



PROCEEDINGS OF THE IFRAO CONGRESS  
September 2010

2013 # 5

<http://www.palethnologie.org>  
ISSN 2108-6532

directed by  
Jean CLOTTE

PLEISTOCENE ART OF THE WORLD

Short articles



# SYMPOSIUM 4

## PLEISTOCENE ART OF ASIA

Chairman | **Giriraj KUMAR**  
(India)



→ full version

## INDIAN PLEISTOCENE ROCK ART IN A GLOBAL CONTEXT

Robert G. BEDNARIK

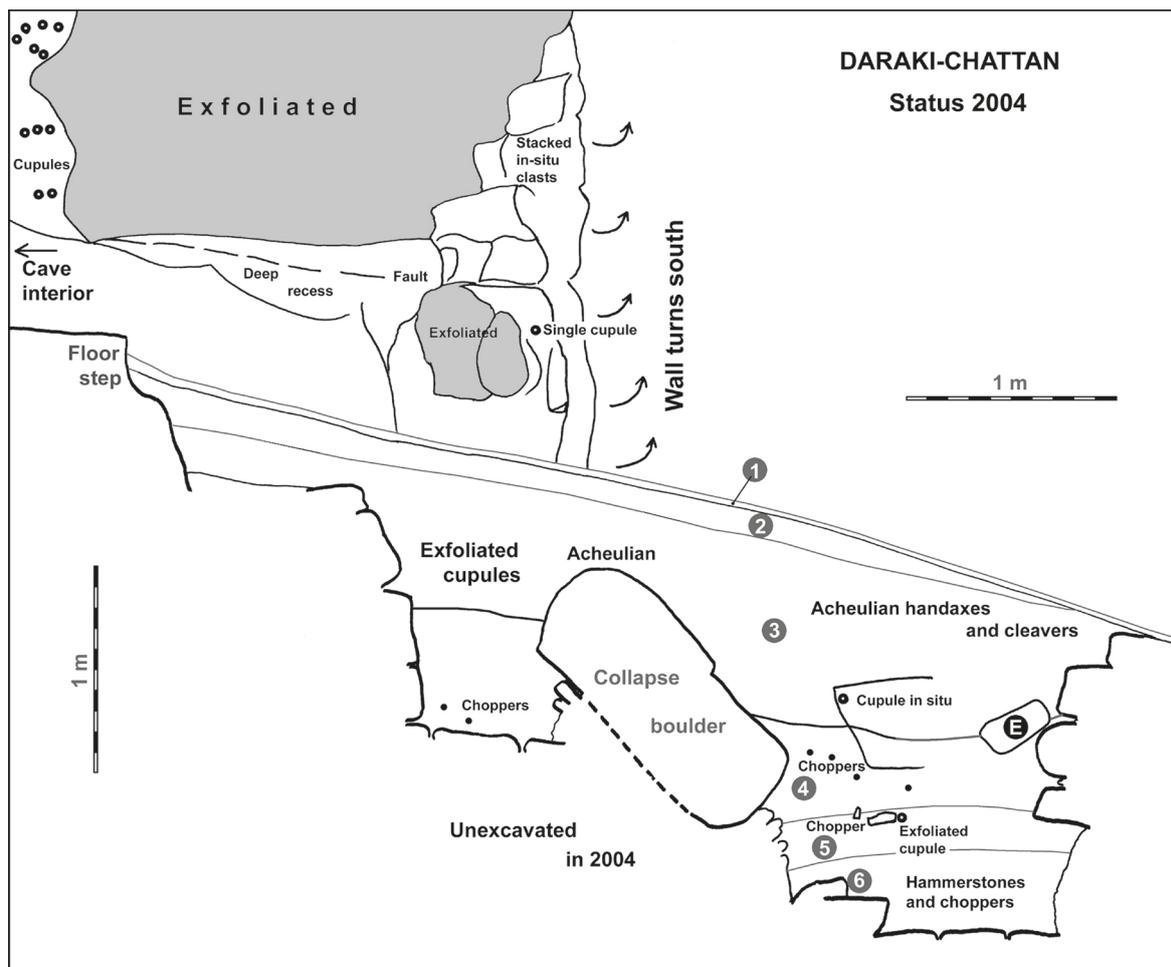
The incredibly early petroglyphs reported from central Indian quartzite caves immediately raise the issue of the compatibility of this information with our knowledge from the rest of the world. It is demonstrated that, with the exception of the presumably greater antiquity of the Indian finds, they are fully consistent with what five other continents have yielded. The Indian sites offer numerous cupules and a very few linear grooves; the oldest forms of rock art from Africa, Europe, Australia and the Americas comprise precisely the same forms of petroglyphs, and even the subsequent traditions are almost identical. This is demonstrated with the earliest known examples of rock art from those continents, and is partly attributed to the taphonomy of rock art. Rock paintings, similarly, are limited to regions where deep limestone caves were used by Pleistocene hominins, evidence for which is so far only available from two continents. Even the earliest known indications of portable palaeoart from India are entirely consistent with other parts of the world.

The first rock art ascribed to the Lower Palaeolithic were the eleven petroglyphs in Auditorium Cave, Bhimbetka complex, Madhya Pradesh, India. Within a few years of this proposal of 1992 it was validated through a newly discovered site, the quartzite cave Daraki-Chattan. In response to these discoveries, I established the Early Indian Petroglyphs (EIP) Project with Giriraj Kumar, with the intention of testing these claims by an international panel of specialists. As part of the EIP Project, major excavations were commenced at Bhimbetka and Daraki-Chattan in 2002. Kumar's excavation at the latter site uncovered numerous exfoliated wall fragments from the Lower Palaeolithic occupation deposit. These rock slabs bear a total of 28 cupules, identical to those on the walls above. Also, two engraved grooves were found on a boulder excavated in the Lower Palaeolithic deposit, and one cupule was encountered *in situ* in the excavation. Stone tools exhibiting Lower Palaeolithic characteristics occurred both above and together with these slabs, in deposits that are considered undisturbed. Numerous hammerstones used in the production of the cupules were recovered from the excavation, mostly from the layer below the exfoliated wall fragments, which contained only chopping tools and was free of bifaces. There can be no reasonable doubt that the cupules, or at least some of them, were made by people of a Lower Palaeolithic tool typology that was dominated by choppers resembling those of the African Oldowan, and predating the Acheulian. This is the earliest stone tool tradition occurring in India.

While an antiquity of several hundred millennia may seem incredible to conservative archaeologists, it must be remembered that the earliest known petroglyphs in every continent (except Antarctica) are completely dominated by cupules. The earliest approximately dated cupules of Africa, the eight found on a sandstone slab excavated at Sai Island, Sudan, are thought to be in the order of 200 000 years old. Moreover, the Middle Stone Age and possibly Fauresmith petroglyphs Peter Beaumont has recently discovered are of identical inventories and occur on identical rock, very hard quartzite. Here, the surviving rock art begins also with cupules, linear marks, later followed by circle petroglyphs.

Australia, as far as we know, was colonised by hominins only around 60 000 years ago, by Asian seafarers with a Middle Palaeolithic technology who apparently brought with them a tradition of creating rock art, especially cupules and circular designs. But they developed the production of circular patterns to great complexity and variety in Australia, which continued in Tasmania into the late Holocene, together with a Mode 3 technocomplex. In contrast to Europe, where examples of Pleistocene rock art have so far remained limited to limestone caves, in Australia they can be found both in deep caves and at open sites.

In North America it has long been observed that the apparently earliest rock art traditions consist of the “pitand- groove” or “pitted boulder” genres. The same pattern pertains in South America, with the earliest petroglyph sites dominated by cupules. Even in Europe, this pattern is repeated at La Ferrassie, France. Since cupules on particularly weathering-resistant rocks tend to have the greatest longevity of all petroglyphs, the pattern of occurrence suggests that it is determined by taphonomy. This uniformity in the surviving rock art is equally apparent in much of the mobiliary art so far credibly attributed to the Pleistocene. The very limited Indian component is again consistent with other regions. The crosshatched design on the engraved ostrich eggshell



Schematic section of the entrance of Daraki-Chattan, showing the distribution of exfoliated cupules and excavated hammerstones.

from Patne occurs on the only known Chinese Pleistocene palaeoart, the engraved antler fragment from Longgu Cave, and on the perhaps more recent Chandravati core from India. A similar marking strategy is evident in the Urkan e-Rub II stone plaque and an ostrich eggshell fragment from Upper Besor 6, both of the Upper Palaeolithic of the Levant. It can perhaps be traced back to Mode 3 marking traditions in Africa, e.g. at Blombos and Wonderwerk Caves. Such a completely noniconic portable tradition even occurs in the final Pleistocene of North America, at the Gault site, Texas.



## LOWER PALAEOOLITHIC PETROGLYPHS AND HAMMERSTONES OBTAINED FROM THE EXCAVATIONS AT DARAKI-CHATTAN CAVE (INDIA)

**Giriraj KUMAR, Narayan VYAS**  
**Robert G. BEDNARIK, Arakhita PRADHAN**

**Gist:** Daraki-Chattan in the Chambal basin in central India is the richest known Pleistocene cupule site in the world. Here excavations were conducted by the Rock Art Society of India in collaboration with the Archaeological Survey of India under the EIP Project for five seasons from 2002 to 2006. The excavations yielded Lower Palaeolithic artefacts from throughout its sediment section. From the top humus and to some extent from the following brown soil layers we also found recent debris and microliths. These appear to be intrusions introduced by rainwater and trampling. The major activity area in front of the cave and in the shelter, as revealed by the concentration of the Lower Palaeolithic artefacts obtained in the excavations, appears to be the area covered by squares XD4- 5; XC4-5; XB3- 5; XA1, 3, 4 and 5; and A1, 4 and 5; in 11.5 m<sup>2</sup>. It established that the site was in use mostly in the Lower Palaeolithic.

In the early phase of the Lower Palaeolithic, the cave was a tool manufacturing site. It yielded cobbles used as cores, flakes, unfinished tools (from XB5(4) at depth -161 cm from XB4, red lateritic soil), reused artefacts etc. A few artefacts from layer 3 upwards, particularly from the squares in the rock shelter and from the western part of the main trench were also re-utilised. In the upper part of the stratigraphy, XA4(4&3) and XA4(1) yielded a good number of fine Lower Palaeolithic



Slab pieces bearing cupules joined together, obtained from the excavation at Daraki-Chattan, layer 3. Lower Palaeolithic. 2002/09/22.

artefacts at depths of -20 to -40 cm from the surface. Lower Palaeolithic patinated chert flakes and chert artefacts also occur right from the base of the excavation to its uppermost horizon. They also include a patinated chert artefact from XA3(2), 64 cm from XA3, 45 cm from A3, at -127 cm depth from surface (-180 cm from A1); and a utilised and retouched knife-like artefact of a patinated Acheulian chert-flake from XA5(3), 44 cm from A6, 75 cm from A5, at -10 cm from the surface (-166 cm from A1).

The excavations at Daraki-Chattan have yielded definite evidence of human palaeoart creation from the Lower Palaeolithic. It is obtained in the form of 28 cupules on exfoliated rock slabs, two still lying in the trench, and ten hammer stones from different levels of the excavated sediments right from close to bedrock. Besides, a stone block bearing two linear petroglyphs was discovered from layer 3. These form the definite evidence of human palaeoart creation from the Lower Palaeolithic. Detailed study of the excavated material is continuing.

Thus, the present preliminary report of the excavations at Daraki-Chattan provides the unambiguous evidence of petroglyphs, mostly cupules, from archaeological occupation strata of Lower Palaeolithic age. It endorses the similar evidence from the Auditorium Cave at Bhimbetka. At Daraki-Chattan petroglyphs recovered from the excavations consist of a total of 28 cupules exfoliated from the cave wall, and two linear grooves. The lack of cupules on exfoliation scars on the cave walls implies that the remaining wall cupules are of ages broadly similar to those in the excavation. The actual age of the cupules must have been much greater than the time of their stratigraphic deposition, as they must have been exfoliated much later than the time of their production on the cave wall. The same relationship has been suggested for the cupules above ground in Auditorium Cave.

Recent research has shown that our understanding of art origins is rapidly changing. More than any other evidence presented before, the evidence produced by the EIP Project, especially from the excavations at Daraki-Chattan, has shown that we have misjudged the time depth of palaeoart and human cognition, creative ability and symbolism. The time has come to change our mindset. This evidence is so significant that it is set to affect not only our concepts of Pleistocene hominin development in southern Asia, but it will influence the way we view cognitive evolution generally.



## TYOLOGICAL CONTEXT OF THE LOWER PALAEOLITHIC LITHICS FROM DARAKI-CHATTAN CAVE (INDIA)

**Robert G. BEDNARIK, Giriraj KUMAR**

In addition to housing some of the oldest known rock art in the world, Daraki-Chattan is also an important Palaeolithic site because it is one of the very few Indian locations where Mode 1 (pre-Acheulian) occupation evidence has been excavated in a stratified context. Overlain by a typical Acheulian with hand-axes, this deposit has yielded very simple, Oldowan-like stone artefacts made mostly of the local quartzite. This very early cupule site is therefore of particular importance to exploring the Lower Palaeolithic (LP) industries of southern Asia.

The LP stone tool sequence in the Daraki-Chattan sediments commences from the uppermost levels of the floor deposit, which comprises only a very thin layer of more recent strata. In places an industry intermediate to Middle and Lower Palaeolithic typology was visible at the surface before excavation commenced. These intermediate tool types are underlain by a substantial deposit defined as Acheulian, but poor in typical hand-axes and cleavers. Six vague and fairly arbitrary layers were distinguished in the sediment, becoming progressively more reddish in layer 5. The lowest sediment deposit is characterised by its red colour. Its upper part contains severely weathered Mode 1 cobble tools as well as hammerstones of the type used to produce the cupules.



Two choppers on cobbles found close to bedrock,  
among the earliest artefacts from Daraki-Chattan, Oldowan / Mode 1 type.

Arbitrary layers 3 and 4 contain LP flake artefacts, some made from river cobbles, but most made of the local purplish quartzite. A few artefacts consist of patinated cherts. Layer 5 contains still much the same industry, but increasing iron content has effected a more reddish colour. Both stone tools and clasts show increasing effects of weathering and iron induration, which on large clasts may take the form of thick mineral crusts of primarily ferromanganese composition.

The basal sediment layer features only very weathered stone tools and clasts. Tool types from the lower sediments include cobble tools, discoids, core choppers, flake scrapers and polyhedrons similar to the so-called Durkadian reported by Armand. A few specimens resemble what have been called core-scrapers at Mahadeo-Piparia, another central Indian site, whose repertoire has been called the Mahadevian. These characteristic pieces are large blocks with a zigzagging edge produced by chunky flakes having been removed alternatively from each side. Although LP and MP stone tool traditions are widespread in India, represented in massive quantities and typologically accounted for, their absolute chronology has remained largely unresolved so far. This is due both to a paucity of excavated sites (most known sites are surface scatters) and a pronounced lack of well-dated sites. The cobble or chopping tools preceding the bifaces of the Indian Acheulian have attracted comparatively little attention.

While the Lower Acheulian remains largely undated, preliminary indications suggest a late Middle Pleistocene antiquity for the Final Acheulian. Thorium-uranium dates from three calcareous conglomerates containing Acheulian artefacts (Nevasa, Yedurwadi, Bori) suggest ages in the order of 200 ka. The most recent date for an Indian Acheulian deposit is currently the uranium-series result of about 150 ka from a conglomerate travertine at Kaldevanahalli. There remains wide disagreement about the antiquity of the Early Acheulian and the Mode 1 industries. Some favour a date of 1.4 million years (My) from Kukdi valley for the earliest phase of the Acheulian; others reject it. The earliest phase of human presence in India, of Mode 1 assemblages, remains largely undated, but at Pabbi Hills, dates ranging from 2.2 to 1.2 My have been acquired by palaeomagnetism. The few flaked quartzite cobbles from Riwat (Pakistan) appear to be in the order of 2.5 My old, rather than 1.9 My as previously proposed. The claims from Labli Uttarani, ranging from 1.6 to 2.8 My, are viewed sceptically. However, the earliest data from China imply an occupation by hominins prior to 2 My, which demands human presence in India by that time. Reliably identified Mode 1 industries have been excavated from secure stratigraphies in very few cases, and they were found below Mode 2 (Acheulian) strata at the two early cupule sites, Auditorium Cave at Bhimbetka and in Daraki-Chattan. These quartzite tools are partially decomposed at both sites and they were found in both cases below pisoliths and heavy ferromanganese mineral accretions indicating a significant climatic incursion.



## PHYSICO-PSYCHOLOGICAL APPROACH FOR UNDERSTANDING THE SIGNIFICANCE OF LOWER PALAEOLITHIC CUPULES

**Ram KRISHNA, Giriraj KUMAR**

Daraki-Chattan Cave is one of the richest Palaeolithic cupule sites in the world. It is situated in the heavily metamorphosed quartzite buttresses of Indragarh hill near Bhanpura, Mandasaur district, Madhya Pradesh in the Chambal basin.

Because of its small size and shape the cave is unsuitable for habitation purposes. Still it bears more than 500 cupules on both its vertical walls. The number of cupules must have been much greater as the front portions of both faces of the cave walls show heavy exfoliation scars. Based on the shape, size and nature of their depth, the cupules in Daraki-Chattan have been classified into four distinct categories, each with subcategories a and b.

The excavations carried out at Daraki-Chattan for five seasons from 2002 to 2006 under the EIP Project have unambiguously established the Lower Palaeolithic antiquity of the cupules in the cave. The question is that what the significance of these cupules is and why such a small cave was chosen as a center of cupule creation activity, and also why this went on, on such a large scale, for such a long time right from the Lower Palaeolithic? The answer is not easy.

For understanding the significance of cupules we adopted a physico-psychological approach which involves replication of cupules on hard quartzite rock and observations made in this process. We have been experimenting on this project since 2002 and it is still going on.

In the process of replication of cupules on hard quartzite rock it was revealed that creation of cupules requires very hard labour and devotion. In Daraki-Chattan, Cupules of Category-1a (big circular cupules of more than 50 mm diameter and more than 5 mm smooth saucer shaped depth) appear to be the work more of strength and commitment and less of mind. They were produced by using a very simple and primitive technology of direct percussion. They appear to represent the earliest stage of cupule production. Our experiment indicates that to produce cupules of Category-1a needs two to six hammerstones on cobbles or pebbles depending on the quality of the stone used and the strength of the person at work. It is a tough and tedious task to produce a cupule on hard quartzite rock. It requires motivation, commitment, strength, endurance and patience for their production. Big deep cupules of Category-1b can be produced similarly by using hammerstones with stout and sturdy striking heads. It needs a longer duration of work and high concentration besides all the above-mentioned qualities. At the same time, it requires the use of multiple hammer stones to achieve a deep round and smooth depth.



Replicated cupules on the experimental hard quartzite rock by the side of Daraki-Chattan.

Cupules of Category 2 are comparatively small with conical depth, particularly of Category 2a. We successfully replicated the latter in December 2008 and June 2009. They appear to be the work of a modified technology of direct percussion with small hammerstones of proper shape and size. Nearly 30 000 strokes by direct percussion technique were needed to produce a small cupule No. RC-9 of dimensions  $32,0 \times 31,5 \times 9$  mm. It requires proper planning, immense skill and great precision and patience to produce such cupules. The person at work on cupule production cannot afford a wrong stroke, even in a thousand ones, as it increases the diameter of the cupule by one millimetre. Hence, it takes two to three days to produce such cupules.

We have been replicating cupules to understand the technique and process of their production. In this process we also came to know their significance. From our experiments it became very clear that creation of cupules is definitely neither a leisure work nor a play work. It is a very tough job and appears to be closely associated with something special and deeply related with life. It is a scientific conclusion and can be tested by anyone who is interested.



## LATE PLEISTOCENE ART OF INDIA

**Giriraj KUMAR, Ragini ROY**

**Gist:** In India iconic art is preceded by non-iconic art, thus it follows the global phenomenon in the evolution of rock art. The present evidence indicates that transition from non-iconic to iconic art in India happened in late late-Pleistocene period. The evidence is mostly in the form of mobiliary art and is culturally associated with an Upper Palaeolithic industry.

Petroglyphs discovered from Chattaneshwar and Raisen in central India present the appearance of simple motifs for the first time in Indian rock art. At Chattaneshwar in Rajasthan the small and shallow cupules have been arranged in an oval form with a cross inside it, while at Raisen in Madhya Pradesh the motif has been created with the help of an engraved circle with two radiating lines and a few cupules. Mention may be made of simple designs engraved on ostrich eggshell pieces from Patne and Ravishankar nagar, Bhopal. That from Patne has been dated to  $25\ 000 \pm 200$  BP. However, a rhomboid design engraved on the cortex of a fluted chalcedony core is an advance form of design. As the flutings are damaging the design, hence it is considered to be Upper Palaeolithic. The core was discovered by V.H. Sonavane from Chandravati in Rajasthan.

V. Wakankar discovered two small disc shaped finished beads from a human skull from an Upper Palaeolithic strata at Bhimbetka. Finished and unfinished ostrich eggshell beads were discovered from Patne in Maharashtra, Bhimbetka and Khaperkheda in the Narmada valley, Madhya Pradesh. The latter is an ostrich eggshell bead manufacturing site which yielded both finished and unfinished beads and debitage along with an Upper Palaeolithic industry.



Ostrich eggshell piece with an engraved simple design on it, from Patne, Maharashtra. Upper Palaeolithic.

We have been studying early petroglyphs in central India under the EIP Project since 2001. It established the unambiguous Lower Palaeolithic antiquity of early petroglyphs from Auditorium cave, Bhimbetka and Daraki-Chattan in the Chambal basin. In this study we have also observed that the petroglyphs from Chattaneshwar and Raisen represent the beginning of motif development and the pre-iconic phase in Indian rock art that precedes the earliest iconic form of rock paintings. Thus, on the basis of circumstantial evidence we have put them in the late Pleistocene. Definitely, this needs to be tested by further scientific research.

When we consider late Pleistocene mobiliary art objects along with petroglyphs of the same period (based on circumstantial evidence), it becomes evident that the development of motif was a pioneering step of the hominins, which later on opened a new world for the manifestation of human creativity in the form of simple and complex designs, animal and human forms. A picture of the dawn of Indian art starts emerging. The pioneering efforts of motif development from cupules and engraved lines were followed by simple ostrich eggshell designs and an advanced form of rhomboid design on the patinated cortex of a chalcedony nodule. The intricate designs, which are earliest in the stratigraphy of rock paintings in India, represent a very advanced stage of designing sense and skill of execution. The creation of simple animal and human forms was the hallmark of human creativity achieved in the following stage. The dynamic green dancers and bovid hunters in the rock art of central India are the earliest such examples of early human creativity in the late-Pleistocene period. Once it was achieved, the artists observed no limit for creating a new world of their perception of reality and imagination in a variety of forms, styles and themes in the following Holocene period.

The early rock paintings in the form of intricate designs and compositions of dynamic dancers superimposing them possess many elements used by modern artists. What is more significant is that these works appear as spontaneous creations, coming right from the heart without any intellectual burden and impositions.

Besides, people in the late Pleistocene period also developed an interest in decorating themselves by using ornaments made of beads, and also the skill and efficiency to produce small and smooth beads on ostrich eggshells. The evidence of late Pleistocene art discussed here is associated with an Upper Palaeolithic industry which ranges in a tentative time span from 40 000 to 10 000 BP.



## PLEISTOCENE ART IN AZERBAIJAN

**Malahat FARAJOVA**

Out of the four petroglyph sites discovered on the territory of Azerbaijan, Pleistocene art is represented only in Gobustan, with images of women in profile, early hunters and Upper Pleistocene fauna: aurochs, gazelles and wild horses, depicted on the walls of the caves. The natural conditions in the Upper Pleistocene were closer to forests of the tugai type. We suppose there existed oak-pine woods in the nearest vicinity of Gobustan and in the coastal strip of the Caspian Sea. On the slopes of the Gobustan foothills grass vegetation of Gramineae type was predominant; today it can be found in some damp places of Gobustan. However, a number of deer rock engravings indicate the existence of well-developed tugai woods that were probably destroyed recently. From the tree remains found one can conclude that in the Upper Pleistocene, in the hilly area, a savannah landscape had developed but in a different way than contemporary savannahs in Africa. These north savannahs represented lightwoods, formed by trees with winter defoliation. General desertification of open landscapes in connection with glacier regression degraded the landscape of the north savannah and semisteppe and semi-desert plants developed in its place.

In Azerbaijan rock art images are silhouetted, continuous or contoured. Animals and birds are always depicted. The characteristic features of animals are vividly expressed in these realistic images that seem closer to Aurignacian images, although some coarseness is felt in them.

**Beyukdash Mountain, “Kaniza” site-shelter.** The images include the heads of aurochs, early hunters and oxen. Here petroglyphs are found on boulders. Besides, a large number of artifacts made on bone were found here.

**Beyukdash Mountain, “Ana-zaga” site.** Images of aurochs, women and early hunters predominate.

**Beyukdash Mountain, “Okuzler” site.** Conjugal themes predominate, with 2 aurochs, a man and a woman holding each other’s hands, 2 goats.

**Kichikdash Mountain, “Gaya arasi” site.** Specially interesting is the image of a big fish, 423 cm long, on stone no. 5 of the Kichikdash Mountain (figure). Judging from approximate data this is an image of a dolphin, which is an extinct animal in the region; the existence of dolphins in the Caspian Sea is dated to the Upper Quaternary. The image of a dolphin in its turn crosses depictions of oxen. Besides, this image was executed on the wall of an early hunters’ shelter, at the foot of which a cultural layer with Upper Paleolithic industry was found. From this cultural layer nuclei, trapezes, denticulate bladelets and bone awls with Upper Paleolithic characteristics were found out.



A big fish, 423 cm long, and figures of aurochs under it, on stone no. 5 of the Kichikdash Mountain.

Also, the image of an ox was found on the wall, which was covered with a cultural layer. The lowest part of the image is 1.50 m from the ground. So, one can come to the following conclusion: the given image was executed far earlier than the cultural layer. Another important fact is that a separate stone, revealed from the cultural layer of 3.5 m, served as a floor for the 1.85-2 m cultural layer and images of anthropomorphic figures were carved on it, particularly, claviform images of pregnant women in profile. So, images of oxen in the “Gaya arasi” site can approximately be dated to the end of the Upper Paleolithic, but claviform images on a separate stone are accordingly dated to an earlier period.

**Kichikdash Mountain, “Jeyranlar” site.** Various themes are represented on the walls of this site: images of gazelles, aurochs and women.

New data on the dating of petroglyphs, recently obtained, require some specification and modification in the chronology and periodization of Gobustan. Let us consider the archaeological inventory, revealed in the Ana-zaga site in Gobustan, based on the cultural division of western and Russian historians.

**Ana-zaga shelter.** Ana-zaga cave is situated on the upper terrace of the Beyukdash Mountain in Gobustan. It was excavated in 2009 and sediments up to a depth of 400 cm were exposed. With the aim to obtain absolute dates, samples from the cultural layer at the depth of 185 cm were taken and were dated; preliminary calibrated data showed 9 029 BC. From the cultural layer archaeologists discovered choppers, cone-shaped, pencilshaped and cylindric nucleuses. The inventory of the site also consists of chisels, micro-edges, knifelike plaits, segments, flint trapeziums, micro-plates, percussion tools from river stones and weight stones. Here fragments of separate stones with anthropomorphic silhouetted images were also found.

As we see petroglyphs are to a lesser or greater degree connected with the archaeological layer. Consequently, these petroglyphs are older or of the same age with the formation of the layer. Gobustan petroglyphs on the walls of Ana-zaga shelter are fully identical both by their style or techniques of execution with separate stones with images, revealed from the archaeological layer.



## AN OVERVIEW OF ASIAN PALAEOART OF THE PLEISTOCENE

**Robert G. BEDNARIK**

A survey of the present state of secure knowledge of Pleistocene palaeoart in the continent of Asia indicates firstly that, in comparison to Europe, this subject has been severely neglected; and secondly, that the known geographical distribution and the paucity of credible instances are the result of such factors as the intensity of research activities and taphonomic factors. The only reasonably informative data derives from a very few areas where research has been focused, and the nature of the Pleistocene finds illustrates significant taphonomic bias. Whereas the rise of Asian and African palaeoanthropology was rendered possible by the rejection of the Piltdown fake evidence, no such revolution has occurred in the Pleistocene palaeoart of these continents. Clearly palaeoart has been created in Asia since Lower Palaeolithic times, but even its Upper Palaeolithic component is entirely inadequate to draw any justified conclusions.

The portable palaeoart from central Siberia includes the 33 human-like figurines from Mal'ta and Buret'; the 13 flying-bird pendants from Mal'ta plus one specimen from Buret'; three more bird pendants; 5 nailshaped pins and further decorative items. Four sites have provided perforated disc beads (Afontova Gora II, Krasnyi Yar, Buret' and Mal'ta) and perforated animal teeth have been reported from Verkholskaya Gora and Afontova Gora II. Incised engravings on portable objects are usually geometric (Mal'ta, Oshurkovo, Afontova Gora II, Afontova Gora III, Irkutsk Hospital, Voennyi).

Altogether, more than 100 palaeoart or art-like finds have been reported from Siberia, including from 5 sites on the Angara/Belaya river (Buret', Krasnyi Yar, Ust'-Kova and Verkholskaya Gora), 8 on the upper Yenisey (Afontova Gora II, Afontova Gora III, Maininskaya, Dvouglaзка Cave, Tachtik, Kokorevo, Novosselovo and Atchinskaya), 2 sites on the upper Ob river (Ust'-Kanskaya and Denissova Cave), 2 from south of Lake Baikal (Oshurkovo and Tolbaga), 1 on the Irtysh River (Cherno-Ozer'e), and another from the mouth of the Indigirka river (Berelekh). The animal head carved on a projection of a second vertebra of a woolly rhinoceros from Tolbaga is one of the oldest naturalistic sculptures known in the world. Only 2 apparently figurative two-dimensional images are known from the Pleistocene of all Asia: the "mammoth" engravings found on a juvenile mammoth tusk from Berelekh and on a perforated ivory plaque from Mal'ta. Of interest are also the stone and bone beads from Strashnaya Cave (Tolbor) and the perforated ostrich eggshell from Podzvonkaya.

Only one specimen of intricately produced palaeoart has so far been reported from China, the engraved deer antler fragment from Longgu Cave, Hebei Province. It is directly dated to  $13065 \pm 270$  BP. Simpler examples of palaeoart from China include over 120 perforated objects and 5 polished tubular sections made from long bones of a large bird species from the Upper Palaeolithic of the Zhoukoudian Upper Cave; and from the Shiyu site an older fragment of a stone disc. Early palaeoart is also scarce in Japan, limited to a drilled stone disc from the Debari site; a polished triangular stone object from the Deguchi Kane-zuka site; and the engraved kokeshi pebbles from Kamikuroiwa rockshelter.



Distribution of known Pleistocene palaeoart finds in Asia.

Pleistocene rock art from Asia has only been demonstrated in India so far: 11 Lower Palaeolithic petroglyphs in Auditorium Cave, the central site of the vast Bhimbetka rock art complex; and the 530 cupules in Daraki-Chattan Cave, safely dated to an Oldowan-like Lower Palaeolithic occupation layer overlain by Acheulian deposits. The Indian Upper Palaeolithic has yielded an engraved ostrich eggshell fragment from Patne, about 25 000 years old, and 3 beads of the same material, from Bhimbetka and Patne. The grooved animal teeth from Billa Surgam III were probably also beads.

The modified scoria pebble from the Acheulian of Berekhat Ram in Israel is one of the two earliest protofigurines known, being more than 233 000 years old. Two probable disc beads from Gesher Benot Ya'aqov are also of the Acheulian. More recent is a chert artefact with apparent markings from the Mousterian of Quneitra. The incised bones of Kebara Cave are also of the Mousterian. The Upper Palaeolithic of the Levant has provided several palaeoart finds, and some linear engravings in caves of Mount Carmel have been attributed to it. Portable finds provide more reliable evidence, such as those excavated in Hayonim Cave. They comprise an engraved bone fragment, perforated animal teeth, and a limestone slab that is engraved on both sides.

Another limestone cobble, from Urkan-e-Rub and dated to between ca. 19 000 and 14 500 BP , bears complex geometric arrangements of engraved lines. The region's Natufian tradition has yielded figurines, beads, pendants and decorated sickle hafts from one of the Mt Carmel sites, the El-Wad Cave. Other Natufian finds include pestles of presumed phallic shapes from some sites, including Kebara Cave, which also produced an engraved limestone slab; a presumed sculpture from Ain Sakhri Cave; another stone figurine from Wadi Hammeh; and a long bone object decorated on both ends from Nahal Oren.

The map showing the distribution of the known occurrences across Asia suggests that the two minor site concentrations, in central Siberia and the Levant, coincide with regions that have witnessed concerted archaeological efforts.



## THE ROCK ART OF BORNEO

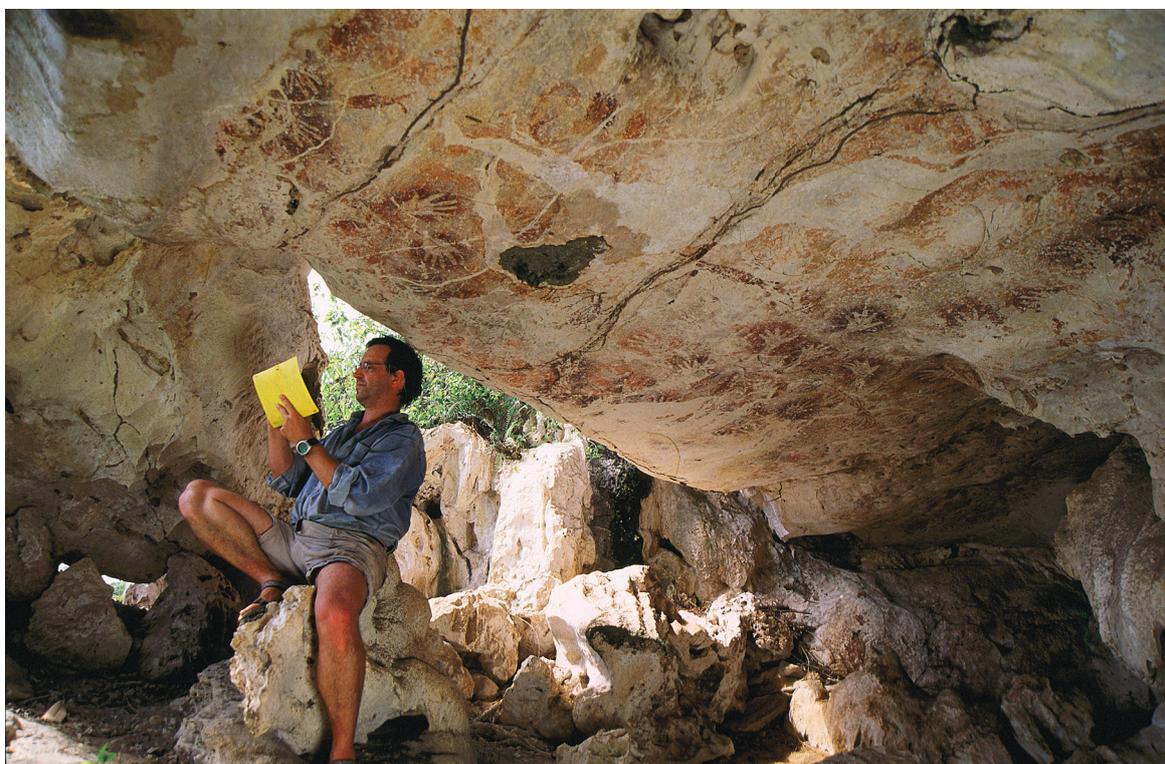
### Presentation and New Observations on Some Exceptional Hand Stencils

Luc-Henri FAGE

Borneo's rock art occurs in cave shelters perched in limestone cliffs. To add to their inaccessible location, the researcher's job is made even more difficult by the placement of paintings high up on cave walls. For logistical reasons it was not possible to stay longer than a few hours in some painted caves. Thus we had to develop fast recording techniques using digital photography and summary sketches, leaving the analysis for later. The analysis done for the inventory in "Borneo, Memory of the Caves" led to some new observations of elements not noticed in the field.

#### Context of the hand stencils

Although Borneo's rock art shares features with other rock art around the world, its uniqueness is due partly to the hand stencils. An age of  $9872 \pm 60$  BP was established by U/Th and  $^{14}\text{C}$  dating of a calcite flowstone overlying a hand stencil.



Gua Tewet, the quintessential of Borneo Rock-Art  
(photo: S. Caillault).

Some hand stencils occur with anthropomorphic figures, animals and geometric signs. However, some caves on Borneo use hands as the basic graphic unit, forming images consisting entirely or almost entirely of hand stencils. Such compositions are characteristic of Bornean rock art. The hand stencils are combined, decorated, connected with lines, and / or filled with symbols, showing a unique level of complexity in worldwide rock art.

### **“Animal” hands**

Discovered in 2001, Gua Tamrin revealed unusual hands. These are located between five and eight metres above the cave’s ground level. We were not able to approach them but our photos taken with a macro lens show the fingertips were made to look more “pointy” than a normal human hand. We have not found any similar hands in any other cave on Borneo, but they bear a strange resemblance to some hand stencils of Sulawesi, 600 km to the south-east across the Makassar Strait. We interpreted the Sulawesi hand stencils as “animal hands” because they were transformed by reducing the fingertip width and / or the number of fingers. For example, at Cammin-Kanang Cave, five hand stencils became bird feet (three fingers), reptile hands (four fingers), or monkey hands with five very narrow curved fingers. These show how the human hand, a unique feature of mankind, can be transformed into an animal hand.

### **Fingernails**

Our photos from eight Bornean caves have revealed another singularity of Kalimantan’s rock art: clear traces of a fingernail on some fingertips. At Gua Sahak a large left hand stencil has large nails on the thumb and little finger. We were able to reproduce this effect using a female hand with a long thumbnail.

The frequency of this phenomenon and the remarkably clear contours suggest the fingernails did not occur by chance. A group of hunter-gatherers whose hands are in daily contact with materials cannot retain long fingernails. Could these stencils be the work of persons who did not participate in the community’s daily hunting and gathering tasks? This might indicate a different social status, old age, or a special role in the community.

### **Refining our ethnographic observations**

The presence of individuals with long fingernails adds something to our knowledge of hand stencil production, in that it reveals the human dimension of a distant culture which has totally disappeared from the island of Borneo. It complements the information obtained in May 2001 during the discovery of Gua Tamrin, a turning point in our research.

Gua Tamrin, perched 30 m up a cliff face, contains 41 anthropomorphic figures. Some consist of stylised lines dancing around natural concavities in the rock face combined with hand stencils. Others were made with greater accuracy and shown either in dynamic positions (dancing, hunting, rituals) or immobile. These have filamentous bodies, large hairstyles or headdresses, huge feet, feather ornaments near the kidneys, exposed penises, and the arms hold bunches of arrows and possibly bows or spears. There is even a possible spear-thrower.

These images allow us to refine our knowledge of Borneo’s past inhabitants, who seem to have ancient links with the Australian Aborigines based on ethnographic parallels.

## Conclusion

While there is much unexplored karst on Borneo, there is still much to learn from the rock art that is now known. The next decade of research will focus on this, namely by extending the photographic inventory and creating a GIS (Geographic Information System) database of cave locations and placement of paintings in the caves in order to further explore the choice of rock art placement according to cave topology.

Our aim is to ensure the long-term protection of Borneo's rock art. It is currently under threat from the chaotic arrival of "progress" in the form of deforestation, oil palm plantations, open-cast coal mines, and cement works. We have achieved the first phase of protection by creating a national park on the Marang Mountains, which house the majority of the painted caves.



## TECHNOLOGICAL STUDIES OF SIBERIAN PETROGLYPHS (SITE OF SHALOBOLINO, KRASNOYARSK REGION)

**Lydia ZOTKINA**

This paper presents some results of technological research to understand the petroglyphs on the Shalabolino site, attributed to the Neolithic and more recent periods. The technology used played an important role in the expressive system of rock art.

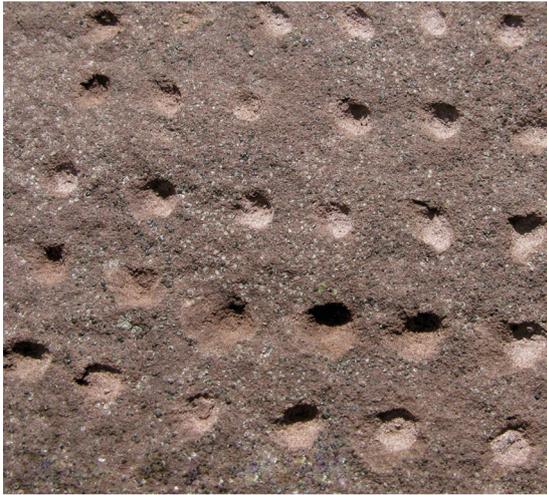
The fundamental question is how the information about technology can be useful for achieving the main goals of archaeological studies, i.e. how this data can help us in dating petroglyphs. So we propose a new approach which considers technology as one of the possibilities in rock art to give a necessary shape and special visual qualities to the image. This characteristics could be accepted by ancient people as one of the attributes of the image (or of the sign). But for a complete vision it must be remembered that this approach is not applicable for a few petroglyphs and the extensive materials must be attracted in the research.

The aim of our study is to test these approach on the materials of big site which includes much good examples of petroglyphs which could be studied with technological viewpoint. Here we present the first results of our technological studies of Siberian petroglyphs. In our experimental study we used different sorts of stones: flint which is not a local rock material, but which gives good results, and the local material which is practically not appropriate for making tools. We also used different sorts of metal: bronze, brass and iron. The local rocks consist of blocks of solid Devonian sandstone. In every experiment we used indirect percussion technique.

The first experimental series shows the difference between the images made by stone tools and metal tools. In the first case the borders of cupules are uneven and torn because the working edge of the stone tool gradually gets destroyed so that on the rock surface the cupules will have different shapes and an uneven periphery. It is noticeable in every part of the image. With metal tools we produced every time cupules of the same shape. As a rule the form of cupules is roundish because of the blunting of the working edge of the metal tool during the work.

Experimental research shows that it is practically impossible to use the tools made out of local rock for the petroglyphs because of its fragility. Every tool in local rock used for experimentation broke after a few strokes. And it was inappropriate for further percussion or its working edge was so massive that the cupules after its application were too large and we didn't find similar cupules on the site.

In this phase of research we just studied some of the most expressive petroglyphs of the site to show how traceological and experimental methods can be useful for technological study of the rock art. And we can see some results and perspectives:



the cupules of metal tool



the image created by metal tool



the cupules of stone tool



the image created by stone tool

The cupules made by different instruments.

1. the combined method of experiment and traceology lets us identify the material of instruments used for the creation of petroglyphs. It is possible to recognize the difference between stone and metal tools used for the creation of images;
2. one of the fundamental aspects in technological studies of rock art is the methodological role of technology in the system of means of expression in rock art. The frequency of repetition of one technological complex perhaps reveal that these signs compose a tradition in rock art. An information about the technology of rock art must detail and renew our way of thinking about cultural and chronological attribution of Siberian petroglyphs;
3. the direction of new research is the experimental and traceological studies of cupules made by different metal instruments and the detection of traceological indicators of their impact.





 **PaLETHNOLOGY**  
*Bilingual review of prehistory*