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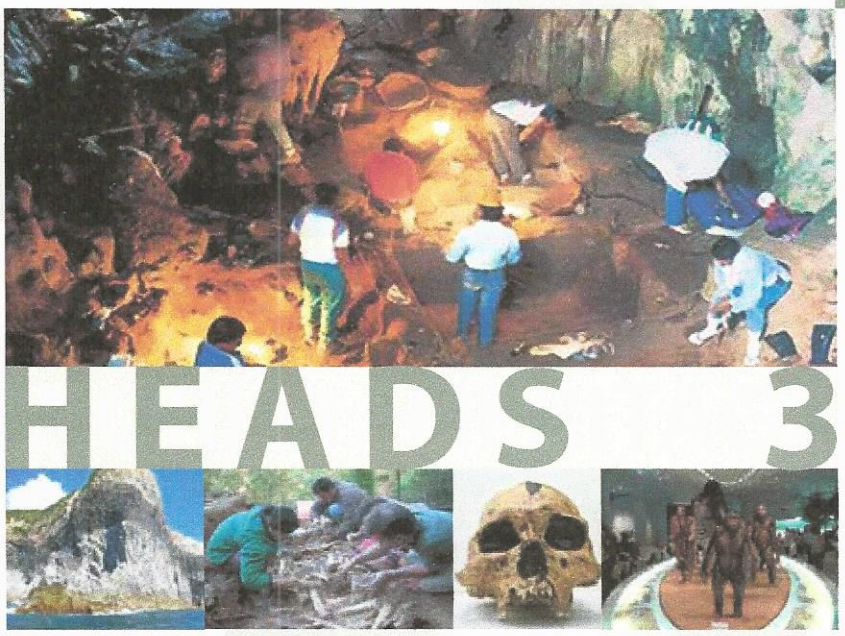

Human origin sites and the World Heritage Convention in Asia

United Nations
Educational, Scientific and
Cultural Organization

World
Heritage
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Human origin sites and the World Heritage Convention in Asia

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Coordinator of the World Heritage/HEADS Programme

Published in 2014 by the United Nations Educational, Scientific and Cultural Organization, 7, place de Fontenoy, 75352 Paris 07 SP, France and the UNESCO Office in Mexico, Presidente Masaryk 526, Polanco, Miguel Hidalgo, 11550 Ciudad de Mexico, D.F., Mexico.

ISBN 978-92-3-100043-0

Cover photos:
top: Excavation of Gua Gunung Runtuh, Lenggong, Malaysia. © Zuraina Majid
bottom (from left to right): Sino-Franco team during an excavation at Longgupo site in 2004 (from left: Y.M.Hou, C.Griggo, E. Boëda, M.Rasse). © Ya-Mei Hou; Frontal views of the Ryonggok #3 (left) and #7 (right) craniae that are stored in the Chungbuk University Museum, Republic of Korea. © Christopher J Bae; Exhibition Hall, the Jeongok Prehistory Museum, Republic of Korea. © Kidong Bae

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Graphic design: Recto Verso – realization by UNESCO/MSS/CLD
Cover design: Recto Verso – realization by UNESCO/MSS/CLD

Printed in the workshops of UNESCO
This printer is certified Imprim´Vert ®, the French printing industry´s environmental initiative.

Printed in France

This publication was made possible thanks to the ongoing support to the World Heritage Thematic Programme HEADS by the Government of Spain,

GOBIERNO DE ESPAÑA
경기문화재단
JEONGOK PREHISTORY MUSEUM
문화재청
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Out of Africa and the evolution of human populations in Asia: thoughts about the nomination of prehistoric sites to the World Heritage List

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Abstract

The dispersal of humans and earlier ancestors out of Africa and into Asia is a key topic in human evolutionary studies. The earliest dispersals into Asia appear to range back to nearly 2 million years, whereas the migration of our own species from its African homeland probably occurred over a period ranging from 130 to 60 Ka. The fossil and archaeological record in support of these multiple dispersal events is remarkably limited, and DNA evidence is mostly confined to an understanding of the movement of *H. sapiens*. Nevertheless, the Asian landmass contains significant localities, many of which can help us to address important questions in palaeoanthropology, such as the relationship between climate change and hominin demography, the evolution of cognition and symbolism and the evolution of behavior. To date, relatively few Asian sites have been placed on the World Heritage List, though this situation can clearly be rectified by paying greater attention to the many key sites in the region. An examination and assessment of rock art districts throughout Asia is one of the potential avenues that could prove to be productive in nominating archaeological sites to the World Heritage List. Rock art sites and districts are spatially large entities, and often co-occur with significant archaeological deposits and human skeletal remains. As a case example, the rock art district of Bhimbetka (India), currently on the World Heritage List, is evaluated here to demonstrate how such a nomination is of value for preserving significant archaeological sites and landscapes. We demonstrate that Bhimbetka is not a unique example, and provide a case study from the Kurnool District of southern India, which has played a major role in many of the key topics of interest to palaeoanthropologists, Palaeolithic archaeologists and geneticists.

Introduction

The dispersal of hominins out of Africa and the subsequent colonization of Eurasia have been highlighted as significant themes by the HEADS World Heritage Thematic Programme of UNESCO. Yet, upon conclusion of a World Heritage Convention meeting on Africa, Sanz (2012a, p. 240) correctly notes that there is a considerable gap with respect to our knowledge of continental dispersals and the effect that environmental fluctuations had in structuring hominin populations. Owing to the poverty of high-quality and interdisciplinary field programmes, the same can be said about the Asian archaeological record, despite the fact that the 'Out of Africa' theme has been a hot topic in human evolutionary studies for the past two decades. Though we can anticipate radical changes in our knowledge about the Asian record and its relation to Out of Africa dispersals as more field work is conducted in the future, some information is currently present to at least formulate a broad outline about hominin movements through time.

One of the earliest sites for documenting the movement of early *Homo* outside of Africa is the site of Dmanisi, in the Republic of Georgia, which is currently being considered for inscription as a World Heritage site. At Dmanisi, an early artifact industry dates to ca. 1.85 million years ago (Ma) (Ferring et al., 2011). Mode I, or Oldowan-like tool users, have also been documented as far east as Majuangou, in the Nihewan Basin of China, where a date of 1.66 Ma has been obtained (Zhu et al., 2004). *Homo erectus* eventually reached Indonesia by ca. 1.6-1.5 Ma ago (Swisher et al., 1994), as documented at the Sangiran site, which is currently inscribed on the World Heritage List. Somewhat later, dispersals from Africa are documented by Acheulean tool users, who produced large bifacial implements referred to as handaxes and cleavers. The Levantine site of Ubeidiya indicates the presence of Acheulean tool users by ca. 1.4 Ma (Bar-Yosef and Goren-Inbar, 1993). Acheulean tool-users spread to the Indian subcontinent by ca. 1.5-1.0 Ma (Pappu et al., 2011). Later Acheulean dispersals, at ca. 800 thousand years ago (Ka), are marked by advanced biface technologies, represented at sites such as Gesher Benot Ya'aqov in Israel (Goren-Inbar et al., 2000).

The earliest dispersal of *H. sapiens* out of Africa is documented in the Mount Carmel caves of Israel, which has recently been granted World Heritage status. Here, fossils representing *H. sapiens* are present between 130-70 Ka (Shea, 2008). Yet, this evidence has been traditionally been interpreted to represent a 'failed' dispersal event (Oppenheimer, 2012). An alternative interpretation is that Middle Palaeolithic sites across the Arabian Peninsula and India represent a broad and successful movement of modern humans out of Africa (Petraglia et al., 2010; Boivin et al., 2013). Geneticists have traditionally supported a successful movement of modern humans out of Africa by about 65-60 Ka on the basis of mitochondrial DNA (Macaulay et al., 2005). More recent whole genome analysis suggests that the dispersal out of Africa may coincide with the Levantine fossils and Middle Palaeolithic sites across southern Asia, i.e., between 130-90 Ka (Scally and Durbin, 2012), though examination of mitochondrial genomes from contemporary and fossil populations places the separation of Africans and non-Africans to no earlier than 95-62 Ka (Fu et al., 2013). The recovery of ancient DNA from Neanderthals and from the Denisova Cave specimen in Siberia, now supports the view that some interbreeding occurred between archaic hominins and *Homo sapiens* as they spread across Asia (Stewart and Stringer, 2012).

The geography of hominin dispersals is of some importance to consider. The prevailing theory has been that modern humans swept rapidly out of Africa along coastlines, thereby skirting inhospitable environments such as deserts (Stringer, 2000), and thus implying many sites are now submerged along the continental shelf. However, an alternate hypothesis is that modern humans (and earlier hominins), utilized terrestrial routes for their dispersal, taking advantage of interior river valleys and lacustrine settings during humid periods (Boivin et al., 2013).

Topographic variation and environmental change probably exerted strong influences on the tempo and route of human dispersals (e.g., Groucutt and Blinkhorn, 2013). Significant fluctuations of environments over the Pleistocene would have influenced the structure of Pleistocene populations as they moved across Asia (Dennell, 2009; Petraglia et al., 2010). In humid, inter-glacial periods, southern latitudes across Asia would have facilitated hominin expansions, such as across Arabia, which would have had grasslands and plentiful rivers and lakes, such as the Jubbah Palaeolake basin (Petraglia, 2011; Petraglia et al., 2012a) (Figure 1). However, at the same time, major river systems and tropical rainforests in South East Asia may have acted as a barrier to movement, as adaptations in these ecological contexts may have required sophisticated weaponry (Boivin et al., 2013). During arid periods, when deserts expanded, human populations may have contracted to refugia, such as has been suggested at the Arabian sites of Jebel Faya, near the Persian Gulf (Armitage et al., 2011) and at Shi'bat Dihya, in the elevated regions of Yemen (Delagnes et al., 2012) (Figure 2). Arid periods would have thus forced populations into smaller geographic zones, and some populations may have experienced extinctions owing to inhospitable environments. In some regions, such as India, a mosaic of environments was always present, thus supporting human populations, unlike Arabia which experienced much more dramatic environmental changes (compare Figure 1 and Figure 2). Yet, increased aridity in other regions of Asia may have led to new opportunities, such as in South East Asia, where the dense tropical forests turned into fragmented woodlands and grasslands (Boivin et al., 2013). Thus, an important consideration in Palaeolithic studies concerns the degree to which populations may have been temporary visitors or permanent occupants in any particular region (Dennell, 2003).

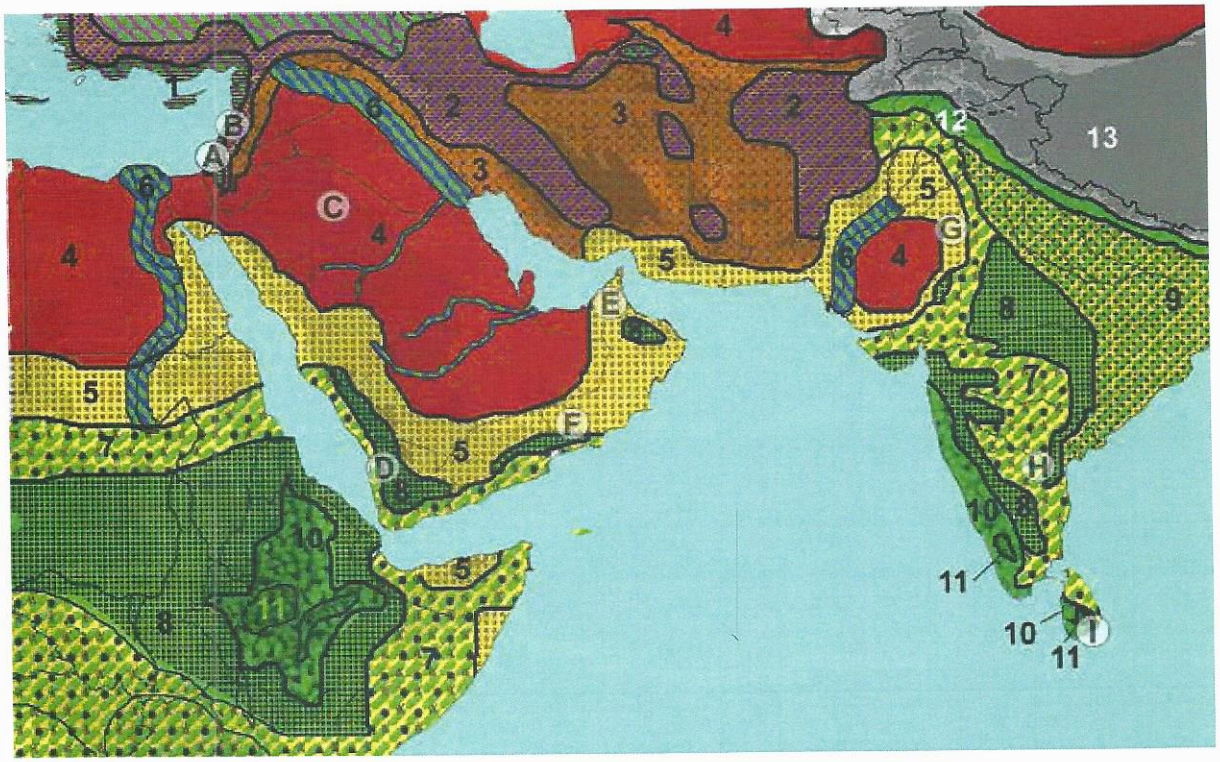

Figure 1: Vegetation zones of Eurasia in a humid period. Numbers 1-13 represent different vegetation communities. Of note here is the decreased size of deserts (no. 4) and the large extent of Sahel vegetation (no. 5), savannas (no. 7), dry tropical woodlands (no. 8). Such zonation would have facilitated dispersals and been ideal environments for foraging populations. Among key sites mentioned here are: (C) Jubbah Palaeolake; (D) Shi'bat Dihya; (E) Jebel Faya; (H) Jwalapuram (see Boivin et al., 2013 for details).

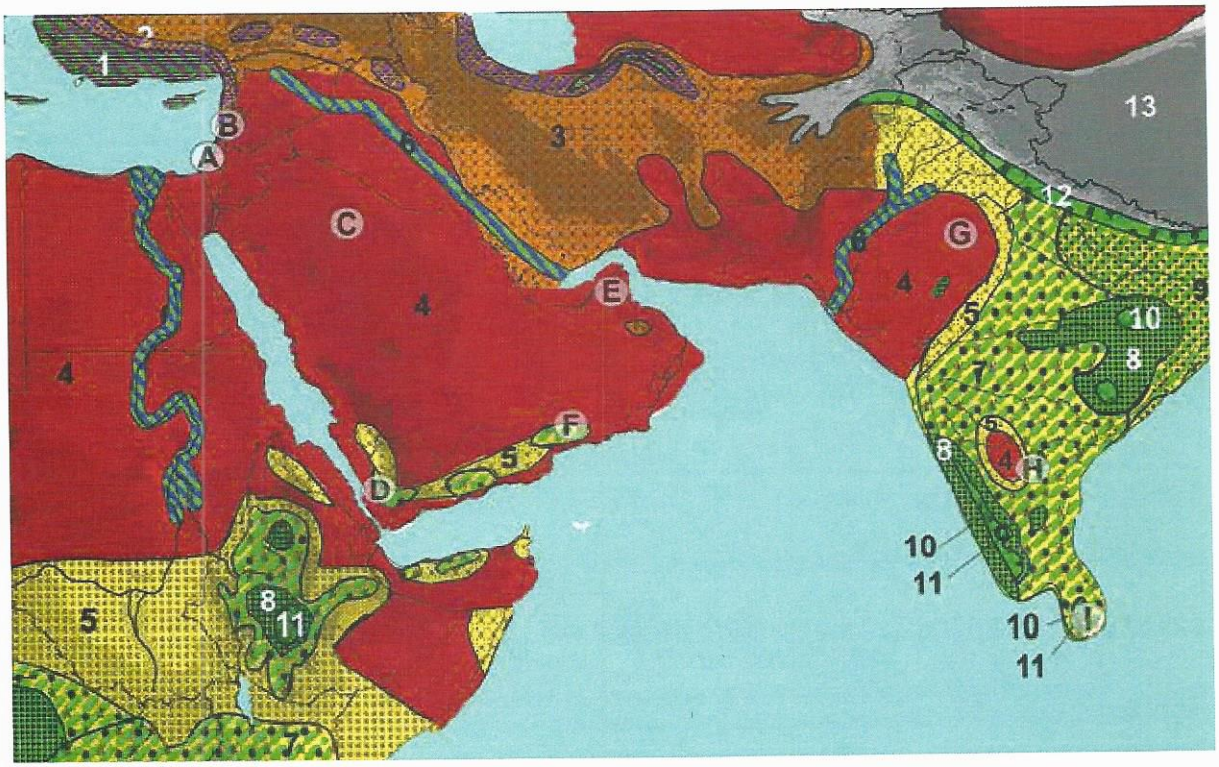

Figure 2: Vegetation zones of Eurasia in a dry period (see Figure 1 for key). Compare to Figure 1, which shows a dramatic environmental change in some regions. Of note is the large size of the desert zone (no. 4). Increased sizes of deserts would have forced populations into refugia, perhaps as at Shi'bat Dihya (D) and Jebel Faya (E). Note that Arabia would have been generally inhospitable, whereas the Indian subcontinent retains an ecological mosaic, allowing populations to adjust to changing conditions (see Boivin et al., 2013 for details).

A consideration of Asian sites and landscapes

As outlined in the above summary, Asia is an important region in considering human evolutionary events and processes. Many key events in human evolution played out over this massive geographic area, measuring some 17 million square miles in size. In considering routes of movement and hominin adaptations, it is important to emphasize that the Asian landmass is topographically and environmentally heterogeneous, and includes hyper-arid deserts, dense tropical forests, and cold arctic steppes. Asia contains the highest mountain ranges in the world and the lowest topographic depressions and seas. Such geographic and environmental features would have strongly influenced population dynamics across the Pleistocene.

Asia enjoys a long history of palaeoanthropological and archaeological research, and it includes famous localities, such as at the UNESCO sites of 'The Peking Man Site at Zhoukoudian' in China and the 'Sangiran Early Man Site' in Indonesia. These historically well known sites are now accompanied by other important Asian sites, nominated or tentatively listed on the World Heritage List, such as the Dmanisi Hominid Archaeological Site (Georgia), the Mount Carmel cave sites (Israel), the archaeological sites in the Lenggong Valley (Malaysia), the Palaeolithic sites in the Cagayan Valley (Philippines) and the Tabon Cave complex (Philippines). Yet, considering the enormous size of Asia and the wealth of archaeological sites in this region, much more could be done to nominate and protect important cultural sites and landscapes – one of the main goals of the HEADS Programme. Indeed, one can easily think of prominent sites with significant fossil remains and archaeological deposits that deserve recognition – such as Shanidar Cave, in Iraq. However, there are numerous other, lesser known, but significant sites and landscapes that deserve equal attention and evaluation. One example that readily comes to mind is the spectacular Sri Lankan cave and rockshelter sites of Fa Hien, Batadomba Lena and Kitulgala Beli-lena, which have produced well-preserved and stratified deposits with rich ecological data, microblade and bone technologies and symbolic items such as engraved pieces and beads ranging over the last 40,000 years (Deraniyagala, 1992; Perera et al., 2011).

One of the problems that pervades an understanding of the archaeological record of Asia is that many regions are either poorly known, or when sites are identified, the rigorous standards of interdisciplinary, scientific research have not been performed, including, for instance, ecological reconstructions and application of chronometric dating. Indeed, in considering sites for nomination to the World Heritage List, Dennell (2012) has highlighted the importance of adequate dating methods and the recovery of well-preserved sources of material evidence and environmental data. Tryon (2012) has emphasized the fundamental importance of the geological record and the integrity of its archaeological finds for determining which sites may achieve Outstanding Universal Value status.

Evaluation of World Heritage Listing of key human origin sites in Asia comes at a critical time in world history. The economies of Asia are booming and all forecasts suggest that this region will be a global leader in agricultural output and industrial development. The large and populous countries of China and India, in particular, are developing at a rapid rate. Development of new forms of agriculture, the unprecedented construction of dams and roads and the sprawling urban growth of cities has a major downside for those interested in Asian prehistory. Agricultural development and dam building, for instance, has significantly impacted and destroyed numerous archaeological sites in India, including landscapes with some of the most significant Acheulean sites in the subcontinent (Paddayya, 1996).

The aim of the remainder of this paper is to consider the nomination and protection of archaeological sites in Asia. Rock art landscapes will be examined below, attempting to demonstrate that often times these aesthetically pleasing places co-occur with significant archaeological resources that range across the Pleistocene and Holocene. This evaluation will centre on sites in India, though we believe that an integrated approach to rock art landscapes and archaeological sites has broader utility across the world.

Rock art districts – a potential tool for archaeological property nomination and protection

Paintings and engravings are recognized as a core dimension in the HEADS World Heritage Thematic Programme, as graphic representations and depictions play a role in understanding human conceptual thought and beliefs by traditional societies (Sanz, 2012b). Indeed, graphic depictions, which occur in great abundance within and across rock art sites and landscapes should be of interest to researchers engaged in the HEADS Programme given that these types of cultural resources are relatively common across the Old World and encapsulate many prehistoric archaeological sites. Although rock sites and landscapes are in fact ubiquitous across the world, only 35 rock art landscapes currently occur on the World Heritage List (as of May 2011).

Of central interest to archaeologists, it is recognized that rock art sites should be evaluated in relation to their broader cultural landscapes, thus placing emphasis on human activities in their natural environment. Indeed, the listing of rock art sites in relation to their surrounding landscapes has the benefit of potentially preserving large numbers of archaeological sites. For example, at least 400 settlements have so far been documented in the 30,000 hectare core area of the Mapungubwe Cultural Landscape of South Africa. Based on such findings, we can therefore expect that a large number of archaeological sites will be present in other rock art landscapes, such as in the 1,980,400 hectare core area of the Kakadu National Park (Australia) and the 7,200,000 hectare core area of Tassili n'Ajjer (Algeria) (see Sanz, 2012a, Table 28.1). And, yet, despite the fact that rock art sites and landscapes are of potential significance for understanding and protecting prehistoric human activities and occupations, few of the listed properties have been subject to systematic archaeological surveys and multidisciplinary investigations. Moreover, many of the listed rock art sites, with their potentially valuable archaeology, have not played a role in addressing key topics in human evolutionary studies, such as dispersal and mobility patterns, adaptations through time, and the evolution of cognition and behavior. Here, we will illustrate the potential benefit of evaluating rock art sites and landscapes in relation to their environmental contexts and their prehistoric archaeological resources.

India and its rock art districts

Rock art studies in India have a long tradition which extends back into the mid-nineteenth century, thus leading to the identification of numerous rock art zones (Blinkhorn et al., 2012) (Figure 3). The plentiful rock art sites across the region consist of paintings and petroglyphs that exhibit a high level of stylistic variability, though the relationship between these rock art traditions and their cultural geography has not been detailed. Rock art studies have mainly been confined to investigation of those in north-central India, where surveys have identified at least 2,000 decorated rockshelters (Pradhan, 2001). Other studies

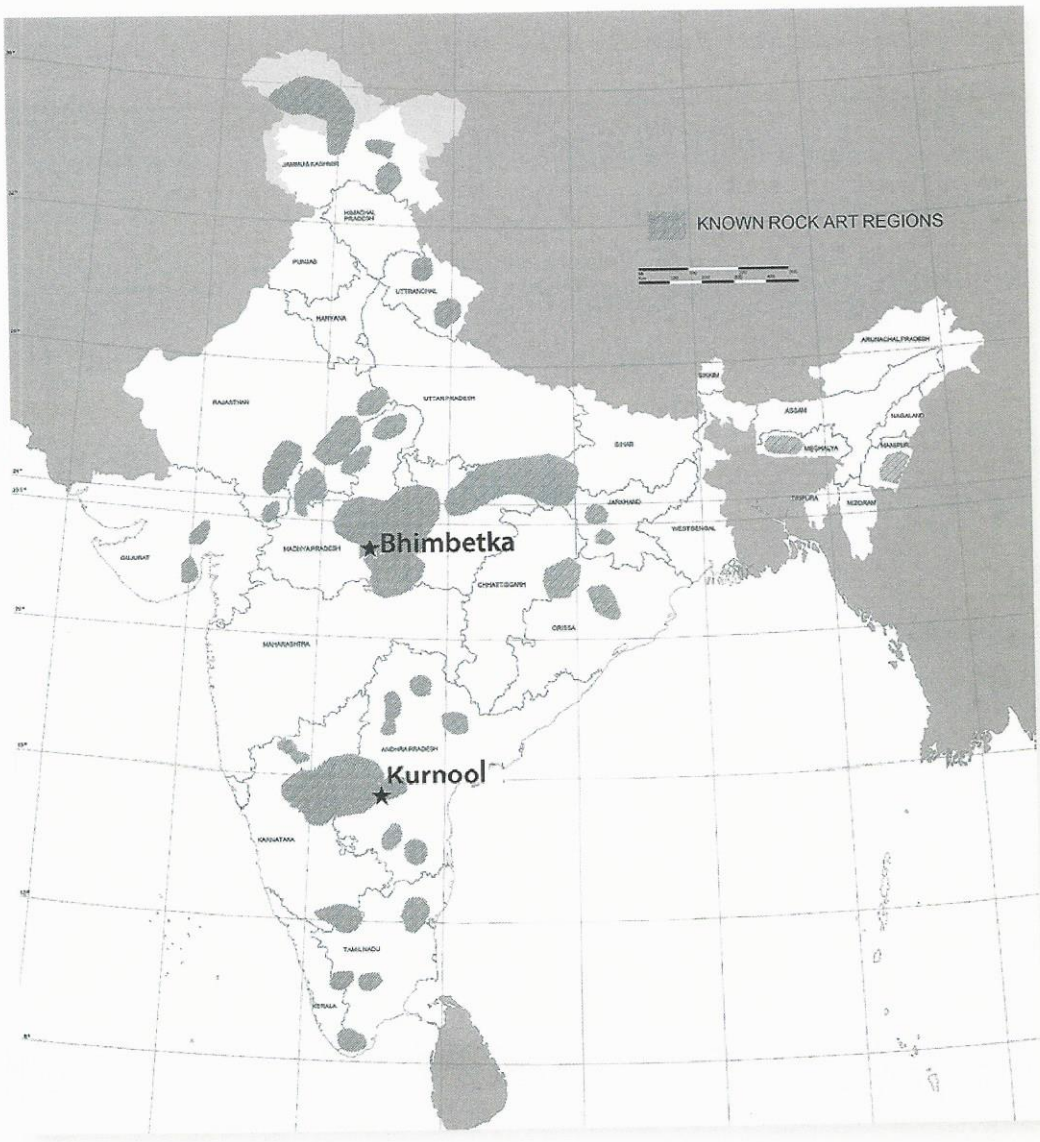

Figure 3: Known rock art regions in India (after Blinkhorn et al., 2012: Figure 11.1). Bhimbetka is on the UNESCO World Heritage List. A number of similar rock art landscapes are preserved across the region, such as in the Kurnool District. Many of these rock art landscapes contain prehistoric archaeological sites that extend into the Pleistocene, and range over many periods of the Palaeolithic.

have shown that rock art sites are, however, more widely distributed across India and in many cases they are as numerous as those in the northern part of the country. The great majority of rock art research concentrates on interpreting the meaning of the imagery (e.g., Mathpal, 1995; Camuri et al., 1993), including documentation of rituals, dancing, hunting, fauna, pastoral activities and military engagements. Some effort has been placed on examining the relationship between rock art images and the activities of modern tribal groups (e.g., Ghosh, 1984).

Chronological sequences have been suggested for rock art in India, falling into broad phases, such as: Upper Palaeolithic/Mesolithic; Neolithic/Chalcolithic/Megalithic; and historical (e.g., Neumayer, 1993). In the absence of chronometric dating, the degree to which stylistic sequences represent true chronologies remains open to question and debate. Unfortunately, rock art has rarely been incorporated into broader archaeological studies in India. And, despite the potential co-occurrence between rock art sites and archaeological remains, little systematic research on their relationship has been conducted. Though the potential is high to identify exfoliated rock art in stratified and dateable archaeological deposits, no clear evidence has yet been produced to demonstrate their links.

The aim here will be to examine how rock art sites and districts in India may be used as a context to potentially nominate sites for inclusion on the World Heritage List, exploring the relations between rock art landscapes and archaeological resources. First, we shall critically examine the Rock Shelters of Bhimbetka, which has been on the World Heritage List since 2003. Following this, we will examine recent multidisciplinary investigations in the Kurnool District of southern India, which has a wealth of rock art sites and archaeological localities ranging over the Upper Pleistocene and Holocene. We attempt to make the point that these rock art sites and their archaeological deposits can be used to address a range of key topics in human evolutionary studies, such as dispersal processes and the evolution of modern human behavior.

Rockshelters of Bhimbetka: re-assessing a World Heritage site

The region collectively known as Bhimbetka and its environs contains at least 700 rockshelters, many of which contain rock art and archaeological remains (Wakankar and Brooks, 1976). The Bhimbetka rockshelters are in north-central India (Figure 3), in the foothills of the Vindhyan Mountains. The site was inscribed for World Heritage Listing in 2003, the core area measuring 1,893 ha, and the buffer zone measuring 10,280 ha. The nominated site includes 400 rockshelters in five clusters. The rockshelters were inscribed on the basis of two criteria [(iii)(v)] of the World Heritage Convention. The justification for criterion (iii) was that the site reflects a long interaction between people and their landscape, as demonstrated by the quantity and quality of the rock art. The justification of criterion (v) was that the site is closely associated with a hunting and gathering economy as demonstrated in the rock art and in the relicts of this tradition in the local Adivasi villages on the periphery of the site.

The nomination of Bhimbetka was a key historical moment in Indian heritage studies in that a set of rockshelter sites in India was formally recognized by the central government and the international community. Indeed, the Rockshelters of Bhimbetka, as a set of prehistoric resources, was afforded the same ranking and protection of other, highly significant, Asian sites important for their contribution to human evolution, namely Zhoukoudian (China) and Sangiran (Indonesia). The recognition of Bhimbetka was also an important achievement for the Archaeological Survey of India (ASI) and the scholars involved in this nomination process as this prehistoric site was placed alongside India's most recognized World Heritage sites and monuments (e.g., Ajanta Caves, Ellora Caves, Agra Fort, Taj Mahal). The delineation of a core and buffer areas at Bhimbetka, measuring some 10,280 ha, was also significant given the recognition that the area was in need of official protection and preservation.

While there is just cause to celebrate the inclusion of the Rockshelters of Bhimbetka on the World Heritage List, a critical re-assessment of this nomination is warranted. Such a critique may be useful for updating the listing, and guiding future nomination processes of other rock art sites, in light of the goals and aims of the HEADS Programme. Although the nomination of Bhimbetka was justifiably defined on the basis of rock art [criterion (iii)] and continuity with ethnographic traditions [criterion (v)], the site may also meet other criteria in consideration of its significant archaeology. Even though the history of archaeological research is reviewed in the sites official description, the absence of detailed information about Bhimbetka's significant archaeological resources, such as its important stone tool assemblages, is an obvious omission in the nomination package. This is so despite the fact that the archaeology overlaps with the inferred production of the rock art, spanning from the Historic period to the Mesolithic. And, indeed, the archaeology of the shelters demonstrates a much greater time depth, with excavations revealing stratified Palaeolithic deposits (Wakankar, 1975). Rockshelter IIIF-23, in particular, shows an occupation span that includes the Mesolithic, the Upper Palaeolithic, the Middle Palaeolithic and the Late Acheulean in deposits ranging more than 3 m in depth (Misra, 1985) (Figure 4). These stratified deposits are

accompanied by rich and diverse stone tool assemblages from all levels. The Mesolithic lithic industry is accompanied by querns and grinders, bored stones, ground pigments, bone tools, and human skeletal remains. Boulder rearrangements in the lower levels potentially indicate of space use and structural arrangements. Radiocarbon ages range across the Holocene and the terminal Late Pleistocene (see Kennedy, 2000), and more recently, initial Optically Stimulated Luminiscence (OSL) ages place occupation to >41 and >47 Ka (Bednarik et al., 2005; Haslam et al., 2011). Bhimbetka thus contains significant archaeological deposits, which are relevant for understanding the criteria for which the site was nominated. Moreover, given their extraordinary preservation and their time depth, the archaeological deposits and cultural remains are also of importance for addressing a number of questions about human adaptations and behaviour through time, thus additional criteria of the Convention may be considered in this case.

The buffer zone of the Rockshelters of Bhimbetka was delineated as 10,280 ha. As recommended in an ICOMOS evaluation in 2003, the core area and the buffer zone should be re-evaluated in light of its wider cultural resources. It is apparent that there are other significant rock art sites and archaeological sites within and outside of the buffer zone. Indeed, there is also the possibility of a serial nomination, as there appears to be other significant rock art sites and landscapes in the Central Vindhya range as well as other highly significant archaeological sites, such as the dense clusters of Acheulean sites found in the Raisen District (Jacobson, 1985). This would necessitate renewed surveys in the region and a potentially significant enlargement of the geographic zone. Given that two other rock art sites with archaeological deposits in Madhya Pradesh (i.e., Darakai-Chattan and Chaturbajan Nala) are currently being considered as part of a serial nomination (Sanz, 2012b), further attention to these issues appears to be warranted.

Several key points, potentially relevant to the nomination of sites as part of the HEADS Progamme, emerge from a brief evaluation of the Bhimbetka rockshelters.

One general point is that while sites can, of course, be nominated to the World Heritage List on the basis of rock art alone, a far stronger case can be made if archaeological sites were included. Integrated rock art and archaeological studies are a way forward, with both scientific and practical benefits. An integrated rock art-archaeology nomination recognizes the importance of archaeological resources associated with rock art districts. In many cases, archaeological sites may directly contribute

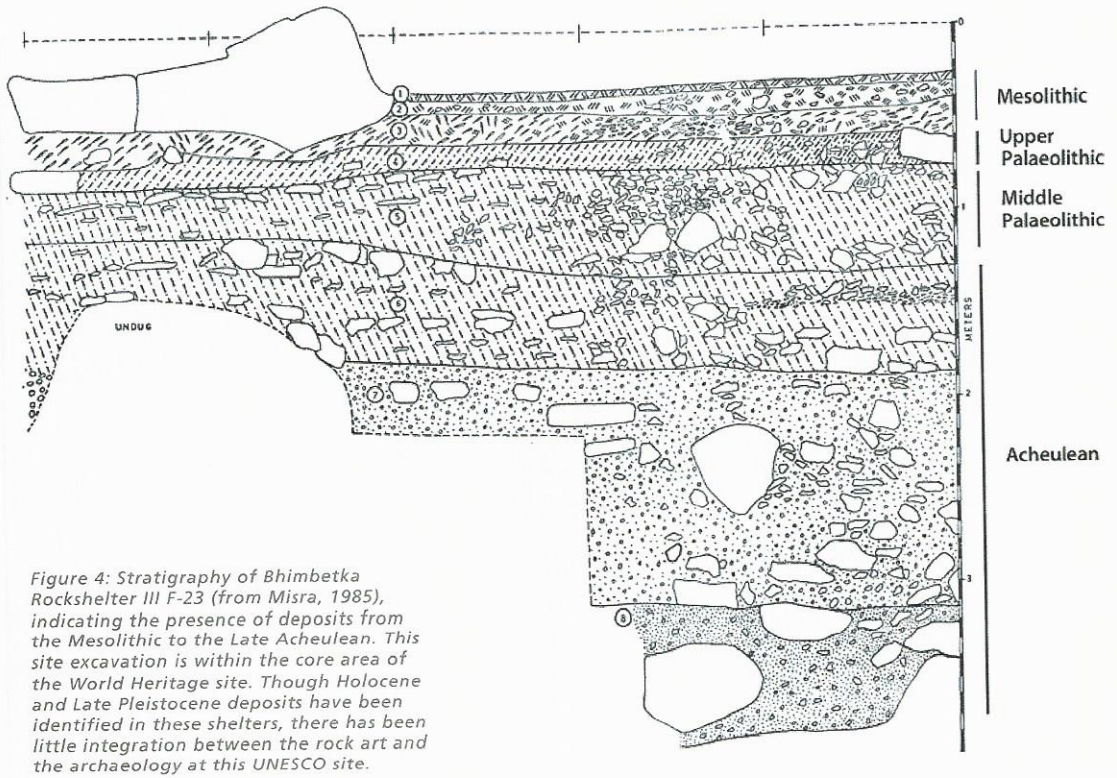

Figure 4: Stratigraphy of Bhimbetka Rockshelter III F-23 (from Misra, 1985), indicating the presence of deposits from the Mesolithic to the Late Acheulean. This site excavation is within the core area of the World Heritage site. Though Holocene and Late Pleistocene deposits have been identified in these shelters, there has been little integration between the rock art and the archaeology at this UNESCO site.

to an understanding of the rock art itself, though in some cases, the archaeological deposits may pre-date the graphic representations. Such evaluations of site history are important since the origin and evolution of symbolic representations can be better understood. An added benefit of integrated nominations concerns the protection of a far greater number of sites. In many cases, such integrated studies will likely protect many thousands of sites that span the Pleistocene. This is especially relevant in India, where land clearance and development are occurring at an unprecedented rate.

A second and more specific point is that the geography of the Bhimbetka nomination could be reconsidered, potentially nominating a greater range of rock art sites and archaeological sites within its core area and buffer zone. A serial nomination would also be of potential value, as other significant rock art sites and archaeological resources are present in the region.

A third general point is that India contains a number of potential rock art landscapes and districts that rival and complement those found at the World Heritage site of Bhimbetka. This point will be further elaborated upon below, using the Kurnool District as a case example.

The Kurnool District – an example of a region with globally significant rock art and archaeology

As we have noted above, numerous rock art sites and districts are found across the subcontinent. One such region is the Kurnool District in Andhra Pradesh, south India (Figure 3). The aim here is to demonstrate the potential importance of an integrated approach to the study of rock art and archaeology and to highlight how the cultural resources within this district contribute to significant questions in human evolutionary research on a regional level and on the international stage.

The rock art sites so far investigated in the Kurnool District are located in three interconnected drainages, i.e. the Jurreru Valley, the Yaganti Valley and the Katavani Kunta Valley. Systematic field surveys since 2003 have located 88 rock art sites, with many shelters underlying large quartzite boulders (Figure 5). Images on rock shelters are often red pictographs, with

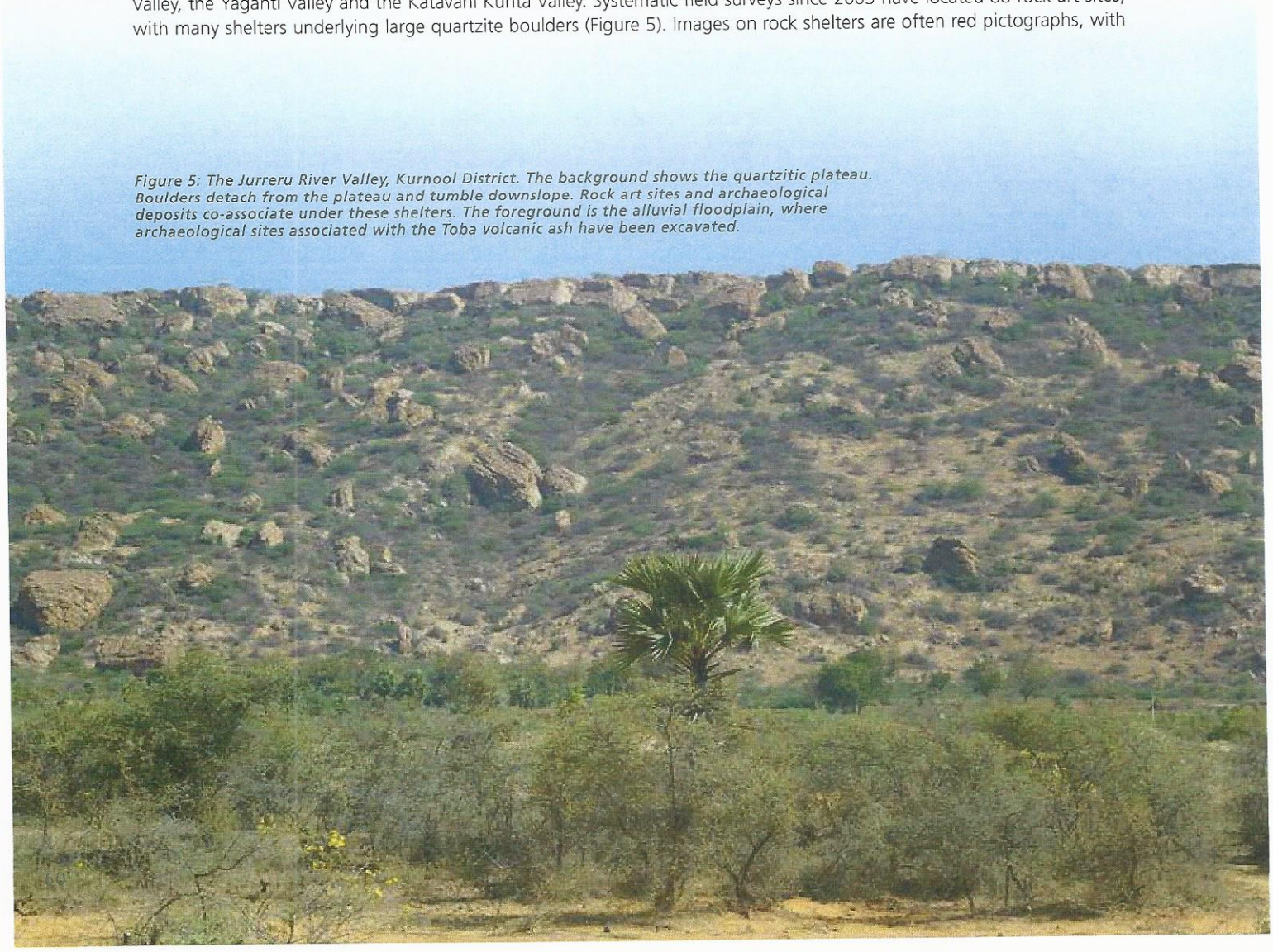

Figure 5: The Jurreru River Valley, Kurnool District. The background shows the quartzitic plateau. Boulders detach from the plateau and tumble downslope. Rock art sites and archaeological deposits co-associate under these shelters. The foreground is the alluvial floodplain, where archaeological sites associated with the Toba volcanic ash have been excavated.

a variety of depictions, including animals and humans (Figures 6 and 7). Some rock art sites are found in caves, such as in the historically famous Billasurgam Cave complex (Taçon et al., 2010; 2013; Blinkhorn et al., 2010; 2012). Many hundreds (probably thousands) of rock art sites in the Kurnool District remain undocumented. Based on observations and recordation, at least five different styles of rock art associated with varying time periods have been identified. The earliest surviving pictographs are naturalistic outline paintings of animals and human-like figures, sharing strong similarities with Magdalenian rock art of Western Europe and transitional Palaeolithic-Neolithic rock art in China (Taçon et al., 2010, p. 346; Taçon et al., 2012). The later phases reflect regional concerns and associate with agricultural communities from the Neolithic and in later time periods, although some forms of rock art may be related with hunter-gatherers who lived alongside settled communities.

In order to better understand the origin and development of the rock art and the relationship of the imagery to symbolism and human site and landscape behaviours, an integrated programme of study has been initiated. The aim is to study the rock art in relation to changes in environment and material culture, dating sites through excavation and chronometric methods. We have recently undertaken excavations in the Billasurgam caves (Petraglia et al., 2009a; Haslam et al., 2010), where a nested diamond pattern petroglyph was identified (Taçon et al., 2013). Radiocarbon dating of the petroglyph revealed an age of ca. 5000 Ka, which we interpret as having been produced by Mesolithic foragers, just prior to the introduction of Neolithic lifeways. Excavations have also been performed at the Jwalapuram Locality 9 rockshelter, in the Jurreru Valley (Petraglia et al., 2009a) (Figure 8). The rockshelter is adorned with pictographs that are consistent with evidence of human occupation in

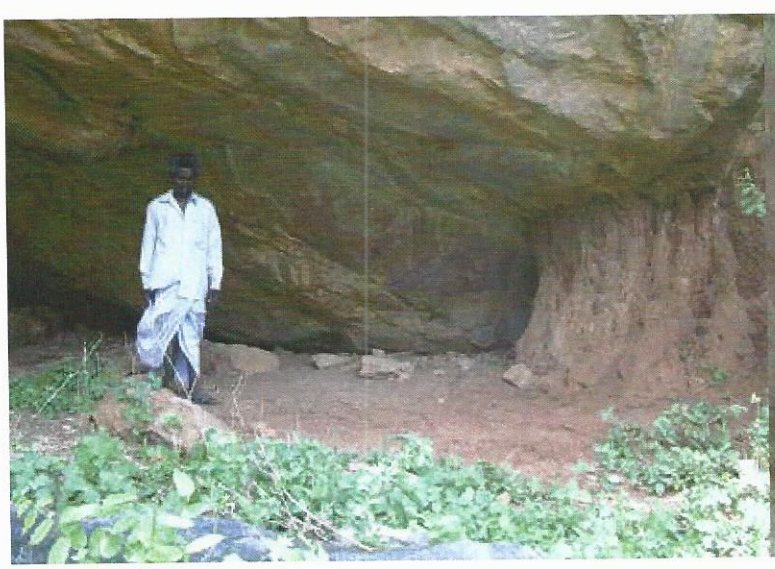

Figure 6: A rock art site in the Katavani Kunta Valley, Kurnool District. Note that the shelter surface is elaborately painted with red pigment.

Figure 7: Close up of the images depicted in Figure 6, showing a variety of images, including humans.

Figure 8: Excavation of the Jwalapuram Locality 9 rockshelter, Kurnool District. This rock art site yielded stratified deposits and radiocarbon ages extending to c. 35 Ka. Abundant microblade industries were recovered throughout, representing one of the longest sequences of microlithic industries in the world. Red ochre was also recovered from the deposits, providing a potential connection with the rock art.

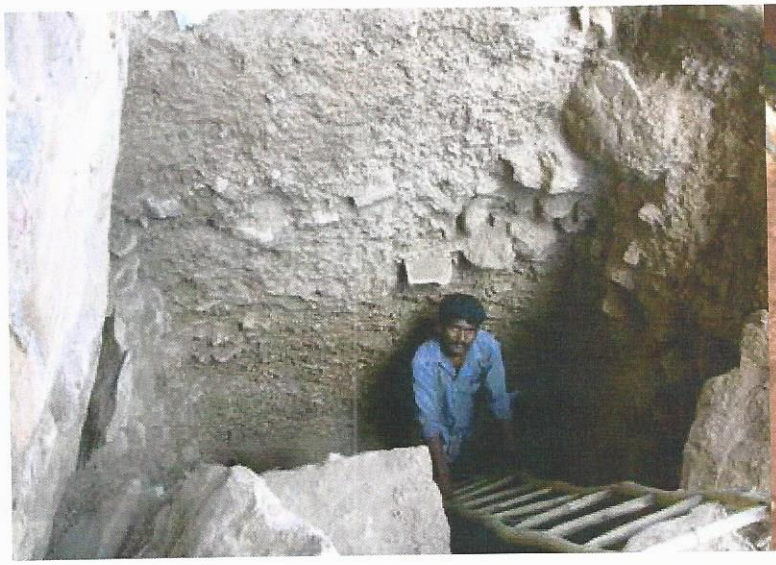

Figure 9: Examples of beads recovered from the Jwalapuram Locality 9 rockshelter.

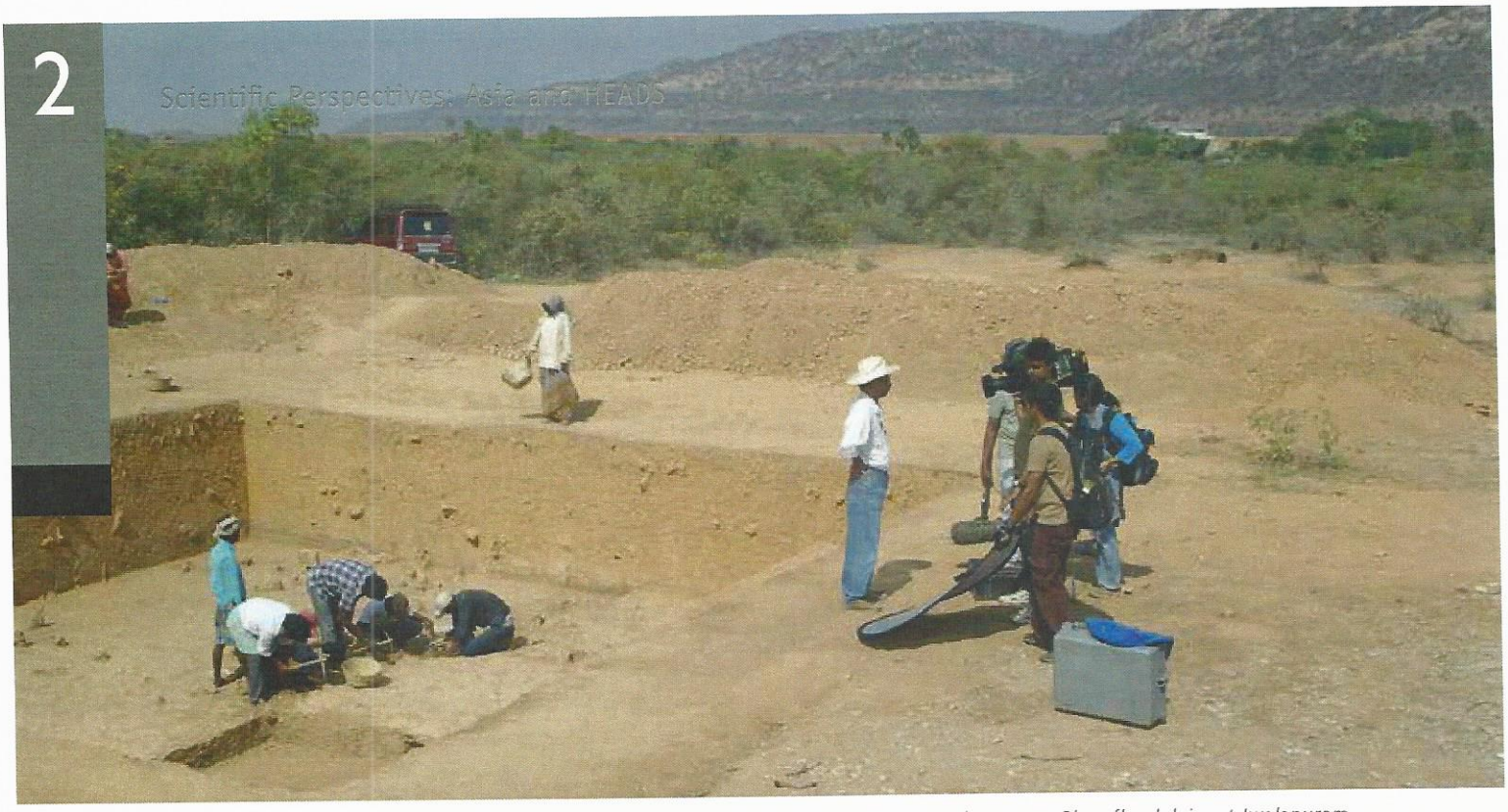

Figure 10: Excavations on the Jurreru River floodplain, at Jwalapuram Locality 22, near the Jwalapuram rock art shelters. Here, Middle Palaeolithic industries were excavated directly under the Toba ash, dating to 74 Ka. Note Prof. Ravi Korisettar being interviewed by a camera crew on behalf of the National Geographic Society. The archaeological research in Kurnool has drawn intensive media coverage (see: http://toba.arch.ox.ac.uk/media.htm).

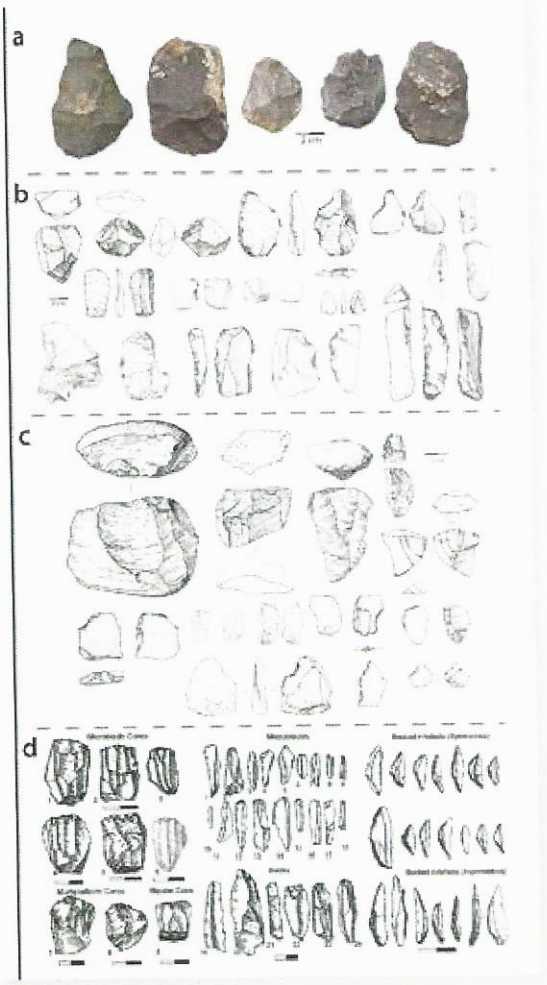

Figure 11: Stone tool assemblages represented in the Jurreru River Valley, Kurnool District. Late Acheulean (A), Middle Palaeolithic, pre-Toba (B), Middle Palaeolithic, post-Toba (C), Microlithic (D) (after Petraglia et al., 2012b).

the Holocene, though faded rock art could conceivably date to the Pleistocene. Excavations in the shelter produced 53,000 lithic artefacts and radiocarbon dating revealed that the microblade industries extended back to ca. 35 Ka (Clarkson et al., 2009). The excavated assemblage also contained cremated human remains, beads, and worked bone (Figure 9). A striated red ochre crayon, ochre fragments and detached ochre-coated quartzite spalls are present throughout a layer dated to 20-12 Ka. The ochre fragments and detached ochre-coated quartzite spalls likely associate with personal symbolic display and artistic activities on the rockshelter itself during the Late Pleistocene.

The rockshelter excavations and the rock art studies have made significant contributions towards understanding the prehistory of the Indian subcontinent, allowing study, for the very first time, the evolution of symbolism and modern human behaviour. The rockshelters and caves in the region are also accompanied by open-air sites along the valley margins and in the lower-lying river floodplain (Petraglia et al., 2009a; Shipton et al., 2010) (Figures 5 and 10). Excavations have revealed the presence of Middle Palaeolithic assemblages above and below volcanic ash that has been identified to represent the Toba Super-eruption of 74,000 years ago (Petraglia et al., 2007). Overall, archaeological surveys and excavations in and around the rock art district have revealed the presence of stone tool industries representative of Palaeolithic time periods (i.e., Late Acheulean, Middle Palaeolithic, Late [Upper] Palaeolithic) (Figure 11).

The Kurnool District sites have become the focus of international debates on dispersal processes. Information is published in scholarly and in public form and in the pages of high impact journals, such as *Nature*, *Science* and *PNAS*. One of the main debates concerns the timing of the dispersal of *Homo sapiens* out of Africa. On the one hand, Mellars (2006) contends, on the basis of mitochondrial DNA and archaeological evidence, that modern humans reached India about 60,000 years ago, using microblade assemblages, and accompanied by symbolic items, such as engraved objects. On the other hand, on the basis of comparative analysis of assemblages in Africa and India, our team has argued that modern humans reached the subcontinent prior to the Toba eruption, surviving its environmental consequences (Petraglia et al., 2007, 2012b; Clarkson et al., 2012). In the later view, the microblade assemblages do not associate with Howiesons Poort assemblages of southern Africa, but rather, the microblade stone industries are a local innovation produced for more efficient capture of game, and perhaps a consequence of climatic deterioration and population pressure (Petraglia et al., 2009b).

In this brief summation, we have attempted to illustrate that the Kurnool District contains rock art that is significant, complementing and rivaling the World Heritage site of Bhimbetka. Moreover, we associate the rock art and the archaeology, suggesting that Indian sites, such as those found in the Kurnool District, can contribute to major topics in human evolutionary studies, including questions about dispersal processes, the evolution of modern human behaviour and the evolution of symbolism.

Conclusion

The HEADS Programme has rightly concerned itself with identifying human origin sites in Asia that may be potentially nominated to the World Heritage List. One of the thematic aims of the HEADS Programme is the identification of sites that may contribute to a better understanding of dispersal processes. It has hopefully been demonstrated in this brief overview that there are many potential sites and landscapes in Asia that are of exceptional cultural importance. Here, we have centered on cultural resources in India, suggesting that greater attention should be paid to the relationship between rock art sites and archaeological resources, including at the UNESCO site of Bhimbetka. An integrated approach to rock art and archaeology has scientific advantages, and such types of linked nominations for the World Heritage List rest on a firmer intellectual foundation. Moreover, on the practical side, an integrated approach between rock art landscapes and archaeological sites leads to the protection of a greater number of cultural resources, especially important in this day and age when many historic properties are being threatened and destroyed by modern development.

Acknowledgements

I am grateful to Dr. Nuria Sanz for inviting me to a stimulating UNESCO meeting and to the organizers of the Seoul conference for their warm hospitality. For making our research in India possible, I wish to acknowledge the Archaeological Survey of India and the American Institute of Indian Studies. Major financial support for our research has come from the British Academy, the European Research Council (no. 295719), the Leverhulme Trust, and the Smithsonian Institution. I wish to acknowledge the support of large, international teams of archaeologists and interdisciplinary specialists involved in the Kurnool District research.

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