concerning our evolutionary history, including the evolution of human behavior, 'Out of Africa' models, the origins of sedentism and domestication, and the emergence of social complexity and urbanization.

South Asia is of course not just of interest to archaeologists. It is a land of incredible cultural, linguistic and ethnic diversity, and its contemporary populations have constituted the focus of a wide range of disciplines, including anthropology, linguistics, history, and genetics. In these disciplines too, South Asia has much to offer general theoretical

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models and frameworks, which again have often focused on better-studied parts of the world. Nonetheless, all of these research areas, like archaeology, suffer from a key problem, which is their isolation and lack of engagement with other disciplines investigating South Asia. This volume therefore constitutes a crucial and novel attempt to bring together a variety of disciplines, in particular archaeology, biological anthropology, linguistics and genetics, in the study of South Asia's past and current populations. *The Evolution and History of Human Populations in South Asia* is in this sense a historical undertaking, and presents the beginnings of what is hoped will be sustained and fruitful mutual engagement between those disciplines involved in the study of South Asia's rich cultural and biological diversity.

Introduction to South Asia

The term 'South Asia' is a political designation, meant to describe an area containing the modern nations of Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka, and the Maldives. South Asia is a large landmass, measuring about 4.4 million square kilometers in extent. India is the largest of the seven countries that make up the region, measuring 3.3 million square kilometers, or six times than the size of France. The size of the South Asian landmass in itself suggests that there is much to be gained from examining the history of human geography in the region, including population dispersals and cultural interactions of various ages.

South Asia contains nearly 1.5 billion inhabitants, or more than one in five people in the world today. Though four main language groups are differentiated by linguists (i.e., Indo-Aryan, Dravidian, Austroasiatic, Tibeto-Burmese), people across the region speak at least 657 languages and language dialects. The linguistic diversity of the subcontinent is matched by a wide and impressive cultural diversity. In India alone, for example, the 2001 census indicates that approximately 8% of the population, or 84 million individuals, belonged to scheduled tribes (though as Morrison notes in this volume, caution needs to be exercised in interpreting such administrative classifications). In recent years, geneticists have been particularly enthusiastic about tracing the history of agriculturalists, tribes, and castes, though as indicated by Boivin (this volume) and Endicott, Metspalu and Kivisild (this volume), some serious methodological and interpretive considerations remain to be taken into account.

The term, the 'Indian subcontinent' is a geographic unit, meant to differentiate the landmass from the rest of the Eurasian continent. One of the most striking features of the subcontinent is the Himalayan mountains, which rise to a height of 8,850 meters at Mount Everest, and provide a nearly impenetrable wall of mountains in the north (Figure 1). The Western and Eastern Ghats are other distinctive mountain ranges aligned along the western and eastern flanks of the peninsula. The Deccan plateau is a distinctive geographic province in the peninsula, characterized by extensive flows of volcanic rocks. Large river valleys, including the Indus, Narmada, Ganges, Bhramaputra, Godavari, and Krishna, cross the region, emptying their waters into the Arabian Sea and the Bay of Bengal. A number of geological basins are located across the subcontinent, with distinctive rock types and plentiful natural resources in the form of streams, springs and animal and plant communities (Korisettar, this volume). Certain geographic areas were therefore attractive on account of their natural resources and ease of travel, whereas other zones, such as large mountain chains, were barriers to human settlement and communication.

South Asia is a semi-arid, subtropical environment with characteristic summer and winter monsoons. The monsoon is of fundamental importance for sustaining life on the subcontinent. Rainfall patterns shape the distribution and abundance of flora and fauna, offer

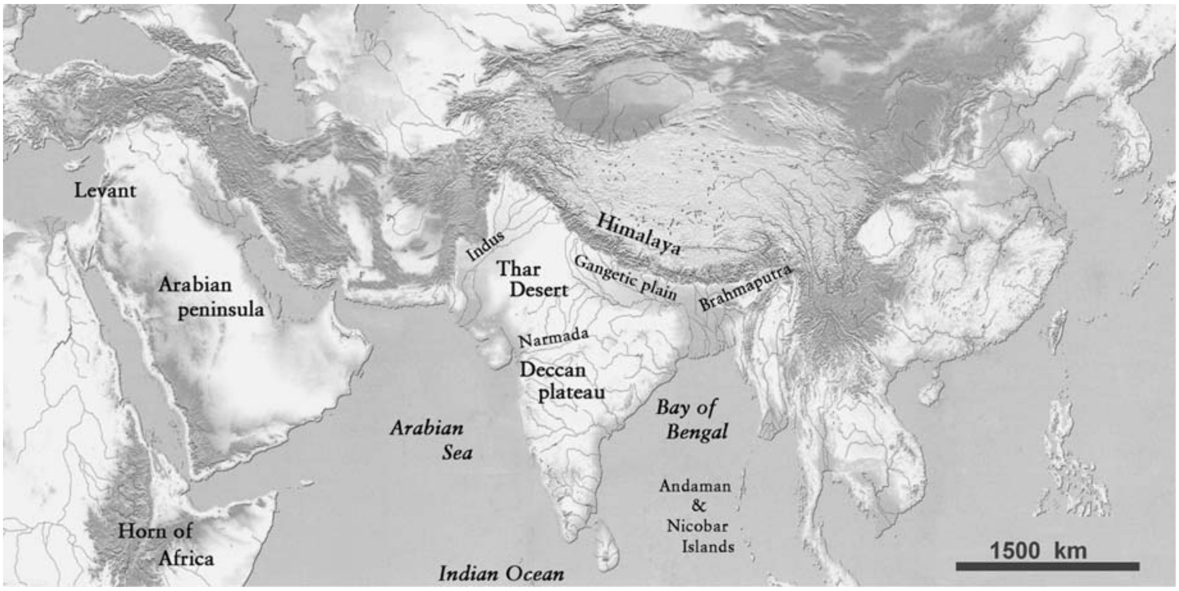

Figure 1. The Indian subcontinent showing key geographic features

essential nourishment to stressed ecologies during dry seasons, and present vital water supplies for sustaining domesticated plants and animals. The subcontinent has been a monsoonal environment since the Miocene, although fluctuations and shifts in its intensity are registered through time, in part due to the Himalayan-Tibetan uplift (e.g., Retallack, 1995; An et al., 2001). The stratigraphic record in the Thar Desert, or Great Indian Desert, demonstrates that phases of aridity (and dune formation) are sharply interspersed with periods of wetter, ameliorated climate (e.g., Andrews et al., 1998; Kar et al., 2001; Deotare et al., 2004). Monsoonal shifts during the Pleistocene and marked seasonal changes in wet and dry periods are thought to have structured hominin settlement behaviors and the survival of populations (Allchin et al., 1978; Paddayya, 1982; Korisettar and Rajaguru, 1998; James and Petraglia, 2005).

The prehistory and protohistory of the subcontinent is rather remarkable, as has been documented in many comprehensive books (e.g., Sankalia, 1974; Sharma, 1980; Allchin and Allchin, 1982; Misra and Bellwood, 1985; Dhavalikar, 1997; Lal, 1997; Kennedy, 2000; Settar and Korisettar, 2002). These compendia clearly demonstrate the presence of a large number and wide range of archaeological sites, many providing significant cultural information. Among the better known of these sites are the Mode I occurrences in the Upper Siwaliks, the Acheulean quarry of Isampur, the Paleolithic and Mesolithic rockshelters of Bhimbetka, the Late Pleistocene caves of Kurnool, the Mesolithic cemeteries in the Ganga Plains, the early Neolithic settlement of Merhgarh, the Harappan cities in the Indus Valley, the Iron age centers in the Ganga Valley, and the architectural landscapes of the Vijayanagara Empire. Though some significant field work and research has been conducted in South Asia, serious problems hamper a fuller understanding of human evolution and societal change, including poor representation of hominin fossils, too few well-excavated sites revealing behavioral and social information, a poverty of detailed inter-disciplinary studies to recover paleoecological data, and poor chronological controls. One example illustrates the general problem: though there are more than 5,000 radiocarbon dates for Oxygen Isotope Stage 3 sites in western

Europe, only about 150 chronometric dates are available for the whole of the Late Pleistocene of India! To make matters worse, scholarly research and interactions may sometimes be impeded by nationalism and political agendas (e.g., Lamberg-Karlovsky, 1997; Ratnagar, 2004; Boivin, 2005). Yet, as illustrated by the work of contributors in this volume, much is being gained by current collaborative scholarship and inter-disciplinary research. For example, collaborative research is providing detailed information on Paleolithic behaviors (Paddayya, this volume; Pappu, this volume), the health status of Holocene hunter-gatherers (Lukacs, this volume), and the origin and spread of crop and animal domestication (Fuller, this volume).

The Evolution and History of Human Populations in South Asia examines the evolution of hominins and changes in human populations by employing information collected from different fields of inquiry, including archaeology, biological anthropology, linguistics and genetics. Contributors have provided information from their own areas of expertise and have drawn upon information from other research areas, thereby enriching interpretations about how the modern South Asian world of foragers, farmers, pastoralists, and urban industrialists was shaped by the past. An aim of this volume is to provide information from diverse disciplines to inform us about past processes, and in many cases, diverse information sources have converged to indicate research connections. However, as demonstrated in the following pages of this volume, sources of information sometimes show little correspondence and even provide conflicting interpretations. Naturally, such interpretive conflicts can not be rectified in this volume – instead, disagreements in conclusions suggest exciting directions for future research.

As is obvious, *The Evolution and History of Human Populations in South Asia* focuses on one region of the world, and as noted in our preface to this volume, we believe that such attention is justified in light of the wealth of prehistoric resources in the region and its under-study in the field and in global syntheses. Focus on a region also has research merit as it allows analysts to examine how processes are shaped by particular circumstances. Thus, various contributions in this volume indicate that the particular environmental, geographic and demographic conditions prevalent in South Asia helped to shape evolutionary and cultural developments in the subcontinent (see for example, Fuller, this volume; James, this volume). Focus on the region does not mean that this volume is highly particularistic in its outlook however; rather, the regional data is shown also to be informative for investigating general theoretical issues and inter-regional relationships, including hominin dispersals and population interactions and exchanges, to name just two of the key issues addressed. In focusing on a large and culturally complex region, it will become apparent that we do not adequately report on all geographic areas, time periods and potential subjects. As exemplified in the three parts of this volume, however, a range of time periods and subjects is covered: Part I, 'Setting the Foundation', presents fossil and behavioral evidence for the earliest periods of hominin occupation; Part II, 'The Modern Scene', examines anatomically modern humans and the evolution of their behavior; and, Part III, 'New Worlds in the Holocene', concentrates on cultural and linguistic diversity and population interactions in the last 10,000 years.

Setting the Foundation

One of the most intriguing questions in paleoanthropology today concerns the timing of the earliest exit of hominins out of Africa. Exciting fossil discoveries in the Transcaucus date the earliest dispersal to ca. 1.8 Ma. The Dmanisi locality indicates that the earliest colonization of Eurasia was by relatively small-brained hominins that manufactured tools reminiscent of those found in the Oldowan of Africa (Gabunia et al., 2001). Archaeological evidence in the Levant indicates the presence of hominins by 1.4 Ma (Bar-Yosef, 1998). While fossil localities in Indonesia indicate that *H. erectus* reached Java by 1.8 Ma (Swisher et al., 1994), the earliest hominin occupation of the Indian subcontinent remains poorly known and controversial (Table 1).

One of the best contenders for an early occupation of the Indian subcontinent comes from the Upper Siwaliks of Pakistan (e.g., Rendell et al., 1989; Dennell, 2004). As reviewed by Dennell in this volume, localities in the Soan Valley and Pabbi Hills consist of unstandardized cores and flakes, indicating typological and temporal affinity with the Oldowan. Although the findings of the Upper Siwaliks research has not been conducted without criticism (e.g., Hemingway and Stapert, 1989; Petraglia, 1998; Klein, 1999),

Table 1. Key events of Indian subcontinent, addressed in human evolution and cultural diversity of South Asia

Approximate Age	*Issues and Questions*	*Nature of the Evidence*
2–1.4 Ma	Colonization of South Asia by early hominins, presumably early *Homo erectus*	Dates of presence of *Homo erectus* in Indonesia by 1.8 Ma and in Eastern Asia by 1.36 Ma. In subcontinent, only potentially convincing evidence is at Riwat, Soan Valley, and in the Paabi Hills, Pakistan.
1.2 Ma	Colonization of South Asia by Acheulean hominins, presumably *Homo erectus*	Acheulean hominins present in West Asia by 1.4 Ma, suggesting the date of initial dispersal. Dating at Isampur Quarry suggests the possibility for a long chronology. If Acheulean hominins present, population sizes were not likely large.
500 ka	Colonization of South Asia by Acheulean hominins, possibly *Homo erectus* or *Homo heidelbergensis*	Acheulean evidence is geographically widespread, indicating adaptive success, although spatial and temporal lacunae may indicate small population sizes. Narmada hominin represents earliest hominin find to date.
250–200 ka	Transition from Late Acheulean to Middle Paleolithic	A transition from large cutting tool industries to prepared core and flake technologies appears gradually. This likely indicates adaptive changes and does not support an abrupt change as part of a dispersal event from Africa. Though the transition is present (e.g., Bhimbetka III-F-23, Kaladgi Basin), the age of the technological transition is not radiometricaly dated.
200–74 ka	Who were the makers of the Middle Paleolithic?	Middle Paleolithic localities are geographically widespread. Flake technologies dominate assemblages, though techniques of manufacture vary, including regular core and prepared core techniques. The early phases of the Middle Paleolithic of the subcontinent are coincident with the

(Continued)

Table 1. (Continued)

Approximate Age	*Issues and Questions*	*Nature of the Evidence*
		African MSA, the Mousterian of West Asia and Western Europe, and the pebble core industries of Eastern Asia.
74–55 ka	What was the effect of the Toba volcanic super-eruption on hominin populations? Did modern humans drive archaic hominins to extinction?	Evidence for the Toba volcanic super-eruption is present in marine and terrestrial settings of South Asia. This volcanic event would have directly impacted resident populations. Genetic studies indicate the arrival of modern humans into the region by 73–55 ka. Arrival of moderns is hypothesized to take place during the Middle Paleolithic.
55–10 ka	What is the evidence for "modern human behavior"?	Cultural patterns of South Asia show their own developmental trajectory in comparison to other regions. A wide array of core technologies is present in the Late Paleolithic (i.e., regular flake-, prepared-, blade-, bladelet-core). Modified space use occurs by 45 ka, and decorated objects appear by 28.5 ka. Microlithic tools and skeletons of *Homo sapiens* occur by 30–28.5 ka. Genetic data indicate a demographic expansion in the subcontinent between 30–20 ka. The Thar Desert expands to its maximum extent in the LGM. Microlithic site assemblages increase in frequency and abundance.
8 ka to present	What is the evidence for sedentism? Why do communities become sedentary?	A substantial population increase is hypothesized during the Mesolithic. The Ganga Plains Mesolithic sites are situated along extinct oxbow lakes. Some degree of permanence indicated by shelters with plastered floors, cemeteries, and reliance on lake resources.
	Are new crops, languages and populations introduced? Are developments indigenous or do they come from outside the region? What is the relationship to hunters and gatherers? Why do villages, trade networks and states develop?	Mehrgarh provides the earliest evidence for plant and animal domestication and village life. Other Neolithic transitions occur over the subsequent millennia in diverse regions of the subcontinent. While some appear to reflect the importation of crops, animals and/or people, other appear more autochthonous. Possible period of arrival of Indo-Aryan languages. Development of bronze and iron technology, emergence of state-level societies, first in the Indus Valley and then on the Ganges Plain. Iron Age megalithic cultures in south India.

the research is key to our understanding of the spread of hominins in the Late Pliocene and Early Pleistocene. Independent support for Dennell's prolonged research is provided by Turner and O'Regan (this volume), who argue that the most probable period for mammalian movements out of Africa are in the Late Pliocene, thus making a hominin dispersal distinctly possible.

Although Mode I tools are often described as 'simple' industries, their role in hominin adaptations was crucial to their survival. The development of such technologies in Africa by 2.5 Ma ensured access to a greater range of vital resources, such as meat and marrow (Plummer 2004). If hominins were tool-dependent creatures, as is usually assumed by archaeologists, then the availability of useable stone on the landscape is of critical importance. In contemplating the presence of tool-dependent hominins in the subcontinent, Dennell (this volume) has highlighted geographic differences in stone availability between the Siwalik Hills and the Indo-Gangetic drainage system. Dennell plausibly reasons that the wide floodplains of the Indo-Gangetic belt, with scarce workable stone, presented serious challenges to hominin adaptation, thereby accounting for the lack of archaeological sites. In this view, the conditions in the large river systems of the Indo-Gangetic region were not conducive to hominin settlement until deposition of boulder conglomerates in the early Middle Pleistocene.

Hominin movements from Africa to Eastern Asia are usually depicted by employing large, illustrative arrows through broad corridors (e.g., Bar-Yosef, 1998: Figure 8.1). Although the Indian subcontinent is in a central and southern margin position in Eurasia, it is unclear how, and even whether, the landmass was traversed by hominin populations. In thinking about the earliest hominin dispersals, three distinct possibilities about routes arise. One rather negative possibility is that hominins avoided the subcontinent altogether, employing northern routes for expansion. A northern route would suggest that there were barriers to migration and it might account for the absence of Mode I sites in the Indian subcontinent. A second alternative is that Mode I hominins ranged across the subcontinent in the Late Pliocene or the Early Pleistocene. In this scenario, sites of this period are either not yet recognized or, alternatively, the Soan Valley and Pabbi Hill localities represent evidence for dispersals in the Siwalik Hills and the sub-Himalayan zone. This would suggest that hominins were able to either circumvent or range across potential barriers including the Himalayas and the Ganges-Brahmaputra river system. A third alternative is that early hominins avoided inland continental areas and spread via coastlines. Turner and O'Regan (this volume) provide evidence that indicates hominin use of the littoral zones in different continents, pointing out that hominins may have had the ability to cross water bodies to reach islands. Unfortunately, South Asia presents no supporting evidence for the use of littoral zones by early hominins, though sites relatively close to coastlines have been identified (Marathe, 1981). Korisettar (this volume) states that coastal routes were not likely employed by hominins, arguing instead that movements would have been transcontinental owing to the attractive environments offered by inland basins. Though Korisettar provides an intriguing hypothesis, concerted efforts should also be made to survey near- and off-shore settings as sites may be present along the continental shelf (Flemming, 2004).

Whatever routes were chosen, predictions are that Mode I sites in the Indian subcontinent will likely remain relatively rare even if additional and focused surveys are performed. Though early hominins have been viewed as successful colonizers once they dispersed out of Africa (e.g., Antón and Swisher, 2004), Dennell (2003) has argued instead that Mode I localities throughout Eurasia indicate sporadic and discontinuous occupations. In this view, the handful of Late Pliocene and Early Pleistocene localities indicate that hominin occupations were not permanent and successful, which would be in line with the nature of the South Asian evidence.

In contrast with the rather scant evidence for Mode I sites, Acheulean localities are relatively abundant and found in many different geographic areas of the subcontinent (e.g., Petraglia, 1998; Pappu, 2001; Paddayya, this volume; Pappu, this volume). South Asia represents the eastern-most location for the expansion of Acheulean hominins, yet little is known about the date of their initial entry into the subcontinent. The first application of the ESR method on Acheulean assemblages yielded preliminary dates of 1.2 Ma at the Isampur Quarry (Blackwell et al., 2001). Otherwise, chronometric dates in Pakistan place the Acheulean to shortly before 780 ka (Dennell, 1998). All other Acheulean sites on the subcontinent indicate a short chronology, samples dating to between ca. 350 and 200 ka (e.g., Petraglia, 1998), though several of these samples provide a minimum estimate.

The Acheulean record of the subcontinent has been considered to be extremely 'rich' based on the presence of hundreds of identified Acheulean sites and the large number of artifacts present in many of these localities (Petraglia, 1998). While such a characterization is warranted from a general perspective, the number of Paleolithic sites in areas does not accord well with an inference for continuous occupation. Evaluation of the Acheulean sites in the Hunsgi-Baichbal Valley illustrate this point (see Paddayya, this volume for background). At first blush, the discovery of 196 Acheulean localities appears to indicate significant occupation, but a simple evaluation by time indicates otherwise. In a long chronology model of hominin occupation (i.e., ca. 750,000 years in duration), an average of one site would be produced every 3,826 years, whereas in a short chronology (i.e., ca. 250,000 years in duration) one site is produced every 1,275 years. If site density is an indication of occupation permanency, then it must be concluded that the 196 sites distributed over 500 km^2 is a sign of little use. This information, together with the presence of Acheulean sites in a number of basins of peninsular India, likely indicates that populations shifted their locations over the course of the Pleistocene. Such an interpretation would account for the presence of Acheulean sites in many places across the subcontinent, though not in the density that would be expected if occupation was penecontemporaneous and continuous in each place. While the Acheulean evidence supports the notion that hominin populations were present in the region over hundreds of thousands of years, the record does not indicate that populations were large. Rather, Acheulean populations may have been rather small, either going extinct in certain areas or shifting their locations between various basins over time.

Although archaeological surveys have been performed in many parts of the subcontinent, successfully identifying Acheulean sites, too few excavations have been performed which aim to recover environmental and behavioral information. A recent exception has been the high-quality excavations at Attirampakkam, which have documented stratified paleolithic deposits extending to a depth of 9 m (Pappu et al., 2003; Pappu, this volume). Attirampakkam is now among the best stratified sequences in the subcontinent next to the 10 m deep sequence at Patne (Sali, 1989) and the 20 m sequence at the 16R dune (Misra, 1995). In this volume, Pappu documents the presence of large cutting tools and changes in the presence of gravels through time. Study of stone tool reduction strategies indicated that hominins shifted their procurement and transport practices in response to changing on-site conditions. Another significant project in recent years has been the excavation of the Acheulean quarry at Isampur (Paddayya and Petraglia, 1997; Paddayya, this volume). Isampur is remarkable in that it represents a spot where Acheulean hominins manufactured large cutting tools from limestone slabs. The site is so well-preserved that the actions of hominins can sometimes be observed, which is of course, a rare phenomenon for any Lower Paleolithic site. Study of space use and stone tool reduction techniques have provided insights into hominin learning, cognition and transport behaviors (Petraglia et al., 1999, 2005). Based on the encouraging results of the Isampur excavations, Paddayya (this volume) makes a plea to local archaeologists, calling for a closer examination of Acheulean society and social habits.

The wealth of the Lower Paleolithic evidence of the Indian subcontinent is not matched by finds of the artifact manufacturers themselves. Despite the large number of archaeological surveys and excavations over the subcontinent, the Narmada calvarium represents the only hominin find to date (Sonakia, 1985; Athreya, this volume). The fossil has been variably classified as *H. erectus*, archaic *H. sapiens* and *H. heidelbergenis* (e.g., Sonakia, 1985; Kennedy et al., 1991; Cameron et al., 2004). In inter-regional comparisons, analysts view the Narmada fossil as part of wide-ranging *H. heidelbergenis* populations (Rightmire 2001) or as descendents of an early *H. sapiens* clade from Europe, with little relationship to Asian *H. erectus* or *H. pekinensis* (Cameron et al., 2004).

A wide geographic reading of the fossil evidence indicates that Mode I hominins of the subcontinent would have been part of the initial Out of Africa expansions, evidenced by early Asian *H. erectus* populations (assuming the legitimacy of a Mode I in the subcontinent and a dispersal link between South and Eastern Asia). Hypotheses have been put forward that suggest that *H. erectus* speciated in Eurasia, though the lack of Pliocene fossil evidence precludes further consideration (see Turner and O'Regan, this volume). Early dates of 1.2 Ma and 780 ka for Isampur and the Upper Siwaliks may indicate expansions of later populations of *H. erectus* carrying an Acheulean technology. On the other hand, if a short chronology for the subcontinent is favored, i.e., less than 500 ka, *H. heidelbergensis* populations may be responsible for the spread and manufacture of Acheulean technologies. Lending evidence for this hypothesis, the Narmada fossil is associated with late Acheulean technology and mammalian fossils dating to more than 236 ka (Kennedy, 2000; Cameron et al., 2004).

The dearth of Pleistocene hominin fossils in the subcontinent has been sometimes viewed as a product of survey intensity, leading Paddayya (this volume) to remark that concerted efforts should be made to find hominin fossils in probable locations. Indeed, the subcontinent does contain Pleistocene mammalian faunas in river valleys (Badam, 1979) and occasional mammalian teeth in Acheulean contexts (Paddayya, this volume; Pappu, this volume), giving paleoanthropologists hope that hominin fossils may be discovered. Yet, as demonstrated by Dennell in this volume, the mammalian fauna in the Pabbi Hills is biased in favor of the recovery of animals that are larger than humans, indicating that identifiable hominin fossils would be rare finds.

Late Middle Pleistocene sites in the subcontinent indicate a technological change from the manufacture of large cutting tools to core and flake technologies of the Middle Paleolithic. This technological transition has been described as a profound adaptive change, as hominins supplemented hand-held implements with hafted technologies (McBrearty and Brooks, 2000). A number of sites in the subcontinent indicate that the transition from Acheulean technology to core and flake technologies occurred gradually (e.g., Misra, 1985; Petraglia et al., 2003). If the subcontinent contains a local developmental sequence from the Lower to Middle Paleolithic, it would imply technological convergence and independent transitions amongst different continents (e.g., Debono and Goren-Inbar, 2001; White and Ashton, 2003) rather than development of prepared core technology in Africa, and a subsequent technological spread to other areas, including South Asia. Since there are no human fossils to mark this transition, it is presumed that Narmada hominins or their descendents developed the core-flake technologies. It should be noted that in the same period, pebble core technologies in Eastern Asia were being used (Gao and Norton, 2002), providing a potentially significant biogeographical and cultural contrast with South Asia.

The Modern Scene

One of the most interesting questions in human evolution concerns the origins of modern humans and their interaction with archaic hominins as they spread around the world. Though Dennell (2005) makes the case that modern humans may have speciated in Eurasia, the most parsimonious reading of the genetic and fossil evidence indicates that anatomically modern humans first arose in Africa (e.g., Cann et al., 1987; Stringer, 2001; Endicott et al., this volume). Though Neanderthals and early modern humans occupied the Levant between 250–47 ka, the Upper Paleolithic revolution is thought to mark the expanding behavioral niche of modern humans (Bar-Yosef, 1998b; Shea, 2003). Modern humans appear to have colonized uninhabited regions such as Australia by 50 ka (e.g., Bowler et al., 2003), though the most conservative dates place their presence there by 45–42 ka (O'Connell and Allen, 2004). The extinction of geographically isolated populations of *H. neanderthalensis* in western Europe (Mellars, 2005) and *H. floresiensis* in Indonesia (Brown et al., 2004) was likely influenced by expansions of modern humans and increased levels of competition. To account for the early spread of modern humans to Australasia, a southern dispersal model has been hypothesized (Lahr and Foley, 1994; Stringer, 2000).

As reviewed by Endicott, Metspalu and Kivisild in this volume, Y-chromosome and MtDNA data support the colonization of South Asia by modern humans originating in Africa. South Asian lineages, like others in Eurasia, belong to haplogroups M and N, apparently descended from the L3 haplogroup that arose in Africa ca. 85,000 years ago (e.g., Metspalu et al., 2004; Forster and Matsumura, 2005). Coalescence dates for haplogroup M, which is shared by most non-European populations, average to between 73–55 ka (Kivisild et al., 2000). Based on a reading of the MtDNA and Y loci data, Endicott, Metspalu and Kivisild indicate that a single, early migration was responsible for the initial settlement of Eurasia and Australia. Recent study of the Andamanese mtDNA have support the interpretation for a rapid colonization of the region towards Australia (Endicott et al., 2003; Macaulay et al., 2005; Thangaraj et al., 2005). Hence, the genetic evidence of South Asia indicates a predominantly late Pleistocene heritage with no major population replacement events in later periods (Endicott et al., this volume). Inter-regional analysis of contemporary and recent crania provide support for this hypothesis, indicating that South Asian populations form a relatively distinct and homogeneous cluster, which suggests that demographic expansion within the subcontinent was in situ throughout much of prehistory (Stock et al., this volume).

The genetic evidence has been persuasive, but unfortunately there are no fossils to corroborate the presence of modern humans in South Asia, other than the skeletons of *H. sapiens*, dated to ca. 31,000 years ago at Fa Hien Cave and ca. 28,500 years before present at Batadomba-lena (Deraniyagala, 1992). Nevertheless, the genetic coalescence date for the arrival of modern humans in the subcontinent, together with the earlier range of the Australian dates, plausibly indicate the presence of modern humans in South Asia between 70–55 ka. If such dates for South Asia are valid, it would imply that modern humans expanded into the region using Middle Paleolithic technologies (James and Petraglia, 2005; James, this volume). And if this is the case, modern humans would have likely encountered archaic hominins also using Middle Paleolithic technologies. Such a hypothesis has more in common with the interchange of modern and archaic populations in West Asia, and contrasts with models which indicate that modern humans expanded out of Africa after 50 ka, employing an 'Upper Paleolithic' package (Klein, 1999, 2000).

With respect to the dispersal of modern humans, one major question concerns the role of the Toba super-eruption. This 74,000 year old volcanic super-eruption is hypothesized to have led to global climatic deterioration and the decimation of human populations (Ambrose, 1998), though as described by Jones in this volume, the severity of the impact has been contested by various scholars. South Asia is an ideal place to examine the direct impact of the volcanic event on hominins as geologists have found terrestrial and marine deposits of ash (e.g., Acharyya and Basu, 1993; Westgate et al., 1998). Though tephra deposits are associated with archaeological assemblages in India, the age of the ash and its precise relationship with Acheulean tools has been vociferously debated (e.g., Acharyya and Basu, 1994; Mishra and Rajaguru, 1994; Shane et al., 1995). Jones' chapter reviews the geological, environmental, paleontological and archaeological evidence from global and regional records and examines whether the regional evidence provides evidence for population continuity, extinction or survivals in refugia. Though it is clear that more precise field work needs to be conducted to understand the impact on local populations, the 74 ka date of the Toba event provides a lower limit of the hypothesized colonization of the subcontinent by modern humans (Kivisild et al., 2003; James and Petraglia, 2005; Endicott et al., this volume). As indicated by Jones, a number of questions therefore remain to be addressed, including precisely how the volcanic super-eruption impacted local populations, whether the local environments and food chains were disrupted by the fall-out of ash and subsequent erosional cycles, and if the volcanic event in some way provided a competitive advantage of modern humans over their archaic ancestors.

The movement of modern humans from Africa towards Australia is thought to have involved coastlines (Lahr and Foley, 1994; Stringer, 2000). Coastal hypotheses assume that populations would have been able to move rapidly along the coastline towards Australia. Recent terrain analyses through GIS analysis supports the liklihood of coastal dispersals (Field et al., 2006). The GIS-based analyses indicate that entry into South Asia is more likely to have employed a coastal corridor that originated to the west. Once present in South Asia, populations may have followed a number of routes, which included both coastal and terrestrial contexts. Yet, Korisettar (this volume) places considerable doubt on coastal hypotheses for human movements along the continental shelf. Korisettar points out that archaeological evidence for exploitation of littoral contexts is so far absent in the subcontinent. Instead, Korisettar argues that dispersals would have been transcontinental, as supported by the presence of archaeological sites in many inland basins. Regardless of the precise routes undertaken by modern humans, geographic factors would have favored local adaptations over movements, as populations would have encountered barriers (e.g., Himalayan mountains, Ganges-Brahamaputra drainage system; see Stock et al., this volume) and zones with high resource diversity (Korisettar, this volume).

While fossil and genetic evidence indicate that our origins lie in Africa sometime around 200 ka, the evolution of modern human behavior has been debated. The archaeological evidence has been used to support either a gradual behavioral assembly of modern behavior from the Middle Pleistocene onwards (McBrearty and Brooks, 2000) or a rapid acceleration of behavioral traits afte 50 ka (Klein, 1999). Though anatomically modern humans appear to have expanded to western Europe by ca. 45–40 ka, introducing new adaptive features and innovations (Mellars, 2005), others counter that Neanderthals may have independently developed advanced behavioral characterisitics before the arrival of *H. sapiens* (D'Errico, 2003). As indicated by James in this volume, a significant problem in current studies of the evolution of modern behavior is that the Middle-Upper Paleolithic transition of Europe is typically contrasted against the MSA and LSA of Africa. Yet, such a comparison has severe limitations as the adaptations and material culture of modern human populations evolving in Africa will differ from the behaviors of populations spreading towards western Europe at a later date. Thus, to understand how cultural traits and behaviors evolved or were expressed in archaic and modern human populations, it is vital to know how the European and West Asian record compares to South Asia, Eastern Asia, and Australia where *H. sapiens* were immigrants.

The hypothesized spread of modern humans to the subcontinent before 50 ka has important demographic and cultural implications (James and Petraglia, 2005). If an early entry date in the subcontinent is valid, anatomically modern humans would have likely been spreading with Middle Paleolithic technology and meeting indigenous populations with similar technologies. The use of Middle Paleolithic technology by both modern and archaic populations in South Asia is analogous to the situation in West Asia, where Mousterian tools were used by *H. sapiens* and Neanderthals. Modern humans were, of course, the only populations to survive in South Asia, though much is to be learned about the degree to which the two populations interacted and whether archaic populations were eventually driven to extinction by direct or indirect competition. As James illustrates, the Middle Paleolithic of South Asia was followed by increasing technological diversity (i.e., flake, blade, bladelets) in the Late Paleolithic. The initial transition to the Late Paleolithic is gradual and marked by increasing usage of blades alongside flake core industries, signalling a range of adaptations through time and space by local populations. At 45 ka, intentional site modifications are evidenced, indicating modification of living spaces in open-air and rockshelter contexts (Kenoyer et al., 1983; Misra, 1989; Dennell et al., 1992). Geometric microliths and beads are found in the Late Paleolithic at ca. 30 ka, indicating the introduction of sophisticated hafting technologies and explicit forms of symbolism (Deraniyagala, 1992).

With respect to the evolution of 'modern human behavior', it is clear that the trajectory and patterning of cultural traits in South Asia differs from the African and West European record. As James points out in this volume, the archaeological record of South Asia shows no rapid or sudden appearance of the modern behavioral package that can be considered equivalent to the Aurignacian in Europe, nor does it indicate the spread of an Upper Paleolithic package at around 50 ka. While the sporadic and gradual appearance of explicitly symbolic artifacts and microlithic technology are similar to cultural developments in the MSA of Africa, such traits occur in South Asia at a much later date. Hence, the trajectory of 'modern human behavior' in South Asia is distinct in comparison to other regions. For the earliest periods, it is currently difficult to differentiate between the behavior of modern humans and archaic populations. After 45 ka, the archaeological record shows a gradual shift in technology and rare introductions of traits considered to be part of the modern human behavioral package. The gradual and mosaic-like pattern of change in cultural traits in time and space indicates that material culture and symbolic objects developed in fundamentally different ways as modern humans spread around the globe.

The development of new cultural innovations in the Late Paleolithic of South Asia may be related, in part, to fluctuations in the environment and demographic changes.

The wetter and more stable conditions during Oxygen Isotope Stage 3 (60–25 ka) may correspond with a demographic expansion proposed on the basis of mitochondrial DNA analysis between 30–20 ka (Kivisild et al., 1999; Endicott et al., this volume). Occupation in the Thar Desert becomes increasingly sparse after ca. 25 ka, reflecting the heightened aridity and loss of available water sources (e.g., Deotare et al., 2004; Misra, 2001). Increasing aridity and expansion of the Thar Desert would have reduced and fragmented existing populations. Such demographic and enviromental conditions may be tied to some cultural innovations occurring between 30–20 ka, including the introduction of microlithic assemblages and the manufacture of symbolic artifacts (i.e., beads and 'art').

New Worlds in the Holocene

Mesolithic sites are well represented in the Indian subcontinent, leading archaeologists to infer that the large number of sites relates to marked growth in human populations (e.g., Misra, 2001:498). The dramatic increase in Mesolithic sites and the presence of settlements in previously unoccupied areas are thought to be related to the wetter climate at the beginning of the Holocene and the abundance and diversity of plants and animals. Mesolithic settlements have fascinated archaeologists as they often contain thousands of tiny microlithic bladelets (with retouched tools often fashioned into geometric forms), and they are often found across landscapes containing dozens of rockshelters adorned with artistic depictions of various animals and humans.

Though microliths have been found in Late Pleistocene contexts in Sri Lanka, the advent of the Mesolithic is usually placed in the Early Holocene. As Morrison notes (this volume), the end of the Mesolithic is not at all precise, as researchers use the term to refer variously to sites with microlithic technology, foraging lifeways, or as a particular archaeological period between the Paleolithic and Neolithic. Serious problems prevent an understanding of foraging lifeways in the Early and Middle Holocene as most microlithic sites are not dated and there have been very few studies which aim to retrieve archaeobotanical and faunal remains. As a result, interpretations about the activity and adaptations of these hunting and gathering societies are severely hampered. Further complicating the situation, it is clear that agriculturalists use microlithic technology and trade with foragers, thus making it difficult to clearly differentiate and discern foraging patterns from the task-oriented activities of farmers and pastoralists.

The increased food supply available in the Mesolithic is thought to have led to a reduction in mobility, as reflected in the large size of sites, the appearance of more substantial habitation deposits, and the presence of cemeteries, particularly in the Ganga Valley (Misra, 2001). Many of the 200 Mesolithic sites that have been mapped in the Ganga Valley occur adjacent to oxbow lakes (Sharma, 1973). The degree of mobility for these groups is debated, though they appear to have been semi-sedentary based on the presence of huts, communal hearths and burial areas (e.g., Pal, 1994; Chattopadhyaya, 1996; Lukacs, 2002). The Mesolithic cemeteries of the Ganga plains are among the most remarkable anywhere in Asia (Pal, 1992; Kennedy, 2000). The sites of Sarai-Nahar-Rai, Mahadaha, Damdama, thought to range from the period 10–4 ka, have provided some of the best samples of Mesolithic skeletons in the subcontinent (see Lukacs, this volume). The human remains from these cemeteries have been described as having massive skulls, a tall stature and a high degree of musculoskeletal robusticity. Though the Ganga Valley crania fall within South Asian diversity, the crania tend to be larger than those of contemporary and recent populations, sharing most morphological similarity with the Vedda and Sri Lankan populations (Stock et al., this volume). As the analysts describe, the craniometric data may therefore point to more diversity in prehistory. Stock et al. also note that the later homogenization of populations may be due to adaptation to similar environmental and cultural conditions, which is a point that Walimbe makes in his chapter. Lukacs (this volume) comes to slightly different conclusions concerning biological distance amongst Holocene populations in South Asia. Suggesting the possibility for a similar genetic heritage, Lukacs demonstrates a relatively close relationship between the populations of the Ganga Mesolithic sites, Neolithic Mehrgarh, and Chalcolithic Inamgaon.

The conventional outline of agricultural origins in South Asia is that plant harvesting and settled life appeared in the northwestern part of the subcontinent at around 8 ka, as evidenced by the settlement at Mehrgarh (Jarrige, 1984). The first urban centers appeared somewhat later, at around 5 ka in the Indus Valley (Kenoyer, 1998; Possehl, 1999). Contemporaneous with and post-dating Harappan developments, smaller agricultural and pastoral communities were established across the subcontinent, as indicated by abundant Neolithic and Chalcolithic settlements at this period (e.g., Korisettar et al., 2002; Panja, 2002; Singh, 2002). The significance of food production should not be underestimated, as intensification and surpluses fuelled the expansion of pastoralists and farmers, the development of trade and exchange networks, the diversification of society into occupations, and eventually, to the development of towns and cities. As is indicated by Lukacs and Walimbe in this volume, the transition from a hunting and gathering way of life to an agricultural subsistence pattern had serious biological costs. Lukacs demonstrates that the hunting and gathering societies of the Ganga Plain were generally healthy and well adapted to their environment, showing low dental caries, absence of evidence for nutritional and infectious diseases, and rare evidence for trauma and markers of occupational stress. In contrast, Walimbe notes that agriculture and sedentism is associated with nutritional deficiencies, infectious disease, trauma, degenerative pathologies and episodic stress.

With respect to the origins of domestication, archaeologists have long argued that plants and animals were introduced to South Asia from centres to the west and east, with the dispersal of domesticates being at times accompanied by the human colonizers themselves (e.g., MacNeish, 1992; Bellwood, 2005). Fuller (this volume) challenges such conventional thinking, arguing for a much more complex situation involving the development and exchange of domesticates by extra-regional and regional populations. Fuller contends that rice, water buffalo and chickens may have been separately domesticated in South Asia and East Asia, and suggests that additional varieties of these domesticates may have been introduced to these regions at a later date. In addition to agricultural imports from other regions, Fuller makes a persuasive argument for the domestication of certain animals (e.g., zebu, sheep) and varieties of plants (e.g., cotton, millets, pulses) in various geographic areas of the subcontinent, including the Indus basin, the middle Ganges, Gujarat, Orissa and south India. Based on genetic analysis of *Bos indicus*, Magee, Mannen and Bradley indicate the complexity of domestication, pointing out that cattle may have been domesticated in more than one place in the subcontinent.

Fuller's arguments in this volume also have a bearing on one of the most contentious and long-term research problems in South Asian prehistory, i.e., the origin and spread of languages, including hypotheses which envision that Indo-European languages were imported by farming or later pastoral communities from the west (e.g., Allchin and Allchin, 1982; Renfrew, 1987). Though genes and languages have been correlated with demographic expansions of farming populations and migrations towards South Asia (Cavalli-Sforza et al., 1994), recent studies of mitochondrial DNA argue against a strong differentiation of peoples speaking Indo-Aryan and Dravidian languages (Metspalu et al., 2004; Endicott et al., this volume) and no support for the entry of 'Aryan' populations is found in physical anthropological data (Kennedy, 1995; Walimbe, this volume). Genetic studies have, however, recently been used to support the idea of migrations of Tibeto-Burman and Austro-Asiatic speaking groups from East and Southeast Asia into India (see Endicott et al., this volume), which is consistent with archaeological hypotheses which infer that the Austro-Asiatic Munda languages were introduced by Neolithic populations from the Northeast (e.g., Bellwood, 2005) (though see Fuller, this volume, for a contrasting opinion).

While South Asia contains a great diversity of languages that may be used to discern population histories and relationships, the process of language change is a complex subject, as linguistic patterns may be combined and recombined by complex social and cultural processes. Languages, of course, may diverge as a product of social mechanisms and geographic distances, indicating how problems may arise for the linguist in recordation and cross-comparison. To overcome such interpretive difficulties, and to determine the relationship of the large array of languages that linguists are confronted with in South Asia, McMahon and McMahon (this volume) illustrate how quantitative methods and network programming can help to sort out this situation. An alternative way of examining the historical relationship of South Asian languages meanwhile is offered by Fuller (this volume), who examines the archaeological evidence for plant and animal domestication and compares this with linguistic loanwords and terms. Fuller argues for a number of separate transitions from hunting and gathering to domestication, with subsequent demographic expansions of farmer languages in different regions (i.e., Proto-Munda in Eastern India, Proto-Dravidian in south India, Para-Munda in the Greater Indus, Language X in the Ganges basin, and proto-Nahali in Gujarat or south Rajasthan). As Fuller notes, this implies that there was cultural and linguistic diversity amongst hunter-gatherer populations in South Asia prior to the Neolithic. In his linguistic-domesticates model, Fuller argues that subsequent language changes (e.g., introduction of Indo-Aryan) were as much social and political in origin as they were demographic.

While linguistic analyses will continue to inform prehistorians about the complex relationships between farmers and foragers in South Asia, there can be little doubt that the spread of agriculture had profound effects on hunting and gathering societies. Certain foraging groups are likely to have adopted agricultural and pastoral lifeways, while in other cases, the mobility of hunter-gatherers was likely reduced, leading to relict populations in more marginal areas. Though tribals and mobile communities are often thought to be descendents of Pleistocene and Mesolithic populations, little firm skeletal evidence has been found to discriminate between forager and food producing populations in South Asia (Kennedy, 2000). In contrast, recent genetic data has suggested that tribal populations and agriculturalists may be differentiated, supporting the notion of different population sources and histories (e.g., Cordaux et al., 2004a, 2004b) (though such divisions are disputed on genetic and anthropological grounds; see Endicott et al., this volume; Boivin, this volume; Morrison, this volume). A recent claim for the lack of genetic interchange between foragers and agriculturalists comes from the isolated tribes of the Andaman Islands, who show deep time depths in their MtDNA, thus indicating that they are descendents of an ancient human substratum (Endicott et al., 2003; Thangaraj et al., 2005) (though other geneticists dispute this interpretation, see Cordaux and Stoneking, 2003). Craniometric comparisons do not support the genetic differentiation of the Andamanese, but some morphological divergence does exist for the Veddas, whose phenotypic characteristics have always been recognized (Kennedy, 2000; Stock et al., this volume). Archaeological support can be found for interactions between foraging populations and Harappan communities (Possehl, 1976; Morrison, this volume). In this case, the similarity of crania between forager and farming communities has been considered to be the result of genetic exchange (Kennedy et al., 1984; see also Stock et al., this volume). It is interesting that most Indian 'tribals', including hunter-gatherer groups (e.g., Chenchus, Juangs), speak agricultural languages (either Dravidian or Munda), implying either that these populations are descended from agriculturalists (and have specialized as foragers) or they have in the past adopted neighboring agricultural languages, thus implying a long history of close interaction. Though it may be assumed that many foraging groups were assimilated into agriculturally based societies, it has also been suggested that some agriculturalists may have shifted to foraging (Morrison, this volume). Genetic arguments have also been presented to suggest that foragers were integrated into caste-based society, on lower levels (Cordaux et al., 2004a) though this is a contentious claim. Contrary to views that portray foragers in a negative and marginalized light, Morrison (this volume) shows that foraging communities were flexible and diverse in their economic and social strategies. Morrison illustrates that trade-based foraging with settled communities was pivotal in developing historical economies, and in some cases, even responsible for underwriting the formation of coastal polities.

The modern world of South Asia consists of a rich cultural legacy with a diverse range of lifestyles, ranging from the nomadic Veddas of Sri Lanka, to the Raika camel herders of Rajasthan, and the city dwellers of Mumbai with its 18 million inhabitants. The rich, cultural tapestry of the modern era is matched by an incredibly rich and complicated prehistoric heritage that is clearly evident in archaeological, biological and linguistic sources. It is hoped that chapters in *The Evolution and History of Human Populations in South Asia* will not only demonstrate that the subcontinent can provide useful information about our evolutionary history, but also that an integrated, and multidisciplinary approach to history and prehistory has its advantages. While a comparison of the viewpoints of different disciplines does not lead to easy answers, it does suggest a wealth of new directions for future study.

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