



Man and Environment

ABSTRACTS

Volume XXXII, No. 1 (January-June 2007)

Stone Age Cultures, their Chronology and Beginning of Agriculture in North-Central India

V.D. Misra

V.D. Misra, *Man and Environment* XXXII(1): 1-14 [2007]
ME-2007-1A01

The Buddhist Literary Traditions as Reflected in Western Indian Cave Inscriptions and Architecture with Special Reference to Kanheri Caves

Shobhana Gokhale

There are more than twelve hundred rock-cut caves in Western India. Inscriptions and architecture therein restored the rhythm of religion and embodied the ethos of literary traditions. If we investigate the reason behind the remarkable grandeur and meaningful monotony in Buddhist architecture, we find that there is beautiful synchronism between the Buddhist literary traditions, religious concepts and the then social psyche. It is therefore necessary to study Buddhist architecture against the backdrop of Buddhist literature.

The canvas of Buddhist literature has preserved human values and lessons for common people, at the same time Buddhist texts have offered an excellent basis for understanding the real spirit and merits of architecture. The inscriptions in caves are not mere records of donations but they pulsate with the main force of Buddhist religion.

The Buddha converted a large number of people from different social sectors. Initially Bhiksus dwelt in woods, at the foothills of mountains and wandering here and there. The Blessed-one allowed Bhiksus to dwell in huts and caves. Whenever the Bhiksus faced difficulties they approached the Blessed-one. The Blessed-one provided solutions, which were put into practice. In the course of time the solutions were codified and then they turned into religious norms; and then practice became precept.

So far architecture of Kanheri has been studied by different scholars, but the literary tradition was not taken into consideration.

Kanheri which is mentioned as Krsnagiri in inscriptions, is 10 km to south-east of Borivali, a suburb of metropolitan Mumbai (Maharashtra). In the entire network of Buddhist caves in western India, Kanheri had a distinct character. It was the biggest Buddhist establishment. It has been mentioned as *Krsnagiri Maharaja Mahavihara* in the 9th century inscription at Kanheri. Kanheri was modelled like a Jetavana monastery. In the *Mahavagga* and the *Chullavagga* we get the information regarding the dwellings of Buddhist monks and their architecture. Against this backdrop the settlement pattern of the Kanheri monastery could be studied. The excavation of caves and architecture concur with the norms mentioned in the *Chullavagga*.

Shobhana Gokhale, *Man and Environment* XXXII(1): 15-22 [2007]
ME-2007-1A02

Studies on Surface Features of Quartz Grains of Quaternary Successions of Lower Tapi River Basin, South Gujarat – their Environmental Implications

A.V. Joshi and S.K. Biswas

The South Gujarat terrain forms one of the important segments along the western margin of the Indian sub-continent from the point of view of its geomorphic and geologic diversities. The northern portion of this terrain is marked by the lower Tapi river basin (LTRB) comprising rock formations of varying ages. The sediments belonging to the widely distributed Quaternary successions within LTRB are quite interesting from the nature of their disposition and environment of deposition. The study of the surface features of quartz grains belonging to the Quaternary clastic sediments of LTRB have been carried out for the first time. The data obtained from this study supplemented with the field observations has helped to understand their transportation history and nature of processes that governed their deposition. The features which are commonly observed include conchoidal fractures, coalescing irregular impact pits, straight and arcuate steps, straight and curved scratches, mechanically formed 'V's, friction features, breakage blacks and cleavage planes.

A.V. Joshi and S.K. Biswas, *Man and Environment* XXXII(1): 23-32 [2007]
ME-2007-1A03

Fluorine Dating of the Pleistocene Vertebrate fossils from Manjra Valley, Maharashtra

Sachin V. Joshi and Vijay Sathe

The paper describes freshly obtained fluorine values on the vertebrate fossils found at two sites, i.e. Harwadi and Tadola in the upper reaches of Manjra Valley, Maharashtra. The analysis was carried out using pH meter instead of the Ion selective electrode used by earlier scientists. Fluorine values were obtained on ten samples each having well-defined stratigraphic control at both the sites. The values compliment taphonomic observations and demonstrate that even if the bones are allochthonous, this method can be a useful for defining a chronological framework. In India this is the first attempt to combine taphonomy and chemical analysis for better understanding of chronological perspective of the depositional history of skeletal remains in the Pleistocene.

Sachin V. Joshi and Vijay Sathe, *Man and Environment* XXXII(1): 33-38 [2007]
ME-2007-1A04

Thathappatti: Tamil-Brahmi Inscribed Hero Stone

K. Rajan and V.P. Yatheeskumar

Tamil-Brahmi inscribed hero stone is found engraved on a menhir installed as part of an urn burial. This inscribed menhir, the first of its kind, in India throw a welcome light on the

understanding of early historic period. The transformation of sepulchral monuments from Iron Age to Early Historic could be understood in the backdrop of this hero stone. The literary evidence on hero stones found in Sangam literature is well attested by the material evidence found on the ground. Next to Pulimankomabai, this is one of the earliest hero stones so far found in India.

K. Rajan and V.P. Yatheeskumar, *Man and Environment* XXXII(1): 39-45 [2007]
ME-2007-1A05

The Dolmens of Palani Hills, Tamil Nadu – Present Explorations

R.N. Kumaran and M. Saranya Kumaran

Megalithic monuments of Palani Hills are concentrated between 1250 to 1550 m AMSL. The line that runs North-South along the Neutral Saddle falls in this zone. Hills falling above this line are called Upper Palani Hills and those below this line are termed as the Lower Palani Hills. Megalithic burials are concentrated in the Lower Palani Hills, and scarce in the Upper Palani Hills. The main varieties of megalithic monuments found in these regions are dolmens, cists, pit-burials, urn burials and menhirs, where dolmens predominate. The burials were mostly located in areas where raw material were easily available for their construction. The authors explored this region in order to have a better idea of stone working, transportation and construction of megaliths, social organization, engineering skills and technology.

R.N. Kumaran and M. Saranya Kumaran, *Man and Environment* XXXII(1): 46-56 [2007]
ME-2007-1A06

A Preliminary Report of the Archaeological Investigations at Sisupalgarh 2006

R.K. Mohanty, M.L. Smith and T. Matney

Sisupalgarh, a walled city of the Early Historic period in eastern India, represents one of the best-preserved urban centres of its kind. Excavations in 2006 were undertaken on the northern portion of the site in two areas: an open excavation of domestic architecture adjacent to the rampart, and a deep sounding that revealed over six metres of cultural deposits before reaching natural soil. This excavation was complemented by the non-invasive methods of geophysical survey, which revealed the presence of substantial linear features (possible roadways) intervening the site from two of the rampart's formal gateways.

R.K. Mohanty, M.L. Smith and T. Matney, *Man and Environment* XXXII(1): 57-66 [2007]
ME-2007-1A07

Evidence of a Stupa at Sisupalgarh, Orissa: Re-interpreting Earlier Excavation Data

S.B. Ota

The Early Historic site of Sisupalgarh in Orissa has been under investigation by various scholars since 1948. However, it is not known by many that Sisupalgarh was excavated in

1950 by B.K. Thapar. During this excavation B.K. Thapar claimed to have excavated two megaliths near Sisupalgarh that remained unreported till date. The examination of the archival records pertaining to 1950 excavations in the light of recent archaeological findings has established that one of the structures that was excavated as a megalithic circle was actually a stupa structure.

S.B. Ota, *Man and Environment* XXXII(1): 67-73 [2007]
ME-2007-1A08

Geomorphic and Environmental Changes around Sopara: An Early Historic Port Site in North Konkan, Maharashtra: A Review

Savita Ghate

Sites such as Sopara, Kalyan, Thana and Chaul on the North Konkan coast of Maharashtra, are mentioned as ports or trading centres in ancient literature. Literary records reveal that Sopara was an important port site from the early Historic period onwards up till the early part of the nineteenth century. Sopara and Bassein were two islands separated by Sopara creek and the backwaters of the rivers Vaitarna and Ulhas in north Konkan, till the mid-nineteenth century.

Micro-paleontological and sedimentological studies reveal littoral sedimentation about 6 to 8 km inland in the area. Inland formation of *Karal* – a beach-dune complex rock, much away from the present sea, reveals inter-tidal environments in the past. The presence of *Mendha* – greenish gray tidal clay along the present day lake alignment from Bhuigaon to Sopara suggests a channel of an ancient creek. ¹⁴C measurements of shells and wood indicate silting of the Sopara creek and recession of sea water within a time span of 5000 yrs. (7000 to 2000 BP). The presence of well-preserved pollen and spores of mixed vegetation type indicate high monsoonal precipitation during certain part of the late Holocene. Two different morphological groups of foraminifera indicate fluctuations in the monsoonal precipitation in the Late Holocene. Mesolithic artefacts were recovered for the first time in a stratified context at Gas in North Konkan. A ¹⁴C date of 3500 BP on shells collected from the gravel with Mesolithic artefacts, establishes the antiquity of occupation around Sopara, which may be even older considering the secondary context of artefacts.

Savita Ghate, *Man and Environment* XXXII(1):74-88 [2007]
ME-2007-1A09

The Archaeology of Ritual Spaces: Satellite Images and Early Chalukyan Temples

Himanshu Prabha Ray and Sudha Ravindranath

The objectives of this paper are twofold: one, to highlight the complex factors that led to the emergence of the Malaprabha valley as the core area under the Chalukyas in the 7th century A.D.; and second, to understand the landscape as defined by diverse religious shrines. In this endeavour, high resolution satellite images have proved an invaluable source in situating the temples within their geo-physical habitat and it is the results of this collaborative venture that are presented here. The paper is divided into three sections: in the first part, we discuss details

regarding the background of the temples and their dynamic archaeology that provides insights into resource use and their wide hinterland, while the second section highlights the diverse uses of ritual space by highlighting the cult of Lajja Guari, which shared sacred space with the Hindu, Buddhist and Jain temples in the Malaprabha valley, as also with memorial shrines. The final section focuses on the close proximity of religious shrines to water bodies, which provide linkages between the sacred and the temporal.

H. P. Ray and S. Ravindranath, *Man and Environment* XXXII(1): 89-101 [2007]
ME-2007-1A10

On the Steeling of Iron and the Second Urbanization of Indian Subcontinent

R. Balasubramaniam

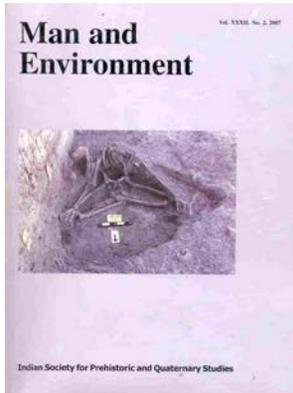
An advent of iron technology in the Indian sub-continent and its impact on urbanization in the Ganga plains has been discussed from the viewpoint of development in iron technology, particularly deliberate carburization. The current state of art on the prevalent viewpoints on the connection between iron and the second urbanization has been first reviewed. Archaeological and material evidences have been provided to show that the discovery of steel (specifically the deliberate addition of carbon in iron) played a major role in large scale clearing of forests in the Ganga plains that spurred agricultural, urban and economic growth in the Indian sub-continent in the period 500 to 300 B.C. The technical benefits of steel when compared with bronze have been briefly explained in order to appreciate the impact of steeling of iron on society and social formation.

R. Balasubramaniam, *Man and Environment* XXXII(1): 102-107 [2007]
ME-2007-1A11

A Note on Dancing Girl from Bhirrana, District Fatehabad, Haryana

L.S. Rao

L.S. Rao, *Man and Environment* XXXII(1): 108-109 [2007]
ME-2007-1A12



Volume XXXII, No. 2 (July-December 2007)

Human Skeletal Remains from Balathal: a Full Report and Inventory

Gwen Robbins, Veena Mushrif, V.N. Misra, R.K. Mohanty and V.S. Shinde

The small assemblage of human remains from Balathal (5 adult individuals) represents the first collection of human remains to be published from the Ahar Culture of Chalcolithic and Early Historic Rajasthan. This paper provides a complete inventory, description, age and sex estimates, and measurements for the adult human skeletal and dental remains. Pathological conditions are described and interpreted in a previous article (Robbins *et al.* 2006).

Gwen Robbins, *et al.*, *Man and Environment* XXXII(2): 1-25 [2007]
ME-2007-2A01

Early Historic Urban Centres of Western Orissa: An Archaeological Study

Benudhar Patra

The study of urban centres and urbanization in ancient India is a significant aspect of the historical research. As elsewhere in India, urban centres flourished in Orissa during the ancient period. Tamralipti, *Che-li-ta-lo*, Palur, Pithunda thrived exclusively as maritime settlements whereas Sisuplagarh, jaugada, Dhauli, Jajpur, Ekamrakshetra (Bhubaneswar) developed with multifaceted activities. Western Orissa has not received much attention though it contributed to the process of urbanization during the ancient period. This paper endeavours to trace the growth, pattern and archaeological significance of early Historic urban centres of western Orissa. Due emphasis has been laid on the social, economic, administrative and cultural aspects of the sites in the light of explored and excavated archaeological materials. Asurgarh, Kharligarh, Buddhigarh, Sonapur, Maraguda, Jumlagarh, Junagarh etc. are some of the major Early Historic urban centres of Western Orissa that have been discussed in this paper.

Benudhar Patra, *Man and Environment* XXXII(2): 27-36 [2007]
ME-2007-2A02

A Submerged Temple Complex off Pindara, on the Northwestern Coast of Saurashtra

A.S. Gaur, Sundaresh and Sila Tripathi

Pindara has been an important religious centre since the early historical period as it has been recorded in several ancient texts. An onshore exploration on the northwestern coast of Saurashtra brought to light the remains of a temple complex presently lying in inter tidal zone of Pindara. There are several temples on the coast of Pindara, which are dated between 7th and 10th century A.D. The archaeological evidence indicates the advancement of shoreline during last 1000 years near Pindara. It is difficult to assign a particular reason for the submergence of temple, however, minor sea level rise and seismic activity might have played a vital role in submerging of the temple.

A.S. Gaur, *et al.*, *Man and Environment* XXXII(2): 37-40 [2007]
ME-2007-2A03

Radiocarbon Dates from the Middle Mahanadi Valley, Orissa

P.K. Behera, D.K. Ray, K. Dutta, G.V. Ravi Prasad, T.R. Routray and R.K. Choudhury

The present work discusses results of recently obtained radiocarbon dates from five excavated archaeological sites, located in the middle Mahanadi Valley of Orissa, and their bearing on the reconstruction of early cultural phases belonging to the first two millennium before Christ. The results for the first time reveal a continuous record of human occupation of the area right from the Neolithic down to the Early Historic periods.

P.K. Behera, *et al.*, *Man and Environment* XXXII(2): 41-46 [2007]
ME-2007-2A04

Preliminary Observations on the Growth of Early Historic Settlement of Chandraketugarh, West Bengal – A Geomorphological Approach

Chinmoy Chakrabarti, Banani Bhattacharya, Pratap Chakravarty, Soumendranath Banerjee, Kaushik Gangopadhyay and Gautam Sengupta

The region around the archaeological site at Chandraketugarh/Berachampa, (in the western part), West Bengal comprises a number of Holocene meander belts and tidal plains of successive ages of the Ganga-Brahmaputra delta. The oldest Proto-Padma meander belt (PPM) comprising five sub-belts [PPM.1 (oldest) to PPM.5 (youngest)] hold clues to human adaptation at the site. Early settlers reached the site through PPM.2 channels and settled on their levee. Subsequent to the complete desiccation of PPM.2 channels, the channels of PPM.3 meander belt formed a point bar complex just north to Berachampa. The PPM.3 channels additionally provided an access to the channels of the Bhagirathi and Ichamati meander belts to the west and east, respectively. Subsequent development of a set of parallel and straight PPM.3 channels branching off from the southwestern corner of the point bar, up to the river Bidyadhari to the south, provided an access to the river. The three rivers thus

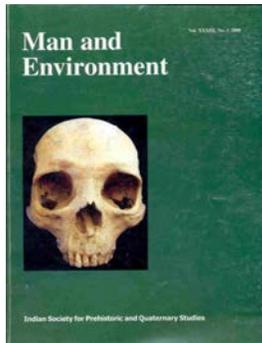
provided the Berachampa settlers with vital access to the Bay of Bengal. A sudden avulsion of a PPM.3 channel, from the southwestern extremity of the major point bar complex and its subsequent southerly course, close to the eastern end of the settlement, posed a threat of flood. The subsequent decline of the settlement was due to the emergence of a comparatively new east-west trending meander belt (Jamuna), north of Chandraketugarh, connecting the rivers Bhagirathi and Ichamati. As a result, water flowing into PPM.3 channels, from the north, was diverted along this newly formed meander belt (Jamuna) and the PPM.3 channels flowing close to Berachampa gradually dried up. This phenomenon robbed the community of vital river transport routes to the surrounding areas by denying access to Bhagirathi, Ichamati and Bidyadhari rivers. The PPM.3 channels, around Berachampa, and specially the point bar complex to its north degenerated into marshes with stagnant pools of water leading to the area becoming inhospitable for habitation.

Chinmoy Chakrabarti, *et al.*, *Man and Environment XXXII(2)*: 47-60 [2007]
ME-2007-2A05

A Gazetteer of Pre- and Protohistoric Sites in Gujrat

S.V. Rajesh and Ambika Patel

S.V. Rajesh and Ambika Patel, *Man and Environment XXXII(2)*: 61-136 [2007]
ME-2007-2A06



Volume XXXIII, No. 1 (January-June 2008)

Rock Art of India: A Historical Perspective

V.H. Sonawane

V.H. Sonawane, *Man and Environment* XXXIII(1): 1-13 [2008]
ME-2008-1A01

The Lower Palaeolithic: A Review of Recent Findings

Sheila Mishra

The Lower Palaeolithic is the phase of Prehistory which deals with the earliest archaeological evidence. It is quite important to have an overview of the evidence from the entire world to properly interpret the evidence from any particular region. In the last few decades the pace of discoveries has been very rapid and many fundamental changes in knowledge have occurred. Some of the long held ideas have not been supported by recent findings. The “Mousterian line” does not appear to have any validity in the Indian sub-continent and Southeast Asia and only limited validity in East Asia. It continues to hold up in Europe. The diversity of the “earliest” industries in different regions appears quite significant. The Lower Paleolithic of India is unique in the world, in being exclusively Acheulian. Similarity of African and European sequences, with a “mode I” phase followed by a “mode II” phase, but with completely different chronologies, is puzzling. In this paper an attempt is made to review some of these new findings.

Sheila Mishra, *Man and Environment* XXXIII(1): 14-29 [2008]
ME-2008-1A02

Prehistoric Antiquities and Personal Lives: The Untold Story of Robert Bruce Foote

Shanti Pappu

Geologist, archaeologist, ethnographer, palaeontologist, museologist and artist. It is not an easy task to define Robert Bruce Foote’s contributions in the world of 19th century scholarship in India. A man of many interests, his impressive work established foundations which structured the direction of modern research in Indian geology, and pre-and protohistoric archaeology. The author’s ongoing research into the life and work of R.B.

Footnote, led to the discovery of new information, revealing hidden dimensions of this fascinating personality; a part of which is presented here. This paper puts forward, for the first time, information on Robert Bruce Foote's lineage and family history, and traces how personal lives were intertwined with the quest for India's past.

Shanti Pappu, *Man and Environment* XXXIII(1): 30-50 [2008]
ME-2008-1A03

Archaeozoological Evidence from the Ghaggar Valley with Special Reference to Tarkhanewala Dera and Chak 86, District Ganganagar, Rajasthan

Arati Deshpande-Mukherjee, P.K. Trivedi and J.K. Patnaik

Since the early twentieth century, explorations in the dried bed of the River Ghaggar in the northern part of Rajasthan have indicated the rich archaeological potential of the region. From the Ganganagar District in particular, numerous sites belonging to the Harappan, Painted Grey Ware and Historic period were reported by A. Ghosh in the nineteen fifties. In spite of the rich archaeological evidence very few faunal studies have been attempted so far excepting that at Kalibangan. Hence, till date information regarding animal exploitation patterns during the Harappan and later periods from this particular region, is virtually unknown. It is on this background that the faunal evidence unearthed from the recent 2003-2004 excavations at Tarkhanewala Dera and at Chak 86 is significant. This paper presents results of the analysis carried out on faunal material from these sites.

Arati Deshpande-Mukherjee, *et.al*, *Man and Environment* XXXIII(1): 51-57 [2008]
ME-2008-1A04

Evolution of the Harappan Bullock Cart at Bhirrana, District Fatehabad, Haryana

L.S. Rao

Most of the published literature regarding the land transport mechanism prevailing during the Mature Harappan period speaks about pack animals and bullock carts with solid wheels. But not much information is forthcoming about the types of bullock cart that existed during the antecedent periods, like Early Mature Harappan, Early Harappan and Hakra Ware culture. However, the excavation of the Harappan mound at Bhirrana (29° 33' N; 75° 33' E) revealed for the first time, the introduction of the bullock cart during the Hakra Ware period which continued in later periods. This paper attempts to assess the various morphological changes as reflected in the terracotta toy cart frame models recovered at the site.

L.S. Rao, *Man and Environment* XXXIII(1): 58-65 [2008]
ME-2008-1A05

New Insights into Harappan Town-Planning, Proportions and Units, with Special Reference to Dholavira

Michel Danino

Dholavira's elaborate town-planning rests on the conscious use of specific proportions for its successive enclosures. Those proportions combined with the city's dimensions allow us to calculate precisely the unit of length used for the fortifications, to relate it to the Lothal ivory scale, and to work out potential subunits. Both proportions and units receive overwhelming confirmation from structures of Dholavira and other Harappan sites. Units are finally refined to a *dhanus* of 190.1 cm and an *angula* of 1.76 cm, the former being 108 times the latter. The Dholavirian scheme of units is then shown to be related to historical unit systems in several ways; in particular, the *Arthashastra's* scheme of linear measures conclusively has Harappan roots. Finally, the paper attempts to outline some of the abstract concepts underlying Dholavira's geometry, taking a peep at a hitherto neglected component of the Harappan mind.

Michel Danino, *Man and Environment* XXXIII(1): 66-79 [2008]
ME-2008-1A06

Anthropological Studies on Human Skeletons from the PGW site of Abhaipur (District Pilibhit), U.P.

Veena Mushrif-Tripathy, Anup Misra, U.P. Arora and S.R. Walimbe

This report comprises findings of anthropological investigations carried out on skeletal remains of two individuals, an adult and a child, uncovered from the PGW level at the site of Abhaipur (U.P.). The Abhaipur human skeletal remains are important in many ways. The excellent preservation of the adult skeleton provides a rare opportunity for an in depth anthropological study. Several uncommon non-metric features have been noticed. Some of them are being reported for the first time for any Indian protohistoric skeletal specimen. Degenerative pathologies involving joint and vertebral disorders and neoplastic lesions have also been noticed. The young individual exhibits evidence of metabolic disorders. A detailed morphometric account of these specimens is discussed in this paper.

Veena Mushrif-Tripathy, *et.al*, *Man and Environment* XXXIII(1): 80-100 [2008]
ME-2008-1A07

On the Continuity of Engineering Tradition from the Harappan to Ganga Civilization

R. Balasubramaniam

The transmittance of Harappan engineering standard of length measure to the Gupta period has been confirmed by analysis of the dimensions of the Delhi Iron Pillar utilizing the basic Harappan unit of measurement of 17.63 mm. This unit of measurement – the angulam

proposed by Danino - is confirmed based on material evidences from the Harappan Civilization (Kalibangan terracotta scale) and Ganga Civilization (Delhi Iron Pillar).

R. Balasubramaniam, *Man and Environment* XXXIII(1): 101-105 [2008]
ME-2008-1A08

Narrating State in Early Historic Bengal

Shahnaj Husne Jahan

The discovery of a large number of archaeological remains such as coins, potsherds and other antiquities from West Bengal and Bangladesh clearly illustrates the rich heritage of this region. Recent research has revealed new light on this region, although many questions related to the State during the Early Historic period in Bengal remain unanswered. This paper examines the formation and nature of the State after considering available archaeological, numismatic, epigraphic and literary sources. It traces the evolution of the State in the lineage-based society of the pre-Mauryan era, the implantation of a Kautilyan state model from the Middle Ganga Valley in the Mauryan era, and the influence of the Kushanas' model during the post-Mauryan era.

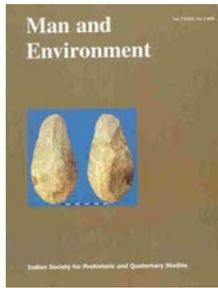
Shahnaj Husne Jahan, *Man and Environment* XXXIII(1): 106-115 [2008]
ME-2008-1A09

Tangkhol Naga Megalithic Tradition: A Case Study of North Ukhrul, Manipur

Rammathot Khongreiwo

This paper is an ethnoarchaeological study of the megaliths erected by the Nagas with special reference to the Tangkhol Nagas of Manipur. This is based on fieldwork conducted during the season 2005-2006 in eleven villages of north Ukhrul. These include the villages of Paoyi, Longpi Kajui, Longpi Hirei, Marem, Kharâsom, Chingjui, Lunghar, Shirui, Lângdâng, Hungpung (Hundung), and Hungphun (Ukhrul village proper). The article is divided into three sections. The first section is an introductory note on the Tangkhol Nagas as a tribe within the larger Naga community of India and Myanmar; and on the territory they inhabit in these countries. The second section deals with the typology, geographical distribution and orientation of the megaliths, and the periods to which the megaliths may be assigned. The third section which forms the crux of the present article is a discussion on the changes and continuities in the Tangkhol Naga megalithic traditions through time.

Rammathot Khongreiwo, *Man and Environment* XXXIII(1): 116-125 [2008]
ME-2008-1A10



Volume XXXIII, No. 2 (July-December 2008)

Technological Analysis of the Acheulian Assemblage from Atbarapur in the Siwalik Range (Hoshiarpur District, Punjab)

Claire Gaillard, Mukesh Singh and Kulbhushan Kumar Rishi

The largest collection of Acheulian artefacts in the Siwalik region of the Indian subcontinent is from the site of Atbarapur in the Hoshiarpur district of Punjab. It is not dated but recent synthesis of the palaeomagnetic and palaeontological data from the Siwaliks shows that some Upper Siwalik sediments are younger than the Olduvai event, but are in any case older than 0.6 kyr. The artefacts from Atbarapur are probably derived from such sediments, thus providing a minimum age for this industry. In spite of its derived nature the assemblage is homogenous and its technological study leads to a better understanding of the character of the Acheulian in this region. Two “*chaînes opératoires*” have been identified, both are similar: short and simple. One was oriented to the production of small flakes, and the second to the production of large flakes. The handaxes and cleavers, typical of the Acheulian, were mostly made on the large flakes often struck from larger flakes (Kombewa method) or from split boulders.

Claire Gaillard, *et.al*, *Man and Environment* XXXIII(2): 1-14 [2008]
ME-2008-2A01

The Upper Palaeolithic ‘Damin Industries’ of the Bansloi River Basin, Jharkhand

Kumar Akhilesh

This paper presents a re-examination of the Damin complex of Upper Palaeolithic industries, Jharkhand. Recent field investigations led to the discovery and study of sites in different sedimentary contexts, and aided in the documentation of raw material sources, Studies of the lithic reduction sequence, and assemblage variability between sites helped in examining some aspects of prehistoric mobility patterns. The study also led to the first identification of pre-Upper Palaeolithic artefacts in this region, occurring within a stratified context. The Damin assemblages are also situated within the context of Terminal Pleistocene assemblages of Eastern India.

Kumar Akhilesh, *Man and Environment* XXXIII(2): 15-31 [2008]
ME-2008-2A02

Field Studies of Quaternary Sediments around Wai, District Satara, Maharashtra

Charuta J. Kulkarni, Sushama G. Deo and S.N. Rajaguru

Recent geoarchaeological studies of 20 m thick colluvial-alluvial deposits in the Krishna Valley around Wai, District Satara, Maharashtra, indicate that they can probably be assigned to the Middle Pleistocene. This inference is based on discovery of an *in situ* large Acheulian flake on basalt in a laterite-rich pebbly-cobbly gravel at Pachwad. Several geomorphological features of the landscape are misfit in the present geomorphic setting, and are the result of Quaternary tectonics and climatic change.

Charuta J. Kulkarni, *et.al*, *Man and Environment* XXXIII(2): 32-36 [2008]
ME-2008-2A03

Microlithic Sites of Ayodhya Hills - Further Investigations at Mahadebbera

Bishnupriya Basak

This work is the continuation of a post-doctoral project on understanding microlith-using cultures in the Ayodhya Hill region, Purulia district, West Bengal. Investigations undertaken in the field season 2006-07 were essentially two-pronged. Firstly, a probable raw material zone away from the area of occupation was identified on the basis of petrographic study of samples of raw material and those of artefacts. Secondly an intensive survey was done in continuation of previous explorations. An extensive occupation was marked at Mahadebbera. The nature of the site demanded an in-depth study of its topography, stratigraphy and cultural assemblage. This added to an understanding of the prehistoric landscape of the Ayodhya Hill region, necessitating more research in future.

Bishnupriya Basak, *Man and Environment* XXXIII(2): 37-50 [2008]
ME-2008-2A04

Faunal Remains from Neolithic-Chalcolithic Phases at Tokwa, Mirzapur District, Uttar Pradesh

P.P. Joglekar, V.D. Misra, J.N. Pal and M.C. Gupta

A total of 559 fragments of animal bones and other animal skeletal elements recovered from Tokwa (Mirzapur District, U.P.) were analysed using a standard protocol developed at the Archaeozoology Laboratory of the Deccan College, Pune. The basic identification was carried out at Allahabad, and only a few fragments were brought to the Deccan College for detailed studies and to consult the reference collection. Processing of the data was done at the Deccan College using the computer-based system of analysis. The study revealed presence of only two domestic species - cattle and goat in the Neolithic phase. The wild mammals identified in the Neolithic context are gaur, nilgai, blackbuck, spotted deer, sambar, porcupine, house rat, and the bandicoot rat, jungle fowl, peafowl, Saras crane, crocodile,

monitor lizard, freshwater cat fish, rohu and freshwater mussel. In the Chalcolithic phase the buffalo, domestic pig, sheep and domestic ass were found in addition to the cattle and goat. The wild or domestic status of the buffaloes could not be ascertained. The spectrum of wild animals is much narrower than the Neolithic phase. Only four wild mammals were found in this phase – the gaur, blackbuck, four-horned antelope and spotted deer.

P.P. Joglekar, *Man and Environment* XXXIII(2): 51-59 [2008]
ME-2008-2A05

Further Excavations at Thandikudi, Tamil Nadu

K. Rajan, N. Athiyaman and V.P. Yathees Kumar

Thandikudi was excavated for two seasons (2004 and 2006). A study of four Iron Age graves excavated in 2004 has been published earlier. Results of work on the remaining six graves and a cutting in a habitation, are reported here. The ceramics of Thandikudi belong to the pre-Iron Age and Iron Age levels. The pre-Iron Age pottery has some unique shapes and designs, particularly the Black-on-Red ware basins, ring stand and pot, lipped pot of Red ware (or spouted vessels), Black-and-Red ware dish-on-stands and basins (or deep bowls) with raised lugs above the rim (frying pan (*vanali*) like objects). These types are reported for the first time from Tamil Nadu. The occurrence of dolmens, cists and urns points to the convergence of different cultural traits. The etched carnelian, quartz and gold beads and the large amount of iron objects suggest cultural contacts with plains during the Iron Age.

K. Rajan, *et.al*, *Man and Environment* XXXIII(2): 60-70 [2008]
ME-2008-2A06

Settlements in Context: Reconnaissance in Western Uttar Pradesh and Haryana

R.N. Singh, C.A. Petrie, C.A.I. French, A.S. Goudie, S. Gupta, Rakesh Tewari, A.K. Singh, R. Sinha, R. Srivastava, S. Yadav and V.K. Singh

Scholars have known of major palaeochannels that stretch across Haryana and Rajasthan in India and into Cholistan in Pakistan for over 130 years. They are generally believed to be the traces of a substantial glacier fed river (or rivers) that once flowed across these northern plains and this reconstruction is seemingly confirmed by the existence of numerous archaeological sites along these relic water courses. This co-occurrence has led to the suggestion that this river was instrumental in supporting some of the major sites of the Harappan Civilisation, and the drying of this river is believed to have been one of the critical factors in the abandonment of sites, and ultimately the collapse of the Harappan urban system. The relationship between prehistoric settlement and the landscape has major importance for our understanding of prehistoric cultural development in the northwestern plains of India. This preliminary report outlines the first stage of a broader analysis of the relationship between archaeological settlement sites and their geographical and landscape context in western UP and Haryana. These areas have a geographical relationship to the

present courses of the perennial Yamuna and Hindon Rivers and of the ephemeral Ghaggar, Sarsuti and Chautang Rivers and associated *nullahs*.

R.N. Singh, *Man and Environment* XXXIII(2): 71-87 [2008]
ME-2008-2A07

Indor Khera Revisited: Excavating a Site in the Upper Ganga Plains

Jaya Menon, Supriya Varma, Suchi Dayal and Paru Bal Sidhu

This article concentrates on the early occupational history of the site of Indor Khera in the Upper Ganga Plains, based on excavations conducted in 2006 and 2007. In 2007, one of the test trenches excavated in 2006 was reopened and a more extensive area (approximately 15 x 15 m) was excavated. The intention is to focus on the results from a single trench that have provided us with a tentative which has chronology for the early history of the site and which has also opened several questions for discussion. The issue of the use of the term 'Early Historic' is also discussed.

Jaya Menon, *et.al*, *Man and Environment* XXXIII(2): 88-98 [2008]
ME-2008-2A08

Marine Archaeological Exploration on the Western Coast, Gulf of Khambhat

A.S. Gaur and Bharat Kumar Bhatt

Recent exploration along the eastern Saurashtra coast yielded a large number of stone anchors from Gogha, Hatab and Gopnath indicating active maritime activity in the past. The anchors were mostly of the Indo-Arab type and were triangular/ composite in nature. These anchors get exposed during low tide and are submerged under 5 to 8 m water during high tide. A stone anchor from Hathabsimilar to those found in Chinese waters is made on laterite. These explorations yielded a large quantity of glazed ware from Gogha suggesting that the Indo-Arab type of stone anchors, may be placed within a time bracket ranging from the 9th and the 14th century A.D.

A.S. Gaur and Bharat Kumar Bhatt, *Man and Environment* XXXIII(2): 99-104 [2008]
ME-2008-2A09



Volume XXIV, No. 1 (January-June 2009)

Palaeolithic Sites in Kaveri River Valley of Ariyalur Region, Tamil Nadu

K. Rajan and M.S. Ramji

Recent discoveries in different fields of archaeological, epigraphic and numismatic studies in Tamil Nadu, attempt to understand cultural process of from the Palaeolithic to the historical period. Some of these discoveries are unique, helping to fill the crucial cultural gaps; and some are very significant as they provide a vital input to understand inter- and intra- regional cultural links. This paper highlights recent discovery of Palaeolithic artefacts in the Kaveri valley, around Ariyalur, on the banks of the river Marudaiyar, a first order stream of the river Kollidam, a major branch of the river Kaveri. These discoveries in the Ariyalur region are important as they provide a picture of continuous human occupation from prehistoric times down to the historical period.

K. Rajan and M.S. Ramji, *Man and Environment* XXIV(1): 1-10 [2009]
ME-2009-1A01

Middle-Late Pleistocene Faunal Remains from the Vamsadhara River Valley, Southern Orissa

G.L. Badam, Pradeep K. Behera and Ashutosh Naik

This report describes a few Middle-Late Pleistocene fossils and Palaeolithic artefacts collected from the Vamsadhara valley in southern Orissa, They were collected by Dr. S. N. Ratha, formerly of the Department of Anthropology, Sambalpur University, in 1959, and a mention of this discovery was made in the years 1964 and 1965, with reference to the Koraput district. However, no detailed studies were carried out. Ratha donated the material to the Museum of the Department of History, Sambalpur University and the present report is a study of the fossil collection.

G.L. Badam, *et.al*, *Man and Environment* XXIV(1): 11-16 [2009]
ME-2009-1A02

Site Structure and Settlement Organization at Iron Age Bukkasagara and Rampuram: Results from Surface Collections and Documentation

Peter G. Johansen

Bukkasagara and Rampuram are two Iron Age archaeological sites in the Bellary and Koppal districts of Karnataka, South India. A programme of site mapping, intensive systematic and

judgmental surface collection and artefact attribute analysis has provided a robust database for the assessment of site structure at each of these locations. These data document significant similarities and differences in the distribution of architecture and artefacts which are used to infer the organization of settlement space at each site. The results of the spatial analyses at each site point to qualitatively distinctive Iron Age settlement and residential processes that involved the production of unique kinds of places. The data also suggest a number of areas of socio-material practice including the production of residential places, ferrous metallurgy, pastoral production and mortuary preparation that provided settlement and regional scale venues for the construction and maintenance of socio-political differences.

Peter G. Johansen, *Man and Environment* XXIV(1): 17-29 [2009]
ME-2009-1A03

A Survey of Lower Dir, North West Frontier Province, Pakistan in 2005

Ihsan Ali, Mehir Rahman Khalil, Ruth Young and Muhammad Zahir

A survey of Lower Dir was carried out during October and November of 2005 by a team of archaeologists from the Universities of Hazara, Peshawar and Leicester. There were two main aims guiding this survey: firstly, to collect data about all archaeological sites in this area from prehistoric to historic periods; and secondly, to determine whether there were sites that could be identified as belonging to the Gandharan Grave Culture, known in Dir only through a very small number of sites located and explored during the 1960s and 70s. We achieved both aims through the survey, locating and recording a total of 294 sites, of which 15 were assigned to the Gandharan Grave Culture. Having identified a number of Gandharan Grave sites, and also possible related occupation sites, future research and fieldwork will be aimed at understanding more about the nature and development of this archaeological phenomenon.

Ihsan Ali, *et.al*, *Man and Environment* XXIV(1): 30-37 [2009]
ME-2009-1A04

An Unpublished Copper Hoard from Madnapur, Hardoi District of Uttar Pradesh, and Notes on the Context of the Discovery of Some Other Hoards

V.N. Misra

This short paper describes a copper hoard from Madnapur village in Hardoi district of U.P. and the context of some other copper hoard finds in U.P. and Rajasthan. All of them have been found away from habitation sites and therefore appear to have been intentionally cached by itinerant traders for trade or by priests for ritual worship as suggested by the example of the Gonds worshipping metal weapons at Bhiyanpur village near Bhimbetka in Madhya Pradesh, Central India.

V.N. Misra, *Man and Environment* XXIV(1): 38-42 [2009]
ME-2009-1A05

Rock Paintings from Palani Hills, Tamil Nadu

R.N. Kumaran and M. Saranya

The discovery of rock shelters and rock paintings in the Palani Hills, an offshoot of the Western Ghats, opens a new chapter in the archaeology of the Kodaikanal region. Previous explorations and excavations revealed several types of megalithic burials, e.g. dolmens, cists, urn burials, pit burials and menhirs along with cultural material of the Iron Age. Recent intensive explorations have brought to light four rock shelters with paintings. This paper reports these discoveries.

R.N. Kumaran and M. Saranya, *Man and Environment* XXIV(1): 43-46 [2009]
ME-2009-1A06

Excavations at Sisupalgarh, 2008

R.K. Mohanty and Monica L. Smith

The Early Historic urban site of Sisupalgarh is a large settlement that preserves many patterns of domestic and monumental architecture. Research in 2008 was focused on two areas of monumental architecture: the rampart that surrounds the urban core and encloses an area over one square km in size, and the central pillar mound where the portions excavated exposed an additional 18 previously-unknown monolithic pillars of laterite that formed what may have been a large apsidal structure. These activities are indicative of centralized control of large public structures, in contrast to the domestic structures which varied in their orientation, layout, size, and construction materials.

R.K. Mohanty and Monica L. Smith, *Man and Environment* XXIV(1): 47-56 [2009]
ME-2009-1A07

An Appraisal of Early Historic Fortifications in Maharashtra

Reshma Sawant

This paper attempts to understand the temporal and spatial distribution of fortifications in Maharashtra during the Early Historic period (c. 600 B.C. to 600 A.D.) and tries to recognize distribution patterns. This has been done for the first time as no previous work has been done on this topic. Observations are put forward to understand the absence of fortifications at some important sites.

Reshma Sawant, *Man and Environment* XXIV(1): 57-65 [2009]
ME-2009-1A08

The 'Type-variety' Approach to Utilitarian Pottery of the Early Iron Age and Early Historical Period in the Western Vidarbha Region: Applications for Site Chronology *G.D. Shete*

Establishing a chronology for archaeological sites is an essential component of a research project. One of the most common methods for estimating the age of an archaeological

assemblage is the use of artefacts such as coins and deluxe pottery, whose ages are already known. These are comparatively rare items. Common objects, such as utilitarian pottery, have not been used, as it has been assumed that they show little identifiable change through time. Detailed studies of pottery from Kaundinyapur and Bhon shows that distinct temporal changes in utilitarian pottery can be identified. This paper reports these results.

G.D. Shete, *Man and Environment* XXIV(1): 66-76 [2009]
ME-2009-1A09

Palaeopathological Observations on Human Skeletal Remains from Sarai Nahar Rai at Anthropological Survey of India, Kolkata

Veena Mushrif-Tripathy, A.R. Sankhyan and V.R. Rao

This paper is based on a palaeopathological assessment of two human skeletal remains from the Mesolithic site of Sarai Nahar Rai. The specimens housed at the Anthropological Survey of India, Kolkata were studied previously. The present paper revises earlier observations and adds comments on palaeopathology. A few skeletal as well as the dental anomalies are visible on the skeleton numbered SNR-4.

Veena Mushrif-Tripathy, *et.al*, *Man and Environment* XXIV(1): 77-82 [2009]
ME-2009-1A10

Faunal Remains from Ojiyana, an Ahar Culture Site in Rajasthan

P.P. Joglekar, David Tetso, Alok Tripathi and B.R. Meena

Ojiyana (Bhilwara District, Rajasthan), an Ahar culture site was excavated for two field seasons in 2000 and 2001 by the Archaeological Survey of India, in which several thousands of animal skeletal elements were recovered. A random sample of faunal material (n= 823) recovered from Phase I was analysed at the Archaeozoology Laboratory, Deccan College (Deemed University), Pune. A standard protocol of identification, measurement, taphonomic study and computerised analysis was followed. Analysis of faunal sample revealed the presence of several animal taxa. These include cattle, buffalo, goat, spotted deer, nilgai and a species of marine mollusc (*Turbinella pyrum*). The faunal material from the Ojiyana has been compared with that from other Chalcolithic (Ahar culture) sites, such as Balathal, Marmi, Gilund and Ahar.

P.P. Joglekar, *et.al*, *Man and Environment* XXIV(1): 83-87 [2009]
ME-2009-1A11

Pollen Record of Holocene Vegetation, Climate Change and Human Habitation from Lahuradewa Lake, Sant Kabir Nagar District, Uttar Pradesh, India

M.S. Chauhan, Anil K. Pokharia and I.B. Singh

Pollen analysis of a 2.8 m deep trench profile from Lahuradewa Lake, Sant Kabir Nagar District has revealed that between 10,600 and 9,250 yr BP, open vegetation largely consisted of grasses, *Chenopodium*, *Artemisia* accompanied by meagre trees viz., *Aegle marmelos*, *Acacia*, *Holoptelea*, *Terminalia*, etc. which occurred in the region under a cool and reduced rainfall climate. The retrieval of aquatic plants suggests the existence of the lake. Between 9,250 and 6,400 yr BP, a few more trees of *Bombax ceiba*, *Emblica officinalis*, *Syzygium*, *Lagerstroemia* and *Dodonea* scantily invaded the open vegetation with the amelioration of climate. The lake became relatively wider than before as evidenced from the increase in aquatic plants. Amazingly, the debut of Cerealia pollen around 7000 yr BP implies the initiation of cereal-based crop economy. Between 6,400 and 4,050 yr BP, the expansion of *Bombax ceiba*-an open savannah element and better representation of *Holoptelea*, *Terminalia*, *Melastoma* and advent of *Madhuca indica* denote the establishment of forest groves in response to moderately increased monsoon precipitation. The steady presence of Cerealia pollen infers the increase in agricultural practice in the region. The record of *Trapa* (singhara) pollen at the level dated to 5,200 yr BP signifies that singhara fruits were used in subsistence by the settlers. The forest groves got more diversified and dense between 4,050 and 1,300 yr BP, with the substantial rise in *Madhuca indica* along with *Holoptelea*, *Syzygium* and swampy element-*Barringtonia*, besides contemporary decline of grasses. This alteration in the vegetation scenario indicates moderate monsoon rainfall and availability of high grounds suitable for tree growth. The acceleration in agricultural practice is marked by the improved frequencies of Cerealia and other culture pollen. By this time the transformation of the lake into a swamp commenced as depicted by the decline in aquatics and a concurrent expansion due to anthropogenic activity. From 1,300 yr BP onwards, forest groves turned sparse with the inception of reduced monsoon rainfall. The lake became ephemeral; however, the agricultural practice continued at the same pace as earlier.

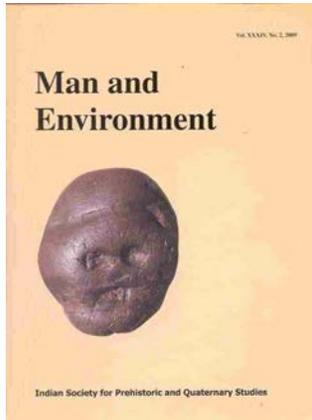
M.S. Chauhan, *et.al*, *Man and Environment* XXIV(1): 88-100 [2009]
ME-2009-1A12

Pollen Potential in the Habitational Deposits of Ancient Chaul (Maharashtra)

Satish Naik, Vaishali Kathale and B.C. Deotare

Till date, it has not been possible to recover microfossils from minerogenic sediments in occupational deposits from archaeological sites of coastal Maharashtra. This paper discusses pollen analysis in sediments of the habitation deposits at ancient port site of Chaul (18° 33' N, 72° 56' E); which lies on the right bank of Kundalika River in Raigad district, Maharashtra. Despite relatively low frequencies, for the first time pollen and spores were recovered from minerogenic habitation deposits. Pollen types are in good state of preservation which may be due to the neutral to slightly alkaline reaction of deposits and relatively fair organic carbon content. Pollen grains of upland vegetation members are found in ancient deposits of Chaul indicating fresh water flora while mangrove pollen is totally absent, suggesting a lower sea level during the Early Historic occupation.

Satish Naik, *et.al*, *Man and Environment* XXIV(1): 101-108 [2009]
ME-2009-1A13



Volume XXXIV, No. 2 (July-December 2009)

The Global Context of Lower Palaeolithic Indian Palaeoart

Robert G. Bednarik

The Lower Palaeolithic of India has yielded some of the world's earliest evidence of palaeoart, but in view of the relative paucity of such material it is essential for assessment to place it into its wider context, the worldwide corpus of such extremely early finds. By themselves, the few cases so far reported from India would be an unrepresentative sample. However, seen in the global context of the earliest palaeoart finds, comprehensively considered in this paper, those from India are entirely consistent with the rest of the world - except that they seem to be somewhat older in some cases. Together with the evidence that maritime colonization began in Indonesia, this evidence suggests that southern Asia, rather than Africa, may have been a major hub in the early cognitive and technological development of hominins.

Robert G. Bednarik, *Man and Environment* XXXIV(2): 1-16 [2009]
ME-2009-2A01

Typology of Indian Mesolithic Tools

V.N. Misra and Malti Nagar

India is extremely rich in Mesolithic industries, which are found all over the country except in the Himalayas, the greater part of the Indo-Gangetic and Western coastal plains, and the hilly and forested terrain of the Northeast (Fig. 1). There is considerable technological and typological diversity in the Mesolithic industries. Broadly, it can be said that the industries of North, Central, and Western India are characterized mainly by geometric microliths made on microblades/bladelets, and tools like scrapers, points and burins made on flakes, cores and blades. The industries of the South are distinguished primarily by non-geometric microliths, and flake and core tools. On the coastal dunes in Tamil Nadu they largely comprise pressure-flaked unifacial and bifacial points and scrapers, burins, and other less common types like denticulates, notched flakes and choppers. Both in North and South India they are made of quartz, quartzite and crypto-crystalline siliceous materials like chert, jasper, agate and chalcedony. Other features of the Mesolithic industries are faunal remains, human burials, and art, primarily in the form of paintings and engravings in rock shelters and caves. No standard typology of Indian Mesolithic tools is available, rendering an attempt at making comparative evolutionary studies difficult. The typological scheme presented in this paper

has evolved out of a study of Mesolithic artefact assemblages from a large number of sites over a period of nearly fifty years. It is hoped that the scheme will be useful to researchers on Mesolithic industries.

Man and Environment XXXIV(2): 17-45 [2009]
ME-2009-2A02

Yesterday and Today: the Impact of 5,000 Years of Wind on the Iranian Sistan Architecture

Mehdi Mortazavi

The Sistan Basin is an area subjected to major environmental catastrophes, including flooding and drought. Based on archaeological evidence, the area has a long history of environmental disasters that affected human behaviour. One of the most notable features of Sistan's climate is its winds. Although, there are a number of different seasonal winds in this plain, the most important is "The 120 Day Wind" which blows from the northwest to the southeast. It constantly blows for four months between 15th Ordibehesht (5th May) and 15th Shahrivar (6th September) and reaches maximum speeds of 120 km per hour.

The impact of winds on architecture over a period of 5,000 years is an important example of human-environment interaction in the Iranian Sistan Basin. The present paper aims to examine the interaction between humans and the natural environment in the Iranian Sistan Basin, and specifically examine the impact of winds especially "The 120 Day Wind" on Iranian Sistan architecture from the 3rd millennium B.C. to the present.

Mehdi Mortazavi, *Man and Environment* XXXIV(2): 46-55 [2009]
ME-2009-2A03

Recent Archaeological Explorations in District Banaskantha, Gujarat

S.N. Kesarwani, R.N. Kumaran and Bipin Chandra

The Banaskantha district, as its name indicates, consists of the territories situated in and around the river Banas, which flows between 23° 35' to 24° 43' north latitude and 71° 0' to 73° 00' east longitude. Documented history of this region begins with the Chaulukya (Solankis), Rajputs and continues through the Sultans of Ahmadabad, the Mughals, the Marathas and the British. However, prior to the Solankis, like other parts of Gujarat, this district too was probably under the rule of the Mauryas, Indo-Greeks, Western Kshatrapas, Guptas, Maitrakas and Chavada dynasties. Intensive explorations and sporadic excavations by various scholars and institutions have pushed back the history of this region to several thousand years. The present explorations were conducted as a village-to-village survey along the river Banas and upto the river Sipu, taluks Deesa and Dantiwada, district Banaskantha, to document the archaeological heritage of this region.

S.N. Kesarwani, *et.al*, *Man and Environment* XXXIV(2): 56-66 [2009]
ME-2009-2A04

Two Atypical Anthropomorphs from Fatehganj (East), District Bareilly, U.P.

Anup Mishra, Col. R. Rawat, Deepak Singh and Anuj Sharma

The paper discusses a pair of newly discovered anthropomorphs, which are not only very unique in shape but also found from a site (Fatehganj) which marks the easternmost distribution of such objects in the Ganga Valley.

Anup Mishra, *et.al*, *Man and Environment* XXXIV(2): 67-71 [2009]
ME-2009-2A07

New Evidence on Maritime Archaeology around Mul Dwarka (Kodinar), Gujarat Coast, India

A.S. Gaur, Sundaresh and Sila Tripathi

Marine archaeological explorations were carried out in and around Mul Dwarka (Kodinar) on the Saurashtra coast. The oldest remains are attributed to the Harappan phase at Kanjetar and Kaj. Both sites are situated close to a creek which makes them potential sites for ports or trade centres. A few amphorae sherds were found at Kaj, which suggests that the site had trade contacts with the Roman world around the Christian era. A number of stone anchors were found from Mul Dwarka, Chhara and Kanjetar, similar to those reported from Dwarka, Bet Dwarka, Miyani, Visawada and Somnath. A medieval site at Chhara is being destroyed by sea erosion. This site has potential for understanding sea level changes along the Saurashtra coast during the medieval period.

A.S. Gaur, *et.al*, *Man and Environment* XXXIV(2): 72-76 [2009]
ME-2009-2A08

Management of Ports and Maritime Trade of Orissa and Andhra Pradesh during the Historical Period

Sila Tripathi

Along the 7516 km long coastline of India, several ports and trade centres have existed from ancient times. Among them, the ports and trade centres of Orissa and Andhra Pradesh played a significant role in diffusing Indian culture to overseas countries from the mid first millennium B.C. The coastal geomorphology of Orissa and Andhra favoured the establishment of a number of ports and trade centres, as evidenced by archaeological, literary and other sources. The ports of this region had hinterland connections by riverine and caravan trade routes. Several types of minerals and metals, raw materials and finished artefacts were exported and imported from these ports. This paper details the ports, trade routes and maritime contacts of Orissa and Andhra with other parts of the world in relation to the maritime history of India, findings of investigations, tentative dates and the management of ports.

Sila Tripathi, *Man and Environment* XXXIV(2): 77-90 [2009]
ME-2009-2A09

Revisiting Lewis R. Binford: Fresh Frameworks for Pursuing Hunter-Gatherer Studies

K. Paddayya

This article seeks to highlight the relevance of Lewis R. Binford's recent book *Constructing Frames of Reference: An Analytical Method for Archaeological Theory Building. Using Ethnographic and Environmental Data Sets* (University of California Press, Berkeley, 2001) to research pertaining to hunter-gatherer societies of the present and the past. Following upon a review of the main topics covered in the book, suggestions are made about the need to identify and explain regional diversity in the prehistoric and protohistoric phases of India's past in terms of process-oriented investigations involving environmental and ecological factors.

K. Paddayya, *Man and Environment* XXXIV(2): 91-97 [2009]
ME-2009-2A10

Buried Rafters and Seismo-tectonic Episode during the Holocene, Ratnagiri, Maharashtra

Ashok Marathe, M.Sujatha and R.Vijendra Rao

Birwadi (170 51' 20" N, 730 05' 55" E) is a coastal village in Dapoli taluka of Ratnagiri district, Maharashtra. It is located on a tiny stream 1 km north of the mouth of the Jog River. A large number of preserved wooden rafters were found in a trench 2 m below the surface. The rafters were of *Tectona grandis* L. (teak). These were dated by ¹⁴C to A.D. 960±63. The geomorphology of the area along with aerial photographs revealed that the area suddenly sank around 2-3 m sometime after the 10th century A.D.

Ashok Marathe, *et.al*, *Man and Environment* XXXIV(2): 98-101 [2009]
ME-2009-2A11

The Antiquity of Pigeon Pea (*Arhar/Tuvar*) Cultivation in India

Ranjit Pratap Singh

In the present paper an attempt has been made to reconstruct the early history of pigeon pea cultivation in India on the basis of recently obtained archaeobotanical evidences. A critical analysis of the data shows that while lentil, black gram, field pea, chick pea and other pulse crops were grown in the pre-Harappan and Harappan times, pigeon pea came under cultivation at a much later date. It was cultivated in south India in around 1700 B.C. and it entered the dietary system of the north Indians only around 700 B.C.

Ranjit Pratap Singh, *Man and Environment* XXXIV(2): 102-107 [2009]
ME-2009-2A12