



BRIEF REPORTS

GigaPan panoramas for rock art panel documentation: a practical guide

By ROBERT MARK and EVELYN BILLO

We have been using super-high resolution stitched panoramas (GigaPans) since 2009 to document rock art panels. These panoramas permit zooming in from the entire panel to minute details (Fig. 1). Full-zoom resolution matches the resolution (or half the resolution:

see stitching discussion below) of a single telephoto image. Basically, this requires a robotic pan head, a DSLR camera, and the associated stitching software.

Model	Weight	Max. camera weight	Batteries
Epic	1.4 kg	0.7 kg	6 AA
Epic 100	1.6 kg	1.4 kg	6 AA
Epic Pro	3.3 kg	4.5 kg	Lithium ion

The robotic pan head is currently available in three models, which accommodate small digital cameras, medium size DSLRs, and large DSLRs respectively. For details and a list of compatible cameras, see <http://gigapansystems.com/compatible-cameras.html>.

In our opinion, despite its advantages (lithium ion battery, electronic cable connection to camera) the weight of the Epic Pro may make the Epic 100 (with solenoid to activate camera) a better choice for field-work.

We are currently using the Epic 100 with a Nikon D5000 DSLR and 200 mm lens. We use lithium AA (not rechargeable)

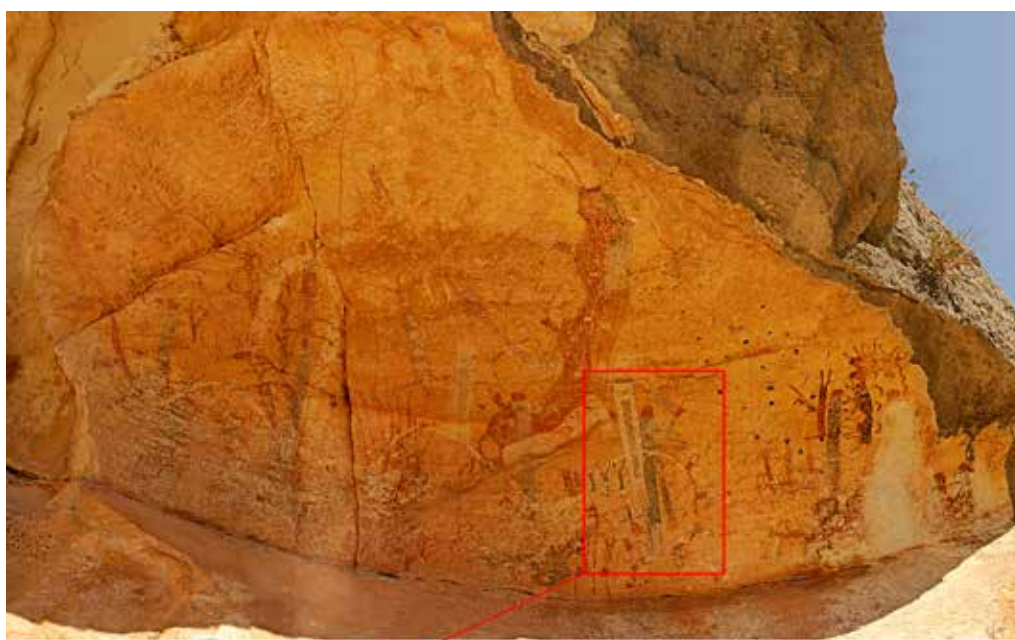


Figure 1. White Shaman panel, south central Texas, U.S.A., with progressive detailed views outlined in red rectangles. This GigaPan can be viewed online at <http://www.gigapan.org/gigapans/39160/>. Select Launch Full Screen Viewer.



Figure 2. GigaPan robotic panhead in the field, Sears Point, Arizona, U.S.A. Photographs by Jennifer Huang.

batteries, which will generally last for several panoramas. The batteries do, however, die quickly, and it has proven to be impossible to replace them without

requires a rectangular array, with no missing images. In general, a fixed exposure setting is also used. If the lighting varies during the panorama (such as passing clouds), dark and light streaks will appear in the panorama. Sometimes we experiment with auto exposure and/or focusing, but we find that, if possible, these should be avoided. White balance should be set appropriately, and definitely not on automatic.

We have recently developed a procedure for shooting GigaPan panoramas in the dark zone of caves. In this case we used a Nikon SB-600 Speedlight flash, set to manual mode (Fig. 3). A high camera ISO (3200) permitted a high f-stop (16–22) and low flash power setting (1/8



Figure 3. GigaPan setup with flash in Hoya de Sanabe cave, the Dominican Republic. Photograph by Domingo Abréu.

to 1/16). These settings permitted the acquisition of four GigaPans with one set of lithium AA batteries in the flash unit.

A lower ISO would reduce image noise but may require additional interval time to recharge the flash. This trade-off needs further testing.

After the images are acquired, they are loaded into the GigaPan Stitcher. The number of rows must be specified (by trial and error if not recorded in the field), and must result in a rectangular array (Fig. 4). The options include half-resolution, which we often use to limit the

size of the file. After stitching (and optional uploading to GigaPan server) the image may be exported as a TIFF file. If the image is too large, a RAW export may be required. After processing in Photoshop, the image may be saved as a JPEG (30 000 pixel wide limit; resize if needed) or exported with Zoomify as a web application. We have discovered (and repeatedly reported) a stitcher bug that caused rectangular objects (e.g. mug boards, IFRAO Scale) to be improperly rendered.

Figure 5 shows a panorama from the dark zone of a cave in the Dominican Republic. Links to this and other uploaded rock art GigaPans can be found on our home page: <http://www.rupestrian.com/>. Be sure to select *Launch Full Screen Viewer*. Zooming and panning are

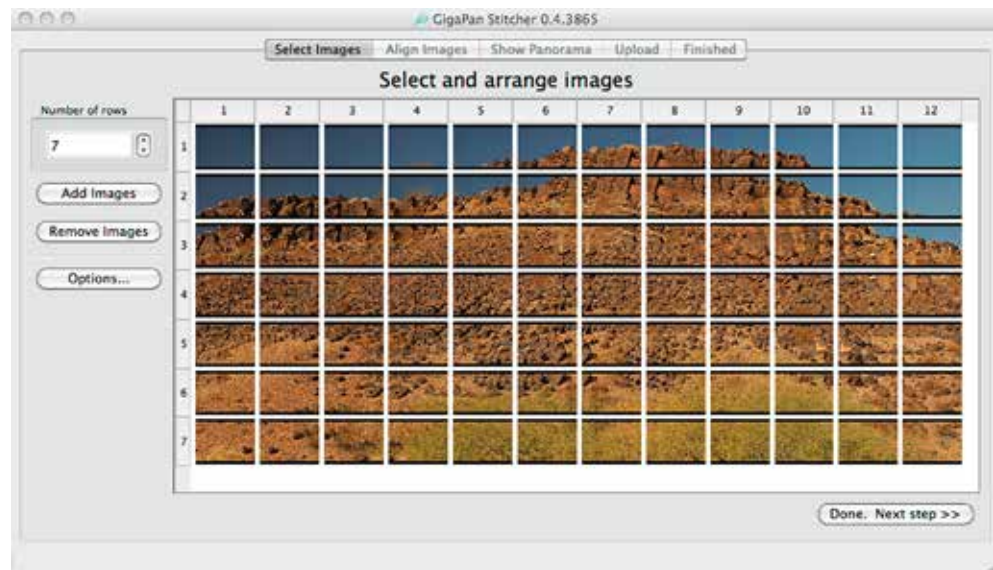


Figure 4. Array of images in the GigaPan Stitcher, prior to stitching. A full rectangular array is required. This is a very small example; arrays of several hundred images are possible. Stitching may take a few hours. This GigaPan of Sears Point may be viewed at <http://gigapan.org/gigapans/36254/>.

supported in Photoshop, in Zoomify, as well as within the GigaPan server web interface.

Acknowledgments

We thank Daniel DuVall and Domingo Abréu for their assistance in the caves of the Dominican Republic.

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Figure 5. GigaPan image from twilight zone of Hoyo de Sanabe, Dominican Republic. This GigaPan can be viewed online at <http://gigapan.org/gigapans/69509/>. Select *Launch Full Screen Viewer*.

Mootha — a new cave art site near Mount Gambier: preliminary report

By GEOFFREY D. ASLIN

Mootha is a joint-controlled cave orientated almost due N-S. There are nine 'windows', some very large, through the roof of the horizontal passage, thus making it a relatively well-lit cave (Fig. 1). Remains of solution tubes, now blocked to the surface, have extensive animal claw marks in them that probably date back to the time before the collapse of the present main entrance. My first visit to this cave was in 1960, as a school child. It was not until I revisited this cave in 1994 when I located the extensive rock art (Figs 2 and 3). The name I chose for the site, Mootha Cave, derives from the Booandik word for a prominent small blackwood tree above the passage (Smith 1880). There are currently nearly forty cave art sites known in the Mount Gambier limestone karst area and the adjacent western district of Victoria (Bednarik et al. 2003). Since the early settlement of the district, hundreds of caves have been found, many of which have been filled in, some were re-found later.

Mootha is located SSW of Mount Gambier and is situated on the eastern flank of a limestone rise, looking out over the karst (Marker 1975). The cave's entrance is facing south and has a floor sloping down to a small chamber with petroglyphs on both east and west walls which are in pristine condition. The west wall comprises four main ledges with petroglyphs on each level (Fig. 4). On these four main levels, from the top to the lowest level, gashes and grooving occur and follow the rock edge. On level one, fifteen shallow grooves occur in a row, and being near the collapsed entrance show weathering to their surfaces. Level two has seven parallel lines underneath each other. This level runs into level three, featuring a set of six deep gashes or grooves, then a space before thirty gashes run in a row which are clearly visible. Some gashes occur within circles on level four. On levels three and four, circles dissect the grooves. On one level a beautifully executed and vertically divided half circle at the edge of the ledge can be viewed. Maybe this was a complete circle but over the thousands of years the rock ledge has eroded, which truncated the circle. A distinct difference in genre can be seen between the circles, grooving and the gashes.

Circles with narrow and wide barring occur. Underneath another half circle is a large shallow gouged hole with very discernable grooved and pecked marks in it, left by the tools that the ancient artist used. Other partial and whole circles form knobs and occur with deep and wide vertical grooves in rows. In many cases, the circles dissect the grooves and show many generations of work. Circles, rarely seen curvilinear lines and grooves, wider than most, clearly show the marks of the tools used on the inside of the engraved groove. A double circle follows a natural rock ledge. Above all these petroglyphs small, shallow and heavily eroded grooving is seen. Fourteen large grooves in a row show distinct marks, once again, of the tools used. Seven long parallel grooves are located on a different ledge. Many of these grooved markings follow the natural curvature of the rock edges. The lines and grooves show many variations in technique and are more extensive than in any other known sites of the Mount Gambier Karake tradition.

Under the lowest ledge the cave flattens out where ancient finger flutings are discernable. Further in, the first chamber near the well-lit entrance has a roof of limestone, which is approximately one



Figure 1. Plan of Mootha Cave, Mt Gambier, South Australia (drawn by R. G. Bednarik).

metre thick. The north wall, where the cave divides into two passages, has engraved circles on it and in the middle of the chamber is a rock, which also bears engraved circles. Two sub-parallel joint-controlled passages lead off down a gentle sloping floor. The eastern branch dips to 6 m below the surface, the western branch reaches the aquifer at a depth of 7 m. The west wall of this second passage is also decorated



Figure 2. Part of several metres-long panel of engraved circles, continuing below floor level. Mootha Cave, location 2 on map.

with engraved circles and historical graffiti. The main feature here, above the reach of a person, is a panel of finger flutings covering an area of approximately three square metres. To get up close one needs to stand on

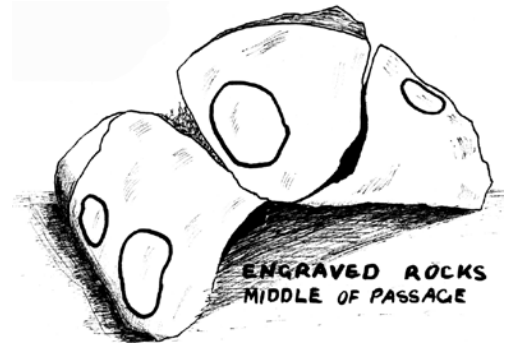


Figure 3. Engraved circles on floor boulders, location 3 on map. Drawing by the author.

the large rock embedded in the passage floor to view the markings. Perhaps this rock indicates an old floor level.

Old and interesting historical graffiti are engraved on every suitable wall surface but do not encroach upon the cave art. Some dates of the graffiti go back as far as 1868 and these can be used to estimate the age of other markings. Piles of old household rubbish lie underneath the larger 'windows' of the cave. A long panel of

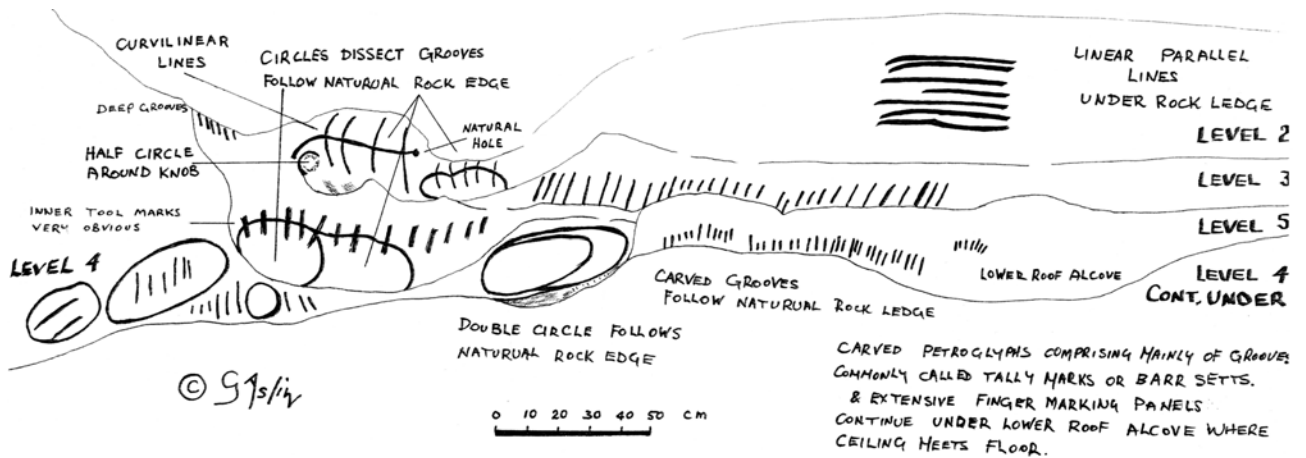


Figure 4. Petroglyphs near entrance of Mootha Cave, location 4 on map.

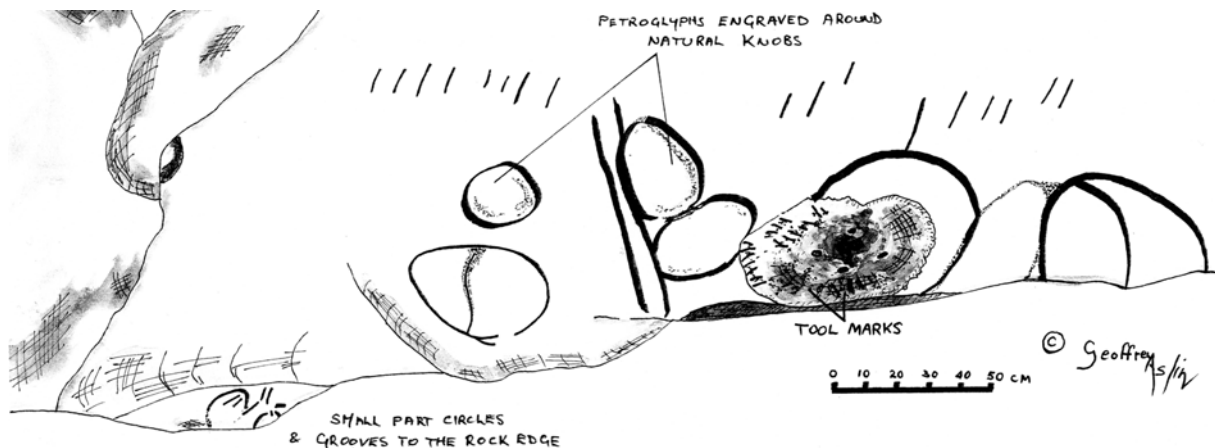


Figure 5. Petroglyphs in Mootha Cave, location 5 on map.

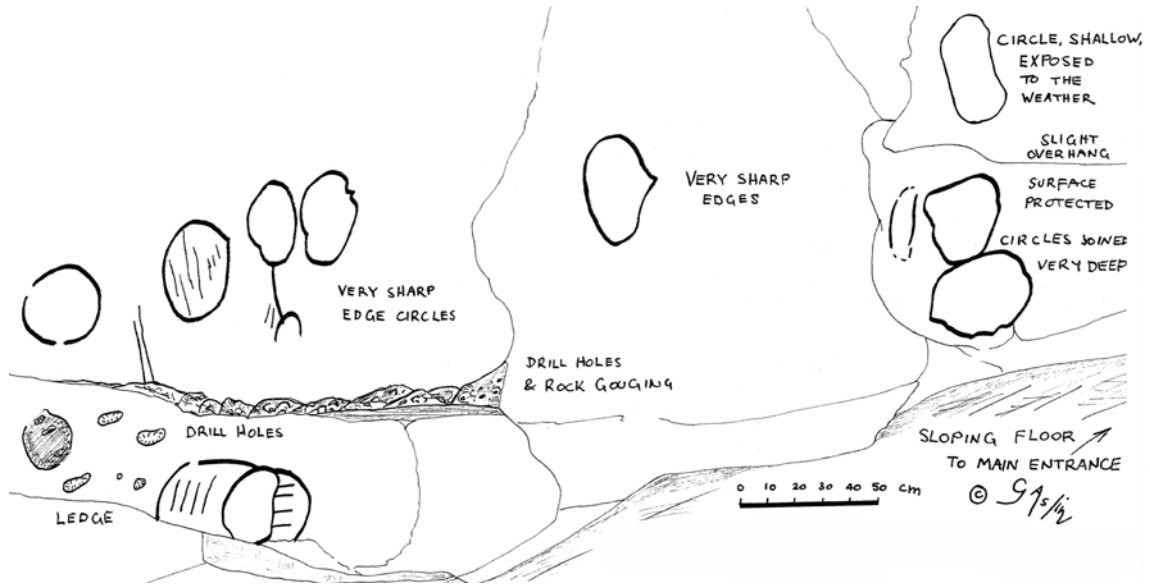


Figure 6. Petroglyphs on east wall near entrance, location 6 on map.

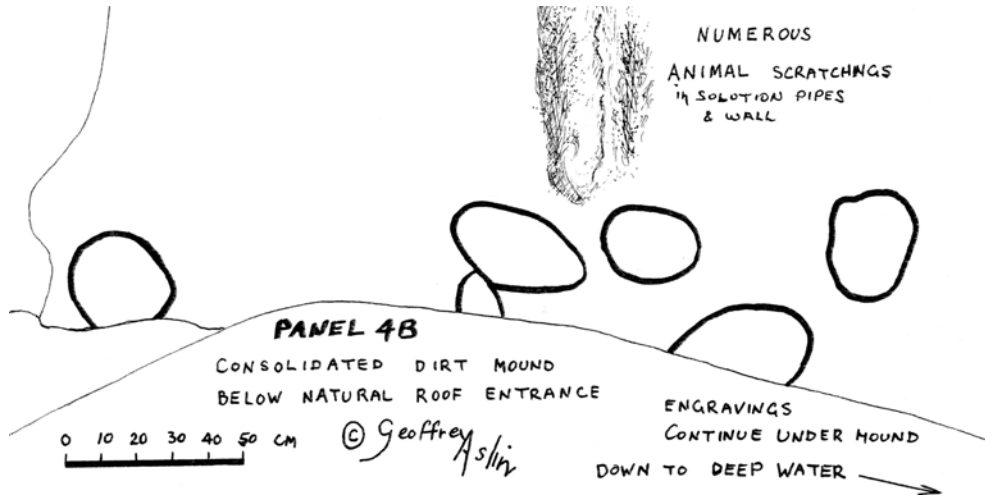


Figure 7. Petroglyphs in Mootha Cave, some covered by floor deposit, location 7 on map.

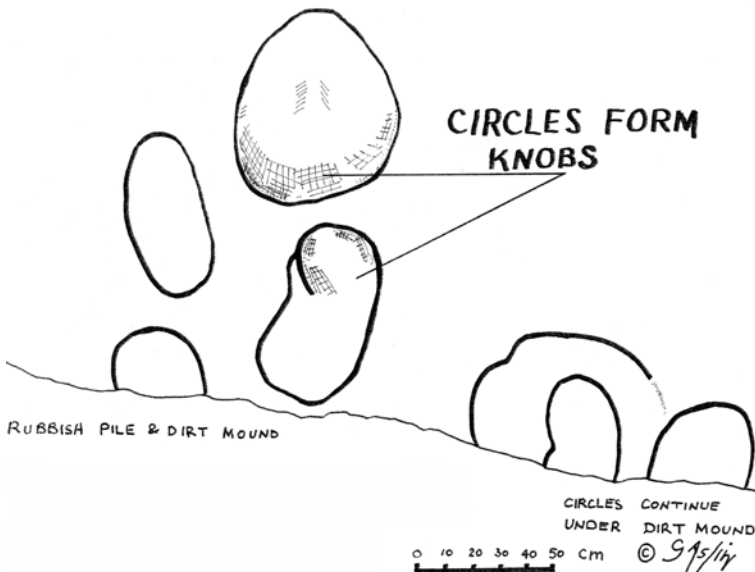


Figure 8. Petroglyphs in Mootha Cave, location 8 on map.

circle petroglyphs on the west wall is partly covered by sediment. Mootha lacks any discernable chert seams, although nodules of surface chert are abundant above and near the cave entrance and some have fallen through the 'windows'. A broken chert scraper examined near the entrance has been completely altered from dark grey to chalky cortex, suggesting that it dates from the late Pleistocene.

Mootha Cave features the cave petroglyphs of the Karake genre (Aslin et al. 1985). Some of the natural features of the rock surfaces have influenced various designs, some of which resemble Tasmanian petroglyphs. Mootha Cave also comprises the finger marking tradition (Bednarik 1986; Aslin 1991), but has at least two other distinct sequences of grooves, gashes and circles in exquisite condition, which are amongst the

best-preserved cave art in the region. Mootha is one of the best three and most valuable sites discovered to date by me in the Mount Gambier region, emphasising the fact that the Karake tradition is one of the most amazing cave art features in the world. The earliest phase, which comprises digital fluting like that found in Koonalda (Wright 1971), Orchestra Shell, and locally Karlie-ngoinpool, Prung-kart and Karake Caves as well as others are of great antiquity. The engraved circles look very much younger than the other two traditions.

Parietal art, in the Mount Gambier region, is amongst the oldest surviving types of palaeoart in the world. After an extensive search program, thirteen new cave art sites were discovered by me in one year alone, 1984. Most of the cave art is of great antiquity and it has helped change the concepts of Australia's and the World's cave art. Many caves receive visitors, some welcome, some not so. It is a sad fact, however, that some of these visitors seem to be seized with an irresistible urge to deface them. The penalties for defacing irreplaceable Aboriginal art treasures in Australia should be strictly enforced.

Acknowledgments

I would like to thank the current owners of the property where Mootha is located, L. and M. Laslett, and son Brent, for allowing me access; the previous owners, B. and D. Rowley, and son Craig, for unlimited access to the site when they owned the property. I would also like to thank Kelvin Smibert who intends to create a fibreglass facsimile of rock art in Mootha Cave.

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On the perceptual significance of detached horns in Bushmen's depictions of animals: a note

By J. B. DERĘGOWSKI

Of the two genres of South African Bushman iconographic art, that of painting is by far better known than that of engraving of rock surfaces. The present note concerns the latter genre and within art works of that genre a characteristic, not found in the realm of painting, which shall be called 'detached horn'. Such a horn is clearly seen in the drawing based on a petroglyph of a bull, shown in Figure 1. It is also visible in the photograph of a petroglyph of an eland published by Cooke (1969, facing p. 150).



Figure 1.

The manner in which the petroglyph shown in Figure 1 is executed provides no reason for thinking that the gap in the depicted horn is a consequence of accidental omission on the part of the artist, yet its perceptual purpose is obscure. Depictions, in general, have two distinct attributes, epitomic — that causes the observer to recognise a depiction as representing an object; and eidolic — that creates the illusion that the depiction has three dimensions, not just the two dimensions of the surface on which it appears (Deręgowski 1990). It is unlikely that a detached horn was created to enhance the epitomy of the representation since such detachment reduces the likeness of the animal; it therefore seems likely that it was intended to affect eidolicity, and since the portrayal in question represents a single object, that it was intended to affect the perceived orientation of the animal's head. In the case of the animal shown in Figure 1 the head is shown in about profile, but it has a flamboyant crown of horns, the asymmetry of which embodies perspective — an eidolic vector. The present note concerns the possible impact of the gap in one of the depicted horns on the perceived orientation of the head.

To investigate this, four modified versions of the original figure were prepared.

The modifications were: (i) Figure 2a as Figure 1, but with the gap filled in; (ii) Figure 2b as Figure 1, but with the horns made equal; (iii) Figure 2c as Figure 1,

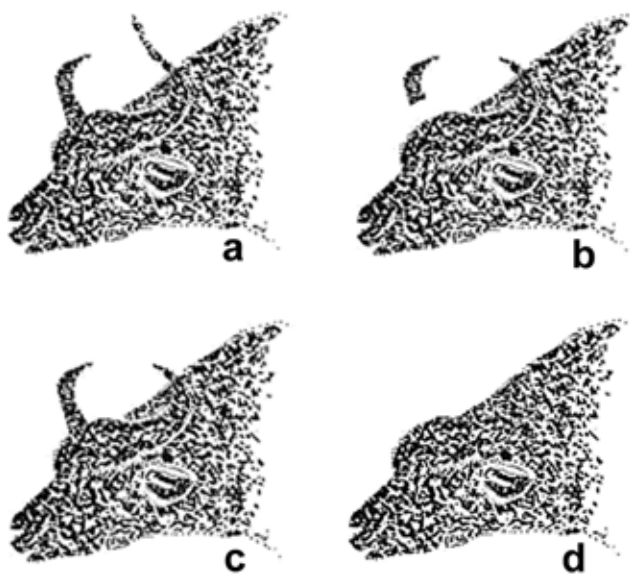


Figure 2.

but with the gap filled in and the horns made equal; (iv) Figure 2d as Figure 1, but with the horns removed; this figure was the datum stimulus.

Twenty-six students of a Scottish university participated in the investigation. Each was required to set an arrow presented on an horizontal turntable so as to indicate the direction in which the depicted animal (presented in a vertical plane) appeared to head. The angular deviations from the fronto-parallel plane were the data used in further analysis, which yielded the following findings.

Comparison of the responses within each pair of stimuli having similar horns with those to the datum stimulus showed statistically significant differences in the case of both stimuli with an asymmetrical crown of horns and for the stimulus with the symmetrical crown of horns with the gap. It appears therefore that both the symmetry of the crown and the presence of the gap affect responses. To elucidate this finding responses to the four horned heads were compared. The comparison showed highly significant interaction between the variables (Analysis of Variance: $F(1,25) = 14.54$, $p = 0.001$); both the type of crown and the gap affect perceived orientation and the effect of the gap is such as to decrease the deviation in the case of the symmetrical crowns, but not in the case of the asymmetrical crown.

This interaction between the variables can be considered in terms of interaction between depth cues; the generally recognised perspective cue and not so acknowledged 'gap effect', the latter moderating the former.

Although responses of Scottish students to the 'gap effect' suggest that such an effect also influenced the artist responsible for the petroglyph, it does not suggest that its strength was necessarily comparable with the rather modest strength (largest deviation

10°) observed, since such differences in perception of illusory effects are subject to large ethnic/cultural variation (Segall et al. 1966). Recent studies of Bushmen, conducted by Reuning (Reuning and Wortley 1973), show that their responses to the Muller-Lyer visual illusion (an illusion involving perception of pictorial depth) differ greatly from the responses of American students (Segall et al. 1966; Gregor and McPherson 1965). Further study of perception of depictions of three-dimensional figures comparing unschooled Bushmen with urban Zulus and Whites (Deręowski and Bentley 1986) also suggests distinct visual abilities of the Bushmen.

The importance of the reported finding lies in identification of the 'gap', an eidolic device neither commonly employed nor easily classifiable in terms of monocular cues listed in respected texts on perception (e.g. Coren et al. 1984), as a moderator of the perceived orientation of the depicted animal.

It is tempting to speculate that the gap was not merely an artistic device, but served a practical purpose, to make the depicted animal head serve as a signpost by perceptually pointing in a certain direction; its use being made necessary by the fact that the orientation of the face of an immovable rock on which the petroglyph was being executed diverged from that which the artist wished to indicate. There is, however, no evidence to sustain this notion.

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RAR REVIEW

The rock art of Ometepe Island, Nicaragua. Motif classification, quantification and regional comparisons by SUZANNE M. BAKER. 2010. Paris Monographs in American Archaeology 25. BAR International Series 2084. Archaeopress, Oxford, 175 p. ISBN 978-1-4073-0560-8.

This study is based on S. Baker's dissertation for a degree of Master of Science at the University of the Witwatersrand, Johannesburg, South Africa. It deals with rock art from the Maderas Volcano on Ometepe Island, Nicaragua, which — according to the author — has the largest concentration of petroglyphs so far reported in Central America.

Ometepe rock art was discussed previously in 1973 by Joaquín Matilló Vila (Padre Hildeberto María) in his book *Ometepe. Isla de círculos y espirales* ('Island of circles and spirals'), which served to draw attention to its outstanding rock art. Matilló Vila was a pioneer in Nicaraguan rock art research though his results were limited by his selective approach, interpretations imbued with a large portion of fantasy, and his recording work flawed by his use of chalking to highlight the petroglyphs.

It took more than twenty years until systematic surveys and documentation of the Ometepe petroglyphs were undertaken by a team of volunteers directed by Suzanne Baker who in nine field seasons since 1995 has recorded 110 archaeological sites, the vast majority of which contain petroglyphs. In her book S. Baker presents a partial analysis of rock art at 46 sites and 55 isolated rocks (a total of 732 engraved rocks) recorded in the first four years of fieldwork.

The author summarises geographical data (environmental setting), history of archaeological research in Nicaragua since the 19th century, and Nicaraguan pre-History and ethnohistory, with particular emphasis on the ethnohistory of Ometepe Island. She details her survey and recording methods (photography and scale drawings), the characteristics of petroglyphs found on the island, site types and distribution. She developed motif classification for the local rock art divided into two broad categories: representative and non-representative or abstract motifs. While some anthropomorphs and zoomorphic figures can be found, Baker's quantitative analysis reveals that the overall majority belong to the type of abstract designs, with spirals, curvilinear meanders and circular elements the most common. Her regional and inter-regional

comparisons suggest that Ometepe rock art forms part of an abstract curvilinear tradition found in regions to the south, particularly in central and southern Costa Rica.

Dating these petroglyphs is still complicated, but a preliminary approach is possible by taking into account excavations carried out on Ometepe Island. Baker refers to ceramic evidence at one of the sites and concludes that petroglyphs were produced at least from the Sinacapa phase (200 BCE – 1 CE). Intensive excavations at rock art sites and detailed comparisons with dated ceramics and sculpture are required to define the chronological position of the rock art.

Baker's study is extremely important for Central American rock art research. This is an exceptional case of a systematic and long-term documentation and analysis of petroglyphs in Nicaragua by an author who makes good use of her knowledge of rock art research methodology in different parts of the world (North America, Latin America and South Africa).

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Schematic paintings and engravings in the 'Bergerie des Maigres' (Thin's Sheepfold): the long graphic tradition, by PHILIPPE HAMEAU, with the collaboration of Jacqueline Argant, Robert Biancotti, Jean-Joseph Blanc, Marc Borréani, Jean-Pierre Bourhis, Claude Bouville, Jacques Elie Brochier, Cyrille Chopin, Lionel Gourichon, Claude Masset, Michel Menu, Christophe Reynaud and Stéphanie Thiébault. Coll. ERAUL, No. 122, University of Liège, 2010, 106 pp.

The 'Bergerie des Maigres' is the name of a big rock on the highest surface of Agnis mountain (in the south of the Var district, France, near Toulon), which is decorated by paintings and petroglyphs. Several agricultural and pastoral buildings have been recently built against this rock. Paintings belong to the Neolithic schematic corpus and are assigned to the third millennium BCE by comparison with the ceramic and lithic material discovered in the sediments of the site. Petroglyphs correspond to the lineal graphic expression that we attri-

bute to the historic period, broadly speaking. Paintings, petroglyphs and archaeological material are the subject of an internal analysis and we try to express the relations between these three categories of relics.

First, the site is considered in its physical properties and its insertion in an exceptional mineral landscape which justifies its choice and its location. It is selected because we can observe a large territory from the top of the rock, because it opens on to the south, because its walls are naturally orange and it is periodically subjected by streaming. It is enclosed in an environment of rocks and cliffs that we must climb or get round. It offers a particular context for the development of practices around the graphic act.

We deduce these activities from the analysis of material. The transformation of a part of lithic industry and the shaping of arrow-heads are realised on the site in an often approximate know-how. We have no cluttering ceramic containers and suppose a short frequenting of the site. The fauna is essentially domestic and could express ritual activities. The human remains do not correspond to a burial place. Last, a part of this material has suffered an extensive combustion but we have discovered no trace of charcoal.

Paintings still visible have been made with a local ochre-clay. They are drawn in a rather realistic version of the male figure and quadrupeds. These living beings are sometimes doubled as we often observe it in the schematic graphic expression of Neolithic age but we lack the classical association of the anthropomorphic or animal figure with the accompanying 'sign'. The differences of height, of reading direction or the presence of an attribute on one of the figures are arguments to express the recurrent themes of the 'imperfect doubling'.

The site was frequented during the Historic period, no doubt in Middle Ages, and invested by petroglyphs. The new corpus conforms, assimilates and complements the painted figures. A long graphic tradition takes place because the two iconographic corpora correspond to a same system of expression. The themes respond by juxtaposition and contraction in spite of the long chronological hiatus between the two periods of ornamentation.

After excavations the settlement has been restored and the sheep-pen rebuilt and closed for a complete protection of paintings and petroglyphs.

Philippe Hameau

Le Val, France

RAR 28-1027

RECENT ROCK ART JOURNALS

International Newsletter of Rock Art. Newsletter of the Association pour Rayonnement de l'Art Pariétal Européen (ARAPE). Edited by JEAN CLOTTES.

Bilingual newsletter (French and English). Recent issues include these research articles:

Number 58 (2010):

JAILLET, S., L.-H. FAGE, R. MAIRE and B. TOURTE: The Pacific Cave (Chili): first decorated cave in the Patagonian Archipelago.

UTRILLA, P. and M. BÉA: Discovery of Levantine paintings in the access to the Castellan plateau: the Roca Benedí Shelter (Jaraba, Zaragoza, Spain).

STRECKER, M.: Anthropomorphic figures with shields in late Prehispanic Andean rock art.

LEONE, M. L.: The magic of phosphenes in the Neolithic paintings of the Grotta dei Cervi (porto Badisco, Apulia, Italy).

BATARDA FERNANDES, A. P.: The new Côa museum.

Number 59 (2011):

BRAVIN, A.: Two new chariot engravings at Tizi 'n Tirghyst (Jebel Rat, High Atlas, Morocco).

BECH, J. A.: Figures of ritual and ecstasy in the rock art of the Sonoran Desert.

PLETS, G., W. GHEYLE and J. BOURGEOIS: Preservation of the petroglyphs of the Altai Republic.

NASH, G.: Rock art research comes to Wales.

La Pintura. Newsletter of the American Rock Art Research Association (ARARA). Edited by WILLIAM BREEN MURRAY. Recent issues include these research articles:

Volume 35, Number 3 (2009):

LEE, G.: Hawaiian Islands Rock Art Project.

Volume 37, Number 1 (2011):

WHITEHEAD, P.: A brief history of IFRAO.

ALLEN, C. D., A. K. CUTRELL, N. V. CERVENY and J. THEURER: Advances in rock art field assessment.

RUSKAMP, J. A.: The Hooper Ranch Pueblo sun-dagger shrine.

SIARB Boletín. Journal of the Sociedad de Investigación del Arte Rupestre de Bolivia (SIARB). Edited by MATTHIAS STRECKER. The most recent issues include the following papers:

Volume 24 (2010):

STRECKER, M. and R. HOSTNIG: Una modalidad estilística peduliar de petroglifos en el sur del Perú.

CORBALÁN, M., E. DEL BEL, S. RENDACE, S. RODRIGUEZ C. and D. ARGANÁREZ F.: Rocas grabadas en las Verdes Yungas. Medidas de protección en torna al petroglifo de Piedra Pintada, San Pedro de Colalo (Tucumán, Argentina).

MARK, R. and M. STRECKER: Aplicaciones del mejoramiento digital de imagines en la documentación de arte rupestre de Betanzos, Bolivia.

DEL PILAR L. T., M. and F. TABOADA T.: El arte rupestre de Caraviri, Chuquisaca, Bolivia y su

posible relación con la ritualidad y el movimiento de poblaciones.

Arte Rupestre. Journal of the Asociación de Estudios del Arte Rupestre de Cochabamba (AEARC). Edited by ANA MARÍA URQUIDI VARGAS. The second issue includes the following papers:

Volume 2 (2010):

- QUEREJAZU LEWIS, R.: Algo más sobre cúpulas.
 BEDNARIK, R. G. and G. KUMAR: El Primer Congreso Internacional de cúpulas: algunas impresiones.
 URQUIDI V., A. M.: Concavidades en afloamientos de rocas en Karakara-Tarata.
 QUEREJAZU LEWIS, R.: Preocupante información sobre el arte rupestre de Paja Colorada.
 ECHEVARRÍA LÓPEZ, G. T.: El arte rupestre en el Perú, problemas y perspectivas.
 MONTEVERDE SOTIL, L. R.: El registro gráfico de los petroglifos.
 QUEREJAZU LEWIS, R.: Formulario para el registro de sitios.
 BARRÓN TRUJILLO, E. M.: Reflexiones sobre la utilidad del arte rupestre.
 ECHEVARRÍA LÓPEZ, G. T.: Introduciendo la escala estandar de IFRAO: síntesis y traducción.
 SALAMANCA, D.: Hallazgo de cúpulas naturales en Santivañez.
 CAMPOS, D.: Una opinión sobre el turismo y los petroglifos de Chinchero-Cuzco.

Quellca Rumi. Journal of the Asociación Peruana de Arte Rupestre (APAR). Edited by GORI TUMI ECHEVARRÍA LÓPEZ. The first issue includes the following papers:

Volume 1, Number 1 (2010):

- GORDILLO BEGAZO, J., A. UMIRE ÁLVAREZ and G. T. ECHEVARRÍA LÓPEZ: Una introducción al arte rupestre del litoral norte de Tacna, los petroglifos de Punta Picata
 Código de Ética para visitas a sitios con arte rupestre (quilcas) / Code of Ethics to visits archaeological sites with rock art (quilcas).
 NIEVES, A.: Tipología y cronología del arte rupestre del valle de Nasca y la cuenca del río grande de Nasca, departamento de Ica, Perú
 BEDNARIK, R.: Some analytical observations of Bolivian rock art / Algunas observaciones analíticas al arte rupestre de Bolivia.
 ECHEVARRÍA LÓPEZ, G. T. and J. VALENCIA CÓRDOVA: Las cuatro tradiciones del arte rupestre colonial del Cusco / The four traditions of the colonial rock Art of Cusco.
 MEJÍA XESSPE, T.: Pintura Chavinoide en los lindes del arte rupestre.
 Glosario de Arte Rupestre

American Indian Rock Art. Monograph series of the American Rock Art Research Association, ARARA Publications. Volume 36 (2010) is edited by KEN HEDGES and contains these papers:

- LEE, D.: Finding Yidumduma.
 GILLETTE, D. and L. HYLKEMA: Out of sight, but not out of mind ... revisiting a significant rock art site in southern San Benito County, California.
 ROGERS, A. K.: A chronology of six rock art motifs in the Coso Range, eastern California.
 KAISER, D. A. et al.: The Bear Gulch shield bearing warrior: defining a cultural type.
 BUTLER, S. et al.: Visualizing the Native American cultural landscape: a significant new research and imaging method.
 POETSCHAT, G. et al.: Interpreting Cascadia Cave: an upstream struggle.
 KNIGHT, A.: The rock art of the Sierra Pelona mountains, central Los Angeles County, California.
 KEYSER, J. D.: Size really does matter: dating Plains rock art shields.
 ALLAN, S. and S. J. WALLER: Echolocation of rock art: using sound to search for sacred sites.
 FOSSATI, A. E., J. D. KEYSER and D. A. KAISER: Flags and banners in warrior rock art: ethnographic comparisons for Valcamonica and Bear Gulch rock art.
 ERICKSON, G. F.: Post-transformational evidence for a shamanic soul trip to other worlds.
 SOLÍS DÁVILA, N. Z. and A. RIVERA ESTRADA: The hunter's memory and ritual space: interpreting the rock art at Loma el Muerto, Nuevo León, México.
 CHRISTIE, J. J.: Inka carved rocks and khipus: were some sculpted grids counting devices using the same structure as khipus?
 O'CONNOR, J. T., A. TESUCUN and J. MARTINEZ RAMIREZ: Mayan graffiti/arte rupestre.
 CHRISTENSEN, D. D.: Context and rock art in the Cinder Cone lava beds, eastern Mojave Desert, California.
 LAMBERT, A. F.: The cupulate complexes of Chalcatzingo, Morelos: a preliminary investigation.

RECENT BOOK OF INTEREST

Mysterious cup marks: proceedings of the First International Cupule Conference, edited by ROY QUEREJAZU LEWIS and ROBERT G. BEDNARIK. 2010. With contributions in English by Robert G. Bednarik, Marvin W. Rowe, Brandon Chance, Giriraj Kumar, Gori Tumi Echevarría López, Alberto Bueno Mendoza, Maarten van Hoek, Roy Querejazu Lewis and David Camacho. BAR International Series 2073, Archaeopress, Oxford, 121 pages, illustrated. Softcover, ISBN 978-1-4073-0634-6.

RECENT PAPERS OF INTEREST

Figurations de l'amas stellaire des Pléiades sur deux roches gravées de la région du Mont Bego, by HENRY DE LUMLEY, ANNIE ECHASSOUX, JEAN-CLAUDE PECKER and ODILE ROMAIN. 2007. *L'Anthropologie*, Volume 111, pp. 755–824.

Palaeoart and ethnographic art: a comparative analysis, by ROBERT G. BEDNARIK. 2008. In P. Chenna Reddy (ed.), *Felicitatation volume dedicated to Dr. V. V. Krishna*, pp. 3–9. Research India Press, New Delhi.

Les gravures rupestres des Pléiades de la montagne sacrée du Bego, Tende, Alpes-Maritimes, France, by ANNIE ECHASSOUX, HENRY DE LUMLEY, JEAN-CLAUDE PECKER and PATRICK ROCHER. 2009. *Comptes Rendus Palevol*, Volume 8, pp. 461–469.

Fluvial erosion of inscriptions and petroglyphs at Siega Verde, Spain, by R. G. BEDNARIK. 2009. *Journal of Archaeological Science*, Volume 36, Number 10, pp. 2365–2373.

Interpreting the evidence for art origins, by R. G. BEDNARIK. 2009. *Archaeology, Ethnology & Anthropology of Eurasia*, special issue 2009, pp. 31–47.

Les gravures rupestres du Chalcolithique et de l'âge du Bronze ancien de la région du mont Bego. Les mythes cosmogoniques des premiers peuples métallurgistes des Alpes méridionales, by HENRY DE LUMLEY, ANNIE ECHASSOUX and GRAZIELLA LE BRETON. 2009. *L'Anthropologie*. Volume 113, pp. 969–1004.

Rock art regionalism, identity, and heritage: case studies from the Texas Trans-Pecos and South Africa, by JAMIE HAMPSON. 2010. *La Pintura*, Volume 36, Number 3, pp. 4–9.

The ball-court petroglyph boulders at Jacaná, south-central Puerto Rico, by JOHANNES LOUBSER. 2010. *Cambridge Archaeological Journal*, Volume 20, Number 3, pp. 323–344.

Searching for rock art evidence for an ancient super aurora. By MARINUS ANTHONY VAN DER SLUIJS and ANTHONY L. PERATT. 2010. *Expedition*, Volume 52, Number 2, pp. 33–42.

The elusive Meenamatta petroglyphs, Tasmania: comment on Jo Field's and Peter D. McIntosh's 'A re-evaluation of petroglyphs on Blue Tier, northeast Tasmania', by R. G. BEDNARIK, G. ANDREWS, S. CAMERON, P. C. SIMS, C. WILLIAMS AND E. BEDNARIK. 2010. *Australian Archaeology*, Number 70, pp. 86–87.

A minimum age for early depictions of Southeast Asian praus in the rock art of Arnhem Land, Northern Territory, by PAUL S. C. TAÇON, SALLY K. MAY, STEWART J. FALLON, MEG TRAVERS, DARYL

WESLEY and RONALD LAMILAMI. 2010. *Australian Archaeology*, Number 71, pp. 1–10.

Painting the police: Aboriginal visual culture and identity in colonial Cape York Peninsula, by NOE-LENE COLE. 2010. *Australian Archaeology*, Number 71, pp. 17–28.

Painting history: indigenous observations and depictions of the 'Other' in northwestern Arnhem Land, Australia, by SALLY K. MAY, PAUL S. C. TAÇON, DARYL WESLEY and MED TRAVERS. 2010. *Australian Archaeology*, Number 71, pp. 57–65.

The age of Australian rock art: a review, by MICHELLE C. LANGLEY and PAUL S. C. TAÇON. 2010. *Australian Archaeology*, Number 71, pp. 70–73.

La montagne sacrée de Bego, by HENRY DE LUMLEY and ANNIE ÉCHASSOUX. 2010. In Julien Ries (ed.), *Montagnes sacrées*, pp. 23–35. CNRS Éditions, Paris, and Editoriale Jaca Book spa, Milano.

Pleistocene rock art in Australia, by R. G. BEDNARIK. 2010. *Anthropos*, Volume 105, Number 1, pp. 3–12.

Investigations at the Ladoga Petroform Site, by JACK STEINBRING. 2010. *Newsletter of the Eastern States Rock Art Research Association*, Volume 15, Issue 2, pp. 4–9.

Une lame de faucille sous la stèle gravée Chalcolithique dite du 'Chef de tribu', Vallée des Merveilles, région du Mont Bego, Tende, Alpes-Maritimes, by HENRY DE LUMLEY, ANNIE ECHASSOUX, ODILE ROMAIN, DÉBORAH BARSKY, SOPHIE GRÉGOIRE and THIBAUD SAOS. 2010. *L'Anthropologie*, Volume 114, pp. 445–468.

El arte rupestre de Guatemala: un panorama general, by LUCRECIA DE BATRES. 2010. *Arkeos*, Volume 28, pp. 39–47.

Las pinturas rupestres de Cueva Pintada (Sierra de San Francisco BC, México), by RAMON VIÑAS. 2010. *Arkeos*, Volume 28, pp. 57–63.

Sítio do Dezenove, Itaberaba – Bahia, Brasil: questionamentos iniciais sobre a possível afiliação da arte rupestre local aos grupos horticultores regionais, by CLAUDIA CUNHA. 2010. *Arkeos*, Volume 28, pp. 65–71.

A problemática do uso dos moldes de latex no estudo da arte rupestre do Vale do Tejo, by SARA GARCÊS, MILA SIMÕES DE ABREU, LUIZ OOSTERBEEK and FERNANDO COIMBRA. 2010. *Arkeos*, Volume 28, pp. 79–83.

Psychoanalysis and prehistoric art, by BEN WATSON. 2010. *Journal of Iberian Archaeology*, Volume 13, pp. 35–49.

Meaningful places: Canadian Shield rock art in its cultural landscape context, by DAGMARA ZAWADZKA. 2010. *ESRARA Newsletter*, Volume 15, Number 2–3, pp. 4–6.

'Aurignacians' and the cave bear, by ROBERT G. BEDNARIK. 2010. In Ivana Fridrichová-Sýkorová (ed.), *Ecce Homo: in memoriam Jan Fridrich*, pp. 11–20. Česká společnost archeologická, o.p.s., Vydala Agentura Krigl, Prague.

Rock art education: perception through experiments, by RITA ANASTÁCIO, ANA CRUZ and ANA GRAÇA. 2010. *Arkeos*, Volume 28, pp. 179–183.

Recent damage found at Mark Rock, Warwick, Rhode Island, by DAN LYNCH. 2010. *ESRARA Newsletter*, Volume 15, Number 2–3, pp. 7–8.

'Portable' non-portable mortars: Benningsen Boon's 'Wash Basin', by MARK J. WAGNER, HEATHER CAREY and MARY R. McCORVIE. 2010. *ESRARA Newsletter*, Volume 15, Number 2–3, pp. 9–17.

Towards a condition monitoring of rock art sites: the case of BNE 1 in Free State Province, South Africa, by ALBINO JOPELA. 2010. *South African Archaeological*

Bulletin, Volume 65, Number 191, pp. 58–66.

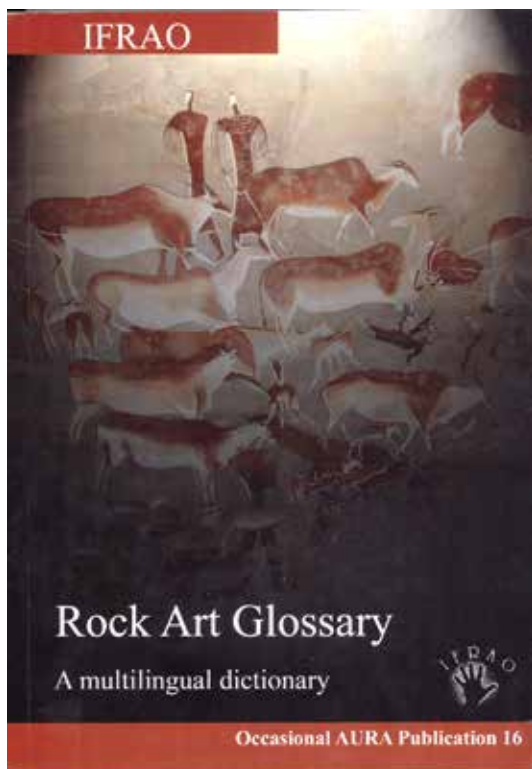
Conservation and management of collapsing rock paintings: three sites in Maclear District, Eastern Cape Province, South Africa, by DAVID G. PEARCE. 2010. *South African Archaeological Bulletin*, Volume 65, Number 191, pp. 96–103.

Palaeoart of the Lower Palaeolithic, by ROBERT G. BEDNARIK. 2010. In P. Chenna Reddy (ed.), *Recent researches in archaeology, history and culture (festschrift to Prof. K. V. Raman)*, pp. 1–14. Agamkala Prakashan, Delhi.

The eyes have it: human perception and anthropomorphic faces in world rock art, by BEN WATSON. 2011. *Antiquity*, Volume 85, Number 327, pp. 87–98.

These rocks were made for walking: rock art at Leirfall, Trøndelag, Norway, by K. J. SOGNNES. 2011. *Oxford Journal of Archaeology*, Volume 30, Number 2, pp. 185–205.

Rock Art Glossary: a multilingual dictionary, expanded second edition (first edition 2001). Edited by Robert G. Bednarik, Ahmed Achraati, Tang Huisheng, Alfred Muzzolini, George Dimitriadis, Dario Seglie, Fernando Coimbra, Yakov A. Sher and Mario Consens. 274 pages, in English, Arabic, Chinese, French, German, Greek, Italian, Portuguese, Russian and Spanish, with translation tables.



The editors of the ten main chapters of the *Rock Art Glossary* are:

English: Robert G. Bednarik (Convener, IFRAO, and Editor, AURA, IFRAO and CARA)

Arabic: Dr Ahmed Achraati (University of Illinois at Chicago)

Chinese: Professor Tang Huisheng (Nanjing Normal University)

French: Dr Alfred Muzzolini †

German: Robert G. Bednarik

Greek: Professor George Dimitriadis (IFRAO Representative, HERAC)

Italian: Professor Dario Seglie (IFRAO Representative, CeSMAP)

Portuguese: Dr Fernando Coimbra (Politécnico de Tomar)

Russian: Professor Yakov A. Sher (IFRAO Representative, SAPAR)

Spanish: Professor Mario Consens (IFRAO Representative, CIARU)

The volume also includes direct translation tables of all terms listed from English to French, German, Italian, Arabic, Russian and Spanish.

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ORIENTATION

Eloy Linares Málaga 1926 – 2011

I first heard about Eloy Linares Málaga many years ago. When I went to university he was already famous in the academic world of Peru but I never had the chance to meet him personally until 2008, when he presented in the city of Arequipa the originals, seven volumes, of his memoirs. Eloy and I became friends immediately; he broke all the protocols in supporting me. He was very enthusiastic about the Peruvian Rock Art Association, of which he was the most distinguished member; he was our model, our example. We were in touch frequently and lately were working together to expedite the publication of his memoirs, to develop academic meetings and to do other work, when death surprised him on Monday, 17 January 2011; he was 85.

Eloy Linares Málaga was an extraordinary man. He kept working all his life, he was rude, strong, confronting; his voice was tough and full of history, full of life. Sometimes I consider him like a person of another time, as he created a whole era out of his works and achievements, filling the longest and most productive time in the history of rock art research in Peru, keeping up our native tradition of studying ourselves, of discovering ourselves. Yet Eloy was a multifaceted intellectual and it is not possible to evaluate conscientiously his very extensive scientific and humanistic contribution. He wrote about history, archaeology, anthropology, museology, education, art, tourism and other topics besides rock art, and I am very sure that his work will be better appreciated many more years into the future.

Eloy Linares Málaga was also a man of his time; in 1949 he was in the National Museum of Anthropology in Lima with a grant from the San Agustín University of Arequipa, and there he saw the life work of Julio C. Tello, just two years after his death. He had the chance to work with Toribio Mejía Xesspe, Tello's principal collaborator. Mejía Xesspe was native from Toro, Arequipa, a person for whom Eloy had a long admiration. After declining an offer to stay in the National Museum, Eloy returned to San Agustín University in 1950 to work in its Museum. The Lima stay was crucial in his future trajectory because this was the starting point of his own museum experience and he could learn the pure trend of Peruvian archaeology that had been founded by Julio C. Tello in 1913. Eloy absorbed this experience and he was able to build a particular tradition of research and museum work in Arequipa, the most outstanding to be remembered until now.

Eloy told me once, reflecting on his past, that if he had stayed in Lima his life would have changed. He was right, and he was about changes. Precisely one of the biggest in his life was without doubt the scientific discovery of Toro Muerto, or 'Hatun Quillcapampa', made on 5 August 1951, an event that happened during the expedition he organised with the support of San Agustín University to explore



Photograph G. T. Echevarría L.

the Castilla province in Arequipa. Eloy was well aware of the importance of this site, and he decided to dedicate his life to studying and protecting it. The discovery of Toro Muerto was the most outstanding of his career, but it was not the first. Already Eloy had discovered the sites of Wanaqueros, Trompín Chico and Quebrada Motorista in his native land of Villa de Yarabamba, Arequipa, where he originally developed his interest in our past and in rock art research. As he explored the history of Peruvian archaeology he realised than before him there were other researchers who wrote some of the history of Arequipa, as Mariano Eduardo de Rivero y Ustariz in the 19th century, and he also dedicated time to dig in the history of the investigation, to honour the past and the people who had studied it.

I say this because it is important

to know, in order to understand his own role and contribution, that Eloy Linares Málaga was not the first to investigate Peruvian rock art. Before him there were other Peruvians who formed the country's first great generation of rock art researchers, like Pedro E. Villar Córdova from Canta, Javier Pulgar Vidal from Huanuco or Toribio Mejía Xesspe from Arequipa, and until the 1960s Eloy was an intermediate link between the end of their previous generation and the emergence of his own time in rock art research. At any rate the emergence of Eloy Linares Málaga, beyond his sequence of notable findings and discoveries, was absolutely different from his predecessors, and it was the new rationality of Eloy's contributions that made that difference. Rather than rejecting past advances, he advanced with them.

In Peruvian rock art research Eloy Linares Málaga was the first to define technically the object of study, the first to make a classification, to establish a strong typology, the first to comprehend the complexity of the rock art sites and the first to understand the key definition of the 'site type' to attempt a typological integration. Eloy introduced cultural archaeology to the field, grouping together complex assemblages of artefacts around the rock art and deducing from them behaviour and culture. He understood the multi-temporality of the sites before anyone and he was able to perceive sequence of occupation in the sites, separating stages of rock art production with past social implications. He introduced statistical estimation, formal analysis, and the criteria of context of production, tools and rock art.

Eloy Linares Málaga was too serious about rock art investigation, and he was very focused. He created methodology and systematic research in the field when everything was casual or arbitrary. Analytically he was very rational, stressing empirical facts, taking into account the regional associations, constructing contexts, never presenting fantastic or naive interpretations. He changed the whole idea of rock art research in Peru with a new rationality, with other thinking. And he did it with conviction and confidence, even over the art-historical trends that created a myth in Peruvian rock art after the 1960s, and over the official Lima archaeology that put aside these artefacts to favour anything but cognitive studies. As a creator and academic of real Peruvian archaeology, he was ahead of us and we were not ready to understand his big contributions to rock art research and humanistic disciplines. Today I know at last how he filled his era, the most important era in the history of Peruvian rock art research to be remembered, and we were there to live part of that time with him.

Every time I faced him, I must confess, I saw in him so much of native rationality and passion, and he never lost his background in this. Eloy Linares Málaga was looking to restore our past history truthfully, using our words, calling the sites with their original names, because he knew how important it is for us to understand the past as closely as our ancestors did. We lost and forgot so much in our tragedy with Europe and

Eloy was not interested in building an ethnic history of empty words, plain and vain, even talking about cultures. Eloy was in this truly a continuation of our rediscovery.

I went to him to learn from a wise native man, he told me much and asked me: 'What else do you want to know, Mr Echevarría?' He treated me kindly and listened to my words. I felt all ancestors with him, and my ancestors with me. We will keep our tradition, studying our *quilcas* and paying tribute to our past. It was an honour to meet him and I am honoured again to put these words together for him. Thanks, Eloy Linares Málaga Yachac Yarabamba Runa, *Hatumquilcamayoq!*

Gori Tumi Echevarría López

President, Peruvian Rock Art Association (APAR)
San Marcos University, Lima

RAR 28-1028

Back issues

Back issues of *RAR* remain in stock, beginning with Volume 5(2), November 1988. The early issues have been out of print for many years. Back issues can be ordered singly, or the whole series 1988 to 2010 can be ordered for \$A330.00, postage paid within Australia; to anywhere else please add difference in postage costs.

RAR is available electronically from four commercial providers, please see *RAR* 26: 242 for details.

Forthcoming events

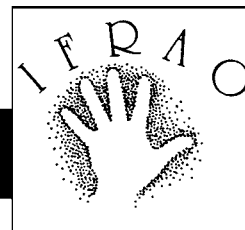
Archaeology and Rock Art — 25 years SIARB: IFRAO Congress to be held in La Paz, Bolivia, in June 2012. For details see pp. 280–284. Potential contributors are invited to submit title and abstract (c. 100 words) of their proposed paper to one of the chairpersons listed.

ARARA-IFRAO Congress 2013: to be held at Albuquerque, New Mexico, U.S.A. Details to be advised.

First International Rock Art and Ethnography Conference: to be held in 2014 in Cochabamba, Bolivia, organised by AEARC (Bolivia), APAR (Peru) and the Anthropological Museum of the University of San Francisco Xavier of Sucre.

Fourth AURA Congress: to be held in Australia in 2016. Proposals are invited concerning all principal aspects of the event, such as site, venue and fieldtrip opportunities.

IFRAO Report No. 47



International Congress: Archaeology and Rock Art – 25 years SIARB La Paz, Bolivia, 25–29 June 2012

Bolivian Rock Art Research Society (SIARB), National Museum of Ethnography and Folklore (MUSEF), PIEB and International Federation of Rock Art Organisations (IFRAO)

www.siarbcongress.org

RATIONALES OF SESSIONS:

Please submit paper proposals (title and abstract) to one of the following chairpersons before 31 October 2011:

1 - Dating and chemical analysis of rock art

Marvin Rowe (U.S.A., marvinrowe@gmail.com) and Alice Tratebas (U.S.A., Alice_Tratebas@blm.gov)

This symposium will address the growing subjects of dating and chemical analysis in rock art. Both have been used in rock art studies for several decades, but new studies are emerging. Most current techniques for dating and chemical analysis require sampling of the art, but recent advances in instrumentation are allowing some new chemical analyses to be done in situ and non-destructively.

Although direct dating investigations of rock art have been underway for over two decades, adequate testing and verification are still needed for most dating methods. Studies to investigate the factors which may affect accuracy of dating results still require extensive research (such as post-depositional alterations, climatic factors, fire effects and others). For dating rock coatings on petroglyphs, varnish micro-lamination has been blind tested and verified in the scientific literature. Dating pictograms with charcoal pigments has had some success although more independent analyses are needed to test the results. For inorganic pigments, techniques are developing, but there is no standard dating technique for inorganic components of pigments that has been verified.

Developments in chemical instrumentation have opened the organic analysis of some paint vehicle/binders for study. So far there are few definitive studies,

but we eagerly await new results. Chemical studies of inorganic paint components have also been used to study paint formulas and source mineral components of paint. Some new instruments are portable and non-destructive and thus obviate the need for taking samples. These instruments may not produce accurate results for techniques that require assessing suitability of the sample in the laboratory. Considerable research is needed on rock art dating and chemical analysis, and we look forward to seeing new techniques yielding new results. We welcome papers on all aspects of rock art dating and chemical analysis.

2 - Scientific study of rock art

Robert Bednarik (Australia, robertbednarik@hotmail.com) and Dánae Fiore (Argentina, danae_fiore@yahoo.es)

This symposium will strive to address all aspects of scientific rock art research, i.e. any work that yields testable propositions about rock art. Topics may include non-archaeological or direct dating; the science of rock art recording and conservation; questions of the technology or production of rock art, such as forensic studies; physico-chemical analytical methods that can facilitate rock art research; or the taphonomy of rock art and its implications. Specific subjects likely to be covered include microscopy of tool marks and traceological analysis; geochemical and geophysical aspects of rock art studies, such as weathering and patination phenomena; digital image analysis and manipulation or other developments in recording techniques; nanostratigraphy of accretionary deposits, including paint residues; tools and materials used in rock art production and their sourcing; scientific aspects of rock art conservation, and the standardisation of scientific methods of rock art analysis. Presentations on any of these subjects, or on similar aspects of the scientific study of rock art, are cordially invited from rock art scientists.

3 - Aesthetics and rock art

Thomas Heyd (Canada, heydt@uvic.ca), John Clegg (Australia, john.clegg@sydney.edu.au) and Chris Chippindale (U.K., cc43@cam.ac.uk)

Archaeology studies the past, as determinable in the material record, while 'rock art' consists of humanly made marks on (or with) relatively stationary rock. Interpretation of rock art may seem difficult, or even impossible, due to differences across time and societies.

It is, however, inevitable because as soon as we say 'This is a picture of an animal' or 'This is an anthropomorph', we are interpreting. Furthermore, as soon as we feel or say 'This is a handsome or elegant or incomplete figure', we are making aesthetic judgements. Anthropology of art confirms that aesthetic ideas, ideals and judgements are universal in human cultures, and we have no reason to believe earlier human societies were different in this regard.

We seek papers that explore the aesthetic dimension to the archaeological study of rock art. Particular questions of interest:

- How can a good approach to aesthetics provide insights into rock art? What are its pitfalls, its virtues?
- How can exploring aesthetic judgement and choice help us recognise motifs, figures and/or scenes? How can it help us understand better the function of pictures and figured sites?
- Can exploring aesthetic interest help explain previous viewers' uses of such images, assemblies or sites?

4 - Management and conservation of rock art sites

Valerie Magar (Mexico, *valerie.magar@gmail.com*) and Freddy Taboada (Bolivia, *taboadatellez@yahoo.com*)

Rock art sites are of increased interest for conservation professionals, due to their importance for understanding the cultural evolution of numerous groups worldwide, and because of their fragility and vulnerability, often being exposed to weathering. They are also highly visible.

The session on conservation and management will welcome practical case studies in these fields undertaken in rock art sites around the world. There are still numerous unsolved questions regarding the alteration and decay mechanisms and processes at many sites and the effects of climate change that may aggravate many of these natural processes. We therefore invite the presentation of experiences, which result in proposals and strategies to face and mitigate such effects, as well as those considering the cultural impacts on the sites.

The session will also provide the opportunity of exploring existing management systems at various sites, including technical aspects such as documentation and monitoring of the sites, as well as aspects related with community participation, in the case of traditional communities with a cultural continuity, as well as in sites involving different stakeholders.

We expect participants to share problems as well as solutions, and tackle the numerous challenges still existing in the field of conservation and management of rock art sites.

5 - Rock art and indigenous communities

Pilar Lima (Bolivia, *plimatbo@yahoo.es*) and Patricia Ayala (Bolivia, *payala_rocabado@hotmail.com*)

What role do rock art sites play in the conception

of the local population or communities? So far, this issue has been overlooked by investigators despite its importance, considering that a large percentage of rock art sites are within indigenous territories. Therefore indigenous people are responsible for their management and, in some cases, are responsible for the destruction of this heritage.

Local management or administration of sites should be strengthened in order to guarantee the long-term conservation of rock art. Various measures have been implemented for this objective, such as the creation of archaeological parks and site museums or the setting up of tourist business ventures managed by the local population or communities.

This session will inform about specific experiences and discuss whether they are adequate, on the national and international level proposing activities by investigators that allow them to deal with the preservation and presentation of sites in collaboration with the indigenous communities.

The session will welcome presentations by archaeologists and rock art researchers detailing their experiences of research and management practices of rock art sites. We also invite members of indigenous communities who have participated in conservation projects or the administration of rock art sites in their native territories.

6 - Archaeological context of North American and Mesoamerican rock art sites

Evelyn Billo (U.S.A., *ebillo@aol.com*) and William Breen Murray (Mexico, *wmurray@udem.edu.mx*)

While there are thousands of rock art sites in North America and Mesoamerica, and indigenous cultures with ties to some of them, there are many sites where the only link with the past is within the archaeological record. This session solicits papers that present research in what has been learned or proposed about the function of rock art in relation to its archaeological context and which adds to or complements information derived from other sources, such as ethnography. Presentations on the value of identifying rock art elements as an aid to understanding and supplementing the archaeological record are especially encouraged.

Topics may include, but not necessarily be limited to, the archaeological evidence for a rock art site's place in:

1. The landscape (trails, springs, vision quests, spatial relation to habitation, fields)
2. Belief system (deities, cosmology, healing)
3. History (hunts, migrations, warfare, contact with Europeans)
4. Social structure (clan symbols, ceremonies, dances, competition)
5. Material culture (pottery, textiles, weapons, hides, tools)
6. Science (botany, astronomy, zoology)

7 - Rock art and archaeological cultures in present-day Central America: a link between Mesoamerica and Andean region

Martin Künne (Germany, kuenne@zedat.fu-berlin.de) and Lucrecia de Batres (Guatemala, luckybatres@gmail.com)

For a long time rock art research in Central America has been regarded as a marginal subdiscipline of archaeology. However, from the 1990s onward, the recording and interpretation of rock art sites has become a focus of scientific research. We now have a more detailed understanding of the context of the sites and may use new dating techniques and analytical approaches.

Based on systematic recording projects and within a framework of verifiable data, we wish to demonstrate that rock art, archaeological contexts and ritual landscapes are closely related. Hopefully this will lead to a more realistic approach to the social dynamics of ethnic groups that created rock art.

8 - Rock art, archaeology and the Caribbean

Michele Hayward (U.S.A., mhayward@panamconsultants.com), Raco Fernández (Cuba, itibacahubaba@yahoo.com.ar) and Franz Scaramelli (Venezuela, fscaram@gmail.com)

Rock art has long been a subject of investigation within the island chain and continental fringes of the Caribbean. Archaeology also enjoys an extensive research history in the area, but one which has not readily incorporated rock art findings or data. Recently, this situation has begun to change due to several factors including improvements in the chronological control over rock art, new efforts at synthesising different data sets and comparative studies, and an increasing sophistication in modelling past Amerindian cultures where rock art data has been or can be seen to be a critical element in the explanatory framework.

This session aims to highlight and encourage collaboration among investigators, who may focus on rock art or traditional archaeological subjects, but who also realise that the integration of each other's results can enrich both specialties. The diverse nature of research strategies within the region is also expected to be underscored, a legacy of former and continued Dutch, Danish, English, French, Spanish and American political and economic control. Specifically we invite researchers to address the following issues: the characterisation of Caribbean rock art and its differentiation from other South American regions; the status or development of broad rock art classification systems such as styles or traditions in the area, a commonly employed concept in archaeology; the integration of rock art studies with wider regional research interests in archaeology including pre-Historic political, exchange and religious developments; the nature of archaeological investigations and rock art studies in the area; and the structure of archaeological and rock art research and its relationship to regional or area-specific site (non-rock art and rock art) survey and documentation.

9 - Archaeology and rock art of the Amazon basin (South American lowlands)

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Rock art of the Amazon region presents unique challenges and opportunities for research. On the one hand, the limited access to many areas of the basin has impeded systematic survey, while at the same time prevented the damage to the rock art that often accompanies mass visitation to sites. On the other hand, the continued presence of indigenous peoples in the area offers a privileged vantage to the investigator regarding the utilisation and signification of rock art contexts in the present. Although there are very few communities who still produce rock art, these sites figure prominently in myth, ritual and oral tradition of both indigenous and Creole inhabitants of the region. Nonetheless, many of these sites have considerable chronological depth, and the images have been produced, reproduced and reinterpreted over time. The presence of different styles and traditions, superimposed or isolated, and associated or not to other archaeological evidence, may be a key to the complex processes of the peopling of the tropical lowlands of South America. With these issues in mind, we propose a session that will address the following themes:

1. The definition of themes, styles, horizons and traditions of Amazonian rock art.
2. Inter and intra-regional comparison aimed at the construction of relative chronologies.
3. The role of rock art sites in indigenous and Creole traditions.

We propose to divide the session into two parts; one, dedicated to the presentation of papers on the suggested themes and two, a workshop dedicated to the construction of a regional synthesis.

10 - Archaeology and rock art in the Andean Formative period

Peter Kaulicke (Peru, pkaulic@pucp.edu.pe)

The Peruvian Formative period tends to be dominated by the Chavín style, which is derived from the art in stone at the site of Chavín de Huántar, located in a mountain range in northern Peru. The centrality of Chavín conditions and obscures the investigation of cultural manifestations outside that site. There are many sites with contemporaneous rock art styles on the north coast and, to a lesser extent, on the central and southern coast, with a potential that has so far scarcely been investigated. The following topics may be considered in contributions to this session:

1. The spatial distribution of rock art sites may be compared to other types of sites ('ceremonial centres', funerary areas, domestic sites etc.) and, in that way, will contribute to the distribution and definition of regional styles from the Early Formative or Late Archaic periods till the Late

Formative period.

2. By establishing the context of the rock art, it may be possible to include the sites in networks and define their role within the respective social world.
3. Architectural modifications around rock art may permit a relative chronology of the art production and its use to be established.
4. All this also contributes to a more precise definition of concepts of cultural landscape.

The examples given should be seen as advances towards the research objectives, but not necessarily as specific contributions.

11 - Inca rock art: evaluations and possibilities

José Berenguer (Chile, jberenguer@museoprecolombino.cl), Andrés Troncoso (Chile, atroncos@uchile.cl) and Rainer Hostnig (Peru, rhostnig@speedy.com.pe)

In recent years a number of investigations took place in the Cuzco region, as well as in other regions of the former Tawantinsuyu, and, as a result of this new research, different authors have presented their vision of supposed Inca rock art. However, so far no agreement has been reached about this issue.

On the one hand, one might question the absence of Late Horizon (Inca period) rock art in the sequence of rock art defined for some regions; on the other, the absence of a clear visual reference to rock art which occurs in all the spaces of the Inca empire (in contrast to architecture, road systems, ceramics, textiles etc.) raises doubts about the possibility of defining Inca rock art.

The objective of this session is to engage in a discussion about the possibilities of defining the characteristics of Inca rock art. We suggest that researchers critically explore approaches that may lead to an appropriate methodology which allows to define rock art production during this period, and also present evidence for such definition. Besides, they should discuss dynamics of rock art in different provinces of the Tawantinsuyu. We especially welcome papers which compare two or more regions or provinces, and those which discuss rock art of two or more periods of the local or regional sequences.

We think that another central issue of this session should be the use of terminologies used by specialists to describe rock art production during this period distinguishing between what might be called Inca rock art, associated with members of the Tawantinsuyu, and that which refers to rock art produced *during* the Inca period. While the first case is directly related to the dynamics of agents, technologies and state policies, the second considers the dynamics of visual communication systems of local communities *through* the respective period, assessing which Inca design elements, composition or technologies are adopted by the local populations; we should also discuss whether it is possible to define basic visual systems which expanded throughout the empire.

Therefore it is evident that this session does *not* wish to simply present rock art sites belonging to the Inca

period. The objective is rather that, based on these data, the authors of presentations discuss the reality of rock art in the Tawantinsuyu based on theoretical terms, methodologies or social dynamics.

12 - Archaeology and rock art of the Titicaca lake basin

Mark Aldenderfer (U.S.A., maldenderfer@ucmerced.edu), John Janusek (U.S.A., john.w.janusek@vanderbilt.edu) and Matthias Strecker (Bolivia, siarb@accelerate.com)

Over the past ten years considerable progress has been made in archaeological investigations in the Lake Titicaca basin. From settlement pattern surveys and extensive excavations, we now have a more complete understanding than ever before of regional pre-History and cultural evolution from the Archaic into the Colonial epoch. One of the most important and interesting types of data that has been the focus of extensive research by a number of investigators has been rock art. In this session, we wish to explore how studies of rock art can contribute to a deeper understanding of regional pre-History. We argue that there needs to be a more systematic approach to rock art that does not see it in isolation from the peoples that produced it. To do this, we wish to explore the following broad themes:

1. The context of the production of art within settlement systems
2. The changes in these contexts over time and how these changes are reflected in rock art
3. The ways in which styles of art reflect changing cultural traditions and their meaning
4. Comparisons of art styles among various cultural traditions in the basin

13 - Archaeological research and rock art in Bolivia

Claudia Rivera (Bolivia, clauri68@yahoo.com) and Sonia Alconini (U.S.A., sonia.alconini@utsa.edu)

In the last twenty-five years, archaeological research in Bolivia has produced important new results. A new generation of archaeologists is being formed in Bolivia and new research has been conducted in numerous regions that were previously little known in southern Bolivia and the Chaco; at the same time, investigations in the Lake Titicaca basin, the Cochabamba valley and the tropical lowlands of Moxos have been intensified.

In many of these studies, particularly in regional surveys, rock art sites have been registered that were integrated with the investigation of settlement patterns, cultural landscape, exchange networks, territory boundaries and resources, as well as specific iconographic studies. In this context, the session on archaeology and rock art in Bolivia endeavours to present important new studies that incorporate rock art in archaeological research on different topics and generate discussion on theoretical and methodological aspects.

14 - Archaeology and rock art in desert regions

Marcela Sepúlveda (Chile, marcelaasre@gmail.com),

Carlos Aschero (Argentina, *ascherocarlos@yahoo.com.ar*) and Jean-Loïc Le Quellec (France / South Africa, *JLLQ@rupestre.on-rev.com*)

In this session we will present different studies of rock art related to desert environments and discuss the strategies of placement, selection of rock surfaces or materials and production techniques of these representations (paintings, petroglyphs and geoglyphs). Based on this approach, we intend to discuss the results of research regarding the reconstruction of social phenomena in the respective regions.

We understand the term 'desert regions' in a wide chronological and spatial sense considering current desert regions and those that result from a process of desertification over time. In relation to the 'social phenomena', we intend to interpret different social dimensions related to rock art and their possible connection with processes of diverse temporal dimensions that happened in the desert regions: defining territory, demarcation of particular spaces, ceremonies related to specific cults, among others. Presentations might also refer to other forms of expression of the material culture in these regions, such as funerary practices, for example, and their relation to rock art.

Finally, we also wish to include aspects related to the methodological strategies of rock art research: documentation and analysis, analysis of conservation problems etc. Interpretative and comparative approaches are welcome.

15 - Round table: rock art and the tentative list of World Heritage sites in Latin America and the Antilles

Nuria Sanz (France, *n.sanz@unesco.org*) and Mercedes Podestá (Argentina, *mercedespodesta@yahoo.com*)

In 2010, the UNESCO list of World Heritage sites included 890 sites, which had been registered over 35 years of the existence of the World Heritage Convention. Only 36 of them were considered because of the value of their rock art representations, undoubtedly a very small selection of rock art sites.

Rock art possesses outstanding universal values. The

registered distribution of sites is an example how Article 7 of the Convention may be applied internationally. By analysing the forms of rock art and defining the values of rock art representations which have been produced over thousands of years of human presence, they are no longer considered a subjective self expression of its creators. They are now seen as manifestations of cultural experiences and collective symbolism shared by groups of people. Rock art is present worldwide, in many cases with an enormous concentration of figures and spanning long periods of continued use of the sites. A significant number of sites have been important for regional communities for centuries or even millennia. They may be valued according to their quantity, quality, duration and expansion.

For more than ten years the World Heritage Committee has expressed its preoccupation concerning the problems of unequal selection of themes, geographic or chronological distribution of sites enlisted in the World Heritage List. Rock art is among those sites that should be considered more for the list in all regions on an international level. This session dedicated to World Heritage and the Tentative List will help to identify preferences and criteria among rock art specialists aimed at preparing a regional plan of action according to the wealth and diversity of rock art manifestations in Latin America and the Caribbean. We hope that the regional investigators will present new outstanding sites with a view to contributing to the current debate and the preparation of the proposed plan of action.

This event is the nominated
IFRAO Congress of 2012.

For all information please visit
www.siarbcongress.org

Potential contributors are requested to submit the title and abstract (c. 100 words) of their proposed paper to one of the above-listed chairpersons.

Please visit the Save the Dampier Rock Art site at
<http://mc2.vicnet.net.au/home/dampier/web/index.html>
and sign the Dampier Petition. Thank you!