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ABSTRACTS



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Session 1
SYMBOLS, MYTHS, AND COSMOLOGY
Archaeological Material and Anthropological Meanings

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The Symposium seeks to occasion new ideas and innovative research, to afford fresh theories and bold hypothesis together with unpublished information and recent discoveries relative to the study of Rock Art in general and in particular to the philosophies and practices it implies. The Symposium thus provides an opportunity to discuss the roles played by Iconography and Myth in archaeological times thanks, in part, to the light which can be shed thereon by insights emerging from the anthropological study of peoples whose material life styles and assimilated mentalities can be plausibly paralleled to those of our prehistoric forebears.

There is no third way beyond conscious or unconscious ethnocentrism. It must consequently be recognized that anthropology and archaeology with their respective categorizations of empirical reality (amongst which "Art" and "Prehistory", "Ritual" and "Myth") are pure products of recent Western history. This recognition, rendered creative as well as critical, could lead, far beyond the usual interdisciplinary syncretism, to radically new hermeneutical systems able to attribute less ambiguous meaning to the very terms under discussion such as "artistic production", "primitive religion" and "hunter-gatherers". In particular, such issues as the following will be debated:

- *problems emerging with regards the archaeological and anthropological documentation of art sites, with special reference to symbolic systems and ritual practices;*
- *the correlations, synchronic and diachronic, between palaeo-ethnocultural areas at different periods and in various places;*
- *the iconography found in Rock Art as a reflection of world-views and cosmologies of the past;*
- *ceremonial aspects and underlying meanings of the material; the possible roles and function of Rock Art in keeping with eco-social-cultural changes;*
- *data from sites that are still in use, insofar as they can be related to Rock Art sites and to their meanings for contemporary native peoples.*

**WOMEN, CATTLE AND LUNAR SYMBOLS:
THE COSMOLOGICAL SIGNIFICANCE OF
THE SAHARAN FUNERARY MONUMENTS**

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Many researchers have studied the prehistoric funerary structures in the Sahara and commented on their significance as status markers in the context of a pastoral culture (Miburn 1993; Hachid 2001; Gathier, Y. and C. 2004, 147; Amara

2006; di Lernia 2006). These funerary monuments have also been linked to the production of rock art in the relevant areas. Absent from the literature, however, is the question of whether there is any gender significance to the artistic and funerary symbolisms of the Sahara. This paper studies the iconographic relationships between cattle and women in rock art in funerary practices in order to assess possible gender stratification in the pastoral culture of the Sahara and how it may have evolved since the Neolithic. The article concludes that pastoralism

is not devoid of matriarchal features, some of which are recognizable in Tuareg societies today.

Keywords: *Rock Art, Gender, Pastoralism, Funerary Monuments, Cosmology.*

ROCK ART IN PORO PORO DE UDIMA:
MYTHICAL ANCESTORS AND LINEAGES,
SHAMANIC PRACTICES, PILGRIMAGE AND
ORACLE IN A UNIQUE SITE

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This paper presents a new approach on the rock art of the archaeological site of Poro Poro de Udimá, Catache district, Cajamarca, Peru. Systematic research conducted in 2011-12 extended the information available through the use of new technologies in digital photography and imaging. Iconographic studies, together with archaeological and ethnohistorical data suggest that this was a site of pilgrimage and shamanic practices, which functioned as an oracle and sacred space devoted to the worship of mythical ancestors founders of lineages, represented by an anthropomorphic couple which initiates the rock art sequence in the main panel, which faces a waterfall considered as the *pacarisca* of the group.

Keywords: Rock Art – Poro Poro de Udimá – Perú – Iconography – Mythology

ARTE RUPESTRE EN PORO PORO DE
UDIMA: ANCESTROS MÍTICOS Y LINAJES,
PRÁCTICAS CHAMÁNICAS,
PEREGRINACIÓN Y ORÁCULO EN UN SITIO
EXCEPCIONAL

Este trabajo presenta una nueva mirada sobre el arte rupestre del sitio arqueológico Poro Poro de Udimá, distrito de Catache, Cajamarca, Perú. En 2011-12 realizamos investigaciones sistemáticas que ampliaron la información conocida a través del empleo de nuevas tecnologías en fotografía digital y tratamiento de imágenes. Los

estudios iconográficos, junto a los datos arqueológicos y etnohistóricos, sugieren que se trata de un sitio de peregrinaje y prácticas shamanicas, que funciona como oráculo y espacio sagrado dedicado al culto de antepasados míticos fundadores de linajes, representados por una pareja antropomorfa que inicia la secuencia de expresiones rupestres en el panel principal, orientado hacia una catarata, considerada la *pacarisca* del grupo.

Palabras clave: Arte rupestre - Poro Poro de Udimá - Perú - Iconografía - Mitología

MYTHS ABOUT ROCK ART

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Rather than addressing the myths or cosmologies supposedly expressed in rock art, this paper explores some of the myths that have been and are still being created about rock art. We know from the study of the last rock art-producing peoples in the world that outsiders of their cultures cannot interpret their rock art correctly, or even understand their cosmologies adequately. This is not surprising, in view of the neuroscientific understanding of the underlying differences. In a sound hermeneutical system the normative nature of interpretation must be recognized and accounted for. The record shows that little hermeneutical restraint has been exercised in rock art research, and that the discipline's credibility demands the expulsion of the extensive myths that have been created. Some of the most prominent of these falsities are presented to illustrate the point.

Keywords: Rock art – Interpretation – Cosmologies – Neuroscience – Myths

BISON EFFIGY STONES

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Amongst the Plains Indian tribes, buffalo stones and/or bison effigy rocks were highly regarded and revered. The buffalo was a symbolic representation of *wakan* (a sacred presence). many times identified with the **Sun**. Along with the sun during the day, the buffalo had its counterpart in the night sky. Meteors were sometimes looked upon as descending souls in the form of buffalo calves and Lakota midwives honor *Tayamni* in the winter's night sky as a bison cow on its haunches while calving. Always thought to be a Plains Indian tradition, a number of buffalo or bison effigy rocks have been discovered in southeastern Wisconsin. Some are 'emerging' (out of the earth), others seen in profile. What they all have in common is that they are either aligned to a cardinal direction (i.e. north, south, east or west) or the summer solstice sunrise or sunset and its inverse, the winter solstice. Based on an astronomical attribute and their highly weathered surfaces, the bison effigy rocks appear to be quite ancient, likely placed and directionally aligned thousands of years ago.

ROCK ART IN EL ALTO DE LA GUITARRA: HUNTERS PARADISE, AGRICULTURAL CALENDAR, MYTHOLOGY AND RITUAL IN THE PERUVIAN NORTHERN COAST

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This paper presents the investigations carried out at the archaeological site of Alto de la Guitarra, located in the watershed basin of the Moche and Viru rivers. In 2010 we completed the first inventory of cultural remains in the site,

which included 400 boulders with engravings, associated with spatial forms and structures that conformed ritual landscapes. The archaeological and iconographic analysis, along with ethnohistorical data on mythology and ritual, allow us to support that the site was a pilgrimage center for coastal and highland groups, that on a regular basis worshiped cosmological entities and ancestors, in ceremonies related to rainfall and river flows, abundance of animals and agricultural calendar.

ARTE RUPESTRE EN EL ALTO DE LA GUITARRA: PARAISO DE CAZADORES, CALENDARIO AGRICOLA, MITOLOGIA Y RITUAL EN LA COSTA NORTE PERUANA

Este trabajo presenta las investigaciones realizadas en el sitio arqueológico Alto de la Guitarra, ubicado en la divisoria de aguas de las cuencas de los ríos Moche y Viru. En 2010 finalizamos el primer inventario de bienes culturales del sitio, que incluyó 400 soportes con grabados rupestres, asociados a formas espaciales y construcciones, que conformaron paisajes rituales. La información arqueológica y el análisis iconográfico, junto a los datos etnohistóricos sobre mitología y ritual, nos permiten sostener que se trató de un centro de peregrinaje de grupos costenos y serranos, que cíclicamente adoraron a entidades cosmológicas y ancestros, en ceremonias relacionadas con las lluvias y el caudal de los ríos, abundancia de animales y calendario agrícola.

Palabras clave: Petroglifos -Alto de la Guitarra – Peru – Mitología - Cosmología

ROCK ART CANONICAL IMAGES: TYPOLOGY AND PERCEPTUAL PROCESSES

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Beginning in 2006 Livio Dobrez has sketched

perceptual processes for images in art, including rock art—notably with respect to what he terms Narrative and Performative image types. In this paper we introduce another type: the Canonical. This would be a representation, usually of a human stick figure or animal in profile, which would primarily bear on simple recognition of the object. We argue that, like the other types mentioned above, this one would involve specific perceptual mechanisms which would be activated both in real-life situations and in the depiction of Canonicals and which may be expected to be hardwired by evolution.

ARE PAINTINGS AND ENGRAVINGS
EXPRESSING THE SAME MEANING?
EXAMPLES FROM PREHISTORIC
PORTUGUESE ROCK ART.

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There is a traditional view of separating engravings from paintings in rock art studies ascribed to recent prehistory in the Iberian Peninsula. Recently, investigators have claimed that the separation of schematic paintings and certain sites with engravings may be misleading. Unfortunately, both allegations lack objectivity in stressing the similarities or the differences among these two technical expressions. Our aim is to expose the results of a case study area where both media can be found. We analyzed the typology of motifs and different techniques of engravings taking the geological support into account. Also the size of designs, as painted motifs, are generally much smaller than the ones engraved. Aspects concerning visualization of panels, sources of light, implantation of sites and orientations of panels have also been in-

vestigated as well as their relation to settlement patterns. What makes these two media different or closely related to each other and why?

A PROBABLE ANCESTRAL PUEBLO COMET
PETROGLYPH AT LOS ALAMOS NATIONAL
LABORATORY

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Rock art research during the past three decades has demonstrated the prevalence and importance of solar calendar markers near prehistoric villages throughout the American Southwest. Despite this focus on one significant aspect of the celestial heavens, the evidence for depictions of the night sky in Ancestral Pueblo rock art—including identifiable stars (other than Venus), asterisms, constellations, and spectacular temporary celestial events such as supernovae, great comets, and meteor outbursts—are rare or at least poorly understood, if present. We will discuss an Ancestral Pueblo petroglyph panel located at the Los Alamos National Laboratory depicting an apparent tailed comet and a crescent Moon, along with a series of other symbols and potential calendric markers. Based on the arrangement of concentric circles, bullseyes, and other design elements in relation to the likely comet image, it is possible that the comet is depicted in the context of being in the constellation Orion. We draw upon the documentary record of great comets, Hawaiian and Tewa oral tradition, and the archaeology of the Pajarito Plateau to explore the hypothesis that the panel

portrays the passage of the great comet of AD 1264 through the constellation Orion. We further suggest that Comet 1264 was likely important in Tewa traditions about the late 13th century migration from Mesa Verde to the northern Rio Grande. We conclude with a discussion of the implications of our ongoing research for the study of Ancestral Pueblo rock art, and the role of such studies in documenting, protecting, and preserving Ancestral Pueblo cultural heritage.

SAN JUAN BASKETMAKER ROCK ART
DESIGN: AN INTEGRATED APPROACH TO
PATTERN AND PROCESS.

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This paper tests the proposition that San Juan Basketmaker (SJBm) Anthropomorphic Style rock art reflects continuity with antecedent Archaic Glen Canyon Linear (GCL) and Barrier Canyon (BCA) Anthropomorphic Tradition style rock art on the Colorado Plateau (Charles and Cole 2006; Cole 1994, 2004; Schaafsma 1980). Alternatively, I propose that SJBm headdress designs reflect a non-local cultural unit whose meaning can be explored through: (1) seriation stylistic analysis using two scales: geometric design (shapes) and their arrangement into a variety of motifs (structures) (Rowe 1961; Washburn and Crowe 2004) and (2) ethno-archaeological association of these headdress designs with an Early Formative West Mexico mushroom cult involved in ancestor worship and rain-making (Bell 1974; Borhegyi 1961; Furst 1974a, 1974b; Malotki 1999 on Little Colorado River rock art).

The questions addressed in this paper include: Do SJBm headdress designs reflect continuity with the antecedent Archaic rock art anthropomorphic traditions, suggesting *in situ* development? Or do these SJBm headdress designs instead reflect continuity with (and possibly transmission from) a non-local cultural tradition

with which SJBm groups are likely to have come in contact in NW or W. Mexico before migrating the San Juan River area?

To increase credibility, the paper combines two complementary methods: 1) context seriation to establish a stylistic sequence and 2) ethno-archaeology. First, context seriation is based upon the presence or absence of a design style ordered into types and then tracks over time the "continuity of features and variation of themes" (Rowe 1961: 328). Regarding the "continuity of features," the paper identifies several geometric designs or "features" (e.g., the crescent, outlined circle, and inverted-u) found to comprise most SJBm headdress motifs, but which are absent in antecedent Archaic headdresses (Hyder 1997, 2002; Robins 1997, and others). Regarding "variation of themes," the paper identifies a class of motifs constructed from the previously mentioned geometric designs to which a subset of meaningful elements were added. The analysis showed no continuity in geometric designs or motifs in Archaic and SJBm headdress designs, suggesting that "sudden outside influence" (Matson 1999; Rowe 1961; 329) must explain the SJBm stylistic sequence as part of a non-local cultural unit. If SJBm headdress designs had no antecedents on the Colorado Plateau, then were they innovative, borrowed, or a combination of these strategies?

Secondly, ethno-archaeological evidence points to an Early Formative Period West Mexico source for these socially meaningful headdress design structures. SJBm headdress designs appear to express a coherent symbol system supportive of the corn lifeway and related ritual practices. The paper concludes that SJBm headdress designs derived, at least in part, from Shaft Tomb Complex (~1500 BC.) cosmology, mythology (Lumholtz 1900 on Cora-Huichol), burial offerings (Bell 1974, and others), and summer solstice rites. Clearly important to Early Formative agricultural societies, summer solstice rites in West Mexico appear to have involved a mushroom cult wherein the sacred

hallucinogenic mushroom, ecologically and conceptually linked to maize growth, was ingested for the purpose of contacting the ancestors, believed to be responsible for rain-making.

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Keywords: San Juan Basketmaker, Anthropomorphic Rock Art, Headdress Design, Seriation, Ethno-archaeology, Shaft Tomb Culture, Mushroom Cult

ROCK ART IMAGERY AND SYMBOLISM
AT THE NEOLITHIC STONE CIRCLES OF
DROMBEG (IRELAND), STONEHENGE AND
AVEBURY—AND THE MYTH IN ACTION OF
“THE MARRIAGE OF THE GODS”

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At Neolithic Drombeg in County Cork four types of image play roles in the symbolism of this major stone circle: (1) pecked images, (2) geomorphic or natural images, (3) natural outline shapes improved by the hand of man, (4) natural outlines as found. Firstly, a recumbent megalith (Stone 9) bearing a yoni carving and cupmarks on its upper surface is interpreted as a female stone. A portal stone (Stone 1) with a geomorphic image of what can be taken to be a human figure is interpreted as masculine. Thirdly, a great boulder (Stone 14) selected for its lozenge shape, but the outline artificially improved, traditionally implies femininity. Lastly, Stone 15—not worked, vertically straight and narrow—appears to be symbolically masculine. Crucially, the portal stone and the recumbent megalith are aligned on the midsummer sunrise, at which moment a shadow of the portal is cast upon the recumbent—much as at Stonehenge where the midsummer rising sun throws a shadow of the Heel Stone into the Stonehenge monument to reach the Altar Stone. These facts suggest that the stone pairs—at Drombeg as at Stonehenge—were planned to provide on midsummer morning a dramatic spectacle of the mythical hieros gamos—i.e. the visible consummation of marriage between Sky and Earth fertility deities. Waiting spectators seeking reassurance about the fertility of crops, animals and women could witness this cosmic drama. Several millen-

nia later visitors to these monuments can still watch this action today. Other perimeter stones cast shadows upon the recumbent at particular dates in the summer half of the year, whereas in the winter half of the year shadows are cast on to the lozenge stone instead. One such pair involves the precision union of Stones 14 and 15 by shadow at the equinoxes. Altogether, four quarter days and four cross-quarter days of the prehistoric calendar are represented in this fashion at Drombeg. Similar calendrical events take place at megalithic Avebury and Stonehenge, at both of which key stones carry rock art.

Keywords: Avebury, calendar, cosmology, Drombeg, hieros gamos, Marriage of the Gods, Neolithic, pecked rock art, solstices, Stonehenge.

IT TAKES TWO TO TANGO: THE ROCK
SOLID EXPRESSION OF MASCULINE AND
FEMININE SYMBOLISM AT THREE
PETROFORM SITES

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According to the Ho-Chunk and other Siouan speaking people, rock was, at the time of creation, infused with the feminine, a symbolic representation of the earth itself. But when rocks are arranged into a petroform and then associated with symbolic landscape and/or celestial icons such as springs or the sun and the moon, they may cross gender by entering into other symbolic dimensions of the feminine and masculine. In southeastern Wisconsin, rocks representing the feminine and masculine in association with the symbolic landscape are found at three petroform sites.

One site with an earth and sky focus is a separate part of a sun circle complex, now known as Na Na We Gwan or “the center of it” (Bender 2008a, b). At Na Na We Gwan, the earth is seen to be renewed by the pairing or marriage of the earth and sky during the time of the solstices

and equinoxes. Along key alignments, spaced and aligned rocks direct one's attention to the horizon where the sun will be seen to rise or set on hilltops during the solstices. The hills in rounded profile can be seen as metaphors for the feminine earth, the sun the masculine presence of the Creator. At Na Na We Gwan, a separate petroform area contains a spring, a standing stone, and an avenue of parallel rocks connecting the two (Bender 1992). All three elements suggest the feminine.

Two additional sites, the Starman and Kolterman, contain rock elements and petroform which express a pairing of the earth with the celestial realm. At the Starman site (report in progress), the 55 foot long, atlatl wielding Starman has an erection which, like the atlatl he is bearing, extends across a crescent-shaped mound (Bender 2011). Both the atlatl and erection are definitive male attributes; the crescent mound a symbolic representation of the feminine or feminine divine. Ancient ceremonies and customs preserved by the Tsistsista (Cheyenne) and by bearers of the thunder lance or bow may help to explain the sexual metaphors and implications of the Starman site (Powell 2002).

A second stickman petroform site which mirrors the stars is the Star-being at the Kolterman site. The Star-being is a 60 foot long, male petroform with an erection pointed toward the west, perceived as the female half of the sky (Bender 2004). Like the Starman, the Star-being is capped by a bison-shaped, red-colored headstone aligned to face the summer solstice sunrise. The sun, a representation of the Creator's warmth and light, is considered to be male as is the eastern part of the sky. Also found at the Kolterman site is a vulva rock oriented toward the winter solstice sunrise. The metaphor and symbolism are obvious with the act of renewal seen between the male sun as it rises and feminine earth expressed in the vulva rock which receives the sun's first light.

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"GLORY BE TO GOD FOR DAPPLED THINGS"

Barbara Olins Alpert

"Glory be to God for Dappled Things--" (from *Pied Beauty* by Gerard Manley Hopkins)

In 2011 an article was published by members of a research group working in evolutionary genetics. The group wrote that after examining the genotype of 31 predomestic horses they found that six shared a genetic marker associated with 'leopard' spotting in horses. They suggested that the dots on the horses of Pech Merle were a depiction of actual dappled horses. The Pech Merle horses date from about 24,000 years ago. It is known that later Magdalenian artists of the Franco- Cantabrian regions of Europe aspired

to making the animals they depicted realistic. Since the discovery of Chauvet it is understood that artists from even much earlier periods were motivated to and capable of producing animal images of great visual verisimilitude.

I will test this new theory by examining the horses of Pech Merle in their context. For this purpose I will make use of the meticulous work of archeologist Michel Lorblanchet who has untangled the various marks to find the order in which they were made. He has demonstrated that this panel was produced over a period of time with complex additions.

Other horse images will be compared with the Pech Merle horses in terms of their aspiration to realism. Horses are one of the most frequently depicted animals in European Ice Age art, representing about thirty per cent of all animals. I will discuss how dots were used to show what can be assumed to be naturalistic animal coats in Chauvet and Boutigny-sur-Essone. In addition I will compare the horses with other less well known dot-associated animals that appear in the cave of Pech Merle itself. Strewing of dots on an animal will be observed in other rock art that has been found at other places and dating from other periods: in the South African art of the Bushman/San, in Australian aboriginal art and in North American rock art. The similarity of the use of dots where there is no possibility of influence by contact suggests a cognitive basis for dot making.

Dots are generally applied by either blowing or by finger pressure. The symbolic possibilities suggested by each of these types of application will be discussed. There is also the issue of the percussive or plosive nature of dot making. This can be seen most clearly in the art of children and in Lorblanchet's own re-creation of the dot blowing process.

Psychologists and neuroscientists have studied dot making and dot perception as will be discussed. I have done some minimal experimentation that will be mentioned. Artists have often been precursors to scientists in the study

of vision. Dots have been used by artists of all periods. Examples of historic, modern and contemporary art will be shown to convey the extraordinary visual voltage that masses of dots can provide. One may then decide whether the dots on the Pech Merle horses represent a dappled animal or reveal something else about the mind of prehistoric artists.

Keywords: Pech-Merle, Dappled Horses, Dots, Perception, Cognition

THIRTY YEARS OF RESEARCH IN THE SOUND DIMENSION OF PAINTED CAVES AND ROCKS

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Since 1983, we have studied the acoustics of painted mostly Palaeolithic caves in Western Europe, North Norway and the Urals. These studies have shown various correlations between the location of paintings in a cave and the quality of the resonance of these locations. From the obtained results, it is possible to deepen our understanding of the meaning - related to visible or invisible worlds - of prehistoric signs and paintings. The acoustic argument, namely the evidence of the use of sounds in relationship with painting, gives the best argument to support the ritual, possibly shamanistic, signification of Palaeolithic Art.

Keywords: painted caves, painted rocks, sound, acoustics, invisible world.

ROCK ART IN THE CONSTRUCTION OF SOCIAL SPACE IN THE ORINOCO

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Ethnographic accounts of Amerindian societies inhabiting the Middle Orinoco offer insights into the role of rock art in the production of social space. Local belief systems refer to ties to ancestral territory, and the mythical and ritual significance of mountains, rocks, caves, and rock art manifestations. These ethnographic sources illustrate the role of rock paintings in ritual activities used to mark the territory of an exclusive and potentially endogamous network of communities. In this paper, we will focus on the construction of space as it is intimately related to the organization and reproduction of these social groups. In an attempt to understand the conceptualization and organization of the landscape, we will examine local toponyms, myths, and shamanic accounts referring to different natural and cultural features of the territory including the circumstances surrounding events and accounts related to the elaboration of rock art.

Keywords: Orinoco, rock painting, Piaroa/
Huottuja, myth, social space

THE MYTH OF THE "SYMBOLICAL" BLOMBOS CAVE PIECE OF OCHRE (SAM-AA 8938)

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I aim to criticise the claim that the engraving on the ochre piece SAM-AA 8938 (Blombos Cave, South Africa, 75.000 BP) has a "symbolic" value. A symbol can be an arbitrary sign, a sign start-

ing a series of semioses or it can be a part of a system of signs. None of these claims can be demonstrated for this engraving. Alternative explanations are: 1) A derivative from purposeful (non symbolic) or unintentional practices. 2) The pattern might corresponds to a neuronal pattern in mammals which leads us to prefer lines which cross at 90°. 3) Consecutive parallel lines can easily be explained as an attempt to extract powder from the ochre.

Keywords: Symbol, Blombos Cave, African Middle Stone Age, engraving, Ochre

ROCK ART: META-LANGUAGE AND THE "RESIDUE" OF PREHISTORIC LANDSCAPES

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In a particular moment of Man's history on our planet, the phenomenon of Prehistoric Art appeared, more or less 40,000 years ago. This huge coacervation of signs that men have impressed on the surrounding world is not the result of an immediate transformation of Homo Sapiens's intellectual activity, but is the effect of the maturation of a long cognitive process based on the psychic dimension and comporting stages leading to a more enlarged Self knowledge. To undertake the study of Prehistoric Art, some basic concepts from the science of signs are useful to navigate on the ocean of information that is presently disposable. Concerning Prehistoric Art, since we are confronted with situations that derive their peculiar characters in connection with space, with time and with different individuals that interact within a complex of signs, it is possible to utilize theoretic patterns deriving from the semiologic and meta-linguistic fields. In consideration of the territory and its ancient or actual anthropization, Prehistoric Art

sites could be classified in three categories: “fossil” sites; “historic” sites; “living” sites. All these sites forming, today, the “residue” of prehistoric landscapes, theatre of the human adventures that have produced Prehistoric Art as one of the signs of communication and social externalization. “Powerful places” instanced by the presence of Rock Art, considered as “genius loci” present us with data relating to a fundamental phenomenon of the human culture: landscaping. In the light of these considerations, landscape is not simply a portion of territory or a geographical notion, but assumes the valence of the highly spiritual building up of Humanity.

Key Words: Rock Art , Semiotics, Meanings, Landscape, Relicts.

PORTABLE AND ANATOMICALLY CONSISTENT MAMMOTH ERA STONE ANIMAL EFFIGIES FROM NORTH AMERICA

Jim Uhrinak

Over the years, academic attitudes toward mammoth era effigies in North America have

been tainted by fake and questionable mammoth representations. One such example is the Lenape stone which came to light in the mid 1800’s, still purported by some to be genuine (Joseph n.d.). However, a mammoth depiction engraved on bone found prior to 2009 in east central Florida has not been dismissed and may be the first portable mammoth effigy from the New World accepted by the archaeological community (Paul Bahn, personal communication).

Osborn (1916) published a photo of a mammoth effigy carved from mammoth ivory discovered in the Czech Republic. Since then, scores of small sculptural mammoth effigies have been found in Europe and Asia, now accepted as the work of mammoth era humans. This paper introduces ten probable, portable mammoth effigy stones from the North American interior.

Although Old World effigies may appear similar to the stones presented from North America, the makers had close association with the animals, and independent convergence is enough to explain both differences and similarities.

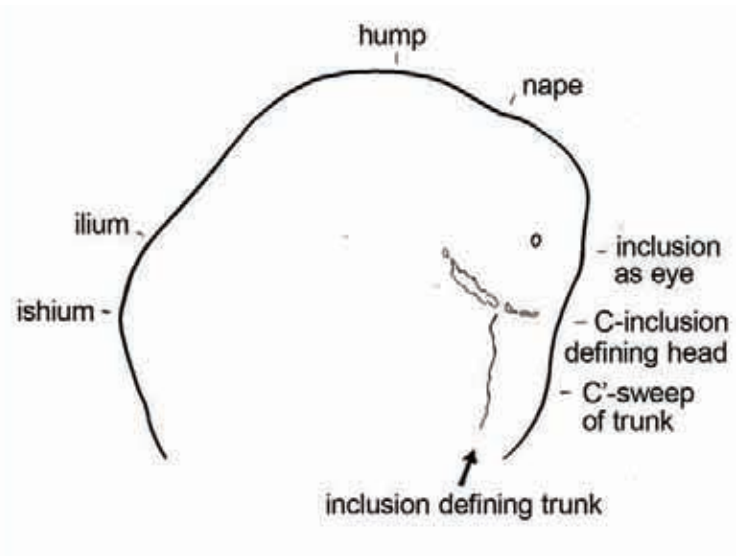
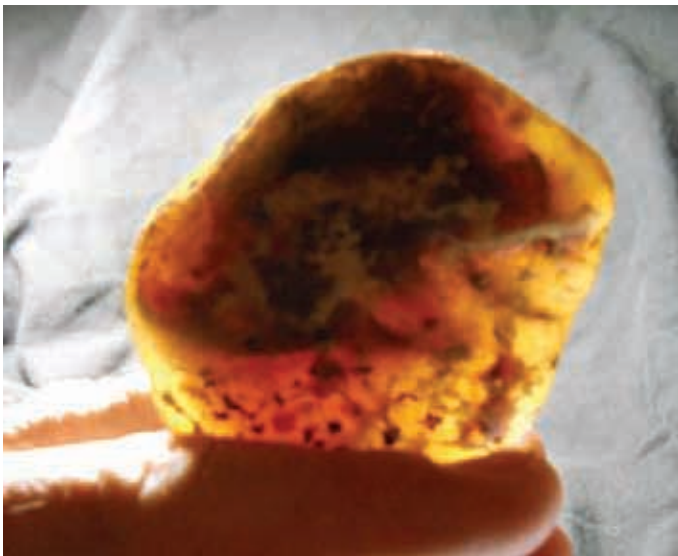


Figure 1. Golden Herd mammoth effigy backlit to show that head, eye and trunk are represented by inclusions within the translucent stone. Compare with a line drawing of defining features. The effigy maker found and utilized natural inclusions within the stone before forming the stone’s final shape. The mid-trunk area below the eye, between C and C’, is reduced by polished fracture faces which form an anatomically correct transition between the face and trunk. Moss agate effigy collected by Jim Uhrinak USA, Montana, Richland County.

When juxtaposed, comparison photos show salient anatomical features that were incorporated into the effigies. At this time, cultural affiliations are only speculative. Therefore, animal anatomy is the best basis for evaluating effigies.

All the North American effigy stones presented in this paper are surface finds within 87 and 105 degrees West longitude and 41 and 48 degrees North latitude, an area encompassing the greatest extent of the last Wisconsin glacial advance. During the final glacial retreat, this area also supported a succession of periglacial habitats suitable for mammoth and mastodon.

Section one of this paper illustrates the first five stones along with comments on size, material, and obvious evidence of manufacture. These non-tool stones were apparently manufactured from feldspar crystal, brown banded agate, a fine grained igneous rock, hematite or moss agate (Figure 1). The manufacture of these pieces appears to have employed various combinations of pecking, flaking, scribing, grinding, and polishing. It is the author's contention that they were also polyiconic. In simplest terms, polyiconic means there can be more than one image on the same stone. Nine of the ten stones have a *Bison* image on one side, and a proboscidean (Order of the elephants, *Proboscidea*, referring to the trunk) on the other.

Keywords: mammoth, mastodon, polyiconic, fluted axe tradition, buffalo calling stones

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KEKEEWIN AND KEKEENOWIN IMAGES IN CANADIAN SHIELD ROCK ART

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Algonquian-speaking peoples (e.g. Ojibwa, Cree) have a rich legacy of visual expressions created on various mediums and for various purposes. According to the ethnologist Henry Schoolcraft (1851-1857), Indigenous people recognize two types of pictographic modes: *Kekeewin* images which were generally understood by all and served for recording travelling and hunting information, as well as to record historical events; and *Kekeenowin* images which were used for sacred purposes by medicine men and had a restricted audience. Though rock art falls especially into the latter category, it could also fall into the former.

The rock art of Algonquian-speaking peoples is steeped in an animic worldview, where the maintenance of social relations between humans and other-than-human persons is crucial for securing a balanced life. The creation and maintenance of these relations was mediated through rock art that could have served many functions in the social and sacred spheres of life. In order to demonstrate the various ways in which rock art could have participated in building and maintaining relations with other-than-human persons, as well as between other humans, an examination of the Crow Rock Bay site on Lake Anima Nipissing in north-eastern Ontario is undertaken. This striking high cliff was likely believed to be inhabited by other-than-human persons, thus rock art would have been placed there to reaffirm a relation between humans and those spiritual entities. At the same time, the site is located on a water travel route, and acting as a landmark, it helped people to locate themselves in the landscape. The presence of the site allowed people to negotiate safe travel with higher powers through rituals, such as tobacco offering. Therefore, the Crow Rock Bay site

emerges as a place where rock art could have acted as both *Kekeewin* and *Kekeenowin* images.

Keywords: Canadian Shield rock art, Algonquian-speaking peoples, Image, Function

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Session 2 **ARCHAEOLOGY AND THE SCIENCE OF ROCK ART**

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The scientific study of rock art straddles many disciplines, among them forensic science, semiotics, neurosciences, cognitive sciences, ethnography, art history, various sub-disciplines of geology, conservation science, anthropology and archaeology. They address a great variety of aspects of rock art by a multitude of methods, some of which are testable and some of which are not. In its involvement with rock art, archaeology has traditionally focused on interpretation and recording, often recording by interpreting, and on endeavours to integrate rock art into archaeological narratives and chronologies. Minimum dating of rock art by archaeological excavation has only been possible in about twenty cases globally since the late 19th century, and direct dating of rock art continues to be experimental and difficult. Therefore the age of rock art remains unknown in nearly all cases, and most of it cannot be plausibly integrated in chronological constructs.

Papers are on topics addressing the nexus between archaeology and the scientific approaches to rock art. They may include such subjects as:

- *To what extent should archaeological samples be expected to be representative of an entity (culture, people, behaviour pattern, etc.)?*
- *Uniformitarian reasoning in archaeology and rock art studies*
- *How do archaeologists create stylistic chronologies?*
- *The interpretation or meaning of rock art*
- *Archaeology and the taphonomy of rock art*
- *The imposition of etic taxonomies on rock art*
- *Treating rock art as pictures*
- *Alternative classification systems of rock art*
- *Forensics versus archaeology*
- *Semiotics of rock art*
- *Is the destruction of rock art sites by archaeologists acceptable?*
- *Ethics in archaeological excavations in rock art sites.*
- *The pertinence of relative rock art dating through archaeological excavations.*
- *Or subjects relevant to examining the usefulness of archaeology to the science of rock art.*

MUSIC AND GENDER IN ROCK ART

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Music playing is not only one of the oldest documented arts, but, judging from a bone flute from Slovenia, it is possibly a shared behavior in both modern humans and Neanderthals. Evidence of musical behavior comes from North Africa, where a small fragment of a hollowed bone showing signs of someone attempting to

make two holes in it is thought to be an unfinished flute. It was found at Haua Fteah, Libya, dating to about 45,000 BP. Ice-Age musical instruments, including whistles and flutes have also been recovered in Europe and Asia. In rock art, musical scenes are found in various places, including Africa, Europe, and the New World. The paper will review the literature on the origin and the social, ritual, and artistic functions of music. Then, surveying rock art representations of musical scenes in the published record,

the paper will examine musical performances in terms of gender identity. The focus will be on an engraved stone from Jordan depicting a musical scene and including a caption in Thamudic script, which will allow for some rare emic interpretation of rock art.

PLAYING, GAMES AND THE ORIGIN OF ROCK ART

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As R. G. Bednarik and R. Guthrie and others have shown, some of the Pleistocene art is the product of children. Not only do children spontaneously display iconographic drawing ability, even when living in a culture whose graphic art is otherwise entirely non-iconic, but there is also an inherently ludic aspect to artistic creativity. Thus, for example, J. Sully equated drawing and playing, and J. Huizinga even defined humans as *Homo ludens*. Yet the study of rock art is often guided by a sense of profundity that avoids or obscures the playful nature of this art. Focusing on playing and children, we propose to explore the notion that art is primarily a playful pursuit, and as such, it is an affective behavior arising from a natural drive toward pleasure or the dissipation of ennui. We will, therefore, examine the cognitive underpinnings of the phylogenetic and ontogenetic development of rock art, focusing on the role of the mirror neurons. Possible games in rock art are also identified and their significance analyzed.

POST-CONTACT SALISHAN ROCK PAINTING

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Rock art studies in western North America rely on essentialist models of interpretation derived

from the 19th and 20th century ethnography which attribute the production of rock art to a range of activities. Archaeological and ethnographic research reveals a shared cultural pattern throughout the Salishan Northwest Coast and Interior Plateau. It is suggested that adaptation to social change underlies observed differences in location, painting events and archaeological stratigraphy. While Salishan landscape painting is an ancient practice, archaeological evidence and semiotic analysis suggests that many of the paintings visible today may track indigenous responses to post-contact events.

THE NEXUS BETWEEN ARCHAEOLOGY AND ROCK ART

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The discipline of archaeology has traditionally claimed rock art research as a subdiscipline. This paper examines the efficacy of archaeology to the scientific study of rock art. The involvement of archaeology with rock art has often been detrimental, not only because rock art has been damaged and often destroyed by archaeologists, or its forensic potential compromised, but also because archaeological method has impeded the development of the scientific study of rock art and deterred the introduction of its methodology. On close examination the relevance of archaeology is found to be limited to specific issues, such as potential minimum dating via excavation and the provision of potential archaeological contexts. However, some of the methods of archaeology are inexpedient, whereas several other disciplines are perhaps more closely related to rock art science.

THE ACADEMIC CONTEXT OF ROCK ART SCIENCE

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The scientific study of rock art is a distinctively multi-disciplinary academic pursuit, drawing its data, methodology, and inspiration from a range of fields. Perhaps the most important of these are a selection of geological subdisciplines (particularly geochemistry, regolith studies, geomorphology), the neurosciences and cognitive sciences, ethnography, semiotics, and conservation science. The methodology of rock art science, however, derives particularly from forensic science, the investigation of traces of human activity at a given site and moment in time. The inadequate exploration of such approaches accounts for the embryonic state of rock art science. Several examples of such approaches are cited to illustrate the academic context of rock art science.

DEVELOPMENT OF A GPS-BASED METHOD OF SETTING PROVENIENCES

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Objective: Divide 6000 acres of steep rugged terrain estimated to contain up to 40,000 petroglyphs into proveniences. Terrain consists of 1000-foot-high mesa with basalt boulder scree slopes, escarpments, arroyos and headwalls. Provenience size determined at 20 acres each with a parallelogram grid superimposed over a topographical map of the terrain. A GIS-driven process developed to define proveniences, provide access guidance for reconnaissance and documentation teams and to assure that documentation accurately completed for each provenience using electronic boundaries. Each provenience assigned a unique number displayed on a GPS. The process was developed, teams trained and working in field within 5 months. Team training included classroom and

field training including usage of the grid. Accuracy of recording cultural resources within each provenience was very high with little duplication between proveniences. To date, 1000 acres have been recorded with 12,000 petroglyphs documented.

DESTRUCTION OF ROCK ART SITES WITH THE PARTICIPATION OF ARCHAEOLOGISTS, EL MAURO CASE, CHILE

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The article describes the destruction of archaeological sites in El Mauro, Region IV, as the greatest loss of archaeological heritage in the history of Chile. In April 2004 an archaeological survey of poor quality allowed the construction of a toxic mine tailings. It meant the simultaneous removal of 160 archaeological sites, 765 blocks with 2778 petroglyphs, losing their contextual relations. The project was approved and conducted in violation of existing legislation with a second poorly made study in 2005. Six years after its conclusion the final report of this work has not been delivered, the petroglyphs remain packed in boxes, not complying with the requirements of the Environmental Qualification Resolution (RCA) No. 038 of 04/07/2004. The responsibility for this incalculable heritage loss lies on: (a) Minera Los Pelambres mining company, who withheld information and changed technical reports (as evidenced in the records), (b) the Council of National Monuments for neglecting the supervision and implementation of the current legislation, (c) in the national archaeologists, for not demanding respect for the law and bad exercise of the profession.

HUMAN BRAIN, PSYCHOLOGICAL
PHENOMENA AND MEANING OF ROCK
ART

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Study cases are presented binding the human brain, psychology and the meaning of rock art from findings in archaeological sites in Chile, USA, France, England, and Spain, with a time line between 20,000 BCE and 800 CE. The significance of rock works has remained refractory to attempts of interpretation. The introductions of new methodologies and knowledge from various fields of science provide new tools for the design of methodologies that allow the interpretation of its meaning. The human brain has not changed substantially over the past 40,000 years, one of its main functions being the organization of perceptions and interpreting data from the environment. Three psychological phenomena, pareidolia, apophenia and hierophany (triad PAH), appear to play a central role in the interpretation of environmental data (sky and earth), which were subsequently exemplified in rock works by different cultures at different times. As a hypothesis, it suggests that constellations, mimetoliths, and content of rock works show the operation of the PAH triad.

ARCHAEOASTRONOMY AND
ARCHAEO TOPOGRAPHY AS ANALYTICAL
TOOLS FOR ROCK ART SITES IN NORTHERN
CHILE

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The study of archaeological sites with rock art, applying archaeoastronomy and psychology methodologies, revealed that several pre-Columbian cultures developed and used complex systems of geographical and astronomical observation. We present three study cases in northern Chile: (1) Cuz Cuz, Molle culture (Region IV), (2) Socaire, Atacama culture (II Region), and (3) Las Chilcas, Molle culture (Region IV), belonging to a period ranging from 200 CE to 1500 CE. The methodology includes: (a) the combined use of digital 360° panoramic photography and geodetic calculation, both with an accuracy of 1' of arc, and (b) the triad of psychological phenomena PAH (pareidolia, apophenia, and hierophany). We describe the use of 360° photographs of the horizon, 21,600 pixels wide (1 pixel = 1' of arc) applied to the analysis of the geographical and astronomical environment, where sky and earth are the largest multipurpose geodetic instrument known, 1:1 scale, useful for the prediction of cyclical phenomena, construction schedules and the social division of territory.

WESTERN SAHARAN SCULPTURAL FAMILIES AND THE POSSIBLE ORIGINS OF THE OSIRIS-HORUS CYCLE

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The same array of symbols, with no functional reason for being the same, seems to converge around the Wadi Draa in the Western Sahara and a zone encompassing Lake Nasser in the first half of the 4th millennium BCE. This evidence is so varied that it may point at a weave of influences and displacements in the ancient Sahara, and, more specifically, at a journey on the same scale as the Gypsies' exodus from India to Europe that may have added an ingredient to the cultural mix which gave rise to Pharaonic civilization: the Horus-Osiris myth which became the ideological underpinning for cyclical kingship.

A POSSIBLE NEUROPHYSIOLOGICAL
ACCOUNT OF SCENE-PERCEPTION IN LIFE
AND ART

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In a number of papers I have sought to give a perceptual definition of a scene, both in real-life situations and in depictions, including rock art. This has involved analysis of the way we see a scene: the visual markers involved and the role these impose upon the observer. Here I wish to suggest possible neural mechanisms that would support perception of a scene in art and in life situations. I do this by an account of neural processing of visuals in real and depicted motion, involving both so-called “what” and “where” pathways, but especially focused on the superior temporal area en route to the parietal lobe.

VISUAL HIERARCHIES OF
ANTHROPOMORPHS IN ROCK ART:
BRIDGING THE GAP BETWEEN
ANTHROPOLOGICAL HIGH THEORY,
MIDDLE RANGE THEORY, AND DATA.
A CASE STUDY FROM WEST TEXAS SITE
41VV124

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Pecos River Style rock art depicts numerous scaled relationships between anthropomorphic figures. A hypothesis is presented that attempts to ground these features in a cultural context by using Neo-Marxist social theory, Turpin’s middle range theory of cyclical nucleation and sacred space, and Harrison’s structural analysis of the genre. A proposal for scientifically testing the validity of these patterns is presented that could permit an improved diachronic perspective on the formation processes of rock art panels.

SYMBOLIC BEHAVIOR (PALAEOART) AT
TWO MILLION YEARS AGO: THE OLDUVAI
GORGE FLK NORTH PECKED COBBLE

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The discussion of whether or not *Homo habilis* or a sister species engaged in symbolic behavior during the Oldowan period is ongoing. Hypotheses have been suggested from the fields of paleoneurology, neuroscience, and paleoanthropology. In this study I review typical Oldowan tool-making and tool-use behaviors and based on this I hypothesize a basic Oldowan symbolic and conceptual competence. I then show how an Oldowan paleoartist applied this repertoire to make “groove” and “cupules” on the Olduvai Gorge FLK North “pecked cobble”. I compare this artifact to a curated “found art” object, a “rhomboid core” from another classic Oldowan site, FxJj1 Koobi Fora. I reflect on these examples of Oldowan palaeoart with respect to proposals for the Oldowan origin of language. Finally, I suggest how these two examples of Oldowan symbolic behavior (paleoart) appear to be manifestation of the first “meme” in the two million year evolution of human culture.

THE PRELITERATE MIND AND ROCK ART:
ART OF THE UPPER PALEOLITHIC

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This paper will review some of the major differences between the literate and the preliterate brain and mind, such as the greater reliance of the preliterate mind on the right hemispheric functions with accompanying artistic manifestations in the art of the Upper Paleolithic in France and Cantabrian Spain. While the brain of Paleolithic peoples is still the basic template for the human brain today, the mind of the Paleolithic peoples was quite different than our highly literate, modern mind. Slides will be presented of some of the Upper Paleolithic art from France and the paper will consider the importance of

animals in Paleolithic art and newly discovered scientific evidence for the profound importance of animals to *Homo sapiens sapiens*.

REPLICATION OF EARLY ANGULAR
CUPULES ON HARD QUARTZITE ROCK AT
DARAKI-CHATTAN BY DIRECT PERCUSSION
METHOD

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Daraki-Chattan, a small quartzite cave with more than 500 cupules, is an important early Paleolithic cupule site in the Chambal basin in India. It has been thoroughly studied through the EIP Project since 2001. The project has established unambiguously the Lower Paleolithic antiquity of the cupules obtained in the excavations at the site, and those on the cave's walls. For understanding the process and technique of the creation of early cupules scientifically we have been studying the cupules in Daraki-Chattan since 1995 and replicating them by direct percussion methods on nearby hard quartzite rock since 2002. We have been able to replicate big circular cupules, small circular cupules and small circular cupules with conical section, as these cupule forms seen in Daraki-Chattan, since 2002 to 2010. In 2012 we tried to replicate cupules with triangular periphery and triangular depth. Our experiment and observation has shown that angular the cupule form is an intentional creation out of small circular cupules with conical depth. Angular cupules are rare in Daraki-Chattan. The paper presents the observation, hypothesis, process, and method adopted for replication of angular cupules on hard quartzite rock and the secrets it revealed.

THE PICTOGRAMS AT A TANK IN
SOUTHWEST ARIZONA

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Pictogram sites are scarce in southwestern Arizona. A Historic era dam in southwestern Arizona is located immediately above a rock shelter that contains numerous pictograms. Salt build-up due to water percolating through the rocks separating the dam from the pictograms has caused damage to them. The potential loss of the pictograms lead Arizona site stewards to record the site in 2009. The dam has since been removed and the salt problems may be abating, nevertheless, damage has occurred. This paper discusses the techniques used to record the pictograms, evaluates the damage and discusses the design elements. With a few exceptions, all of the pictograms are depicted in black and the assemblage is composed of both abstract and representational elements. For a variety of reasons it is thought that the pictograms were painted in a comparatively short period of time and fairly recently. Identification of the authors/artists is another matter.

MULTI-SAMPLE PLASMA OXIDATION SYSTEM FOR RADIOCARBON DATING ROCK PAINTINGS

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Radiocarbon dating rock paintings using plasma oxidation and accelerator mass spectrometry is both time consuming and expensive. Our chemistry laboratory utilizes an oxygen glow discharge to convert organic material in rock

painting samples to carbon dioxide. In recent years, there has been an increased demand by rock art researchers to use the plasma extraction technique for dating studies. We have built a two chamber system that has the ability to oxidize two paint samples in tandem, with the possibility of adding up to ten sample chambers. Being able to oxidize multiple samples at once will significantly decrease analysis time and costs. USGS coal (^{14}C free) and ANU sucrose (modern) radiocarbon standards were used to test the accuracy and precision of our results. While rock art dating remains experimental, at sites where calcium oxalate coatings are present, both oxalate dates from accretions and plasma oxidation dates from paintings agree, suggesting valid results.

DECONSTRUCTING THE SAIGA PANEL IN ROUFFIGNAC CAVE

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Previous researchers (Nougier and Robert, Barriere, Plassard) have described a finger-fluted image of a saiga antelope in the furthest section of Rouffignac Cave. An analysis of the panel conducted in 2011 suggests that the image, as previously defined, was the work of three individuals, two of whom were children. A further analysis of the directionality of the flutings and their placement calls into question the designation of this as a depiction of a saiga. This paper discusses not only the saiga panel but also the implications of children within the context of the cave, as well as figurative interpretation of fluted lines in Rouffignac Cave.

INTERPRETING MULTI-PERSON FINGER FLUTED PANELS IN UPPER PALEOLITHIC CAVES

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By using methodologies to identify discrete individuals through the study of finger flutings it is possible to discern the interrelationships among a group of individuals who collectively created panels of finger flutings. In this paper we share the findings from the analysis of four panels in Rouffignac Cave and one from Gargas. In this we not only show the manner of analysis, but also discuss the implications of looking at fluted panels from the perspective of inter-relationship to ascertain what we can say about the relationships among individuals in the same group and how multi-person panels might differ from those created solely by single individuals.

THE ROLE OF CHILDREN IN THE FRENCH CAVES OF ROUFFIGNAC AND GARGAS

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Four children have been identified among the artists who created finger flutings in Rouffignac Cave and one in Gargas Cave. In this paper we discuss the places in which the children are found in each cave, the styles of their flutings, the relationships they show with other members of the groups in which they are found, and their engagement in symbolic activities. Further we discuss the concept childhood within the Upper Paleolithic and what the evidence from these two caves adds to our overall understanding of the role of children in Upper Paleolithic Europe.

A PRELIMINARY ANALYSIS OF FINGER
FLUTINGS IN FOUR CANTABRIAN CAVES

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This paper shares initial findings on the analysis of finger flutings from fieldwork in the summer of 2012 in the caves of Hornos de la Pena, La Clotilde, El Cudón, and Les Chimeneas.

Session 3
PALEOINDIAN AND ARCHAIC ROCK ART IN THE AMERICAS

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In the last decade, Paleoindian and Archaic (pre-ceramic) rock art produced by hunter-gatherers has been defined for numerous sites in the Americas. Significant results were presented at some academic meetings, such as the 2010 IFRAO Congress in France.

In this session we wish to discuss the iconography, techniques and archaeological context of the earliest phases of rock art production in each part of the Americas in order to generate a comparative perspective on the relative antiquity of New World rock art traditions. This includes issues dealing with dating and chronology as well as the relation of rock art relation to changing landscapes and environmental conditions.

(Reasons for change: We anticipate that the landscape context and changing post-glacial environment will be a key unifying theme, but we should keep all options open.)

The session will be divided into sub-sections organized geographically. Bilingual translation service has been requested by the session organizers to facilitate discussion.

PALEOINDIAN ASTRONOMERS ON THE
AMAZON: ROCK PAINTINGS TO TRACK
THE CELESTIAL CYCLES

Christopher Davis

University of Illinois in Chicago

This research asserts that the majority of rock art associated with paleoindian occupations in the region west of Monte Alegre were attempts made at tracking astronomical phenomena, particularly the sun, in order to comprehend and predict its yearly movement. Accelerated mass spectrometry ¹⁴carbon dates from excavations below an art panel resembling a “calendar” revealed red ochre manuports and stone tools found in a layer dating between 13,136 to 12,736 cal yr B.P. Furthermore, these representations were artistically linked to other natural phenomena observable in the regional landscape, such as the location of animal habitats and cyclic flooding from the Amazon River; and that together the art and the natural landscape may have inspired fundamental themes in the origin myths of cultures that occupied the region by the time of European contact.



Fig. 1. View of Painel do Pilão, Monte Alegre, Amazon region, Brazil. Photo: C. Davis.



Fig. 2. Painting resembling a “calendar” at Painel do Pilão, Monte Alegre, Amazon region, Brazil. Photo: C. Davis.

ARE UTAH'S SAND ISLAND 'MAMMOTHS'
LATE PLEISTOCENE? A GEOLOGIC VIEW

Mary L. Gilham, Ph.D. (Presenter)

Consulting geologist

Lilian D. Wakely

Consulting engineering geologist

Two petroglyphs on a cliff in southeast Utah have been interpreted as mammoths, implying a late Pleistocene age because Columbian mammoths became extinct ~12,500-13,000 yr BP (calibrated ¹⁴C, other studies). Geologic evidence for past and continuing erosion appears inconsistent with this interpretation.

The 'mammoth' are on a 20-m cliff first incised into eolian Navajo Sandstone by the San Juan River during deglaciation. River alluvium and rockfall colluvium foot the cliff. The sandstone, porous and poorly cemented, is mechanically weak and easily eroded. Preliminary OSL dates indicate at least three episodes of later, mainly lateral river erosion and undercutting of various cliff sections after ~18,000 yr BP.

Observations suggesting that the 'mammoth' face is early to mid Holocene include: a locally concave cliff line, slight overhang and rockfall debris consistent with undercutting; young-looking fracture scars; less rock varnish and grain detachment than nearby; and widespread Glen Canyon Linear rock art.

THE SAN BORJITAS SUBSTYLE AND ITS
PLACE IN THE CHRONOLOGICAL
SEQUENCE OF THE GREAT MURALS OF
CENTRAL BAJA CALIFORNIA

María de la Luz Gutiérrez Martínez

The central mountain ranges of the Baja California peninsula was the scene of a cultural event of great importance, the development of the pictorial tradition of the great wall. This monumental imagery was performed in hundreds of caves and rock shelters located in the

numerous canyons and valleys of these mountains. The large murals have been categorized in various sub-styles and trends of visual representation. From North to South we have the red on granite sub-styles, San Francisco, La Trinidad, San Borjitas, and the southern Semiabstractos (Crosby, 1989) the substyle Bahía Concepción (Ritter 1990) and the La Matanza trends and Guajademi (Gutierrez in preparation).

Within this diversity, the San Borjitas sub-style stands out by being restricted to a small number of widely dispersed sites in the central part of the Sierra de Guadalupe. In addition, this emblematic place, cave San Borjitas, represents paintings unique to the region. This panel brings together a significant number of human figures that appear to have an interesting diversity in their chromatic component and under-representation of headdresses. It is also one of the few cases where it is possible to identify at least three types of perfectly differentiated anthropomorphs, which has enabled us to recognize a relative sequence of the figures. The few sites belonging to this substyle are identified because their rock panels contain anthropomorphs belonging to the oldest layers of cave San Borjitas panel.

The paper will be reviewed specifically some radiocarbon AMS dates which have been obtained from cave San Borjitas, as well as the relative sequence of figures which compose it, i.e. the "rhythms of creation" of the panel. Analysis has been carried out on the basis of the review of differential of each of them and their superposition relations.

EL SUBESTILO SAN BORJITAS Y SU LUGAR
EN LA SECUENCIA CRONOLÓGICA
DE LOS GRANDES MURALES DE BAJA
CALIFORNIA CENTRAL

Las cordilleras centrales de la península de Baja California fueron el escenario de un evento cultural de gran trascendencia, el desarrollo de la tradición pictórica de los Grandes Murales. Esta

imaginería monumental fue realizada en cientos de cuevas y abrigos rocosos ubicados en los numerosos cañones y valles de estas montañas. Los Grandes Murales han sido categorizados en varios subestilos y tendencias de representación visual, de norte a sur tenemos los subestilos Rojo Sobre Granito, San Francisco, La Trinidad, San Borjitas, y los Semiabstractos Meridionales (Crosby, 1989) el subestilo Bahía Concepción (Ritter 1990) y las Tendencias La Matanza y Guajademí (Gutiérrez en preparación).

Dentro de esta diversidad, el subestilo San Borjitas destaca por estar restringido a un pequeño número de sitios muy dispersos en la parte central de la Sierra de Guadalupe; además, su sitio emblemático, Cueva San Borjitas, representa un caso único para toda la región ya que su panel reúne una importante cantidad de figuras humanas que lucen una interesante diversidad en su componente cromático y escasa representación de tocados. Asimismo es uno de los pocos casos en donde es posible identificar, al menos, tres tipos de antropomorfos perfectamente diferenciados, lo que ha permitido reconocer una secuencia relativa de las figuras. Los otros escasos sitios pertenecientes a este subestilo se identifican porque sus paneles rupestres contienen antropomorfos que pertenecen a las capas más antiguas del panel de Cueva San Borjitas.

En la ponencia se revisarán específicamente algunas de las fechas radiocarbono AMS que han sido obtenidas de Cueva San Borjitas, así como la secuencia relativa de las figuras que lo componen, es decir, los “ritmos de creación” del panel, análisis que se ha realizado en base a la revisión de la erosión diferencial de cada una de ellas y sus relaciones de sobreposición.

ARCHAIC CAMELID REPRESENTATIONS IN
ROCK PAINTINGS OF CENTRAL AND
CENTRAL-SOUTHERN PERU

Rainer Hostnig

SIARB, Cusco, Peru (represented by Matthias Strecker)

A singular tradition of Archaic rock paintings exists in central and central-southern Peruvian highlands (Pasco, Junin, Lima, Huancavelica, Aycucho and Apurímac departments) at altitudes of 3000 to 4400 m, featuring naturalistic camelid figures (guanacos or vicuñas). Some of them are more than life size (up to a length of 2.5 m), executed in different colors and with decorations of the interior of their bodies. They are accompanied by occasional representations of deer and human hunters. Some of the camelids are represented with darts thrust in their bodies and two rare cases of pregnant camelids with a fetus shown inside the uterine cavity have been registered. The author explains the characteristics and distribution of this stylistic tradition, and discusses its antiquity.

Note: This paper will be presented by Matthias Strecker.

ICE AGE ART IN NORTH AMERICA: THE
GOOD, THE BAD, AND THE UGLY.

Ekkehart Malotki,
Flagstaff, AZ

Given that engaging and responding to the arts is a human universal, one can also assume that the earliest Paleoamerican colonists were endowed with this capacity. In light of the fact, however, that current dating methods for early petroglyphs are either greatly flawed or highly experimental, efforts to reliably identify Ice Age art at present are limited to finding depictions of diagnostic megamammals. With the exception of two recently discovered mammoth images in Utah, all other claims for proboscidean images in the rock art of North America presently touted as evidence for Pleistocene fauna can be considered as examples of wishful thinking, misidentification, or downright fraud.

NORTH AMERICAN ROCK ART IN A WORLD CULTURAL CONTEXT

William Breen Murray

Universidad de Monterrey (México)

Recent discoveries raise important questions about the origins and diffusion of rock art traditions throughout the Americas. Two key linkages are involved: Asia > North America and North America > South America. In both cases, evidence points to a longer chronology than was initially expected. Earlier dates for rock art in South America than North America challenge conventional archaeological interpretations of New World prehistory, but so far no clear linkages between rock art traditions have emerged in either situation.

Are New World rock art traditions all or mostly independent inventions? If so, we need to take a broader comparative view of rock art as a form of cultural expression and find out under what circumstances each tradition arose. If some kind of cultural transmission is proposed, the challenge is to recognize and identify some tell-tale connecting links between Old World and New World rock art traditions and between North and South American rock art.

LINES OF CONFUSION: THE BLUFF "MAMMOTHS"

Polly Schaafsma

Museum of Indian Arts and Culture/Laboratory of Anthropology Santa Fe
(Research Associate)

It is not difficult, with minimal effort, to visually grasp the outlines of mammoth-like contours pecked into the cliff above the San Juan River near Bluff, Utah, and recently it has been concluded that these lines represent the first and so far only Pleistocene fauna represented in North American rock art. The defining lines, notably ancient, are, nevertheless, ambiguous. This paper addresses several cautionary red flags, including not only the Rorschach nature of this

"desired" interpretation, but noting also that the petroglyphs in question are in a geologically dynamic and therefore unstable location. Taking this into consideration, the vertical stratigraphy in regard to the very extensive Archaic rock art on this cliff face higher than the so-called mammoths may cast doubt against the "mammoth lines" at the base of the cliff as being the most ancient. I propose that the images are the result of composite renderings through time, beginning in the Archaic. But because it is impossible to achieve agreement on the basis of the petroglyphs themselves, a geological solution as to the age of the cliff and the relatively fragile nature of the Navajo sandstone on which they occur needs to be addressed.

PRECERAMIC ROCK ART IN BOLIVIA – A PRELIMINARY APPROACH

Matthias Strecker

SIARB, La Paz, Bolivia

In the first decade of activities by the Bolivian rock art research society, 1987-1997, focus of research was on recording numerous sites and analysis of Colonial rock art. Only quite recently some progress has been made in preliminary sequences of Pre-Hispanic rock art traditions. Defining the earliest rock art in Bolivia is hampered by limited archaeological research, particularly concerning the Archaic period, and lack of excavations in rock art sites. Projects in five regions have come up with entirely different results of early rock art traditions: ancient cupules in Mizque (department of Cochabamba), abstract incisions near Titicaca Lake (department of La Paz), negative handprints (stencils) in caves of Mojocoya (department of Chuquisaca) and Paja Colorada (Vallegrande, department of Santa Cruz), as well as representation of wild camelids and hunters in rock paintings of Betanzos (department of Potosí). The diversity of early prehistoric rock art in Bolivia points to different independent developments shared with other South American regions.

THE ROCK ART OF THE SANTA MARTA
ROCK SHELTER, OCOZOCAUTLA,
CHIAPAS: A SITE OF VERY LONG-TERM
OCCUPATION IN SOUTHEAST MEXICO

Josuhé Lozada Toledo

El Colegio de la Frontera Sur
Master in Sciences in Natural Resources and
Rural Development

Guillermo Acosta Ochoa

PhD in Anthropology
Universidad Nacional Autónoma de México

The Santa Marta rock shelter is located in Ocozocoautla, Chiapas and represents an archaeological site of great importance for the pre-ceramic period in the Mexican territory.

The occupational period of this site is long lasting and takes us back to 10,800 before present, having different occupations, probably up until the Post-classic period in Mesoamerica. It is actually, during these different occupations when the site was habited by hunter gatherers and later on by groups related to the Zoque ethnic identity.

The current presentation here, tries to synthesize different occupation periods in the rock shelter of Santa Marta, showing the latest findings, which confirm the presence of ochre in some artifacts and the use of plants as stimulants, in the early times of the site.

The rock art in such rock shelter, will help us propose (determine) a relative dating to the paintings, given the iconography presented in its designs. Here we emphasize the presence of an anthropozoomorphic motif, which talks about the importance of the rabbits for the Zoque groups, since the Pre-classic period, until the Post-classic one in Mesoamerica.

El abrigo rocoso de Santa Marta, ubicado en la región de Ocozocoautla, Chiapas, representa un sitio arqueológico de suma importancia para el conocimiento del periodo precerámico en el territorio mexicano.

El periodo de ocupación de este sitio, es de muy larga duración y nos traslada hasta el 10,800 antes del presente, manteniendo diferentes ocupaciones hasta llegado probablemente el periodo Posclásico mesoamericano. Es durante esas diversas fases de ocupación, que el sitio fue habitado por grupos cazadores-recolectores y posteriormente por grupos de filiación étnica zoque.

La presente ponencia, trata sintetizar los distintos periodos de ocupación del abrigo rocoso de Santa Marta, dando a conocer los más recientes hallazgos, que confirman la presencia de ocre en algunos artefactos y el uso de plantas como estimulantes en los niveles tempranos del sitio.

La gráfica rupestre presente en dicho abrigo rocoso, nos ayudará a proponer un fechamiento relativo de las pinturas dada la iconografía presente en sus diseños, aquí enfatizaremos en la presencia de un motivo antropozoomorfo, que nos habla de la importancia del conejo para los grupos zoqueanos, desde el periodo Preclásico hasta el periodo Posclásico mesoamericano.

PALEO-INDIAN PETROGLYPH TRADITIONS
ON THE NORTHERN NORTH AMERICAN
PLAINS

Alice M. Tratebas

Two petroglyph traditions that begin in Paleo-Indian times occupy adjacent regions of the Northern Plains in North America. Although both focus on animals, the symbology and manufacturing techniques are completely different. The Early Hunting tradition has pecked animals in rows or ranks in the earliest panels and changes through time to depict narrative hunting and ceremonial scenes. The Hoofprint tradition at the sites studied to date is symbolic and lacks narrative scenes. The two traditions differ in the motifs depicted, how motifs are arrayed on panels, manufacturing techniques, and presence or absence of superpositioning. Interpretations of the symbology, to the extent that it is possible, also differ.

Session 4
ROCK ART IN ASIA AND PACIFIC REGION

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Robert G. Bednarik Melbourne, Australia robertbednarik@hotmail.com

Glimpses of rock art of Asia and Pacific region were presented for the first time in the First AURA Congress, Darwin in Australia in 1988. The proceedings were published as a section in the volume on Rock art of the Old World in 1993. Since then a lot of scientific work on rock art of this vast region has been undertaken. The region has also produced Pleistocene art, which in India extends back to the Lower Paleolithic, as established by the EIP Project. Most of the Pleistocene art is non-iconic which precedes iconic art, as is the case in the other continents also. In spite of the unique regional characters the rock art of Asia-Pacific also bears universal features. The symposium papers will be categorized into two broad groups:

I. The art of hunter-foragers: A. Non-iconic art preceding the iconic art, and B. Iconic art and associated non-iconic art; and

II. The art of early pastoral people.

This symposium intends to present a comprehensive picture of the recent developments in rock art research in different parts of Asia and the western Pacific region for understanding the cognitive and technological development and also the perception of reality by its authors in different periods of human history, and to understand its place in the rock art of the world.

Research papers are on any aspect of the documentation and scientific study (comprising testable propositions) dealing with the above-mentioned aspects of rock art heritage as well as its protection and popularization.

THE PLEISTOCENE PALAEOART
CONNECTION BETWEEN ASIA AND
AUSTRALIA

Robert G. Bednarik (Australia)
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This paper attempts a comparison between the Pleistocene palaeoart of Asia and Australia, seen in the context of the initial and subsequent colonisations of Australia. Using evidence from the Andaman Islands it is suggested that specific graphic traditions of Asia, surviving as “refugia” among endemic populations, were imported by colonising parties to the islands between the Indian Ocean and the Pacific, and eventually to Australia. These traditions either persisted as endemic practices among geographically isolated societies, or they gave rise to new traditions developing from them. These are well expressed in Australia, where they evolved into quite spe-

cific expressions that are, however, truncated by taphonomy. Consistencies and discontinuities are explored in this attempt to clarify the relationship between the Pleistocene rock art and portable art of the two continents.

STUDY OF STONE ARTEFACTS FROM THE
EXCAVATIONS AT DARAKI-CHATTAN, A
PALAEOLITHIC CUPULE SITE IN CHAMBAL
BASIN IN CENTRAL INDIA

Robert G. Bednarik (Australia)
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Daraki-Chattan, on Indragarh Hill near Bhanpura in the Chambal basin, is a Palaeolithic cupule site. It was excavated under the EIP Project from 2002 to 2006. The excavations exposed sediments in 33 sq. m of floor area and up to a maximum depth of 311 cm from A1 in the main

trench. The nature of the sediments exposed in the excavations is fairly uniform with gradations of colour, size of the exfoliated flakes, stones, stone blocks and slabs. These sediments yielded Lower Palaeolithic artefacts, hammer stones and slabs bearing cupules from lower layers. The upper two pseudo-layers were disturbed yielded some microliths along with early artefacts. The paper presents the study of the artefacts so obtained and their typology in the context of the stratigraphy of the site. It has a strong bearing on establishing the antiquity of the early petroglyphs obtained in the excavation.

THE ROCK ART OF AGRO-PASTORAL
CULTURES OF PENINSULAR INDIA: A
SYNTHESIS

Prof. N. Chandramouli (India)

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Peninsular India is that region of the Indian Subcontinent which contains some of the early Agro- Pastoral cultures located in areas away from major river valleys. They are located in a region of low rainfall, seasonal streams and rivulets, dry deciduous and grassland forest cover and, above all, on or near the granite hillocks which are surrounded by vast tracts of black cotton soils. These cultures are commonly grouped under the nomenclature as 'Neolithic' and/or 'Neolithic-Chalcolithic' depending on the appearance of specific technological features and material remains. The natural caverns and rock shelters of the granite hillocks contain rock art associated with the agro-pastoral cultures. The rock art is found in the pictographic as well as petroglyphic forms. The latter form of rock art makes its appearance for the first time during this phase. Archaeologically the availability of the cultural and material remains of the early agro-pastoral cultures is extensive; it is not the same in the case of rock art. The mortuary practices and associated pottery types so characteristic of the succeeding culture: the Megalithic (*Iron Age*) are found in these early agro-pastoral

cultural context itself. These should be analysed to understand the stylistic and thematic changes in the rock art of the region. This paper will discuss the rock art of the early ago-pastoral cultures of Peninsular India from an intra-regional as well as inter regional perspective to understand the role of ecology in the emergence and development of the early agro-pastoral cultures and the significant role of rock art in that direction.

ROCK ART AND WORLD HERITAGE IN
AUSTRALIA

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Graeme Ward

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A road map of places in Australasia of World Heritage value has been compiled for UNESCO. This presentation addresses the Australian rock art component of that initiative. To date there has been no overall review of the potential for Australian rock art to be listed as World Heritage. Some art is already listed as a component of the Kakadu National Park World Heritage listing and the rock art in northern Queensland in the Laura region is likely to be included in the World Heritage listing of the Cape York Peninsula. But there is rock art elsewhere in Australia that is worthy of listing on its own merits, for instance the petroglyphs of the Dampier Peninsula. This paper seeks further input from specialists in rock art as to what they know is of World Heritage significance in Australia.

SOME ASPECTS OF DARAKI-CHATTAN
AND EARLY CUPULES IN IT AS REVEALED
THROUGH THE CUPULE REPLICATION
PROJECT

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Small size of Daraki-Chattan cave with high concentration of early cupules in it make it a mysterious early Palaeolithic cupule site. The hardness of the quartzite rock of the cave adds more complexities in its understanding. Common questions being raised are:

Why more than 500 cupules were made on the vertical walls in such a small cave when comparatively much more suitable sites were available nearby?

How the cupules were made on such a hard quartzite rock?

Whether cupules in it are creations of the single period or were made in different periods?

Whether the cupules in Daraki-Chattan show a development?

What is the significance of the study of cupules?, and so on.

No one in the world could answer such questions scientifically up to c. 2001. Study of early petroglyphs through the EIP project was a pioneering effort in this direction. It was a joint venture of the Indian and Australian scientists. Giriraj Kumar started replication of cupules simply for understanding the creation of cupules on the experimental rock close to Daraki-Chattan in 2002. The project has been going on continuously since then for creation of different kinds of cupules as observed in Daraki-Chattan. Ram Krishna joined the expedition in 2004. The experiment went on adding difficult questions and we have been trying to get their scientific answers. This process revealed many secrets about the techniques and devices used, skill, efficiency and passion involved and intelligence and cognitive abilities needed to create specific

type of cupules, which we never anticipated when we started the project. The paper presents a gist of our replication project.

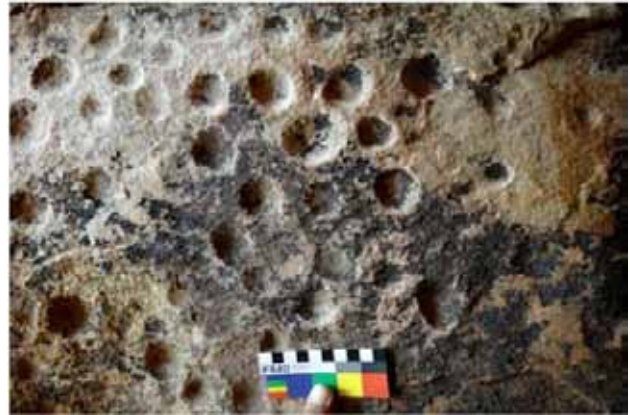


Figure 1. Big circular cupules on northern wall.



Figure 2. Cupules on northern wall documented by the authors in 1994-95.



Figure 3. Cupules on southern wall documented by the authors in 1995.

HUMAN DEPICTION IN VINDHYAN ROCK
ART- A COGNITIVE DEVELOPMENT

Prof. Mahesh Chandra Srivastava (India)

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Vindhyan Region is one of the richest areas of rock art in India. Besides flora and fauna, the human figures depicted are of various types such as stick shape, square shape, triangular shape, 'mask' figures, geometric shape, 'man wearing animal skin', barks and leaves and cross hatched lines. The depiction of human figures show nine types of human figures representing the artistic approach and cognitive development. They are tentatively placed into the time frame of the Mesolithic to the Historic period. The paper presents the study, development and evolution of human figures in Vindhyan region.

STUDY OF THE SYMBOLS AND DESIGNS IN
THE ROCK ART OF JHARKHAND IN
EASTERN INDIA

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Isko and Raham rock art sites in Jharkhand are rich in symbols and designs. The present paper deals with them in terms of their forms, techniques and anthropology in chronological perspective. These have also been studied in the perspective of Indian rock art.

THE ASTRONOMY OF AUSTRALIAN
INDIGENOUS ROCK ART

Prof. Ray Norris (Australia)

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**Duane Hamacher
Bob Fuller**

The 400 Indigenous cultures of Australia exhibit a great diversity in their rock art, encompassing engravings, stone arrangements, and paintings. A growing body of research over the last

few years has shown that several of these share astronomical themes, which are also reflected in the oral traditions of Indigenous Australians. The oral traditions show strong evidence of a deep knowledge of the sky, and some stone arrangements show evidence of being carefully laid out to indicate significant rising and setting positions on the horizon. In both oral traditions and rock art, there is a strong awareness of cardinal directions, and we find stone arrangements and initiation sites aligned to within a few degrees of the cardinal directions. Given the absence of a "pole star" in the Southern Hemisphere, these alignments to cardinal points would require careful observation and measurement of the sky. In this talk I will review the accumulation of evidence for astronomy in Australian Indigenous cultures, and show examples of how this is reflected in their Rock Art.

ROCK ART OF THE DALY – FITZMAURICE
RIVERS REGION NORTHERN TERRITORY,
AUSTRALIA

Graeme K. Ward

Australian Institute of Aboriginal and Torres
Strait Islander Studies

The corpus of painted and carved rock art recorded in the Daly – Fitzmaurice Rivers region of the northwestern Northern Territory includes wine-coloured motifs similar to those found in Arnhem Land and the Kimberley Plateau, images argued to be among the oldest figurative pictograms in Australia. There are also relatively recent paintings and carvings – that is, those made or re-marked less than fifty years ago – that are of particular significance to the contemporary community. The character, mode of production, dating and probable regional relationships of the early paintings can be contrasted with the forms and cultural significances of some variants of the more recent rock art and their twentieth century transformations from rock shelters to other walls.

A. Survey of Fitzmaurice shelter wine-coloured

images, and comparison with AL and Kimb examples

B. Early pictograms: Painting, dating, regional networks

C. Local sequence. Survey of Ngurde and Paiynimbi and Kurindjigin motifs;

D. Contemporary significance of Ngurde (Stan-ner) images and association with 'dance ground' stories

E. Later paintings provide stimulus for (some) contemporary art work

NEW UNDERSEA DISCOVERY OF ROCK
FEATURES AT JAPAN

Prof. N. Yoshida (Japan)
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We have three remarkable finds of rock features; the first is at Yonaguni islet, Okinawa, the second is at the Hinomisaki cape, Shimane pref., and the third is at the Okinoshima islet, in the Japan Sea. These ruins are all about 30 m undersea. The characteristic is that each must have been used for some rituals. Japanese ocean-geologists agree that they were once on water, but about 8000 BP they sank due to landslip. My presentation aims at gathering world scientists' attention to the artefacts found there and offer materials for discussions.

Session 5
GENDER AND SEXUAL DYNAMICS IN ROCK ART

Mary A. Gordon M.A. (Chair)
Alan Garfinkel Ph.D. (Co-chair)

Can rock art studies transcend the limitations of shamanic and hunting models? Exploring gender diversity, sexuality, and reproduction in prehistoric cultures challenges past assumptions. Gender and sexual constructs are dynamic through time and space. Male and female sex roles are culturally defined and complex constructs relating to diverse gender concepts and sexuality patterns that vary throughout the world.

To develop persuasive models, several considerations are relevant. These include:

- 1) Examination of the methods used to infer past meanings using symbolic forms;*
- 2) Consideration of the use of gendered images and how they may help to interpret function and context including implications for associations with prehistoric social organization and gender-based activities;*
- 3) Identification of cross-cultural similarities in gender roles,*
- 4) Comparison of the symbolic analogies that are applied from one culture to another;*
- 5) Relating material evidence to social behavior through the examination of archaeological context with associated features and artifacts; and*
- 6) Examination of the placement of rock art in the landscape may provide clues via “gendered spatial analysis” that would include consideration of public, ritual, and economic spaces.*

The goal of this symposium is to identify and analyze visual representations used to represent and define gender roles, reproduction, and sexuality.

LANDFORMS AND GENDER

Eve Ewing

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Throughout time, caves and vulva-shaped rock formations are often viewed respectively as the symbolic life force of the female womb and genitalia belonging to mortals and supernaturals alike. Natural rock pillars and other rock formations may be viewed as the male phallus and sources of male potency and energy. These natural formations are metaphors of the life force in all its sacred and profane meanings. Rock formations can be seen worldwide in terms of gender. This talk will present and discuss a few clearly recognizable examples from Baja California, Mexico, Europe, the American Southwest, and Australia.

**ARE NUMIC SCRATCHED ROCK ART
DRAWINGS WOMEN’S WORK?**

Kish LaPierre, M.A., R.P.A.

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Alan Garfinkel, Ph.D.

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A surprising number of scratched rock art designs are found throughout the Great Basin but are most abundant in the Coso Region of eastern California. Bettinger and Baumhoff (1982) were some of the earliest scholars to identify this unusual style of prehistoric rock art images and forward hypotheses related to the meaning, function and dating of this enigmatic style of rock drawing. Recently a number of researchers have continued studies of this type of rock

art rendering and have begun to develop models of its authorship. Several researchers have tendered tentative suggestions that this rock art style was crafted by women.

In this presentation, we examine such a novel notion and the implications for such a model. Also, we consider how such a perspective might also be formally evaluated. Additionally, we reconsider the results of previous studies that have documented Coso Range Scratched Rock Art and provide new information bearing on the authorship issue from other sites in the Coso Region. Formal evaluation of the archaeological contexts and landscape associations for this type of rock art provide us with contextual evidence to further our understanding of this important rock art tradition.

FROM CRADLE TO GRAVE AND BEYOND:
GENDER IN CENTRAL CALIFORNIA ROCK
ART

Mary A. Gorden, M.A.

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The purpose of this study is to identify gender characteristics, sexual identity and life cycle changes using cultural clues encoded in the landscape and rock art images. This paper continues my research among the Yokuts tribes in Central California, and expanding my studies to include their neighbors. I follow a holistic approach that includes ethnography, mythology, and spatial distribution as important tools in site analysis and rock art interpretation. My hypotheses are: 1) Prehistoric symbolic art depicts socially constructed identities; 2) Images displaying explicit anatomical sexual characteristics constitute a minority of the anthropomorphic motifs; 3) Morphologically indeterminate images can often be categorized as Female, Male or Other, by distinctive postures, accompanying artifacts, ethnography, their placement in the landscape or a combination of these elements; and 4) Analysis of distinctive attributes and pos-

tures, accompanying artifacts, and ethnography, or a combination of these elements can provide clues to the age and gender of human figures in rock art.

ROCK SOLID STRATIFICATIONS OF
GENDER: NORTHERN AUSTRALIA'S RITUAL
DEPICTIONS

Margaret [Peggy] Grove, Ph.D.

Independent Rock Art Researcher
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Australia's Northern Territory's remote and little known neighbor, Arnhem Land, is rich with rock art images of humans involved in ritual activity. These pictographs, mostly consisting of human females, human males, and humans of indeterminate gender wearing masks, which disguise the human face, depict humans decorated with iconic markings just as they are for ritual performance today. "Artification", the specialness of iconic markings on the human body and on costumes and masks, as discussed by Ellen Dissanayake, make these gender depictions extraordinary in meaning.

These late rock paintings, generally dating from the time just preceding European contact through the last fifty years, are placed in separate rock art locations if gender differentiation is important to the ritual being performed. Males may be removed from family units in the paintings, females are removed from males and placed in their own sites, or the genders are intermingled in the paintings if the ritual being documented involves a love song or mythological clan activity.

This presentation will focus on the unusual discoveries of rock paintings that fall into these three categories, females in ritual, males in rituals, and disguised faces in ritual. It will include a summary of the myths and legends behind the ritual being performed in each instance relating to the pictograph according to Aboriginal elders.

SIX PICTOGRAPH SITES IN SOUTHWESTERN
ARIZONA: POSSIBLE FERTILITY
IMPLICATIONS

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Pictograph sites in the extreme southwestern corner of southwestern Arizona are scarce. And yet, six pictograph sites in close proximity to each other have been discovered in rock shelters and caves east of Ajo, Arizona. The focus of this paper is to discuss and illustrate the types of elements represented, estimate their age and identify the authors. While the sites are similar in several ways, important differences were noted as well. One of the pictograph sites was found in a rock shelter in a volcanic hill comprised of coarse, welded conglomerate. A large rock protruding from the ceiling of this rock shelter resembles an egg in appearance. Many of the pictographs on and surrounding the egg-shaped rock have sexual characteristics. It is reasoned that the subject matter depicted by these pictographs and the setting in which they occur have fertility implications.

THE AVEBURY CORPUS OF NEOLITHIC
SOUTHERN ENGLAND: SCULPTED HEADS,
TORSOS, BODY PARTS, AND ABSTRACT
SEXUAL SYMBOLISM

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The recently discovered, newly documented Avebury corpus comprises 160 carved images featuring human and human-like heads and sexual anatomy. Other megaliths are carefully shaped. This work of remarkable quality represents a shift from the familiar more abstract and relatively artless of British/Irish rock-art forms to the flowering of figurative sculpture and expert stonemasonry. The latter serves the practical purposes of building but also the symbolism

of a fertility cult believing in a cycle of birth, death, and regeneration. The paper relates those abstract shapes to the more representationally carved sexual imagery.

Avebury's heads/faces appear to reflect clear distinctions between particularizations and generalizations, partly through iconography. The former include probable portraits/life studies where gender, costume, and scientific analysis of anatomical proportion were important elements. The latter include minimal glyphs where gender appears immaterial. Both feature imaginatively considered archetypes, some with ambiguous and shape-shifting gender. The paper considers why different options were chosen.

Session 6 GREAT MURAL TRADITIONS OF THE AMERICAN SOUTHWEST

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This session explores several specific pictographic styles found across the Greater American Southwest (Lower Pecos River in Texas [Fig. 1], Colorado Plateau in Utah [Fig. 2], Grand Canyon Esplanade in Arizona [Fig. 3], and Baja California [Fig. 4]). These styles are distinguished as one of the earliest great North American painted mural traditions, and constitute one of the greatest prehistoric rock art traditions worldwide, comparable to those of paleolithic Europe, Africa and Australia. These styles most likely date to the Middle to Late Archaic periods (4000 B.C.–A.D. 500). Elaborately stylized figures, sophisticated polychrome compositions, and simultaneous monumentality and miniaturism characterize the imagery, and provide the aesthetic affect that activates the various iconographic programs in each region. Yet only in the last 40 years have these styles begun to be subjected to more specific artistic and art historical interpretations.

Early historic interpretations of this imagery focused on two primary issues: dating and working chronologies, and basic identification of recognizable themes and subjects. The latter approach has long been influenced by ideas relating to shamanic practices and rituals, such as the otherworldly, transformative or supernatural appearance of the figures, or interactions between anthropomorphs, zoomorphs and plant forms. While these approaches remain valid, more recent scholarship and research has shifted to questions spanning the range between philosophical discourse regarding their function as actual works of ‘art’, to more art historical and object-specific issues focusing on form, style and technique, dating, iconographic analysis (as opposed to the mere identification of recognizable subjects), and broader cultural contexts, as well as purely art historical issues of spatial construction/perception, composition, naturalism vs. abstraction, etc.

This session investigates the concept of rock art traditions, specifically, the methodologies used to discern cultural connections across space and time. An underlying premise is that distantly related yet similar styles reflect various models of social and cultural interaction, as specifically reflected in the mural traditions considered herein.



Figure 1. Pecos River style mural (“White Shaman”), Galloway White Shaman Preserve, Texas. (Photo: Reinaldo Morales Jr.)



Figure 2. Barrier Canyon style mural (“Holy Ghost Group”), Canyonlands National Park, Utah. (Photo: by David Sucec)



Figure 3. Esplanade style mural, Bureau of Land Management Kanab Creek Wilderness Area, Arizona. (Photo: James D. Farmer)

Figure 4. Great Mural style paintings (“Cueva Pintada”), Sierra de San Francisco, Baja California, Mexico. (Photo: Robert Mark, Rupestrian CyberServices)



Figure 5. Nordeste Tradition mural (“Toca do Morcego”), Serra da Capivara National Park, Piauí, Brazil. (Photo: Reinaldo Morales Jr.)

LAYERS OF MEANING: STRATIGRAPHIC ANALYSIS OF A PICTORIAL NARRATIVE IN THE LOWER PECOS CANYONLANDS OF TEXAS

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Description of individual figures at rock art sites provides data for inter- and intra-site patterning. Through documentation and analysis of the sequential ordering of those figures, as well as their stratigraphic relationships, researchers can gain insights into the artistic and cognitive processes that led to the creation of the panel. In this paper, we present the results of an analysis of the White Shaman rock art panel located

in the Lower Pecos Canyonlands of southwest Texas. The panel spans 8 meters in length and 4 meters in height and contains more than 100 Pecos River style anthropomorphic, zoomorphic, and enigmatic images dating to the Late Archaic (3,000 to 1,500 years ago). Through stratigraphic analysis of these pictographs using a Dino Lite handheld microscope, the development of Harris matrices, and production of layered illustrations using Adobe Photoshop, we have determined the strict order in which the colors were applied and the stratigraphic relationships between figures. This analysis demonstrates that the panel is a planned composition with rules governing not only the portrayal of symbolic forms, but also the sequencing of colors. Complex images painted in black, red, yellow, and white were woven together at the White Shaman site to form an intricate pictorial narrative.

CHASING ROCK ART HISTORY: THE ROLE OF AMERICAN ROCK ART IN TRADITIONAL ART HISTORICAL DISCOURSE

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Rock art scholarship, and particularly studies on ancient American rock art styles, have long held a rather peculiar relationship to mainstream art history. On the one hand, most standard college art history survey textbooks generally ignore or marginalize rock art imagery almost to the point of non-existence, yet with one notable exception. Nearly all of these same textbooks typically introduce the entire history of human art with discussions on the significance of one of the most highly acknowledged and globally recognized rock art styles, the great Paleolithic cave paintings of Western Europe. Many of these textbooks exceed 1000 pages in length, including over 1000 total illustrations, yet after no more than two to three pages (at most) dedicated to the cave paintings as introduction, rock art is summarily abandoned and

only fleetingly referenced in a very few cases. Given the global range, deep antiquity and persistency of rock art imagery throughout the history of human artistic production, such apparent dismissal by the core art history survey textbooks is difficult to rationalize.

Rock art scholarship itself of course suffers from no such lack of publication or coverage, and has indeed evolved as a somewhat separate and rather robust field of art historical inquiry, existing parallel to, but only occasionally directly engaged with mainstream art historical discourse. As J. J. Brody pointed out in 1991, the vast majority of scholarly publications on ancient American culture, including rock art studies, are routinely cataloged and shelved in the anthropology, religious studies, or history sections of libraries and book stores, rather than sections on the arts. Ancient American rock art often suffers from a second scholarly disadvantage within the general art history survey texts as well, as it is commonly subsumed within the broader coverage of Precolumbian art in general, only covered in texts which include the even broader distinction of Non-Western art coverage (including African, Asian, and Oceanic as well), and again typically given less than adequate coverage.

Rock art studies in the last 30 years have clearly established the extraordinary artistic sophistication of numerous ancient American rock art styles as significant painting traditions (as distinguished from the more archaeologically loaded, and less art historical term "rock art"). This presentation presents a brief review of the context and coverage of ancient American rock art images in the major art historical survey texts of the 20th and 21st centuries, and argues that several ancient American styles, such as the Barrier Canyon Anthropomorphic Style of Utah, or the great murals of Baja California, are worthy and comparable candidates for inclusion in more broadly contextualized art historical surveys, and that rock art scholarship as a process should target a more specific art historical

audience, rather than specific rock art or anthropologically oriented publication venues.

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PATTERNS OF FIGURE PLACEMENT IN GREAT MURAL ART NEAR MISSION SANTA GERTRUDIS, BAJA CALIFORNIA

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Paintings of the Great Mural Style in Baja California follow strict conventions in the depictions of humans and animals. These conventions have been described in Crosby's book *Cave Paintings of Baja California*. The figures are often placed in

groups or overlapped. This paper describes patterns in figure placement at sites in Baja California in the vicinity of Mission Santa Gertrudis. Patterns include: pairs of large human figures (called monos in this rock art style) with arms crossing; rows of monos placed side by side with arms crossing; groups of smaller figures at the feet of the larger ones or grouped together by themselves; V-shaped groups of large monos. These patterns demonstrate that conventions governed figure placement as well as figure content in this region. It is hoped that study of the placement of figures can give insight into the meaning of the paintings.

VARIOUS SHARED THEMES AND SYMBOLS IN THE GREAT MURAL TRADITIONS OF ARCHAIC NORTH AMERICA

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There is continuity between Pecos River, Barrier Canyon, Grand Canyon Polychrome, Gran Mural, and Dinwoody styles of rock art. Commonalities include motifs, animate characters, and structural relationships between figures. The following paper will explore particular examples from Utah, Baja, Texas, Coahuila, Wyoming, and Arizona. Despite these ties and the potential for historical links and information exchange the majority of evidence suggests that each style is a distinctive and unique cultural manifestation.

ANCESTRAL LANDSCAPES: IDENTITY, MEMORY AND ROCK ART IN THE CENTRAL CORDILLERAS OF THE PENINSULA OF BAJA CALIFORNIA, MEXICO

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The peninsula of Baja California, Mexico, concentrates one of the most extraordinary

repertoires of rock art in the country; in fact, one of the most characteristic features of its prehistory is that the native people promoted, in some regions, the mass production of rock paintings from very ancient times. The region that has more profusion and variety of imagery is the central sierras, which is also scenery where an exceptional cultural event occurred: the development of the pictorial tradition of the Great Murals. The paper will present a review of stylistic variants of these monumental rock paintings, becoming known other newly identified regional trends; besides, an updated version of their areas of distribution will be discussed, as well as their possible relation to the demarcation of social territories. The analysis starts from the premise that some emblematic Great Mural sites are capable of referring to the relations of similarity and difference that governed the indigenous community organization by the lineages, process by which they constructed, consolidated and negotiated their identities in a inter/group level and even inter/ethnic, mapping the landscape over large areas loaded with memory and feeling.

1492 BC: THE GOLDEN AGE OF AMERICAN ANTHROPOMORPHISM

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By around 1500 BC a variety of mural painting traditions had developed in the Americas. Some noticeable examples are characterized by a particular manner of stylized anthropomorphic form, including the Barrier Canyon, Esplanade and Pecos River styles from the American Southwest. The level of formal similarities shared by these styles forces us to consider how closely related the painters were: Are these similarities the product of formal coincidence? Are they the product of some cognitive inevitability? Or might these similarities represent evidence of an outright aesthetic conspiracy?

The degree and nature of the cultural interconnections between these groups of painters is key to these questions. Nothing in the geography or cultural (pre)history of the American Southwest precludes the sort of long-distance communication networks required to support contact across vast regions. "Everyone knew everything," and "distance can be dealt with," as Stephen Lekson (2009:8-9) reminds us. The notion of a rock art *tradition* might thus be appropriate to describe these Late Archaic Southwest styles — roughly contemporary, and "similar in content and expression" (Schaafsma 1985:252).

But when examples of similar stylizations from much farther afield are considered (Fig. 5), such as those from Brazil's *Nordeste* (Northeast), distance is not so easily dealt with. An "aesthetic conspiracy" enabled by long-distance communication networks seems less likely when we acknowledge the remarkable consistencies between *Nordeste* rock art and that from the American Southwest. Recognizing formal similarity is easy. Deciphering what it means, if anything, is not. The cognitive landscape of the Archaic Americas might have provided an environment where similar forms and iconography recurred as part of an ancient "shamanistic tradition" (Turpin 1994:90). Perhaps these painters "shared a world view and its associated ideology to a significant degree" (Schaafsma 1990:230). These murals might be evidence of a long-held suspicion in New World archaeology, "that the various manifestations of ancient American culture possessed at least a common psychological element" (Joyce [1913] in Ridgeway 1964:373). The anthropomorphism that characterizes a fluorescence of American mural traditions by 1500 BC is evidence that something connected several disparate hunter-gatherer populations in a distinct recurring aesthetic, even if a broadly acceptable explanation for such unity of visual expression evades us.

HOLY GHOST IN SPACE: A CONSIDERATION
OF FORM IN PREHISTORIC BARRIER
CANYON STYLE ROCK ART

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Framed by a shallow arch, the Holy Ghost Group is the physical and aesthetic center of the Great Gallery, which is the type-site for the Archaic Period Barrier Canyon style (originally termed the "Barrier Canyon Anthropomorphic Style", but Polly Schaafsma in 1971). The Great Gallery is located in Canyonlands National Park, southern Utah. Barrier Canyon style images are found in large parts of Utah and, to a lesser extent in western Colorado and northern Arizona. Certainly, the most striking Barrier Canyon style rock art composition, the Holy Ghost Group may well be the most remarkable prehistoric painted composition on the Colorado Plateau and unique in North American rock art. The size and elevated locations of the Holy Ghost images rarely fail to impress visitors to this well-known site; yet, what distinguishes this panel, among those at other prehistoric rock art sites, is its masterful design and "modern" spatial construction. The Holy Ghost composition has the appearance of visual depth (three dimensions). Although, we are accustomed to seeing convincing representations of three dimensional space in the paintings of today, the world of prehistoric rock art was, for tens of thousands of years, dominated by a flat-looking, frontal, two-dimensional figure image and pictorial format. This presentation will undertake an analysis and discussion of the visual form of the Holy Ghost composition, particularly, the spatial dynamics that sets this group of anthropomorphic figures apart from most other prehistoric rock art panels or compositions.

SESSION 7

LET US JOIN HANDS: THE MOST COMMON REPRESENTATIONAL ROCK-ART SYMBOL IN THE WORLD UNAMOS NUESTRAS MANOS: EL SIMBOLO MÁS COMÚN EN EL ARTE RUPESTRE MUNDIAL

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Hands are common symbols for humanity. In everyday life we see our hands more often than anything else. Creators of rock-art throughout the world had a desire or need to produce this image both by painting and carving, using multiple techniques, in various landscapes. Usually sizes are realistic. Hands can be singular or in groups of hundreds and occasionally have varying numbers of fingers. They can represent an individual or the masses, a sign or a signal, creation or destruction. A hand could be a deity, a whole body, power, silence, work, worship. What are the similarities and differences of the rock-art Hands throughout the world? How many interpretations can be gleaned from this image that a child traces as soon as it is able? What can we learn from them and how can we protect them?

Las manos son símbolos habituales para el ser humano. En nuestra vida diaria lo podemos apreciar con mayor frecuencia que cualquier otra representación simbólica. En este sentido, los creadores de arte rupestre en todo el mundo tuvieron el deseo o la necesidad de representar esta imagen, tanto pintada como grabada, utilizando múltiples técnicas, en contextos muy diversos tanto al interior como al aire libre. Por lo general, los tamaños son realistas, aparecen de forma individual o en grupos grandes y con diferente número de dedos. A través de ellas se pueden representar al individuo o a la colectividad, mostrar un signo, la creación o la destrucción. Una mano puede representar una deidad, un cuerpo, el poder, el silencio, el trabajo, o la adoración religiosa. ¿Cuáles son las semejanzas o diferencias entre las manos del arte rupestre representadas alrededor el mundo? ¿Cuántas interpretaciones diferentes podemos dar a esta imagen que un niño puede realizar sin problema desde que tiene capacidad técnica? ¿Qué podemos aprender de ella y como podemos protegerlas?

A GESTURE MADE WITH A TOUCH OF
RED OCHRE! SOME ROCK ART SITES WITH
HAND PRINTS IN THE CANADIAN SHIELD.

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Rock art graphics seldom depict hand prints in the Shield. The known sites usually show one or two positive hand-stencils in full instead of a series of handprints, positive or negative, with “missing or cut fingers”, which might mean that it is not related to any gestural code of commu-

nication or expression per se. But then, what can be said about them? Is this a kind of signature for the so-called artists? A sign consecrating the territory for the members of a family, a clan or a tribe? Or simply a way of marking the place for those passing by, expressing like a graffiti “I was here”? Taken into account a handful of sites located in Ontario and Quebec, the authors will strive to construe the meaning of this type of motifs with regards to the Algonquian cosmology and oral history.

¡UN GESTO HECHO CON UN TOQUE DE
OCRE ROJO! ALGUNOS ENCLAVES DE ARTE
RUPESTRE EN CANADA CON
REPRESENTACIONES DE MANOS.

Las representaciones de manos son poco habituales en la iconografía del arte rupestre canadiense. Los enclaves conocidos habitualmente

contienen una o dos representaciones de manos en positivo como mucho, en lugar de series de manos en positivo o negativo con “dedos perdidos o cortados”, por lo que debemos considerar que no estamos ante ningún tipo de código de comunicación o expresión basado en este tipo de gestos. Pero entonces, ¿qué podemos decir nosotros acerca de estas representaciones?. ¿Son una especie de firma de los así llamados artistas? ¿Un signo de consagración de un territorio para los miembros de una familia, clan o tribu?, o simplemente una manera de marcar un lugar para aquellos que pasan a la manera de un grafiti mediante el cual se expresaría “Yo estuve aquí”. A partir de los yacimientos con manos localizados en Ontario y Quebec, los autores de este trabajo se esforzarán por desvelar el significado de este tipo de motivos relacionándolo con la cosmovisión de los Algonquian y las historias transmitidas oralmente.

ESSELEN HANDPRINTS AS A GEOGRAPHIC PUZZLE

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The Esselen Indians of California’s central coast were perhaps the smallest group in the state, and remain among the least known. They are thought by some to be descendants of an ancient coastal migration. At contact they occupied the mountains inland of Big Sur, and it is often claimed in the literature that they were the first California group to become culturally extinct. Rock art has been discovered in several rock-shelters in the rugged interior of Esselen territory, with the dominant motif being a stylized handprint. In this presentation we will examine these handprints, discuss their distribution and stylistic variation, and speculate on possible geographic interrelationships.

LAS REPRESENTACIONES DE MANOS DE LOS ESSELEN INTERPRETADAS COMO UN PUZZLE GEOGRÁFICO

Los indios Esselen de la costa central de California eran el grupo más pequeño del estado y siguen siendo los menos conocidos. Se cree que su origen pudiera estar en una pequeña migración costera. En el momento del contacto ocuparon las montañas interiores de Big Sur y a menudo se afirma en la literatura científica que ellos fueron el primer grupo de indios californianos que desaparecieron. El arte rupestre de este grupo indígena ha sido descubierto en varios abrigos del accidentado territorio Esselen, siendo el motivo dominante unas estilizadas representaciones de manos. En esta presentación nosotros examinaremos estas manos, discutiendo sobre su distribución y variación estilística y especulando sobre sus posibles interrelaciones geográficas.

SOME CLUES FROM BORNEO FOR DECIPHERING HAND STENCILS

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Recent discoveries in the remote Indonesian part of East Borneo of an unexpected Rock Art expression displaying a rather large number of stenciled hands (up to 1000 in 4 caves up to 2000 or so within 36 caves) has stimulated some new reflections concerning the significance of this expression. Especially the observation of two twin caves containing nothing but 130 and 140 negative hands prints has oriented interpretations towards specific and at least global or punctual rituals like healing and/or shamanism for instance. Then, the survey of a new set of painted cliff walls overhanging the sea off NNW of Papua, although presenting a less number of hands stencils, has nevertheless completed our reflection. The identified location parameters,

which indicate exactly the place where paintings are located, associated with overpainted cupules lips, provide clues linking painting process with fertility and reproduction rituals, where hands stenciling is associated. Added to these clues is the deciphering of hands using Manning's ratio, which proves that everywhere or so, women took an equal part of painting actions and their associated rituals.

ALGUNAS PISTAS DE BORNEO PARADESCIFRAR LAS MANOS ESTAMPADAS

El reciente descubrimiento de en una remota zona de Indonesia al Este de Borneo de un importante conjunto de representaciones de manos (más de mil tan solo en 4 cuevas y aproximadamente unas 2000 en el conjunto de 36 cuevas) ha estimulado algunas nuevas reflexiones relativas al significado de este tipo de expresión. Destaca la presencia de dos cuevas paralelas que contienen respectivamente 130 y 140 representaciones de manos en negativo, lo que ha orientado la interpretación hacia aspectos relacionados con la realización de rituales más o menos reiterados de curación o chamanismo en estos espacios. Además, el estudio de un nuevo conjunto de pinturas hechas sobre los acantilados que dominan la costa NNW de Papua, a pesar de que contienen un número menor de representaciones de manos, ha completado nuestra reflexión.

Los parámetros de localización identificados señalan exactamente el lugar donde las pinturas están localizadas, permitiendo concretar como las manos están asociadas con vulvas superpuestas lo que nos podría indicar la conexión de este tipo de representaciones con rituales de fertilidad y/o reproducción. Además, a través del estudio realizado aplicando las bases de proporción de Manning, se ha podido determinar que la mujer tuvo un papel equiparable al del hombre en los rituales y acciones que se llevaron a cabo en estos espacios.

«GRANDI MANI» IN ITALY AND LITTLE HANDS IN AUSTRALIA: ON THE SCALE AND MEANING OF HANDS IN ROCK-ART **Christopher Chippindale Ph.D.**

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Among the many motifs in the rock-engravings of Valcamonica, the famous zone in Alpine Italy, one of the more striking is the human figure with «Grandi mani», giant hands. They now adorn the labels on the wine, from a vineyard adjacent to rock-art site, which calls itself by this name. Why are they so large?

Among the many motifs in the rock-paintings of Arnhem Land, the famous zone in tropical Australia, one of the most striking and repeated is the human hand. These hands vary in size. Sometimes they are tiny. Why are they so small?

Looking at these two kinds of pictures together informs us: first, about the making of the art, its graphic necessities, logic and rules; second, about meaning and purpose.

GRANDES MANOS EN ITALIA Y PEQUEÑAS MANOS EN AUSTRALIA: EL TAMAÑO Y LA SIGNIFICACIÓN DE LAS MANOS EN EL ARTE RUPESTRE.

Entre los muchos motivos grabados en el arte rupestre de la Valcamonica, la famosa zona artística de los Alpes Italianos, una de las representaciones que más llaman la atención son las conocidas como «Grandi Mani», figuras humanas con manos gigantes. Estas representaciones son utilizadas en unas etiquetas que adornan las botellas de vino denominado con este mismo nombre y fabricadas en una bodega cercana al lugar con arte rupestre.

¿Por qué son tan grandes?

Entre los muchos motivos del arte rupestre de la tierra de Arnhem, la famosa zona en el trópico australiano, una de las representaciones más conocidas es la mano humana. Su tamaño es variado, siendo especialmente reducido en algunas ocasiones.

¿Por qué son tan pequeñas?

Revisando conjuntamente estos dos tipos de representación de manos podemos intentar aproximarnos: en primer lugar a los aspectos relacionados con la técnica, sus necesidades gráficas, su lógica y sus reglas y en segundo lugar a su significado y la motivación que llevó a sus autores a representarlas.

HANDPRINTS IN THE ROCK ART AND TRIBAL ART OF CENTRAL INDIA

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Handprints, mostly red but also white or yellow, are found in a number of painted shelters of Madhya Pradesh in Central India, mostly associated to the later phases of rock art (Historical periods). The tradition of imposing handprints on the outside and inside walls of houses still persists. Sometimes this may be done on valuable containers such as grain vats. The conditions of their making may be strict, for example only young unmarried girls can do it in certain cases with red paint, while a married couple will do it in yellow on their wedding day. On certain occasions black handprints can be made on the body of cattle or on the walls. We have also found out that some tribes still carry on the tradition in painted shelters and we collected testimonies about their auspicious function.

Meenakshi Dubey-Pathak attendance with help from India Council of Cultural Relations



HANDPRINTS IN MALTRAVIESO CAVE (CÁCERES, SPAIN): TYPOLOGY, DISTRIBUTION, TECHNIQUES AND CHRONOLOGICAL CONTEXT.

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Maltravieso Cave (Cáceres, Extremadura, Spain), has an interesting collection of Early Paleolithic Rock Art which emphasizes an important group of handprints. In this paper we are going to present the study of their typology and distribution in the cave, the depiction techniques used in their creation, and a chronological approach.

REPRESENTACIONES DE MANOS PALEOLÍTICAS EN LA CUEVA DE MALTRAVIESO (CÁCERES, ESPAÑA): TIPOS, DISTRIBUCIÓN, TÉCNICAS DE REPRESENTACIÓN Y CONTEXTO CRONOLÓGICO.

La Cueva de Maltravieso (Cáceres, Extremadura, España) reúne un interesante conjunto de arte paleolítico antiguo en el que destaca el importante grupo de representaciones de manos. Se presenta en este trabajo un análisis sobre su tipología, la distribución topográfica de las representaciones en la cavidad, las técnicas de representación utilizadas en su realización y una aproximación a su contextualización cronológica.

THE CASE FOR HAND IMAGES AS PROPRIO-PERFORMATIVE

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The deep antiquity of the hand in human evolution is a subject of intense interest among anatomists and palaeobiologists. With the knowledge that Australopithecines possessed at least a manipulatory capability allowing tool



Figure 1. Decorated hands, Bhanpura, Madhya Pradesh, India.



Figure 2. Painted hands, including Reckitt's washing-blue images, Mt Borradaile, Australia.

use, researchers are building on Darwin's insight into the connection between bipedalism and the freeing of the hand to find answers to questions about the "when and how" (Campbell Rolian et al 2010) of the adaptive sequence. The hand's role in the socio-cultural dimension of our existence—in making possible systems of symbolic communication as much as shaping our physical environment—is everywhere evident in the ways we function as a species. It is crucial in survival and integral to species definition (Figure 1).

In view of this should it surprise us that perhaps the most tantalizing manifestation of human marking around the world with an antiquity of its own (witness Cosquer's 27,000 BP date) and continuation to the present horizon is the stencilling and printing of the human hand? With the aim of establishing what rock art hand images might have in common with one another on a global basis and within the sequential record, this paper looks at a range of hand prints, stencils, painted images and petroglyphs from different times and locations. In doing so, it addresses issues of technique, cultural-specificity, placement, and formal properties,

including size, color (Figure 2), decoration, digital variations, choice of right or left hand, association with other motifs, and apparent function when compared with analogous images like animal tracks and human feet. In the light of these considerations, it argues that, with some possible exceptions, and in a way that does not contradict evidence of sign-systems, hand representations are to be classed as "Proprio-Performative."

A "proprio-" [proprius, one's own] "performative" image combines a sense of "ownership" (in rock art studies of hand representations the description "signatures" is frequently encountered) with a message for others (which may be as straightforward as animal territorial marking). Charged with presence, this message cannot be neutral: hence "performative," indicating a form of direct address. Even within sign-systems signatures of individual identity remain. The hand image retains its quality of representing the proprietor, the author. The stencil or print locks the maker into the image, effecting a personal statement (Figure 3) that differentiates it from any other kind of performative, such as Wandjinas or Barrier Canyon figures as defined



Figure 3. Stencil panel, Central Queensland Sandstone Belt, Australia. Photograph by and courtesy of Caryll Sefton.



Figure 4. Composite figure incorporating stencilled hands, Central Queensland Sandstone Belt, Australia. Photograph by and courtesy of Caryll Sefton.

by L. Dobrez (2012). It is a statement about origin and as such carries the authority of a recognizable, visually-read “voice.” The reproduction of an individual hand is simultaneously a declaration about myself and from myself.

As an addendum, I ask what happens in the case of a particular example from Queensland, Australia, of a composite figure incorporating hand stencils into an infilled outline representing an anthropomorph (Figure 4). In this instance do the hand stencils lose their performative function of making-present, or, on the contrary, is their proprio-performative quality exploited to enhance a special effect?

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ARGUMENTOS A FAVOR DE LAS IMÁGENES DE MANOS COMO “PROPRIO-PERFORMATIVE”

Con el objetivo de establecer desde una óptica global qué podrían tener en común las representaciones de manos en el arte rupestre mundial, este trabajo analiza una serie de grabados, impresiones y petroglifos de diversas épocas y procedencias. De este modo se tratan aspectos referidos a la técnica, la especificidad cultural, localización y propiedades formales, que incluyen el tamaño, color, decoración, variaciones digitales, preferencia por la mano izquierda o derecha, asociaciones con otros motivos y la funcionalidad aparente cuando se la compara con imágenes análogas como las huellas de los animales o las pisadas humanas. Se argumenta que,

con posible excepciones, las representaciones de manos deben ser clasificadas como "Proprio-Perfomative."

STATURE AND GENDER PROJECTIONS
FROM PICTOGRAPH HANDPRINT

EVIDENCE IN SOUTHERN CALIFORNIA

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The anthropometric and ethnographic analytical design from a site-specific study of pictograph hand print impressions (Freers 2001) was applied to a regional analysis of 42 rock art loci in southern California. The goals of this investigation were to infer the physical stature and gender of the most likely Native American participants against the backdrop of contemporary assertions of regional rock art style and function. The analytical underpinnings of this physical anthropological study are as follows: anthropometric data of Mission Indians collected in the late 1800s (Boas 1895); ethnographic accounts of pictograph creation by neoadolescent females (e.g., Oxendine 1980:39) and the known significant difference in subsequent female adult statures (Gasser et al. 2000); research correlating human stature with hand length measures (e.g., Saxena 1984) and palmar print dimensions (Jasuja and Singh 2004); and, the growing research support for utilizing finger-length ratios (e.g., Nicholls et al. 2008) or a hand dimension index (e.g., Agnihotri et al. 2006) to infer gender.

Pictograph hand print analysis on a metric level is inherently confounded by the lack of application controls and standardized populations. Notwithstanding these difficulties, it is believed that a large sample size can ameliorate some of the variability and control problems to provide statistically significant trends. To that end 288 hand print specimens with appropriate measurement landmarks from 42 distinct rock art sites were analyzed using five published stature and gender predictive equations (Abdel-Malek

1990; Agnihotri 2006; Bhatnagar 1984; Jasuja 2004, Thakur 1987); and, a newly designed regression equation normed to historic Mission Indian stature data. The pictograph hand print sample contained 63.9% right hands and 36.1% left hands. As is typical for the region, 89.6% of the hand prints were in red pigment, followed by 8.0% white and 2.4% black. Simple hand impressions comprised 83.3% of the sample and 16.7% were stylized to some degree prior to application. The variable dimensional under-sampling of these "stylized" hand prints was taken into account and segregated into another category.

Plotting hand print lengths clustered in 0.50 cm groupings against their occurrence frequency created a bimodal distribution suggesting both neoadolescent (expected) and adult participation at many sites. Surprisingly, in terms of ethnography, the data suggests significant male participation in pictograph production based upon both absolute hand print dimensions and 2D:4D (index/ring finger) analysis. The aforementioned is an ongoing analytical project and will be statistically elucidated further in the completed paper. Additionally, select pictograph sites with hand prints qualitatively presenting as consistent with the culminating results of a puberty ceremony did indeed have impressions measuring in the stature range of neoadolescent and finger-length ratios characteristic of females. Conversely, rock art construed as being created in a more complex and measured manner (e.g., Rancho Bernardo Style) contained hand prints that analytically suggested males of older adolescent or adult stature.

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ANALISIS DE LA ESTATURA A PARTIR DE LAS REPRESENTACIONES PINTADAS DE MANOS EN EL SUR DE CALIFORNIA

Las impresiones pintadas de manos, bien con-
servadas y medidas cuidadosamente pueden ser
usadas como evidencia física en la evaluación
general de las tradiciones pictográficas locales.
La convergencia de datos antropométricos y et-
nográficos en el sur de California, proporciona
una oportunidad única para analizar la estatura
y el género de los autores de estas representa-
ciones de manos mediante varias divisiones de
carácter etnográfico. El análisis estadístico sobre
más de 40 enclaves que contienen representa-
ciones de manos demuestra una distribución
bimodal en lo referido al género y a la estatura,
sugiriendo la existencia de dos grupos diferen-
tes de edad como creadores de las pictografías
regionales (adultos y niños/adolescentes al
final de su pubertad). Los datos etnográficos, el
tamaño de las representaciones de manos y el
estudio comparativo del tamaño de los dedos
contribuyen a deducir el género de cada uno
de estos subgrupos. Los datos obtenidos serán
comparados a su vez con las convenciones tradi-
cionalmente aceptadas para el arte rupestre del
sur de California.

REFLECTIONS ON THE PRESENCE/ ABSENCE OF HANDS IN THE ANTHROPOMORPHIC FIGURES OF THE SCHEMATIC ROCK ART STYLE OF THE IBERIAN PENINSULA.

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Within the so-called "schematic" artistic cycle,
which is essentially developed throughout the
Iberian Peninsula in a wide temporary margin
that takes place from the Neolithic to the Iron
Age I, one of the most common typological cat-
egories is the representations of human figures.
To this category belongs a limited repertoire

of anthropomorphic forms, the most common figures are *anchoriforms*, *cruciforms*, *bi-triangulars*, figures with Greek *phi* design, *ramiforms*, *halteriforms*...

All of them show different degrees of schematization, so that they may show – or not, as the case may be, specific anatomical elements such as arms, legs, indication of the head, of the female breasts or of the male sex..., as well as, very occasionally, certain details of the clothing, complementary elements – weapons, tools, attributes-, or certain headdresses or hairstyles. However, we very rarely find detailed representations of feet or hands with their fingers in this imagery.

Opposite to this generalized absence of these organs in the schematic rock art style in contemporary portable manifestations – idols, anthropomorphic or decorated *stelae* of the southwest of the Iberian Peninsula - human figures are represented, with a higher frequency, with the detail of the hands and feet. This contrast is going to serve us as the starting point to reflect on possible symbolism and/or the function of the hand in the prehistoric Iberian graph of the Metal Ages.

REFLEXIONES SOBRE LA PRESENCIA/AUSENCIA DE LAS MANOS EN LAS FIGURAS ANTROPOMORFAS DEL ESTILO RUPESTRE ESQUEMÁTICO DE LA PENÍNSULA IBÉRICA.

Dentro del denominado ciclo artístico “esquemático”, que se desarrolla, esencialmente, en el territorio de la Península Ibérica en un amplio margen temporal que discurre desde el Neolítico hasta la I Edad del Hierro, una de las categorías tipológicas más habituales son las representaciones de figuras humanas. A esta categoría se corresponde un repertorio limitado de formas antropomorfas, siendo las más comunes las figuras ancoriformes, cruciformes, bitriangulares, con diseño de phi griega, ramiformes, halteriformes... Todas ellas muestran diferentes grados de esquematización, de modo que pue-

den presentar –o no, según el caso- determinados elementos anatómicos como brazos, piernas, indicación de la cabeza, de los pechos femeninos o del sexo masculino..., así como, muy ocasionalmente, ciertos detalles de la indumentaria, elementos complementarios –armas, herramientas, atributos-, o determinados tocados o peinados. Sin embargo, muy raramente encontramos en este imaginario la representación detallada de los pies o las manos con sus dedos. Frente a esta ausencia generalizada de estos órganos en el arte rupestre esquemático, en manifestaciones muebles coetáneas –ídolos, estelas antropomorfas o decoradas del Suroeste peninsular- las figuraciones humanas son representadas, con una mayor frecuencia, con el detalle de manos y pies. Este contraste nos va a servir de punto de partida para la reflexión sobre los posibles simbolismo y/o función de la mano en la gráfica prehistórica ibérica de la Edad de los Metales.

RELIGIOUS, MYSTICAL AND MAGICAL HAND PRINTS FROM THE ARABIAN DESERT.

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Hands and palms represent a common symbolic element in almost all the rock arts of the world. Saudi Arabia contains a variety of carved and painted hand figures, as individual representations or in groups, so often associated with ancient Arabian writings. These are depicted in different contexts and compositions. We, as the Arabs are part of the world cultural heritage, as nomads and as desert dwellers living in compact and intact societies very little is known to the outside world about our culture and civilization. People do not know that the hand prints in the Arabian petroglyphs are unique, aesthetical, symbolic, semantic, religious and magical in their meaning and are found in large number

in a variety of contents and contexts. The paper shall highlight the meaning, purpose and variety of hand prints in the rock art of Saudi Arabia.

MANO DE AMISTAD DESDE EL DESIERTO DE ARABIA A NUEVO MEXICO

Manos y palmas representan un elemento simbólico común en la mayor parte del arte rupestre mundial. Arabia Saudí tiene una amplia variedad de manos, tanto pintadas como grabadas, apareciendo de forma individual o en grupo y a menudo, asociadas con escrituras árabes antiguas y representadas en diferentes contextos y composiciones. Sin embargo aún no hemos llegado a comprender que significan estas representaciones de manos o su carácter como signos de la memoria, elementos religiosos, mágicos o como motivos semánticos. En este sentido una gran variedad de figuras de manos documentadas a todo lo largo y ancho de Arabia Saudí en colinas, rocas, cuevas y abrigos nos ayudarán a interpretar y comprender estos signos y símbolos.

HANDS AROUND CHACO CANYON

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Hands are the most common representational rock-art subject in the world, and Chaco Culture National Historical Park, a UNESCO World Heritage site, has more than its share. Numerous caves and shelters contain painted hands of different colors, and hands pecked by the Ancient Chacoans (formerly referred to as the Anasazi) are also found all over the canyon. The Navajo people added to this inventory of hands when they occupied the land.

Hands figure prominently on anthropomorphic representations where they are depicted in numerous variations, as well as in hand holding groups (Figure 1). Hand paintings are



Figure 1. Human-like figures are holding implied hands while standing on a drawn line.

sometimes singular, but more often appear in groupings of as many as eighty (Figure 2). Red is the prevailing hand color with many values and intensities of the hue. There are scatterings of yellow ochre, black, white, and mud hand prints. Hand prints were predominately applied as stamps. Fewer painted hands are negative or stenciled hands, whereby the hand was placed on the rock surface and paint was blown onto



Figure 2. Many of these hands were applied with mud. A horse image among them suggests that they were made by Navajos.



Figure 3. A modern stamped hand has been placed beside a prehistoric one.

the surface around it, occasionally including part of the forearm.

Hands in Chaco Canyon are not easily classified according to chronological affiliation as both cultures used this technique. Which hands are ancient Chacoan and which are historic Navajo? It is assumed that the larger ones are Navajo. No determination of where the largeness or smallness of size begins or ends has been established, but associations with other cultural identifying elements (other rock-art, pottery, and/or architecture) offer clues. In one case a horse and rider were created with the same pigment as the surrounding hands providing support for their classification. In another example, hands were made with synthetic paint in an imitation of the corpus of ancient Chacoan hands (Figure 3).

Petroglyphic hands, most often created by pecking, outnumber painted ones. The average human hand has fingers as long and as wide as the palm with the thumb protruding from the middle of the palm's side. Petroglyphic hands vary from the anatomically correct hand, to the thumb protruding from the top of the palm alongside the other fingers. Fingers are frequently scratched or incised on pecked palms.

Distinctive examples of polydactyly in both hands and feet evoke more questions about their usage. Study of the frequency, placement, and styles of hand images in Chacoan rock-art can provide more insights into these enigmatic societies.

MANOS ALREDEDOR DEL CAÑON DE CHACO

Las manos son la representación más común del arte rupestre mundial y también del Chaco Culture National Historical Park, un enclave Patrimonio de la Humanidad. Numerosas cuevas y abrigos contienen manos pintadas en diferentes colores creadas por los antiguos Chacoanos (denominados formalmente como Anasazi) a las que se unen las realizadas por las esporádicas ocupaciones del pueblo Navajo. Las representaciones piqueteadas de los antiguos Chacoanos pueden ser encontradas por todo el cañon. Las manos incisas son más difíciles de clasificar en función de su filiación cronológica. Las figuras de manos destacan en las representaciones antropomorfas siendo representadas en numerosas variantes como las que muestran los grupos de orantes. Este trabajo repasará la numerosa variedad de ejemplos de manos Chacoanas y sus implicaciones

WORKING HANDS FOR CUEVA DE LAS MANOS, PATAGONIA ARGENTINA

María Onetto
María Luz Funes
Andrea Murgo

Cueva de las Manos, an archaeological site with rock art, is located in the northwest of the province of Santa Cruz, Argentina. It is included in the UNESCO World Heritage List due to its outstanding universal value.

The paintings of the cave, rock shelters and cliffs overlooking the Río Pinturas canyon, are striking for their outstanding natural beauty, artistic composition, polychromy and magnificence.

There is a great variety of representations of different colors and sizes; large concentrations of hand stencils and guanaco figures stand out, representing nine millennia. Studies revealed interesting results about this tradition that has lasted for many years in the Argentine Patagonia.

We will refer to these studies as well as the work our research team has been carrying out during the last years: protection, conservation and site management.

MANOS QUE TRABAJAN POR CUEVA DE LAS MANOS, PATAGONIA ARGENTINA

El sitio arqueológico con arte rupestre Cueva de las Manos, está ubicado en el noroeste de la provincia de Santa Cruz, Argentina. Por su valor universal excepcional integra la Lista del Patrimonio Mundial de la UNESCO.

Las pinturas de la cueva, aleros y farallones del cañadón del Río Pinturas impactan por el paisaje privilegiado, la composición artística, policromía y belleza de diseño. Se caracterizan por una gran variedad de representaciones realizadas en distintas tonalidades y tamaños; se destacan las grandes concentraciones de negativos de mano y las figuras de guanacos que se suceden durante nueve milenios. Los estudios realizados revelaron conclusiones interesantes sobre esta tradición que perdura durante tantos años en la Patagonia argentina.

Haremos referencia a estos estudios y también a los trabajos de protección, conservación y gestión que venimos realizando con nuestro equipo de investigación.

Palabras clave: arte rupestre, manos, Patagonia, conservación.

ROCK ART OF HANDS IN SONORA, MÉXICO.

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Sonora is located in northwestern Mexico, bordered on the north by Arizona and New Mexico, the Chihuahua to the east, southeast Sinaloa, in northwestern Baja California, south and west the Gulf of California. Counting among its archaeological wealth a number of places with rock art, this cultural expression allowed ancient man in this territory to express their ideas and experiences over time.

During the recording of archaeological sites with rock art paintings and petroglyphs, anthropomorphic elements have been observed with hands in the positive and the negative. In this paper, there will be a description of several of the sites where there have been these kinds of representations in different regions, in the desert, the valleys and in the mountains.

MANIFESTACIONES GRÁFICO RUPESTRES DE MANOS EN SONORA, MÉXICO.

Sonora se encuentra ubicado al noroeste de México, colindando al norte con Arizona y Nuevo México, al este esta Chihuahua, al sureste Sinaloa, al noroeste Baja California, al sur y oeste el Golfo de California. Contando entre su riqueza arqueológica con un número considerable de lugares con manifestaciones gráfico rupestres, esta expresión cultural permitió al hombre de la antigüedad de este territorio, expresar sus ideas y vivencias a través del tiempo.

Durante el registro de los sitios arqueológicos con manifestaciones gráfico rupestres, tanto de petrograbados como de pinturas, se ha observado elementos antropomorfos parciales, manos al positivo como al negativo. En el presente trabajo, se realizará la descripción de varios de los sitios donde se han registrado este tipo de representaciones en las distintas regiones, tanto en el desierto, los valles como en las montañas.

WHO DREW ALL OVER THIS WALL? THE
APPLICABILITY OF 2D:4D RATIO FOR
SEXING CHILDREN'S HAND STENCILS IN
ROCK ART

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Handprints and hand stencils are a ubiquitous element of rock art. For archaeologists, they represent a window onto the lives and communities of practice of prehistoric peoples. They are a means of recognizing individuals in the archaeological record and their contributions to the production of rock art. In particular, they allow us to investigate the role of children in this regard. Children represent an understudied archaeological demographic despite comprising 50% of many prehistoric populations. In this paper, we investigate the applicability of the 2D:4D ratio for sexing children's hand stencils. Based on a sample of 400 children between the ages of 5 and 12 years old, we analyzed the degree of variance between the ratio derived from the soft-tissue measurements, and the ratio derived from a hand stencil created by the same child. The results of this research support the hypothesis that the 2D:4D ratio can be used reliably to sex children's hand stencils archaeologically.

¿QUIEN DIBUJO TODO ESTO SOBRE LA PA-
RED? LA APLICACIÓN DE LA RATIO 2D:4D
PARA LA IDENTIFICACIÓN SEXUAL DE
HUELLAS DE MANOS INFANTILES EN EL
ARTE RUPESTRE

Manos impresas y huellas de manos son elementos inseparables en el arte rupestre. Para los arqueólogos, representan una ventana para conocer las formas de vida y las prácticas comunitarias de los grupos humanos del pasado. Son también el medio que tiene el registro arqueológico para reconocer a los individuos y su contribución al desarrollo del arte rupestre. En particular, las representaciones de manos nos

permiten investigar el rol de los niños en este contexto. Los niños constituyen un grupo demográfico poco estudiado a pesar de que suponen el 50% de muchas poblaciones prehistóricas. En este trabajo, nosotros presentaremos la aplicación de la ratio 2D:4D para la identificación sexual de representaciones de manos infantiles en el arte rupestre. El estudio está basado en una muestra de 400 niños de edades comprendidas entre 5 y 12 años, habiendo analizado la variación entre las medidas tomadas directamente de las manos infantiles y la proporcionada por la registrada a partir de la huella de la mano del propio niño. Los resultados de esta investigación permiten plantear que la ratio 2D:4D puede ser utilizada de forma fiable para la determinación sexual de las representaciones de manos de niños en el arte rupestre.

ITALIAN WESTERN ALPS: THE ROCK
PAINTINGS OF THE ROCCERÉ
(ROCCABRUNA, CUNEO).

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RocceRè is a site located in the Cuneo Province in the Italian Western Alps. This rock art site was included in the Archaeological Map of Piedmont since 1993, also for its uniqueness with about 10,000 cup marks dating from the Bronze Age to the early centuries after Christ.

In a sort of niche in the wall of a large rock shelter, recently (Fall 2011) was discovered by the team of Riccardo Baldi an interesting rock painting, probably representing an anthropomorph with big hands lifted up. In this paper we consider the typology of the drawing and its archaeological context in the so called (A. Beltran) Prehistoric Paintings of the Mediterranean Province.

The rarity of such an image in the European Alps is a valuable indicator for better study and

define the extension of a large area of the Mediterranean region that has played a crucial role during the prehistoric times. From Monte Viso, Western Alps, from the Middle Neolithic (7,000 years ago), men have made a valuable raw material for the manufacture of functional and ceremonial axes of green stone and jadeite. The surprising fact is the market of the material from the Alps to the four extreme corners of Europe, creating long lines of trade in an amazing and unexpected antiquity.

HAND IMAGES IN MAYA CAVES

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In the late 1970s I recorded rock art in caves of Oxkutzcab, Yucatán, Mexico, in collaboration with INAH. One of the major findings concerns hand images in Maya rock paintings. Both positive and negative hand prints or stencils are present in the sample including images that apparently have not been found in any other rock art world-wide:

- . –a combination of two hand stencils holding a small stick,
- . –hand stencils which, like shadow images, project the shape of an animal head with open mouth, eye and ear. These images require considerable dexterity on the part of their creators. In one case, a needle-like object was inserted in the thumb to represent the tooth of a feline animal head.

More than 30 years later, I will take a fresh look at these images and try to relate them to new research on Maya ritual cave use.

REPRESENTACIONES DE MANOS EN LAS CUEVAS MAYAS

A finales de los años 70, el autor de esta comunicación documentó en colaboración con el INAH el arte rupestre en las cuevas de Oxkutz-

cab (México). Una de los principales hallazgos fueron las representaciones de manos en el arte rupestre pintado Maya.

Representaciones de manos en positivo y en negativo están presentes en el conjunto estudiado, incluyendo imágenes que aparentemente no han sido encontradas en el arte rupestre de otras partes del mundo:

- . –La representación de dos manos sosteniendo un pequeño palo.
- . – Las representaciones de manos, como si fueran una sombra, proyectan la forma de la cabeza de un animal con la boca abierta, ojo y oído. Este tipo de imágenes requieren por parte de su creador una considerable destreza. En una ocasión, un objeto punzante fue insertado en el pulgar para representar el diente en la cabeza de un felino.

Después de 30 años, el autor de este trabajo repasará estas imágenes e intentará relacionarlas con los usos rituales analizados por las recientes investigaciones en las cuevas Mayas.

THE HANDPRINTS IN QUERETANO AND GUANAJUATO ROCK ART

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Handprints are one of the most common representations in the rock art in the entire world, and the arid region of Queretaro and Guanajuato (México) is not the exception. During our field work in this region, we have located several sites with hand prints in positive; however, it is in the archaeological site known as Cueva de las Manitas -located at the top of rocky massif known as Pinal del Zamorano, holy mountain for the native groups of the region from ancient times, where we observe that this practice with more frequency. At this site different techniques were used, because there are not only handprints in positive; as well they outlined the form

of the hand and we also see some of them where the palm is decorated, besides a big amount of finger prints, it means, parallel lines drawn with fingers.

This current work we talk about the characteristics of the handprints in the arid area of Queretaro and Guanajuato in general, as well as Cueva de las Manitas in particular, and we will make some proposals about the producers of this singular graphic objective and the probable rituals to which this practice might be linked.

LAS IMPRONTAS DE MANOS EN EL ARTE RUPESTRE DE QUERÉTARO Y GUANAJUATO

Las improntas de manos son uno de los motivos más comunes y antiguos en el arte rupestre de todo el mundo y el semidesierto de Querétaro y Guanajuato (México) no es la excepción. Durante el trabajo de localización y registro de sitios de arte rupestre en esta región, hemos localizado varios sitios que presentan soportes con impresiones de manos en positivo; sin embargo, es en el sitio arqueológico denominado como Cueva de las Manitas -ubicado casi en la cima del macizo rocoso conocido como Pinal del Zamorano, montaña sagrada para los grupos indígenas de la región desde tiempos ancestrales- donde observamos que esta práctica se dio con mayor intensidad. En este sitio se emplearon diferentes técnicas, pues no sólo hay improntas de manos en positivo; también se delinearon imitando la forma de la mano e incluso observamos algunas donde la palma está decorada, además de una gran cantidad de "dedazos", es decir, líneas paralelas plasmadas con los dedos.

El presente trabajo tiene como propósito dar a conocer las características de las improntas de manos en la región semidesértica de Querétaro y Guanajuato en general, así como las de Cueva de las Manos en particular, y elaboraremos algunas propuestas en torno a los productores de este singular motivo gráfico y los probables rituales a los que podría estar vinculada esta práctica.

ROCK ART HANDPRINTS IN CHINA

Prof. Zhang Yasha.

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During 2007-2010 years of the Third National Archaeology General Survey, a lot of rock paintings of handprints had been found in both areas of northwest and southwest of China.

In the Northwest, handprint rock paintings are mainly distributed in western Inner Mongolia and the northern of Xinjiang. Red pigment was drawn on piedmont shallow holes. The age not only is far earlier than more than 90% of the total animal images, but also than those mysterious mask pictures, even has been thought that they would belong to the later of Paleolithic Age

Numerous and highly centralized handprint's existence is the outstanding characteristic in Southwest rock art, which are basically discovered in the Yangtze river and its tributaries, as such Hubei and Guizhou province. In BaDong site (Hubei), 397 handprints are neatly arranged above a huge rock; and on the face of a precipice in Wushan (Guizhou) is painted more than thousands of handprints, and the interpretation of the mystery will depend on the local archaeology and anthropology research progress.

LAS REPRESENTACIONES DE MANOS EN EL ARTE RUPESTRE DE CHINA

Entre los años 2007 a 2010 en el marco de la Tercer Estudio General del Patrimonio Arqueológico Nacional, una gran cantidad de rocas pintadas con representaciones manos han sido encontradas en dos áreas al noroeste y al suroeste de China.

En la del Noroeste, las rocas con representaciones de manos están distribuidas principalmente en la zona oeste de Mongolia Interior y al norte de Xinjiang. El pigmento rojo con el que fueron elaboradas era extraído mediante pequeños hoyos en la zona de piedemonte. Su cronología

es bastante más temprana que la del 90% de las imágenes de animales y también que la de aquellas misteriosas representaciones de máscaras, llegando incluso a pensar que pudieran haber sido realizadas durante la última fase del Paleolítico.

Por su parte la característica más representativa del arte rupestre del Suroeste es la existencia de un gran número de lugares con representaciones de manos, muy concentrados en torno al río Yangtze y sus afluentes y también en las provincias de Hubei y Guizhou. En el yacimiento de Ba Dong (Hubei) 397 representaciones de manos fueron realizadas en la zona superior de una gran roca y en Wushan (Guizhou) sobre la pared de un precipicio fueron pintadas miles de representaciones de manos sin que hasta el momento haya podido establecerse una interpretación adecuada que dependerá de los progresos en la investigación arqueológica y antropológica del territorio.

Session 8
THE DYNAMIC DUO OF CHACO ROCK ART: PAPERS IN HONOR OF JANE KOLBER AND DONNA YODER

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The very mention of rock art recording in Chaco Canyon brings to mind the dedication of two remarkable people – Jane Kolber and Donna Yoder. For 15 years they have led scores of volunteers in improving and expanding upon the Chaco documentation work that began with their involvement in the New Mexico Archaeological Society’s rock art recording field school almost 40 years ago. The Chaco Rock Art Reassessment Project, headed by Jane and Donna, revived the prospect in 1996. It is an ambitious effort, to say the least. Through their work, Chaco is revealing that the petroglyphs and pictographs placed upon those cliff faces and boulders are of greater quantity (and in more elusive places) than ever could have been imagined when they began this endeavor. The Chaco Culture National Historical Park—a UNESCO World Heritage site and National Park Service gem—may contain the densest concentration of rock art in North America. Is this surprising given the significance of this center place to the Ancestral Puebloan and Navajo peoples, spanning in time from remote antiquity to present day? While there appears to be no end in sight for the recording work in the park, they diligently continue. Jane and Donna’s lifetime labor of love inspires the next generation of tenacious rock art recorders in Chaco Canyon, who must brave searing heat, frigid winds, blinding sand storms, seemingly inaccessible heights, or come whatever may in pursuit of rock art conservation. The commitment of these two women to oversee complete documentation of Chaco’s rock art assemblage provides invaluable data to rock art researchers who seek to better understand this imagery and rectify its absence in most studies of Chaco Canyon to this day. This session presents papers in tribute to Chaco’s Dynamic Duo—Jane Kolber and Donna Yoder.

**PAINTED HANDS AT CHACO CULTURE
NATIONAL HISTORIC PARK**

Pamela Baker

URARA (Utah Rock Art Research Association)

Although better known for pecked and incised imagery, the rock art of Chaco Culture National Historic Park also includes painted elements. Many of these are hands both as simple panels with only one or two hands (Figure 1) or as more complex panels with multiple prints in more than one color (Figure 2).

This paper will focus on the painted hands that have been surveyed and/or recorded by the Rock Art Reassessment Project under the direction of Jane Kolber and Donna Yoder. Their leadership since the 1970s has resulted in substantial advances in the study of rock art at Chaco Culture National Historic Park. Continued



Figure 1. Painted hands from site 29SJ1275 at Chaco Culture National Historical Park. These are the only hands on this panel. Photo enhanced. Photo by Pamela Baker.



Figure 2. Painted hands from a complex panel at 29SJ1179 at Chaco Culture National Historical Park. Scanned from a slide by Quentin Baker.

efforts have created a database of rock art panels and their constituent elements. The handprint in general, and painted hands in particular, occur regularly at Chaco.

Substantial occupations at Chaco of both Ancestral Puebloan (referred to as early Chacoan in this paper) and Navajo populations complicate the assignment of specific panel origins. In surrounding regions both Ancestral Puebloan and Navajo groups painted hands on the rock faces. The landscape at Chaco, however, was so thoroughly used by both groups that sites within



Figure 3. A unique hand from site 29SJ1791 at Chaco Culture National Historical Park. Photo enhanced. Photo by Quentin Baker.

the park are predominantly multi-component or are in close proximity to each other. Whenever associated elements on one panel are identifiable as early Chacoan or Navajo the hands can be more securely identified. However, even this method is not regularly reliable as images from both populations do occur on the same panel. In addition, hands continue to be painted until present times as evidenced by a recent set on a graffiti panel near the campground.

Individual sites will be discussed in this paper with an in-depth examination of context, techniques employed, colors used, and panel composition. Some panels are easily visible while others are tucked away in alcoves or overhangs. There are both positive and negative prints, as well as solid hands and those with interior patterning. One unique depiction (Figure 3) will be discussed in conjunction with Navajo oral history. Hands with red, white, yellow, cream, and pink pigments occur. Are there patterns where these various traits (context, technique, color, composition) co-occur?

Chaco was an area where secular and sacred space intermingled and most likely were one in the same. Rock art imagery, including painted hands, undoubtedly contributed to this synergy.

SCALING THE HEIGHTS: BILLBOARD ROCK ART PANELS OF EAST CHACO WASH

Barbara Bane

National Park Service, Yosemite National Park

East Chaco Wash contains some the highest and least logistically accessible rock art panels of Chaco Canyon. Many of the panels are visible from the wash floor below, with large-scale elements intended for public viewing audiences at a distance. Surprisingly, these highly visible panels also contain small, localized elements visible only for private viewing at close range. This paper examines elements of these “billboard” panels and discusses the variety of intended audiences, both public and private.

NAVAJO PERSPECTIVE OF THE ROCK ART

Ramona Begay

National Park Service, Chaco Culture National Historical Park

Chaco Canyon was a home land to the Navajo people long after the civilization of the Ancient people. Like the Ancient people, the Navajo people also left part of their history in print on boulders and cliff faces along the canyon wall throughout the canyon which today's society refers to as Rock Art. Being a member of the Navajo people, better known as Dine', I was raised in the vicinity of Chaco Canyon. The history of my maternal clan family stems back to their residing in the canyon long before the Dine' people were forced to move out of the canyon and the federal government took over the canyon where it is now known to be Chaco Culture National Historical Park. The individual in Figure 1 is my mother's uncle who was born and raised in the canyon.

Joining Jane Kolber and Donna Yoder to explore and assist them with their rock art projects in Chaco Canyon has given me a great opportunity to share the Navajo perspective of the historic rock art as a method of storytelling about the Navajo people, the culture, the tradition and their livelihood. Chaco Canyon is such a very unique place full of history from genera-



Figure 2. Horse and horseman, Navajo petroglyph.

tion after generation.

Some of the popular rock art left by the Dine' people are of, but not limited to, horses, horse riders, woven rug designs, sand painting designs and figures of holy deities. Dine' people cherish animals – mainly horses, sheep and goats – as great value within their tradition. It meant wealth if a family owned a big herd of domestic animals. A Dine' young man is expected to be a great skilled horseman and their pride as a horseman was the value identified in Rock Art (Figure 2). A Dine' young woman is expected to be a great skilled individual if they know how to weave a rug. A variety of designs have



Figure 1. The author's relative, raised in Chaco Canyon.



Figure 3. Rug design petroglyph.



Figure 4. Possible sand painting petroglyph.

their own symbolic meaning such as lightning, etc. (Figure 3). Therefore, it was very important for young men and women to learn the skills to sustain stability and bring wealth to themselves and to their family in the future. As important as these were in their lives, the young men and women would have the tendency to draw pictures of objects they were inspired by such as horses and horse riders, rug designs, etc. when they had the opportunity.

There are drawings of what could be depictions of Navajo sand paintings and holy deities (Figure 4). The sand paintings are very sacred and are restricted to ceremonial events. There are possibilities that certain individuals who were initiated and have the permission to participate to do sand paintings and performed ceremonial dances had the ability to sketch into rock walls similar symbols as part of their identifications.

NAVAJO HORSE ART - ON THE ROCKS AND OFF

David M. Brugge

National Park Service, Retired
To be presented in memorium

Horses have long played a major role in Navajo life and thought, but this was not always true (Brugge and Gerow 2000:449, 455-59).

Horses are given to the Navajos late in the

origin stories and seldom appear in ceremonial contexts (Clark 1966:11-83). Horses in rock art may provide evidence of their presence or absence. Pecked petroglyphs of figures on animals that are more canine than equine were probably made by artists who had never seen a horse (Schaafsma 1963:41, 51; Brugge 1999:30, 33). Clearly, human mounted riders wearing hats and brandishing swords should date no later than 1716 in the Dinétah (Reeve 1958:229). Incised petroglyphs of horses with or without riders probably postdate trade for metal knives from Spanish colonists well after the New Mexico colony was established in 1598. Incised petroglyphs and pictographs of riders with hats and rifles should postdate 1773, but be no later than 1868 (Reeve 1960:206). Pastoral groups of horses should postdate 1868, while highly realistic horses – often saddled and bridled, bearing brands, and in rodeo poses – should postdate 1880 as trading posts proliferated among the Navajos. Most such work probably dates well after 1900 as Navajo children were returning from boarding schools.

Navajo paintings on paper are known from as early as 1885. Published examples depict ceremonial subjects, but horses populate much of 20th century Navajo art on paper (Brody 1971:73-75; 142-43, 146-47).

Thus, Navajo horse art reflects Navajo history, but primarily events in Navajo-white relations, first with Hispanic society, then with Anglo society.

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ROCK ART EVIDENCE OF CULTURAL AND SOCIAL DYNAMICS ON THE COLORADO PLATEAU: BASKETMAKER II AND KATSINA ICONOGRAPHIES

Sally J. Cole

Utah Museum of Natural History

Rock art site documentation and resulting databases assembled over the past 30 years have greatly strengthened the position of rock art studies in the fields of archaeology, anthropology, and Native American consultation. Iconographic markers associated with the Ancestral Pueblo tradition are frameworks for tracing cultural distribution and interaction and for examining social developments over time and space. Jane Kolber's and Donna Yoder's contributions to knowledge of Colorado Plateau rock art, from the middle Little Colorado River valley to Chaco in the San Juan River region, are significant for this work.

Regional interaction at the dawn of agricul-

ture is evident in anthropomorphic imagery of middle Little Colorado, San Juan, and Colorado River rock art. The connections point to general and more specific levels of information exchange during Archaic and Basketmaker II times and have implications for identifying and interpreting ancient exchange systems, migrations, origins of corn agriculture, and establishment of the Ancestral Pueblo tradition among linguistically diverse groups (Cole 2009; Matson 1990; McCreery and Malotki 1994; Schaafsma 1980; Turner 1963, 1971).

Influence of katsina religion on Chaco Canyon communities is significant for interpreting late prehistoric dynamics on the Colorado Plateau (Crown 1994; Lekson 2006; Vivian 1990). Anthropomorphic petroglyphs at Chaco sites are stylistically associated with prehistoric-historic katsina iconography in the Hopi, Zuni, and Rio Grande Pueblo regions (Cole 1992, 2009; Schaafsma 1980). Of particular interest are three faces high on a vertical cliff near the mouth of Mockingbird Canyon, behind Hungo Pavi. The forms appear prehistoric by comparison with nearby Pueblo II-Pueblo III style elements and may be associated with later Chaco occupations. This is supported by the petroglyph location, likely accessed by a substantial ladder constructed with community support rather than transported for use, and generalized post-A.D. 1200 dates for katsina iconography. Research at neighboring sites may provide context for interpreting the iconography and its role at Chaco Canyon.

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Figure 1. Scale field drawing of the infamous “sundagger” panel created by the Chaco Rock Art Recording Project team.

THE KOAN OF ROCK ART
 OR
 WHAT GOES UP MUST COME DOWN
 OR
 WHAT’S IT ALL MEAN ANYWAY?

G.B. Cornucopia

National Park Service, Chaco Culture National Historical Park

This presentation will offer an unconventional model of interpretation inspired by the Chinese tradition of Koan (pronounced Ko ahn). This Zen tradition became a prime example of an

important teaching tool in Asia during Bonito’s earliest beginnings and perhaps has something to teach us about framing explanations too quickly. An illuminating example is a spiral atop Fajada Butte in Chaco Culture National Historical Park that has become a media sensation and remains fixed in the public mind as an example of an astronomical alignment seldom questioned.

In the early summer of 2011 Jane Kolber and Donna Yoder led an expedition to top of Fajada to record many examples of rock art including the famous “sundagger” of which the above mentioned spiral is a component. The detailed recording of the spiral made by the team (Figure

1) does not accord with certain features that are part and parcel of the astronomical interpretation.

Instead of settling on one explanation based on, as well as confirming, a particular belief, perhaps even a casual acquaintance with the Koan tradition can offer a more dynamic interaction with certain examples of rock art, not to discard the earlier explanation made by Anna Sofaer's team, but instead to increase our experience of the site by giving it our deeper attention.

Jane and Donna's team have made it a practice to refrain from interpreting too readily the rock art they have faithfully recorded over their decades of work in Chaco. Our job in interpretation is to equally, faithfully present to the visiting public a container in which a rich and meaningful experience may be gained.

This presentation will be an attempt to provide a glimpse into the very fine line between intellectual understanding of traditions of Chaco's rock art, and the subjective response of the heart and mind.

THE ROCK ART FIELD SCHOOL OF THE
ARCHAEOLOGICAL SOCIETY OF
NEW MEXICO AT CHACO CANYON:
A PERSONAL HISTORY

Helen K. Crotty

Archaeological Society of New Mexico

The Rock Art Field School (RAFS) of the Archaeological Society of New Mexico is believed to be the first of its kind. It was established under the leadership of Colonel James Bain in 1972 following five years of recording rock art with teams made up of local archaeological society members or tourists. In 1975, the RAFS began a planned six-year recording project at Chaco under an agreement between the Chaco Center (a joint venture of the University of New Mexico and the National Park Service) and Bain, subject to the approval of the Superintendent of then-named Chaco Canyon National Monument. Bain was to recruit and train volunteers to docu-

ment rock art sites previously located in surveys conducted by Chaco Project crews.

Recording methods were primitive by present standards, as Bain was essentially designing the protocol as he went along, albeit seeking advice from archaeologists. Photography was preferred over drawings, and a suspension of aluminum powder in water was employed to enhance the visibility of petroglyphs on Chaco's light sandstone (but rinsed off with water from a spray bottle after photography). No measurements were made, but recording crews were instructed to make sketch maps of each provenience and mark its location on a map.

Field school sessions lasted only one week and had a maximum of 30 participants, who were expected to work only half-days. Jane Kolber and Donna Yoder had participated in earlier RAFS projects and volunteered for Chaco starting in 1976 and 1977, respectively, and continued there through 1980 and with RAFS at other sites until 1988. In addition to their skills as crew chiefs and recorders, they became especially appreciated for the "Chaco Taco" farewell dinners they prepared on the last evening of the school. In recent years they have led volunteer teams in re-recording the rock art, employing scale drawings as well as digital cameras and GPS units — and no aluminum powder.

We (Helen and Jay Crotty) first attended the RAFS in 1977. Having offered to spend full days in the field recording more distant sites, we were assigned to a crew chief and given several sites to record, among them Fajada Butte. As neither the crew chief nor I were willing to undertake the climb up the chimney, Jay appealed to other RAFS participants for someone to climb the butte with him. Only Anna Sofaer agreed—provided Jay supplied a rope. Once on top, they happened to be standing in front of the rocks that formed what came to be known as the "Sun Dagger" at just the right time. Sofaer researched the possible solstice marker over the winter and arrived in 1978 with climbing paraphernalia and a professional photographer to document the

phenomenon, and thereafter devoted herself to the “Sun Dagger” site and its implications.

The presentation will be accompanied by personal photos of RAFS participants at work, the original discovery of the “Sun Dagger,” and the “midsummer madness” of 1978 when crowds of people began to impact the delicate arrangement of the rocks that formed it.

THE CHACO CULTURE NHP SITEWATCH
PROGRAM AND CONSERVATION OF
VANDALIZED ROCK ART SITES

Dabney Ford
Roger A. Moore
F. Joan Mathien

National Park Service, Chaco Culture National
Historical Park

As a result of the decades of work by Jane Kolber and Donna Yoder, we now have a vast amount of valuable data about the rock art in the park. Based on this database the park partnered with the New Mexico Site Steward Program to monitor rock art in areas accessible to visitors to track the condition of this resource and assess types of damage being sustained. After evaluating the level and frequency of both natural deterioration and vandalism, we developed a protocol to remediate the vandalism on and near rock art panels. This program combines public education and remediation of the damage to rock art and other cliff-face areas. Public education has been ongoing and the remediation program efforts in 2011. Jane Kolber was instrumental in arranging a workshop with a respected rock art conservator which resulted in training and subsequent treatment of some of the most damaged areas in the park. The remediation protocol calls for additional training of park staff in remediation techniques, with continued guidance from the rock art conservator.

ROCK ART STUDIES IN CHACO CANYON:
ARCHAEOLOGICAL CONTEXTS

Kelley Hays-Gilpin
Northern Arizona University
Dennis Gilpin
PaleoWest

Chaco Canyon, New Mexico, is an ancestral place for many Native Americans, and a monumental puzzle for archaeologists. It has over 2,000 ancient Pueblo and historic Navajo sites. At least 400 sites have rock art. Although archaeologists have investigated Chaco for over a century, Chacoan rock art is only now being systematically examined, thanks to Jane Kolber, Donna Yoder, and many volunteers.

The Chaco Canyon community was founded as a uniquely organized population center in the high desert of northern New Mexico in the 7th century. Population peaked in the late 11th century. By A.D. 1200, it was almost completely depopulated. Chaco Canyon’s rise and fall, its elaborate architecture, astronomical alignments, and extensive road system are well known, yet archaeologists do not agree about what kind of place it was: ritual center, pilgrimage destination, complex society with priestly elites, or warring petty state? Of the many models for how Chaco was organized, few cite rock art as a significant line of evidence.

Most rock art research in the canyon focuses on archaeoastronomy, such as the Fajada Butte “Sun Dagger” petroglyph and the Peñasco Blanco “Supernova” painting. These sites are not typical and archaeoastronomy is a mono-causal approach that ignores the diversity of imagery, settings, and meanings of Chaco rock art.

Polly Schaafsma’s (2006) brief comparisons of Chaco rock art with that of surrounding regions and Mexico shows that most Chaco rock art looks very much like other Puebloan rock art. Kolber and colleagues, however, have identified several unusual features of Chaco rock art:

A wide range of techniques were used to produce it—pecking, scratching, grinding, drilling,

incising, painting, and bas relief carving, often in combination;

A large number of large, skillfully rendered petroglyphs placed high on cliff faces;

Placement with attention to not only visibility, but also *invisibility*. Many are tucked into cracks and relatively small “private” spaces. A great many are placed in the open but are visible only in certain lighting conditions. They appear and disappear throughout the cycles of days and seasons.

Directionality is important: most face south or east.

Rock art evidence challenges some previous views of Chaco Canyon as a militaristic, centrally controlled enclave of Mesoamerican marauders. Rock art in Chaco supports models of Chaco as a socially and ritually heterogeneous network of communities. Chaco people made rock art in many contexts, for many reasons, possibly including prayers, initiation into ritual sodalities, rites of passage, pilgrimage, marking trails and territory, vision questing, teaching stories and rituals, and keeping track of time and seasons. Making and viewing rock art likely involved many social actors—spectators and participants in public rituals, initiates, ritual leaders, residents of the canyon and visitors.

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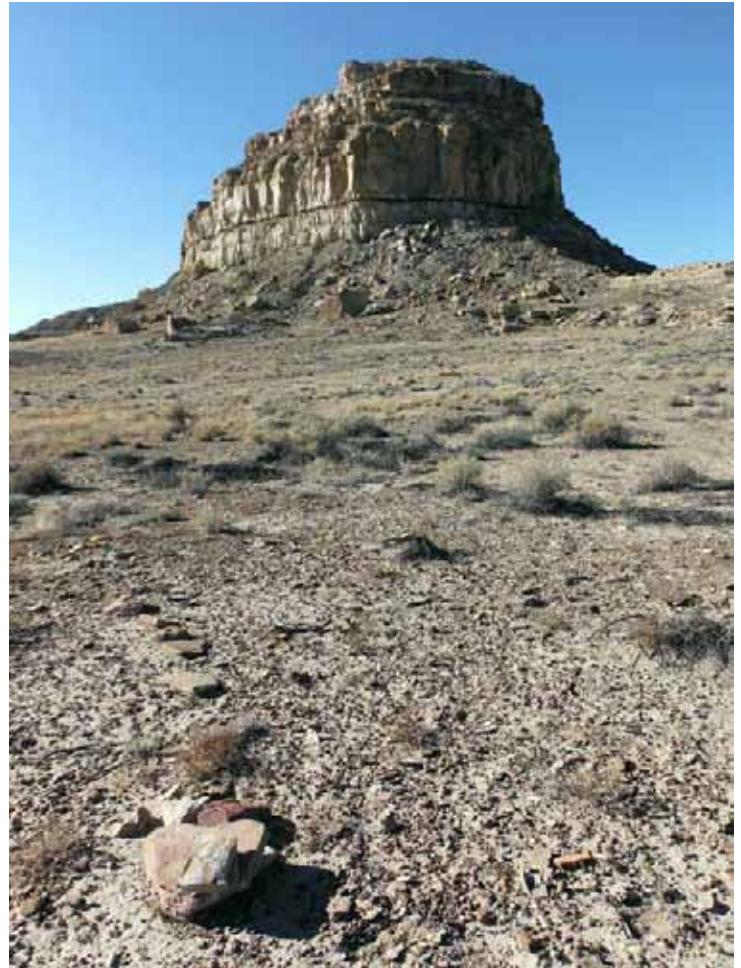


Figure 1. Fajada Butte from a pithouse site to the north. Note the line of slab rocks at lower left indicating surface evidence of an architectural element.

ASSESSING RELATIONSHIPS BETWEEN THE ROCK ART IMAGERY AND ARCHITECTURE OF FAJADA BUTTE, CHACO CANYON

Jennifer K. Huang

Bureau of Reclamation, Snake River Area Office

Fajada Butte in Chaco Canyon is a distinctive and imposing landform that undoubtedly played an integral role in the ancient Chaco World. Early in the canyon’s settlement history, pithouses were built in its shadow. Later as the canyon’s population grew, the butte was the focus of earthen architecture construction in



Figure 2. A panel of prehistoric rock art imagery on a boulder below the base of Fajada Butte. No architectural elements are associated with this panel, which faces east.

the form of a ramp. Masonry rooms were constructed on the butte's lofty reaches well above the canyon floor around this same time, and also seem to have been used after the canyon depopulated. In addition, rock art images can be found on scattered boulders around the butte's periphery, on its lower bench, at various levels of the butte high above the canyon floor, and even on the very top of Fajada. Some rock art is placed in direct association with the architecture, and some are entirely unassociated.

About a dozen pithouse sites surround the butte, but their locations mostly occur beyond the extent of the tumbled boulders, and no petroglyphs or pictographs are found among them (Figure 1). The array of boulders around the base of Fajada is fairly extensive, yet only a small fraction of the total number contain petroglyphs of likely prehistoric origin. These panels contain fundamental elements of Ancestral Puebloan rock art imagery – pecked spirals, rectilinear meanders, blocky footprints, etc. (Figure 2) and have no architectural elements in direct association. The only recorded pictographs on the butte (located at the cliff base) are

also nowhere near prehistoric architecture. The roomblocks on the upper tier of the butte are extensive on both the east and west sides, and many rock art elements are found in association, mostly above what is interpreted as the roof-line of the rooms (see Figure 3) (Ford 1989:474). These include a few of the “calendrical” markers on the east side. However, other “calendrical” petroglyphs on the west side are not found near roomblock ruins. In addition, the infamous

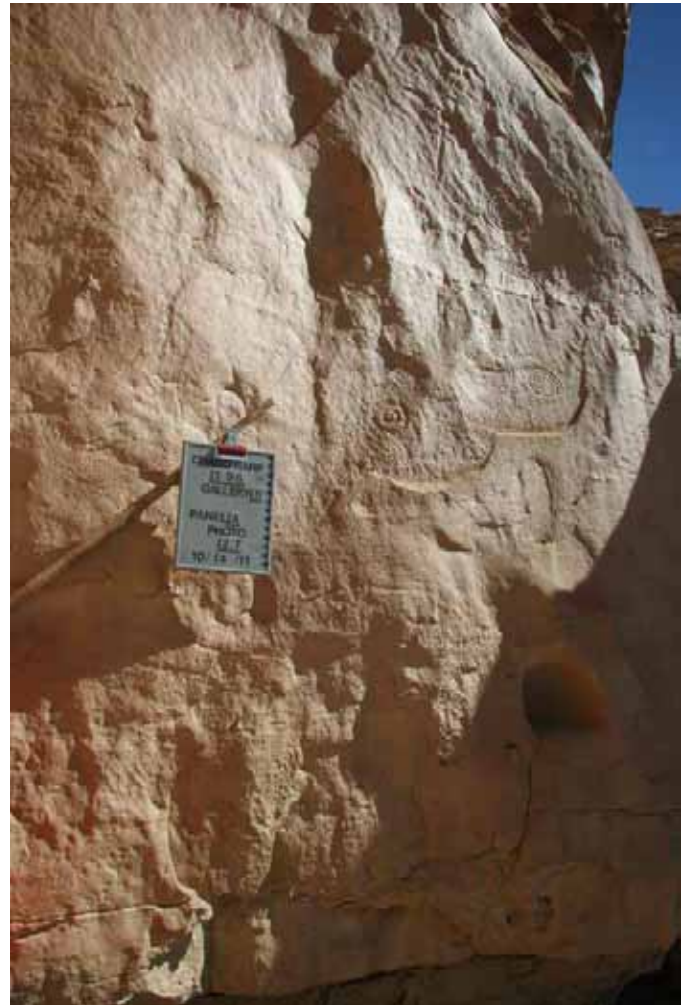


Figure 3. On the high occupation ledge of Fajada Butte, rock art imagery is often found above the roof level, as indicated by the deep beam seat at this panel on the butte's west side that would have supported the roomblock's roof. Photo taken by Scott Seibel during Chaco Rock Art Reassessment Project documentation work in 2011.

Sun Dagger or Three-Slab Site does not have masonry or earthen attributes. A high ledge of newly-recorded Ancestral Puebloan rock art images contains no architecture whatsoever, only petroglyphs.

Historically, there is also Navajo architecture in the form of hogan ruins scattered around the base of the butte. These architectural constructs (which number greater than 10) are more often located near large boulders and would have a higher probability of contemporaneous rock art being nearby. However, Fajada Butte does not boast any definitive Navajo rock art imagery. Many historic inscriptions are present on boulders around the butte, not in association with hogan ruins, that are of likely Hispanic origin, but no horse, deity, or other narrative imagery that would normally be associated with Navajo peoples have been found there.

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SUPERIMPOSITION AND

TRANSFORMATION: A ROCK SHELTER IN EASTERN CHACO CANYON

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Tony Hull

University of New Mexico

Carol Ambruster

Independant Researcher

There is a widespread belief that the Navajo avoided Ancestral Puebloan sites due to their association with death. Our research in Eastern Chaco Canyon suggests that, at least for some early Navajo sites, this avoidance was not al-

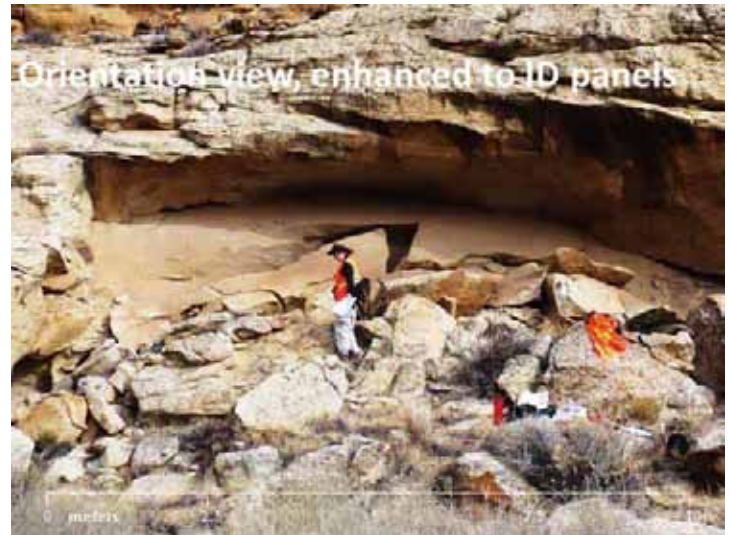


Figure 1: Pictorial overview of 29SJ280 Gallery 1.
Extreme edges are not in view.

ways the case. We have documented a large, rock art rich rock shelter near the origin of a rincon where close inspection reveals a range of pecked (consistent with Abstract and Ancestral Puebloan) and deeply incised (consistent with early Navajo) rock art. Most striking is that a small number of Ancestral Puebloan glyphs demonstrate evidence of rework by early Navajo. In the larger context, the rincon itself contains both Ancestral Puebloan and Navajo habitation sites.

The site features extend over a length of 20 meters along the rincon wall from a blotch of red pigment at the extreme northwest edge of the ledge to a storage hollow at the extreme southeast edge. Prominent grinding slicks attract attention to the area. We have examined and documented the site closely on three different visits (1998, 1999 and 2012). The Chaco Rock Art Recording Project led by Jane Kolber and Donna Yoder documented the site in 2008. This discussion is based on the records of both groups (Figure 1).

The site is dominated by bear paws, hands and human feet. At times it is difficult to identify which of these the image is intended to portray



Figure 2: Matched front and rear bear paws approaching a crack in AHJ Panel D at 29SJ580 Gallery 1. Note also the unidentifiable abstract style images between front and back paws.

with incised reworking of the pecked image appearing to turn a hand or foot into a paw (Figure 2). Bears play an important role in both Puebloan and Navajo rituals. Both can use bear paws in curing rituals (Mitchell 2001:269; Parsons 1996:170). The fact that a majority of the bear paws are pecked leaves open the possibility that any given glyph may be ancestral Puebloan, historic Puebloan or even very early Navajo (Schaafsma 1992:27). Differentiation among these choices is difficult if not impossible.

Such an early date is consistent with other rock art in Eastern Chaco Canyon, including both a Gobernador painted panel in one of the south wall rincons and the Shabikeschee complex almost directly across the canyon. Like these south wall panels, the bear paw complex appears to have religious purpose. If so, its use may well have ended when the prohibitions against painted pottery and permanent representations developed among Navajos during the mid-18th century. Thus, these rock art panels connect Chaco Canyon to the Dinétah period of Navajo development when Puebloan influence can be easily identified. The confluence of style

and topic on 29SJ580 Gallery 1 reflects a time when Puebloan and Navajo practices were close and the avoidance taboo for ancestral Puebloans was not yet in place.

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CHACO ROCK-ART REASSESSMENT PROJECT

Jane Kolber

Chaco Rock-Art Reassessment Project

Paul P. Steed, Jr., a veteran of the Archaeological Society of New Mexico's Rock Art Field



Figure 1. The primary recording team that includes Scott Seibel, Monica Wadsworth Seibel, Quentin Baker, Donna Yoder, and Pamela Baker, standing in front of Chetro Ketl great house.



Figure 2. Recording in Chaco often includes climbing to hazardous locations.

School (ASNMRAFS) organized a reunion of alumni in Chaco Canyon in the summer of 1995. Every June from 1976 through 1981, the Archaeological Society of New Mexico (ASNM) held a rock-art field school for one week to two weeks. Colonel James Bain, the ASNMRAFS director had been invited to record the rock-art in Chaco by James Judge.

Recordings were made of sites that had been noted by Bain as containing rock-art in the Chaco Survey Project of the early 1970s directed by Judge. It was later found that the records did not include all the rock-art present.

During the 1995 reunion, Joan Matthien, a Park Service archaeologist, took us on a field trip into Mockingbird Canyon where much Navajo rock-art is located. When we visited the sites, I realized that more recent recording methods would assist in more accurate recordings. I contacted Dabney Ford, Chaco Chief of Cultural Resources to ask if we could add to the recording by updating the sites we had recently visited. Permission was granted and we recorded in Mockingbird the following spring. After the completion of this session, we submitted our records to the Park and in response were requested to continue recording other areas focusing on those most threatened by vandalism (Figure 1).

We began in Gallo Wash and slowly added more and more areas until all the sites along the north side within the Park boundary were documented. In addition a number of sites were recorded on the south side of the canyon, which has a lower density of images. During the CRARP project all rock-art found within each site was recorded. Other sites with dominant Navajo characteristics were recorded in a separate project (Figure 2).

Reassessment was the main purpose of the new recording project. Our project set out to include all of the rock-art that was previously recorded and any other images that could be found. The documentation progressed by covering specific areas. Area notebook binders were submitted after each session to the Cultural Resources office for eventual storage at the archives now housed in the Hibben Center in Albuquerque. The CRARP project was sponsored by the Chaco Culture National Historical Park (CCNHP), numerous grants from the Western National Parks Association and thousands of volunteer hours by our recorders. The Navajo Nation requested and sponsored a rock-art recording and archaeological survey on their land adjacent to the Park.



Figure 3. Johannes Loubser trained the preservation crew, and archaeologists Roger Moore and Dabney Ford, to remove graffiti.

The following were recorders or assisted us in other ways to made it possible for the precious rock-art of Chaco Canyon to be preserved and protected: Pam Baker, Quentin Baker, Barbara Bane, Ramona Begay, Darlene Brinkerhoff, Michelle Brown, Martin Campbell, Ed Dooline, Dan Frey, Mandy Harmon, Jennifer Honanie, Jennifer Huang, Judith Isaacs, Evelyn Johnson, Mary Jordan, Kelley Hays-Gilpin, Anna Lawrie, Janet Lever, Sandy Lynch, Jim McLaughlin, Sally McLaughlin, Charles Marie, Audrey Martinez, Cheryl Norbert, George Ogura, Sue Perez, Sara Petrillo, Kirk Peterson, Ann Phillips, Cesar Quijada Lopez, Eric Polingyouma, Marvin Rowe, Scott Seibel, Carol Shattuck, Belinda Stoll, Monte Surratt, Gina Taylor, Matthew Tso, Ernie Tsoie, Monica Wadsworth-Seibel, Dwayne Waseta, Donald E. Weaver, Jr, W. Rex Weeks, Peter Welsh, Phoebe Weritos, Melanie Yazzie, Yvonne Suina, and others among the Volunteer in Parks and Student Conservation Association programs. The staff and administration at the Park has always been extremely supportive and tremendously helpful, but nothing would ever have been accomplished without the enthusiastic and unending support, knowledge and encouragement of Dabney Ford.

Other accomplishments have spun off from the recording projects such as: an interpretive rock-art trail with an educational booklet; research studies; in Park training and information sessions; the assessment, evaluation, organization and expansion of Chaco rock-art records; a similar project on for the Navajo Nation; the basis for a successful ARPA conviction; permanent educational exhibits; many reports, papers and presentations; a site steward program; and presentations and tours to the descendants of the original inhabitants (Figure 3).

GRAFFITI DATES AS A ROCK ART CONSERVATION AND MANAGEMENT TOOL

J. H. N. Loubser

Stratum Unlimited, LLC

At the request of Jane Kolber, long-time researcher of petroglyphs within the Chaco Culture National Historical Park (CCNHP), the author – Johannes Loubser – with the aid of park staff and site stewards, removed and camouflaged graffiti from three separate locations in late March of 2012 (Loubser 2012a). Removing powdery residue of light scratches on plain rock with a cotton wool poultice rolled around the tip of a wooden dowel is fairly straightforward (Figure 1), but the removal of deeper scratches within the rock surface, especially when that surface also contains petroglyphs and



Figure 1. Use of Rolling Poultice to Remove Light Scratches from Plain Rock Surface.



Figure 2. Camouflage of Deep Scratches with Liquid Pigment.

pictographs, can become challenging.

Practical challenges encountered during the removal exercise within the CCHNP echo those experienced at other rock art sites on sandstone (Loubser 2010, Loubser 2012b). These challenges include the following: properly and thoroughly identifying faint traces of original petroglyphs and pictographs prior to graffiti removal; removing graffiti without creating lighter areas that stand out against the surrounding untreated rock; color matching the lighter treated areas with the surrounding rock; matching the texture of the treated area with

that of the surrounding rock; and adopting visitation management strategies that will help minimize the recurrence of graffiti.

The general difficulty of identifying the petroglyphs on the rock surfaces of Chaco Canyon has been overcome by consulting the extensive recording of rock imagery under the supervision of Jane (Figure 2). On two surfaces no color matching was needed after graffiti removal, but this ideal situation was unfortunately not possible at the other panels that were treated. On the majority of panels removal surfaces had to be color-matched with a paint brush application of ground-up pigment powder mixed with water (Figure 3). Textural differences were minimized by smoothing out abrupt edges and/or sculpting indentations into the surface with electric

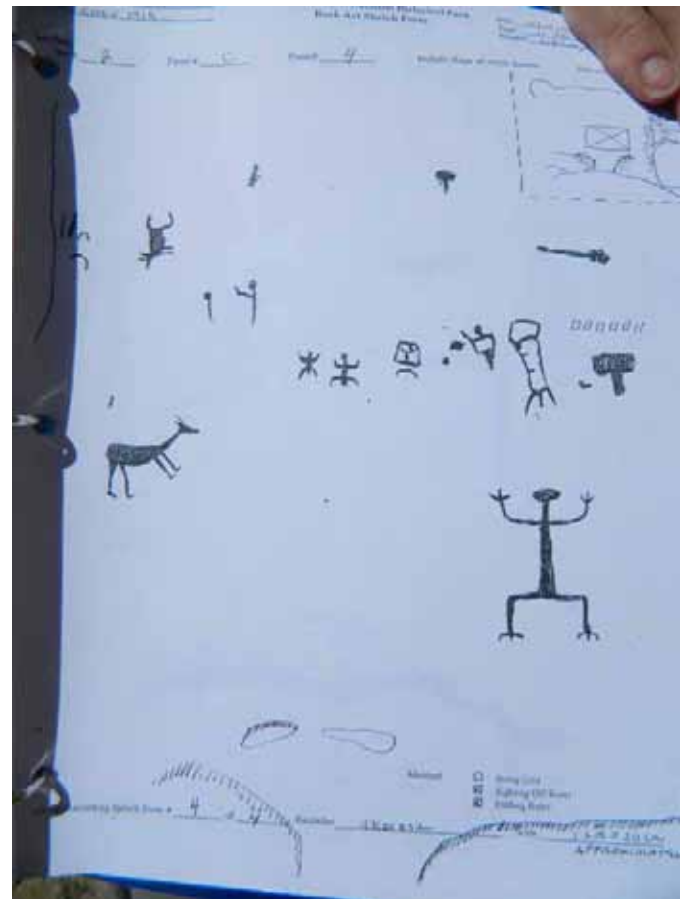


Figure 3. Copy of Kolber Recording Used to Identify Original Petroglyphs.



Figure 4. Operation of Electric Drill to Remove Graffiti from House Wall.

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FAJADA BUTTE AS AXIS MUNDI: RITUAL, ROCK ART, AND REFUGE

J. McKim Malville

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Fajada Butte is the single most dramatic topographic feature of Chaco Canyon, and it may have been a spiritual magnet, perhaps the primary magnet, for early migrants. The butte may have been the sacred center of the Fajada Gap community, a group of 54 small house sites which flourished in the 900s and early 1000s

drills (Figure 4) and steel dental picks.

Jane's illustrated booklet that guides visitors along the petroglyph trail from Pueblo Bonito to Chetro Ketl is a highly effective educational tool that helps visitors locate and identify normally hard-to-see motifs. Knowledge gained during a guided trip along the trail not only creates an awareness of petroglyphs, but also results in an acknowledgement of the need for their proper conservation and management. Reducing the distracting effect that graffiti has on the petroglyphs helps increase the appreciation of petroglyphs among visitors. What is needed for a more rounded and informed interpretation to the visiting public, however, is an explicit statement of the petroglyph's relationships to the rest of the archaeological record, critical components of which include additional work on dating and inclusion of indigenous perceptions.



Figure 1. December solstice sunrise from the Great Kiva in Marcia's Rincon (photo by GB Cornucopia).



Figure 2. Noon sunset-sunrise over Fajada Butta at December Solstice near 29SJ1360. It is just north of Fajada Butte, and it is the only small house site in which the remains of a Scarlet Macaw were found.

CE. The community contains one of the earliest Great Kivas to be constructed in Chaco Canyon. A sequence of ramps, which appear to be associated with the Fajada Gap community, were constructed on the southwest side of Fajada. The lowest ramp utilizes a natural feature, which may have been modified. Fire boxes are present at the base and summit of the ramps. A new finding reported in this paper is that the December solstice sun rises over the center of Fajada Butte as viewed from the isolated Great



Figure 3. The lowest of the three sections of the SW Ramp of Fajada Butte.

Kiva (29SJ1253) in Marcia's Rincon (Figure 1). This appears to be the earliest example of direct observational astronomy in Chaco Canyon. A second at December solstice sunrise occurs near noon above the small house site north of Fajada Butte, 29SJ1360 (Figure 2). The small house is remarkable in that it contained the only remains of a scarlet macaw outside of a Great House. Macaw feathers may have been used in rituals of symbolic ascent of the butte.

The Fajada Gap community may have provided a seed for some of the ideological and ritual underpinnings of the subsequent Great House culture. These include shamanic-like processions from the great kiva to the summit of Fajada Butte using the southwest ramp (Figure 3) for winter solstice fire ceremonies. Ceramic evidence points to a continuing activity on Fajada Butte from CE 900 to the late 1200. Rooms near the summit may have been used as temporary refuges during dangerous times of the 1200s. Because of the timing and brief appearance of the light and shadow effects at the natural rock fall of the three slab site, residents of those rooms may have been responsible for producing the June solstice spiral, which may not be associated with the Classic Bonito Period. The date of June solstice needed to position the spiral behind the slabs could have been obtained from the calendrical stations of Piedra del Sol, which is in a direct line-of-sight.

INSCRIPTIONS IN CHACO CULTURE
NATIONAL HISTORICAL PARK:
THE SOCIOPOLITICAL IMPLICATIONS

Ann Phillips

University of Colorado Museum of Natural History

Donna Yoder

Chaco Rock Art Reassessment Project

Inscriptions and signatures on the sandstone boulders and cliffs in Chaco Canyon in northwestern New Mexico between 1858 and 2003 provide many clues about the history of the

area. The semi-arid landscape, natural springs, vegetation, and protective cliffs made the Chaco Canyon drainage a unique and desirable area for homesteading, grazing, and exploration of the complex archaeology. The Navajo inhabited this land well before 1850. Later the Hispanic population moved northward and westward, and the Anglo population subsequently expanded into the area. The Chaco Canyon drainage became a center of conflicting interests, and the inscriptions on the canyon walls during this hundred and fifty-year time span document this history.

The first known signatures were left in the canyon in 1858, inscribed by members of a regiment of mounted infantry who were assigned to the region to subdue the Navajo who were raiding nearby settlements. Later in the Nineteenth Century, the Navajo, now herding sheep, and later Hispanic herders found the protected canyons ideal for winter grazing. Hispanic signatures are found near their winter camps. Eventually Anglo ranchers developed large ranching operations, claiming the best water sources and land for themselves. When Hispanic herders were unable to have access to good rangeland or water for their stock, they eventually sold out to Anglo ranchers or became deeply in debt. Many ultimately lost the land originally granted their families, and many became herders, called "partidos," who were employed by the Anglo ranchers.

As land was carved out of the public domain, a series of surveying parties passed through the area to survey for the checkerboard railroad land grant, native reservations, homesteads, and the Chaco Canyon Cultural Park. In 1910, a teamster with the U.S. Geological Survey left his signature along with a message for another teamster in Chaco Canyon.

Having a profound interest in archaeology, Richard Wetherill, established a homestead in the ruins at Pueblo Bonito in 1897, and hired Navajos to excavate the ruins and to help run the trading post. The Navajo also managed their

own bands of sheep which grazed within the canyon. Wetherill, as well as other archaeologists and guests, inscribed their signatures in the Canyon. After Chaco Canyon was made a National Monument in 1907, Wetherill relinquished his homestead claim, including the right to excavate the archaeological sites in the canyon.

The Navajo continued to run sheep in the canyons although many left for jobs in nearby towns and to serve in the military during World War II. Upon returning to a very different life, they left new images on the canyon walls consisting of the alphabet, houses, cars, and airplanes. The last Navajo family to inhabit the canyon was there until 1947.

Several years after Chaco Canyon was designated a National Monument in 1907, the land was closed to grazing, and in 1980 Chaco Canyon was designated a National Historical Park.

SHOULD WE DATE THE CHACO CANYON A.D. 1054 "SUPERNOVA" AND A.D. 1066 PICTOGRAPHS?

Marvin W. Rowe

Texas A&M University (Emeritus Professor, Visiting Professor) and Museum of New Mexico (Conservation Scientist)

On July 5, 1054, a new star, a supernova brighter than Venus, appeared in the sky just before dawn in close conjunction to the crescent Moon. It remained visible for approximately 23 days and 650 nights. It resulted in the present day Crab Nebula (Figure 1).

More than 20 rock art panels in western USA and Mexico that include a circle or star-like symbol along with a crescent have been suggested to be depictions of that supernova. The most striking of all "supernova" images is a red pictograph on a rock overhang in Chaco Canyon National Monument (Figure 2). Very close to the supernova image, there is also a polychromatic comet pictograph, assumed to be a depiction of the A.D. 1066 Halley's comet.

Ten other supposed supernova explosion im-

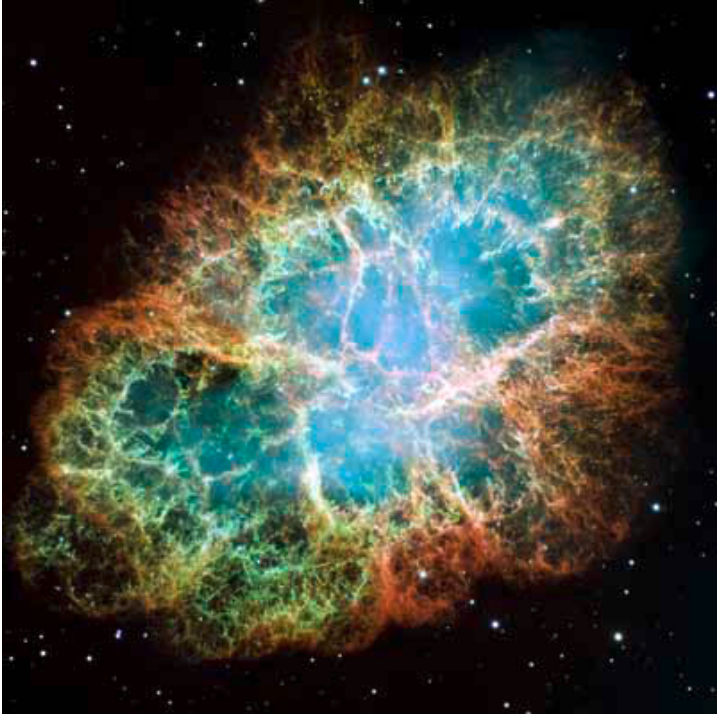


Figure 1. Composite Crab Nebula image from three NASA Great Observatories. Chandra X-ray image (light blue), Hubble Space Telescope optical images (green and dark blue), and Space Telescope's infrared image (red). The X-ray image is smaller than the others because ultra-high-energy X-ray emitting electrons radiate away their energy more quickly than the lower-energy electrons emitting optical and infrared light. The neutron star (mass equivalent to the sun crammed into a rapidly spinning ball of neutrons twelve miles across) is the bright white dot in the center. Credit: X-ray: NASA/CXC/ASU/J. Hester et al.; Optical: NASA/ESA/ASU/J. Hester & A. Loll; Infrared: NASA/JPL-Caltech/Univ. Minn./R. Gehrz

ages investigated show little evidence for being depictions of that event. For instance, the image at Lava Beds National Monument (Figure 3) has been dated, with ages far too young to represent the A.D. 1054 event.

Of proposed “supernova” rock art studied in detail, only the Peñasco Blanco image in Chaco Canyon remains plausible. Whether dating the Chaco Canyon “supernova” and “Halley’s Comet” rock art depictions would prove their



Figure 2. Many investigators believe this panel represents two separate events. The star-like figure taken with the crescent shape is generally taken to represent the A.D. 1054 supernova explosion. Concentric circles combined with the paint tailing toward the right is generally taken to be a representation of the A.D. 1066 Halley’s Comet. Credit: Randy Langstraat, Adventure Blog.



Figure 3. A dated pictograph panel; the dates are inconsistent with an assignment of these images to be the A.D. 1054 supernova event - unless they were repainted relatively recently (Armitage et al. 1997).



Figure 4. The “supernova” representation near the present day White Rock, New Mexico (LA-49944). Note the apparent five tails (the five dashed lines emanating from the head) of the comet-like object.

case will be considered from the viewpoint of a dating practitioner.

An interesting petroglyph near White Rock, New Mexico (Figure 4) probably represents the exceptional A.D. 1264 comet, not the 1054 supernova and 1066 comet events (W. Bruce Masse, personal communication 2012).

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CHACO ROCK ART MATTERS

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This paper addresses Chaco rock art on a general front. Since the inception of the Chaco

Project in 1971 by the National Park Service, hypotheses have proliferated on the nature of the socio/political structure of Chacoan society and its role on a regional scale. While the spirals on Fajada Butte are a notable exception, the archaeological community has generally ignored Chaco rock art in regard to these considerations. The case made here is that since rock art is a direct product of values and cultural concerns, understanding Chaco rock art is an imperative in evaluating the social models of Chaco society between ca. 950-1140 CE and its standing within its regional context.

The ethical dimension inherent to archaeological research is briefly considered in regard to the mirror images of ourselves that have been projected onto Chaco’s past. Visions of Chaco (archaeological) are compared with Chacoan visions – the worldviews and cognitive dimensions of the ancient Chacoan inhabitants themselves as revealed in their imagery carved and painted on stone. These indigenous visual documents are compared with the prevailing models of Chaco society postulated by the archaeological community, i.e. Chaco as a regional political power, a nearly empty pilgrimage center and destination, or as a vibrant set of Pueblo farming



Figure 1. Pecked rock art imagery as an example of Anasazi rock art in Chaco Canyon.

communities. Expectations in the rock art are delineated in support or rejection of these scenarios. It is concluded that Chaco rock art is consistent with a less complex vision of Chacoan society than some of the models propose.

Specifically, the iconography does not support the vision of Chaco as a regional center, whether politically or religiously focused. In addition, evidence is lacking for Chaco-originated iconography, designs and themes that were subsequently exported or emulated. In fact, in addition to being part of an evolving regional tradition reaching back to the Basketmaker era, Chaco seems to have been on the receiving end of some ideas, hence iconography, introduced into Ancestral Pueblo rock art on a wide front after between 1000 and 1100 CE, largely from the Hohokam. Pecked, scratched, and abraded into the backyard cliffs, Chaco rock art is simply "Anasazi" rock art, not even "writ large," lacking any distinctive sub-regional overtones of its own (Figure 1). Picturing content concerned with fertility and, less explicitly, rain-making themes and seasonal change important to Southwestern Pueblo farming people, it tells us that Chacoan religious life and worldview were part of the regional norm, begging us to concede that Chaco was part of the broader Anasazi sphere, rather than the reverse. The importance of including rock art's potential contribution to the overall understanding of Chaco between ca. 900-1140 CE cannot be over-stated. In fact, rock art is a vast independent data base against which Chacoan schemes can be evaluated and if necessary reconsidered.

NEW ROCK-ART DISCOVERIES ON FAJADA BUTTE, CHACO CULTURE NATIONAL HISTORICAL PARK

Scott Seibel

Chaco Rock Art Reassessment Project

As part of the ongoing Chaco Canyon Rock-Art Reassessment Project (CRARP), detailed rock-art site recording was done on Fajada Butte (Figure



Figure 1. Fajada Butte, looking south.

1) in the Chaco Culture National Historical Park in the Spring and Fall of 2011. Several previously unknown rock-art galleries were discovered, including previously unknown panel found in an area inaccessible without technical mountaineering assistance, as well as unrecorded elements found on known panels.

Chaco Canyon, located in northwestern New Mexico, is best known as the center of an Ancestral Puebloan culture between the tenth and twelfth centuries A.D., and was also home to subsequent cultures, including Navajos, who lived in the area into historic times. Fajada Butte is a prominent landmark in Chaco Culture National Historical Park and is well-known as the site of the famous Sun Dagger Spiral, which was discovered during a recording session of the



Figure 2. Gallery 5 Panel A, the largest of the newly discovered panels. Panel is 102 cm wide.



Figure 3. Photo of shield-bearing figure in Gallery 1 showing climbing anchors.

Rock Art Recording Field School of New Mexico in the 1970s.

Using the data gathered by the New Mexico Field School as a guide, our crew was tasked with recording all rock art elements on Fajada Butte in detail using low-impact recording methods including photography and scale drawings. Accessing Fajada Butte has been limited by erosion as well as physical barriers installed by the Park, making access difficult and hazardous. Because of this, it was necessary to employ professional rock climbing guides. These guides were able to explore areas of the Butte not previously surveyed and discovered three panels of heretofore unmentioned petroglyphs (see sample in Figure 2). The guides provided assistance to the recording crew to access these panels, which are located on a small ledge on the upper terrace of the Butte.

In the process of recording known panels, additional elements were found that were not visible from conventional vantage points (Figure 3). New elements and interesting additional details on previously described elements were recorded on these panels, which are located on high ledges described as “inaccessible” to previous recording crews. Technical climbing assistance allowed the crew to photograph and

draw the additional elements safely (Figure 4). In addition to the geological and environmental difficulties of recording in such a hazardous environment, the lack of patina on most surfaces rendered many elements invisible and provided challenges for the photographer. A problem encountered throughout the park, the difficulty of photographing many elements effectively makes the accurate, on-site scale drawing especially important.

The full text of this paper describes in detail the newly discovered panels and elements in detail as well as the technical challenges of recording these difficult-to-reach areas.

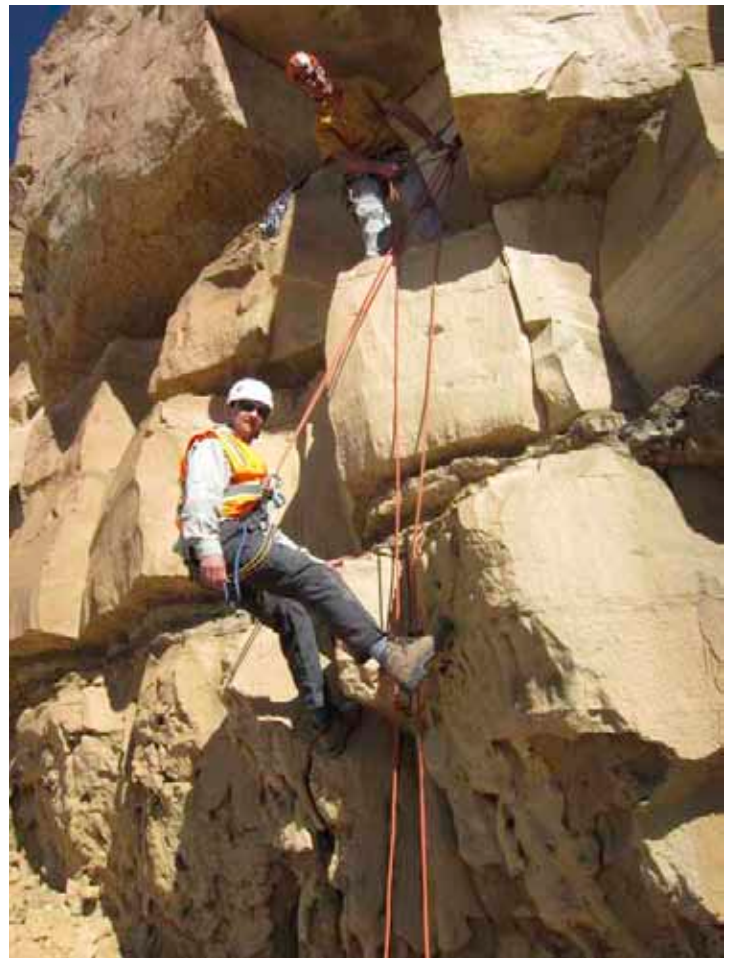


Figure 4. Marc Beverly of Beverly Mountain Guides assisting the author in accessing the high niche of Gallery 1.

THE FLUTEPLAYER OF CHACO CANYON
Charlotte Vendome-Gardner
 University of Plymouth, United Kingdom

This paper seeks to gain a greater knowledge of the Fluteplayer (Figure 1) in Chaco Canyon by situating it within the context of the landscape and built environment. By assessing its proximity to or its isolation from cultural features and general visibility, we can begin to see the context for which it was created. This will in turn enable us to suggest possible functions for the Fluteplayer; always keeping in mind the speculative nature of such undertakings. Although this research is still in its infancy, certain culture features which the Fluteplayer is situated near to, or directly by, have already become apparent. These include Great Houses, stairways, but primarily metates. Although metates are common in Ancestral Puebloan culture, the high consistency of Fluteplayer images near to metates warrants further research to establish the significance of this placement together. The placement of Fluteplayer images near to metates suggests that both men and women were intended to view and interact with the motif, thus it was not gender specific in many cases. Many of these sites can also be found in proximity to Great Houses, more public spaces, which further suggests, that the Fluteplayer was placed to interact with a broad section of society, not just a select few.

This suggested interaction between the image of the Fluteplayer and the Ancient Chacoan people implies that the Fluteplayer was a sign, a fact that can be stated with a degree of certainty. It was a form of visual communication intended to relay or reinforce an aspect of the Chacoan ideology; the messages' specific content remains unknown. In order to try and understand this unknown message we must look at the context in which the image is situated, although each location will be site specific. This may lead us to



Figure 1. Example of a Fluteplayer petroglyph in Chaco Canyon.

further allude to its possible sociocultural functions within the wider society at Chaco. Some Fluteplayer images may not conform to the idea of a wider audience, such as those found on stairway locations or those deprived of any known cultural features, but further research can help to establish whether the images communicate one message or perhaps multiple ones. Objects that bear the Fluteplayer images, such as effigy pitchers, must also be assessed, being mindful that we may not always know an object's original context.



Figure 1. Overview of the model created from the mid-range laser scans of the landscape with the Leica Geosystems C10 ScanStation.



Figure 2. Zoom in view of model showing the Leica Geosystems ScanStation C10 aligned with the high resolution scans from the Breuckmann SmartScan^{3D-HE}.

THE CAST OF CHACO: GEOMATICS
PERFORM FOR PETROGLYPHS IN THE
AMPHITHEATER

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Katie Simon

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Michael Teichmann

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Diane McLaughlin

New Mexico volunteer

Retired NASA engineer

During March 21-25, 2011, the Center for Advanced Spatial Technologies (CAST) of the University of Arkansas performed four days of geomatic fieldwork in Chaco Culture National Historical Park's (CCNHP) Amphitheater between Pueblo Bonito and Chetro Ketl. Geomat-

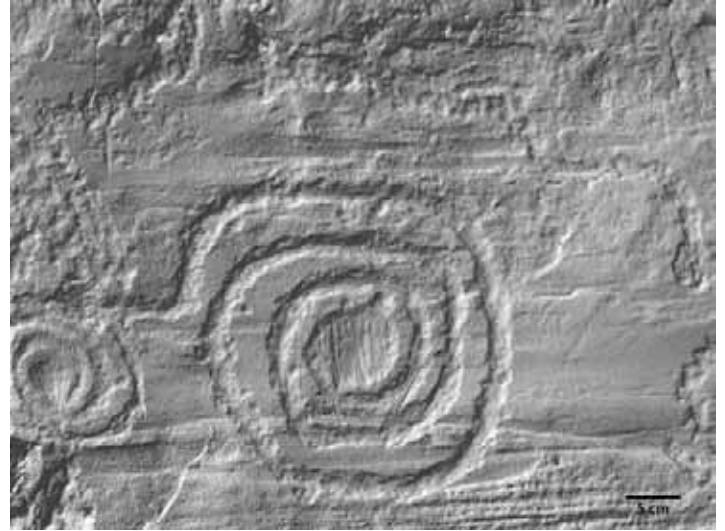


Figure 4. Scan of the large spiral at Gallery 1, on the eastern portion Panel D, at the 29SJ1931 Site made with the Breuckmann SmartScan 3D-HE.



Figure 3. The mesh of high resolution scans from the Breuckmann SmartScan 3D-HE (left corner scale 200 mm).

ics are integrated sciences of advanced digital and spatial data—acquisition, technology, analyses, processing, representation, visualization, storage, classification, quantification, qualification, and dissemination, as well as the structuration of their metadata, or geoinformatics, which make the information comparable and replicable. We used survey-grade Global Navigation Satellite System geodetic instruments and moderate-to-high resolution 3D scanners.

Our purpose was to evaluate the 3D scanners and the survey-grade GNSS units and to collect data from the north canyon wall and its petroglyph panels. An interactive 3D model was created for the viewing and the analyzing of the area at a moderate level of resolution. Users can also pan, zoom in, measure distances, and view the petroglyphs from multiple vantage points. In the central area of the Amphitheater, one can further zoom into the microscopic level of a petroglyph panel and carefully examine its surface texture and its artistic techniques. The model is illustrated in the Figures 1 through 4.

The data and interactive model are now a part of the CCNHP collections and archives at the University of New Mexico for further study by

future scholars. Our preliminary analyses indicate that multiple applications for conservation and interpretation are possible, such as the visualization for the monitoring of the vandalism, the weathering, and the stability of panels over time, the development of virtual exhibitions for public education, the discovery of the ancient petroglyphs that were previously invisible to the naked eye, and even the simulation of the light-and-shadow effects of the solar and the lunar cycles, as well as various acoustical phenomena.

OVERVIEW OF CHACO NAVAJO ROCK ART

Donna Yoder

Chaco Rock Art Reassessment Project

Chaco Cultural National Historical Park, surrounded by the Navajo Nation, is located in northeastern New Mexico in the Four Corners area. How and when Navajos arrived in the Four Corners area and in Chaco is vigorously debated among archaeologists and anthropologists. Navajo oral tradition places Navajo occupation of Chaco Canyon contemporaneously with the Ancient Chacoans. The earliest tree ring dates, however, place Navajos in the Canyon in the early to mid 1700's. Although Chaco National Monument was created in 1907, Navajos continued to live within its boundaries until

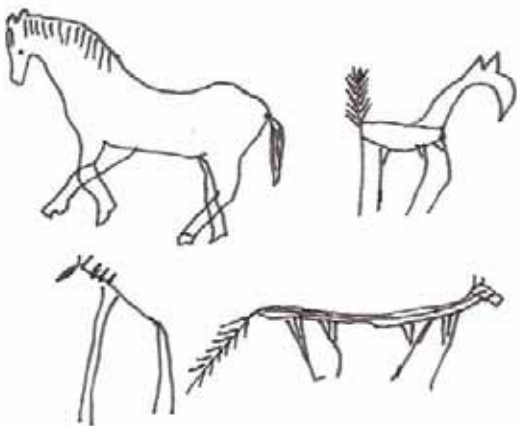


Figure 1. Examples of Horses in Navajo rock art.

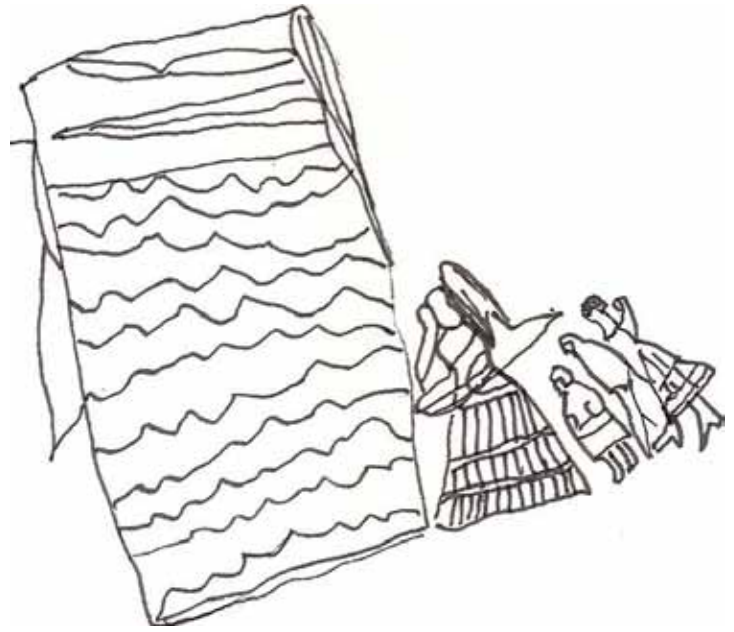


Figure 2. A scene from the Weaving Panel.

1948 when they were permanently fenced out.

Navajo rock art is a reflection of the life and culture of the People. A variety of rock art subjects from simple one-element horse panels to complex ceremonial and domestic scenes are depicted. The manufacturing techniques of scratching, incising, abrading, pecking and painting, were employed. The numbers of horse glyphs in Chaco (Figure 1) indicates the importance of the horse to the Navajos. Placement in the landscape revealed some groupings by subject and age. A comparison of the number of horses and ceremonial figures in Chaco Navajo rock art with that in the Dinétah and in Canyon de Chelly reveals differences in the numbers of subjects as well as the various techniques used to create the rock art and may indicate a possible migration pattern. Although much of the rock art is clearly Navajo (Figure 2), some is enigmatic as several historic cultures lived in or visited the Canyon, left signatures and probably also rock art. Preservation is a high priority as the sandstone is friable and the technique often superficial.

*Session 9
Student Session
Sponsored by the ARARA Education Committee*

Carolynne Merrell ARARA Education Committee gamerrell@att.net

Session abstract This Session is sponsored by the ARARA Education Committee. It is dedicated to national and international students who will present their research on a variety of topics. Students from the United State of America, Mexico, Belgium, the United Kingdom, Poland, Australia, and China will be presenting their research on rock art topics from western Canada, the southwestern United States, Mexico, Peru, Egypt, Russia, Australia, and China. Dr Larry Loendorf will be the discussant for the session.

ROCK ART ON THE KAIBAB PLATEAU:
APPLYING LEGACY DATA TO HERITAGE
MANAGEMENT

Jana M. Comstock

This paper summarizes my Master's thesis (Comstock 2012) which focuses on applying *legacy data*, existing documentation, to heritage resources management. I outline a preservation and analytic process applicable to all types of archaeological legacy data. A case study of the 261 known rock art sites of the Kaibab Plateau region in northern Arizona demonstrates this methodology. The formal analyses comprise statistical and spatial components and evaluate both research and management variables. This approach not only enhances understanding of the rock art assemblage but also improves the protection of this irreplaceable heritage resource.

A PRELIMINARY FUNCTIONAL ANALYSIS
OF THE PETROGLYPHS AT PRESA LA MULA
(MUNICIPALITY OF MINA, NUEVO LEÓN
(MÉXICO) BY SPATIAL LOCATION AND
PROMINENCE

Enrique Gomez Perez

Hunter-gatherer groups who lived in northeastern Mexico left abstract figures on the rock surfaces as traces of their existence. This study aims to identify social functions such as identity and territoriality of these groups through the differentiation of styles and substyles of petroglyphs at Presa La Mula, located in the municipality of Mina, Nuevo Leon, México, by taking into account visible attributes such cardinal direction, height, and location within the site area.

Most of the petroglyphs are located in a 500 m.2 area along a rocky ridge which forms the western rim of a small interior basin and adjoins an earthen dam which now blocks its natural outlet. To fulfill our objective, a topographic map was drawn in 30 sections each 100 m.2 which will provide a sample for a statistical analysis of the designs. The registry uses a recording sheet that includes various visible attributes in the field, sketches of the rocks, and photos.

THE PICTOGRAPHS OF PAINT ROCK, TEXAS
ROCK ART AS SOLAR MARKERS DEFINING
CULTURAL INTENT

Gordon L. Houston

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Interpretation of rock art is one of the great challenges of cognitive archaeology as the meaning is subjective and may be known only to the creator/artisan of an individual scene or display. Many sources are available that describe, interpret, classify, analyze, and otherwise dissect rock art in all of its shapes, forms, styles, colors, and taxonomies. Yet, as the initial statement illuminates, these are all subjective and rarely will a researcher be able to connect the interpreted meaning to the archaeological record. The use of rock art as solar markers can provide the most objective interpretations and evidence of intentionality of rock art. We discuss the use of astronomical analysis on rock art and show how the archaeological record connects to the astronomical data. We believe this evidence supports the intentionality of the culture and individual responsible for inscribing the rock art. We discuss the concepts of anticipatory, confirmation, and resolving power in relation to rock art and how these in turn are established through horizon astronomy methods. We demonstrate these concepts based on our investigation of the pictographs at Paint Rock, Texas, while contrasting the mechanics with other sites where calendrical and astronomical inferences have been made.

CULTURAL INTERPRETATION OF GROUP
GATHERING SCENES IN ROCK ART OF
SOUTH CHINA

Du Hui,

Minzu University

Rock art in South China is an important part of the Chinese rock art system, which possesses various elements and distinctive characteristics. This article chooses the group gathering element topic to try to reestablish the spiritual world and social customs of ancient inhabitants living in South China from a multidisciplinary and cultural regional perspective. It also suggests another perspective to interpret meanings of rock art.

Keywords: Rock art, South China, Group gathering, Ritual

EYE-LIKE PATTERNS IN THE HUMAN FACE
PETROGLYPHS OF CHIFENG AREA, INNER
MONGOLIA

Ruan Jinyi

Minzu University

The rock art in Inner Mongolia, a part of which is petroglyphs in Chifeng Area featuring the human face motifs, plays a prominent role in northern Chinese rock art system. Both realistic and nonrepresentational human faces are engraved in the petroglyphs of Chifeng area, the latter including figures profiled or not, facial organs or bare abstracted eyes presented, being dominant in proportion. Despite some current research of images in other types of manufactures such as "spiral eyes", "concentric eyes", "swirl grains", etc., there has hardly been exclusive, profound research on the eye-like patterns in rock art. The article nominates these patterns as the most representative rock art in Chifeng. Additionally, a prudent interpretation of them will undoubtedly benefit the study on evolution rules of petroglyphs in this area, or even the entire country. Based on a review

of previous research, the article endeavors to process relevant information of these patterns comprehensively, thus coming up with some viewpoints concerning the age and connotation of human face petroglyphs in the Chifeng area.

BEING ON THE MOVE: ROCK ART
PRODUCTION IN DAKELH TRADITIONAL
TERRITORY, BRITISH COLUMBIA

Sue Mitchell

This paper considers the relationship between the placement of rock paintings and human mobility drawing upon case studies from Dakelh traditional territory in northern British Columbia, Canada. Perspectives of rock art production, informed by First Nations knowledge are explored. As a result, the rock art is posited as part of a larger system of graphic communication embedded in the landscape that was multi-purposeful in nature and oriented toward human movement. This topic is part of a larger study currently being conducted as a PhD project at the University of Leicester.

ASSESSING THREE-DIMENTIONAL
IMAGE-BASED MODELLING IN ROCK ART
RESEARCH AND MANAGEMENT: THE
DETERIORATING ROCK ART OF THE
RUSSIAN, ALTAI REPUBLIC

Gertjan Plets

The unique rock art of the Russian Altai is increasingly suffering from human and natural processes. Without well-directed action and documentation it will be practically impossible to establish conservation initiatives and, eventually, many of these unique sites will be lost. During fieldwork in the summer of 2011 over 300 individual panels (ranging from small panels with single figures to complex multi-period panels measuring over 20 m²) were successfully documented in less than 15 days while testing a computer-vision based methodology, using PhotoScan professional. Within this approach only a

series of overlapping pictures was necessary to produce a high detailed representation of the Altaian rock art. The straightforwardness, flexibility and cost-effectiveness of this method did not only allow a fast and detailed documentation of the rock art for scientific means its presentational strengths also have a huge potential for public outreach projects and changing the entire rock art research workflow.

ROCK-ART DIALOGUES IN THE DAKHLEH
OASIS, WESTERN DESERT, EGYPT.

Paweł Polkowski

Dakhleh Oasis is one of the most isolated, still inhabited, places in the Western Desert of Egypt. Among the numerous archaeological remains from Early Neolithic to modern days one can find rock drawings engraved to Nubian sandstone hills of the Oasis. The oldest rock-art is dated to Neolithic Bashendi and Sheikh Muftah Units. Ancient Egyptian activity resulted in large quantities of Dynastic images and hieroglyphics, especially motifs dated to Late and Graeco-Roman Periods. Christian and Arab images complete Dakhleh rock-art corpus. The palimpsest-like character of this large rock-art complex of the Oasis gives opportunity to investigate relationships between images from different periods/cultural contexts within changeable cultural landscapes. The aim of my work is to look for evidence of re-conceptualizing of rock-art, which is liable to meanings inconstancy throughout the ages. I would like to show also that rock-art from different cultural contexts was related with various activities, places and landscapes.

REPRESENTATIONS OF NETS AND OTHER
FIBER ARTIFACTS IN NORTHERN MEXICAN
ROCK ART

Martin Israel Santana Salas

This research seeks possible representations of fabrics and basketry in the rock art of northeastern Mexico, the research area is the southwestern Coahuila known as the Laguna region, this region was inhabited by hunter-gatherer groups known as Laguneros (lagoon dwellers) who profited from the Mayran lagoon resources. We made a comparison between the motifs of rock art on San Rafael and some fiber artifacts and basketry founded in Cueva de la Candelaria (La Candelaria Cave) and now seen in the Museo Regional de la Laguna (Regional Lagoon Museum).

CONSERVATION AND MANAGEMENT OF
DAMPIER ARCHIPELAGO PETROGLYPHS:
PAST AND CURRENT APPROACHES,
AUSTRALIA

Natasha Trenear

The Dampier Archipelago in Western Australia is home to the world's largest concentration of petroglyphs, or rock engravings. Unfortunately, current conservation and management practices of the site is controversial, with disagreement between archaeologists, scientists, industry and government, as to whether the presence of a gas processing plant close to the site affects the condition of the petroglyphs. Other conservation issues include the re-location and re-orientation of the petroglyphs, indigenous ownership disputes and vandalism from visitors. By critically reviewing the past and current conservation and management practices of this heritage site, a clearer understanding emerges of whether current management and conservation practices are sufficient to ensure the preservation of some of the world's oldest petroglyphs. Where potential damage and conservation risks are identified,

recommendations are made for how damage and conservation risks can be prevented and minimized.

INFORMED AND FORMAL PERSPECTIVES
ON SQUAMISH ROCK ART, BRITISH
COLUMBIA.

Elizabeth Velliky

Rock art is often far removed from its original context. In Squamish, British Columbia., however, this is not the case. Ethnographies can provide an elaborate background on the history and stories behind the pictures and places in rock art. Portable X-ray fluorescence (pXRF) is a formal diagnostic analytical technique that is used to identify the elemental make-up of minerals and rock art pigments. Both of these methodologies were employed during research on two Thunderbird (*In'inyáxa7n*) images located next to each other on one rock art panel. Combining these informed perspectives with formal scientific techniques can give new insight surrounding the creation, stories, and facts behind these powerful images.

Session 10 MIMBRES

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Mimbres painted pottery is acknowledged as a distinct Southwestern ceramic type with accepted chronological and geographical boundaries. This session attempts to delineate these and similar parameters, including stylistic, ethnic, and ideological criteria, suggesting that Mimbres rock art was also a discrete phenomenon. Although Mimbres petroglyphs shared elements, icons, and motifs with neighboring cultures, such as the Hohokam to the west, Jornada Mogollon to the east, Casas Grandes to the south, and Anasazi to the north, Mimbres rock art, like Mimbres pottery, can be recognized and separated based on stylistic attributes and execution. Comparison and contrast of imagery from distinct cultures allows us to place Mimbres rock art on a temporal and geographic grid. Additionally, the occurrence of mortar holes, scrub oak, mesquite, and rock shelters with Mimbres petroglyphs indicates a complex patterning of ritual and economic activities took place at these sites beginning in the Late Archaic period. Finally, it may be possible to question some assumptions concerning who created the petroglyphs and for that matter who painted the pottery. The co-occurrence of mortar holes with petroglyphs may indicate that women created petroglyphs.

ROCK ART NEAR THE NAN RANCH AND MCSHERRY SITES: THOUGHTS ON MIM- BRES ICONOGRAPHY

Darrell G. Creel

University of Texas at Austin

Survey on the NAN Ranch in the 1980s recorded numerous rock art sites, both large and small. Many of these exhibit imagery similar to that on Mimbres pottery presumed to date to the Classic period (AD 1000-1130). Some of these petroglyphs, however, may well be earlier, and others may be later, than the Classic Mimbres period. This presentation is a survey of the rock art sites and the iconographic variability, with an emphasis on anthropomorphic and zoomorphic figures.

MIMBRES STYLE ROCK ART AT THE THREE RIVERS PETROGLYPH SITE

Helen Crotty

Museum of Indian Arts and Culture

Although separated in space and time from the Mimbres River Valley settlements that produced the famous black-on-white pottery between AD 1000 and 1130, animals depicted in petroglyphs at Three Rivers in the Tularosa Basin often exhibit bent legs and geometrically patterned bodies that are characteristic of Classic Mimbres ceramic decoration. Additionally, the treatment of human facial features is also very similar. Small amounts of Mimbres white ware were recorded for two archaeological sites along Three Rivers Creek, but the majority of the non-local ceramics are later. This presentation includes

comparisons of Three Rivers and Classic Mimbres ceramic imagery, exploring similarities and differences in search of an explanation of the connection between the people who painted the pottery and those who created the petroglyphs.

HANDS ACROSS THE AMERICAN
SOUTHWEST: HOHOKAM AND MIMBRES
IDEOLOGY

Allen Dart

Rhuta Richardson Wilson

Tom Herrick

Old Pueblo Archaeology Center

An examination of Mimbres Classic period (AD 1000-1130) rock art and that of the contemporaneous Hohokam culture of southern Arizona helps define the western limit of Mimbres art and ideology. Certain icons are common to both Hohokam and Mimbres rock art, whereas each culture also exhibits repeated motifs that apparently were not produced by the other. Comparison and contrast of the shared and unshared rock art images, and of other aspects of Hohokam and Mimbres culture, suggest similarities as well as differences in their respective beliefs and practices.

WIND IN THE WILLOWS: EVIDENCE OF
ECONOMY, ESOTERICISM, AND GENDER AT
MIMBRES ROCK ART SITES

Marc Thompson

Maxwell Museum of Anthropology

Images from neighboring earlier, contemporaneous, and later cultures bear similarities to Mimbres rock art. These suggest shared ideological concepts through time and space derived from a Late Archaic tradition. Classic Mimbres ceramic motifs (AD 1000-1130) are temporally, stylistically, and ethnically discrete. Mimbres style petroglyphs are not securely dated. Ethnographic analogy suggests that Mimbres women painted pottery and Mimbres men created petroglyphs. A series of rock art sites in the

Mimbres area with mortars, rock shelters, and modern stands of mesquite and scrub oak indicates females were present. Comparative analysis of pottery symbols and petroglyphs reveal parallels in allegorical content demonstrating that women were both esoterically and economically active agents at these sites.

ROCK ART ACROSS THE MIMBRES SOCIAL
LANDSCAPE

Elizabeth Toney

Matthew Taliaferro

Gila National Forest

This presentation explores distribution of Mimbres rock art in the Gila National Forest, surrounding areas, and placement of Mimbres iconography in the physical and social landscapes of the Classic Mimbres period (AD 1000-1130). Landscape archaeology recognizes multiple environmental features (e.g., locations of water sources, arable land, fuel resources, and critical raw materials). It explores overarching social, political, and ideological components (e.g., which families monitor certain water resources and have access to arable land and other important resources, and under what ideological conditions) to understand the composition of the cultural landscape. Put simply, the cultural landscape integrates the natural and the "built" environments. Rock art is an aspect of the built environment that can serve as an important pathway for identification and reconstruction of past ideological systems regarding human relationships to natural and social environments.

Session 11
CONTEXT OF ROCK ART

Steven J. Waller Rock Art Acoustics
wallersj@yahoo.com

Why here and not there? Although the visual content of rock art has long been the main focus of rock art research, only relatively recently has the environment of rock art sites garnered much attention. The locations selected by the artists are often perplexing: deep in certain cave chambers or concentrated in a spot high on a cliff face. Equally baffling are seemingly ideal rock canvases left blank. This session seeks a greater understanding of the motivation for rock art via study of its placement and arrangement in space relative to the characteristics of its environment. As an example: archaeoacoustic studies have shown a statistically significant correlation between rock art site placement and sound reflection levels; the cultural significance of this is underscored by ethnographically recorded myths in which echoes are attributed to spirits, and prediction by echolocation has led to previously unknown rock art. Yet rock art iconography is often presented and analyzed completely out of context. Papers for this session on rock art context are sought in the areas of landscape studies, phenomenology (including acoustics), orientation, forensics, geo-cultural spatial distribution, etc. An anticipated outcome of this session is a synthesis of rock art site selection criteria, and even a better definition for what constitutes a rock art "site". A better understanding of aspects of rock art contexts that were important factors for rock art site selection will help guide conservation efforts to preserve those environmental characteristics that were meaningful to the ancient artists, as well as synergize to serve as better predictive tools for discovering new rock art sites. Papers addressing the topic of phenomenological aspects of rock art sites fit in well with this session.

**CONTEXT INTERRUPTED: THE
DISPLACEMENT AND RE-SITUATION OF
FOUR UNIQUE PETROGLYPH BOULDERS IN
OREGON.**

Douglas Beauchamp

Art Consultant

Executive Director of Playa (Oregon)

Worldwide, there are many instances of intentional displacement of boulders with petroglyphs. When the stones are installed in new physical and social contexts, re-inscription of meaning occurs. Three prominent petroglyph boulders in Oregon constitute some of the region's most accessible and significant artifacts: The Wallula Stone, on the Umatilla Indian Res-

ervation; the Crooked River petroglyph, at Cove Palisades State Park; and the Agness boulders near the Rogue River - all twice-relocated and now placed in visible public places with interpretative materials that re-remember and accord distinction. This re-situation of the contested carved boulders, removed from their original contextures, conveys a revised materialization embodied in layered re-storying. The recontextualization of the three boulders is contrasted with the abandonment and oblivion of the Klippel boulder, a massive carved stone broken apart and pulled aside during straightening of a Lake County road. The boulder is re-situated, if not materially, then as a remembrance.

BOQUEIRÃO DO PARAGUAIO (SERRA DA CAPIVARA, PIAUÍ, BRAZIL): A GORGE THAT SHOWS

Pascale Binant

CNRS / UMR 7041 ArScAn / AnTET Anthropologie des Techniques, des Espaces et des Territoires au Pliocène et Pléistocène Maison de l'Archéologie et de l'Ethnologie

The Boqueirão do Paraguaio is a small valley in the Serra da Capivara's park with four painted tocas. Once the heavy rains have ended, bright red water runs downstream in the valley bottom. This red flow is, we think, the origin of the paintings that mark and demarcate the toca at this specific location, but also the high point that lets one see, on the basis of which investment in the other tocas would be structured, articulated along the valley following what we call a "dialectic of seeing".

In this way, modalities of territorialization, deterritorialization and reterritorialization are asserted, in part articulated around: to see, to be seen, to show and their opposites: not to see, not to be seen, not to show.

The paintings are no longer considered for themselves, by themselves, but in relation with an external element: space. Tocas and paintings then act within a space according to an anthropological dimension and social dynamic and are part of an interactive anthropological dynamic with social, territorial and symbolic dimensions.

"IT IS THE LOCATION OF THE SITE THAT IS IMPORTANT; THE ROCK ART CAME LATER"

Carl Bjork

Steven J. Waller

Rock Art Acoustics

[Associated Poster]

Have you ever walked in silence in a slotted-canyon on the fine gravel floor and heard "foot-steps" walking behind you, or heard unseen voices surrounding you when talking with others? Then looked up and seen painted fig-

ures on a wall looking down on you? Scary stuff, that is until you stop shaking and realize that you were psyched out by your fear of the unknown and the echo phenomenon at the bend in the canyon. A lot of the rock art was placed in a location where a unknown phenomenon -- perhaps an unseen touch of wind, or sound, movement, or shadow play -- was experienced; one that repeated itself. These are places to visit to experience an event, not unlike going to a concert. Imagine going to a place to "talk" to the unseen...the "spirits".

ARCHAEOACOUSTICS AND THE LOCATION OF ROCK ART IN SPAIN

Prof. Margarita Díaz-Andreu

ICREA Research Professor

Departament de Prehistòria, H. Antiga i Arqueologia Facultat de Geografia i Història, Universitat de Barcelona

Carlos García Benito

Universidad de Zaragoza

María Lazarich

Universidad de Cádiz

Antonio Ramos

Universidad de Cádiz

M^a José Cruz

Universidad de Cádiz

Gao Qian

Universidad de Barcelona

This paper explores the potential of acoustics to explain the location of prehistoric rock art. Two case studies will be at the basis of our discussion, the first the rock art area of La Valltorta and the second the rock art area of La Janda freshwater lake, in Eastern and Southern Spain respectively. These two areas are different not only in relation to the painting styles (Levantine in Valltorta, and "La Janda" style in the south), but also in the type of landscape they are inserted.

POWER FROM BELOW: A LOOK AT A
POSSIBLE CORRELATION BETWEEN THE
LOCATION OF SIGNIFICANT ROCK ART
SITES AND IDENTIFIED SEISMIC ZONES IN
CALIFORNIA

Garry Gillette, BSEE, MSE

Treasurer, Executive Board Member of ARARA
and IFRAO 2013 Committee

Long Term Rock Art Enthusiast

Susan Hough, PhD

US Geological Survey,

Oral traditions of several California Native American groups indicate an awareness of and attempts to understand the causes of earthquakes. As an example, the Chumash Indians of Southern California recognize a cosmology that consists of a three-tier world. The lower world is inhabited by malevolent creatures that are to be avoided. The middle world is held up by two giant serpents whose movement causes earthquakes. In this paper we consider the locations of preeminent rock art sites in California, including well-known and lesser-known sites, as well as the nature of the images themselves, and oral traditions. We observe a correspondence between rock art sites and geological activity. We conclude that sites of persistent earthquake and/or volcanic unrest were inevitably understood by Native peoples as sites of special spiritual significance. The placement and timing of rock art throughout California might thus provide clues to earthquake activity predating the historic written record.

A MOOSE BY THE SEA

Snorre Haukalid

Archaeologist, Vest-Agder County, Southern
Norway

[Associated Poster]

In our district we have painted rock art dating back 6000 years. The similarities between our site and another rock art site in Norway, 430

miles further north, are striking. Both the style, location and height above the current sea level are almost the same. My poster aims to investigate the possible connection between the two sites.

ROCK ART AS INDICATOR FOR FORMAL
RITUAL SPACES DURING THE FORMATIVE
STAGE OF THE
EGYPTIAN STATE

Lauren Lippiello

Yale University

The present work seeks to understand the designation and function of Egyptian sacred space during the 4th millennium BCE by applying quantitative and qualitative analyses to rock art images from two case study sites, Khor Abu Su-beira South1 (KASS1) and Wadi Abu Tanqurah1 (WAT1). Analyses include the spatial distribution, temporal range, physical appearance, and social function of select politico-religious symbols. Results suggests: 1) the existence of two types of rock art sites, defined as open and closed sites, as early as 3250 BCE. 2) Predynastic closed desert sites share similar conceptions, designations, and functions with Dynastic Nile Valley temples evidenced by the standardized appearance, ubiquitous presence, and specific role of mobile sacred space. 3) The prominence and endurance of mobile sacred space throughout the Dynastic Period suggests the existence of three distinct types of socio-spatial contexts within the ancient Egyptian worldview: aqua-centric, litho-centric, and agro-centric contexts.

OPPORTUNITIES IN THE STUDY OF CARVED TREES AND ROCK ART SOUTHERN ROCKY MOUNTAIN ARBORGlyphs: CORRELATES, CONTRASTS, AND COMPARATIVE RESEARCH

Troy R. Lovata, Ph.D.

Associate Professor
University Honors Program
University of New Mexico

Arborglyphs constitute the marks, writing, and pictures etched on trees. Their study is younger and less organized than rock art research, but professional interest in culturally modified trees is growing. Many historians view arborglyphs as primarily textual or visual documents. Archaeologists, in contrast, often highlight the role of context in their analysis and interpretation.

Recent archaeological studies of arborglyphs (ex. Hegberg and Sutton 2010) consider their environmental and political contexts and the place of both individual carvings and whole stands of trees on the landscape. Contexts include sight lines, size and scale, accessibility, and relationships with trails and natural topography. This paper outlines culturally modified tree research—highlighting studies in the Southern Rocky Mountains by the author and oth-

ers—and examines how rock art research compares and contrasts. Rock art studies, especially those from a phenomenological perspective, provide direction for cataloging and interpreting arborglyphs; while carved tree research and the carvings themselves offer opportunities to reconsider rock art and its study.

MAINE SEXUAL AND TRANSFORMATIONAL PETROGLYPH SITES IN RELATION TO WATER

Bruce Ross

Burlington College
Hampden, Maine, USA

Context for early animistic cultures makes certain striking features of the landscape sacred. That much rock art is found near water sources (modern Australian Aboriginal art may be said to be dominated by water sources) demarcates the relation of a basic necessity for survival and a mythic connection to that source (Japanese Shinto regards certain water bodies as sacred in and of themselves). In Maine, petroglyph sites near water may help us understand how context nudges the spiritual intent of given rock art site in one or another direction, either toward or



Figure 1. Spirit helper, mainland ledges at Machias Bay, photo by Bruce Ross.



Figure 2. Shaman and spirit helpers, mainland ledges at Machias Bay, photo by Bruce Ross.



Figure 3. Shaman and spirit helper, Hog Island, Machias Bay, photo by Bruce Ross.

away from basic human necessity or metaphysical overlay. The two most well-known rock art sites in Maine are the Embden petroglyphs on a rock extension into the Kennebec River that are dominated by canoe and sexual images and the Machias Bay petroglyphs on rock ledges on the bay and several Atlantic Ocean islands which are dominated by transformational Shamanic images. The first site is on a well used waterway with archeological dwelling areas near and across the river from the site. The second site, which is unusual for the New England coast for

its abundance of images (over five hundred on Hog Island), was used seasonally as a gathering place but otherwise uninhabited. This talk, supported by power point images, discusses the possible orientation of these two petroglyph sites to the respective water systems surrounding them.

Maine archaeologist Mark Hedden has recorded the petroglyph images in these two sites. He presents a convincing theory for the 3,500 years of image making at Machias Bay in which the naturalistic and fantastic subjects engraved here went through distinct periods of development in which a Shaman's self-image, initially equal in size to his spirit helper, became significantly larger than his helper because of certain cultural changes (Hedden, Mark 1996 *3,500 Years of Shamanism in Maine Rock Art*. In *Rock Art of the Eastern Woodlands*, edited by Charles H. Faulkner, pp. 7-24. American Rock Art Research Association, San Miguel, CA). Hog Island in the Atlantic holds the most images, the earliest closest to the water's edge and now covered daily with the tides. Many of the images emerge from or are positioned beside cracks in the rocks. In general this site suggests well-known water connected rock art sites like Agawa Rock. In that site otherworldly beings were thought to emerge from the cracks in the rock face. Hog Island is clearly a sacred site where a Shaman's visions were recorded, most often depicting his spirit helpers (see Figures 1-3). Early water connected cultures found the canoe or its equivalent a metaphor of the spirit's journey to another world. Machias Bay petroglyphs record what Shaman experienced there.

These images are sacred to the contemporary Passamaquoddy whose ancestors have inhabited this area since the images were first created. Borrowing from Shinto the idea of *yorishiro*, a "spiritual antenna," usually natural objects or settings, which draw in spiritual energy, this talk will consider the water-borne rock faces and ledges of Machias Bay and even Embden Rocks

as such and discuss the intriguing images of what such “antennae” brought in.

ROCK ART AND ITS CONTEXT IN CAICARA DEL ORINOCO, VENEZUELA

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Recent survey in Caicara del Orinoco, Venezuela has revealed varied contexts for rock art. Three major contextual patterns emerge from the analysis: 1) Petroglyphs on easily visible boulders in the vicinity of pre-Hispanic habitation sites with evidence of multiple occupations associated with diverse ceramic traditions dating between at least 1000 years B.C.E to 1450 A.D. Representations of concentric circles, complex volute (frog?), spiral triangles in bodies of figures, limited anthropomorphic and/or lizard-like figures, and faces with sunrays/feathered headdresses are the dominant motifs; grinding and polishing surfaces are an additional feature of several sites. Several sites are located on the banks of the Orinoco and are seasonally inundated (Figure 1). At La Francesa, petroglyphs are located high on a granite outcropping, permitting surveillance of the Orinoco River and other nearby sites. 2) In the second pattern, the petroglyphs are found on low boulders, oriented almost exclusively toward the West; the most common motifs are large faces with sunrays/headaddresses (Figure 2). These petroglyphs are not clearly associated with habitation sites, suggesting that they were periodical visitation centers. 3) The third context is defined by two small rock shelters, formed by huge, juxtaposed, granite boulders that rise above the adjacent savannah, with inner chambers where petro-



Figure 1. Seasonally inundated petroglyph, Punta Cedeño, Edo. Bolívar.

glyphs were made on the walls and on low outcroppings on the floor. These chambers can accommodate small groups of people (15-20). The petroglyphs are composed of both single elements (outlined cross, concentric circles, and other geometric motifs) and more complex compositions, in which parallel lines, meanders, greques, and “u” shaped figures are common (Figure 3). At the Tres Cerros site, the largest panel is placed on a wall that is illuminated at



Figure 2. Petroglyphs at the Pan de Azucar site, Edo. Bolívar.



Figure 3. Petroglyphs in the Tres Cerros rock shelter, Edo. Bolívar.

midday, when the sun penetrates an opening high above. Rock paintings in monochrome red motifs are found on the outer walls of both Amalivaca and Tres Cerros, in areas where the granite is not covered by the black lichen that covers most exposed surfaces. Several larger panels of rock paintings are located on nearby boulders and on the underside of a large overhanging block at the Tres Cerros site (Figure 4). The paintings are predominantly concentric



Figure 4. Rock paintings adjacent to the Tres Cerros rock shelter, Edo. Bolívar.

circles, rectangles with internal divisions, and parallel vertical lines, and are not easily related stylistically to the petroglyph motifs. This suggests chronological and/or functional difference between the paintings and the glyphs. The restricted visibility of the petroglyphs found in the rock shelters may indicate the use of these sites as retreats or places to store ritual paraphernalia, as referred in historical and ethnographic accounts. Only a few ceramic sherds have been found in the shelters and no funeral remains have been located, in contrast to other rock shelters further upstream in western Bolívar and Amazonas States. In conclusion, the rock art of the Caicara area is located in widely diverse contexts, both near and far from habitation sites. The petroglyphs depicting faces with projecting rays are limited to this geographic area, and suggest contemporaneous occupations, perhaps associated with later ceramic-bearing traditions.

CHANGE OF VENUE: THE IMPORTANCE OF LANDSCAPE RECONSTRUCTION IN CONTEXTUAL ANALYSIS OF ROCK ART

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The physical setting of a rock art site may have changed substantially from that in place when ancient people first made the images. Researchers can call on geomorphology and paleoenvironmental studies to gain an approximation of the original setting of a site and to place it in a more exact physical and ecological context for analysis.

CONTEXT OF ROCK ART: THE
SIGNIFICANCE OF NON-RANDOM
PLACEMENT AND ENVIRONMENTAL
CHARACTERISTICS

Steven J. Waller

Rock Art Acoustics

Rock art locations are often perplexing: deep in certain cave chambers or concentrated in a spot high on a cliff face. Equally baffling are seemingly ideal rock canvases left blank. A greater understanding of the motivation for rock art may be achieved via study of its arrangement in space relative to the characteristics of its environment. As an example: archaeoacoustic studies have shown a statistically significant correlation between rock art site placement and sound reflection levels; the cultural significance of this is underscored by ethnographically recorded myths in which echoes are attributed to spirits, and prediction by echolocation has led to previously unknown rock art. Yet rock art iconography is often presented and analyzed completely out of context. Research on rock art context is reviewed, including the areas of landscape studies, phenomenology (including acoustics), orientation, forensics, geo-cultural spatial distribution, etc. A synthesis of rock art site selection criteria -- and even a broader definition for what constitutes a rock art "site" -- is presented. A better understanding of aspects of rock art contexts that were important factors for rock art site selection will help guide conservation efforts to preserve those environmental characteristics that were meaningful to the ancient artists, as well as synergize to serve as better predictive tools for discovering more rock art sites.

CONTEXT IS KING. WHY LANDSCAPE
MATTERS IN ROCK ART.

Gregory E. Williams

[Associated Poster]

Rock art is, by definition, the presence of visual imagery which is usually pecked or painted onto a rock surface. Yet not all apparently suitable rock surfaces have iconographic imagery and many less suitable surfaces do. This poster is a case study of two rock art locations in western Colorado, USA, which suggest that special landscape characteristics -- including but not limited to access to water, gathering areas for several people, orientation (aspect), and acoustics -- may play an important role in the selection of suitable locations for rock art. If this is the case then the traditional approach to defining some rock art site boundaries based solely on the imagery may need to be expanded.

Session 12
ROCK ART OF THE JORNADA MOGOLLON

Myles Miller Geo-Marine, Inc
Lawrence L. Loendorf Sacred Sites Research, Inc

The Jornada Mogollon region of southern New Mexico and Trans-Pecos Texas has long been noted for its outstanding and significant rock art. Several of the more outstanding collections of prehistoric rock art in the American Southwest are found at Hueco Tanks, Three Rivers, Alamo Canyon/Wilkey Ranch, and Picture Cave. These and other Jornada rock art sites were among the earliest archaeological investigations in the southern Southwest, drawing researchers from Texas, New Mexico, and elsewhere to view and contemplate the origins of the images.

In subsequent years, the rock art has played a significant role in the study of prehistoric and historic Native American ideology, cosmology, and artistic expression through symbolic metaphor. The prehistoric rock art of the Jornada region has figured prominently in discussions of the origins of Southwestern ideology, its iconographic expression through rock art, ceramic designs and kiva murals, and possible relationships to Mesoamerica. The images of masks and other icons such as cloud terraces common at Jornada rock art sites have contributed to debates over the origins of the Southwestern katsina cult. Jornada rock art continues both to inspire discussions and to serve as an essential source for debates over the origins and meanings of the symbolic imagery and iconography of Southwestern pueblo societies.

Papers in this session will focus on recent studies at rock art sites on Fort Bliss and elsewhere in the Jornada region. Recent dates for portable art objects associated with the rock art will be presented with data on the distribution and time depth of Jornada Mogollon images.

**GOGGLE-EYED ANTHROPOMORPHS AS
DISTINCTIVE COMPONENTS OF JORNADA
ROCK ART**

Margaret Berrier

Goggle-eyed anthropomorphic figures are distinctive components at Jornada rock art sites throughout southern New Mexico, West Texas and northeastern Chihuahua, Mexico. The importance of these figures in the Jornada Rock Art Style and the Desert Mogollon culture that produced them is well established. The goggle-eyed figure is defined as having a pair of disproportionately large rounded or quadrilateral shaped eyes with a central spot. When a head and torso are present they generally have a quadrilateral outline. Figures that appear to be variations of this figure or partly meet these criteria are initially included. In order to minimize selection bias I have included all the figures in our initial

inventory in order to avoid bias. Some figures that seem to meet the initial criteria may be excluded after further analysis.

Figure 1 shows the general locations of these stylized anthropomorphic figures found to date in this project, the majority of which fall within the original boundary for the Jornada-Mogollon delineated by Donald Lehmer in 1948. Currently the most southerly figure is found near Sierra Blanca, Texas.

These figures have a key place in hypotheses about the possible northward transfer of ancient Mesoamerican ideology to the American southwest. Published studies on Jornada rock art provide only selected examples of the figure to support the inferences that have been made about them. There are no published studies to examine the variations of goggle-eyed anthropomorphic figures or their geographic distribution, but over the past decade, I have developed a

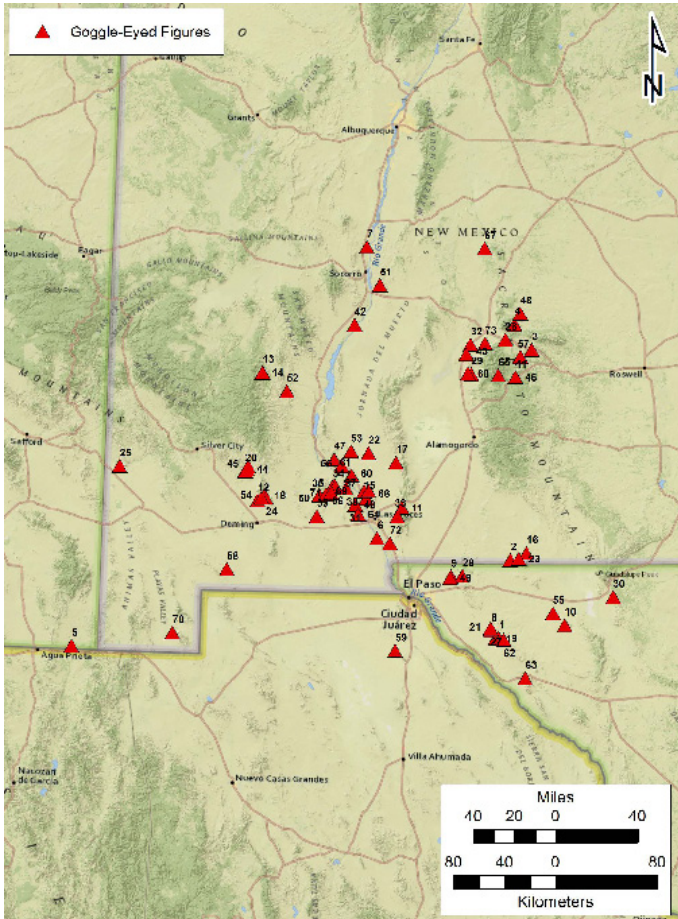


Figure 1 shows the general locations of these stylized anthropomorphic figures found to date in the project

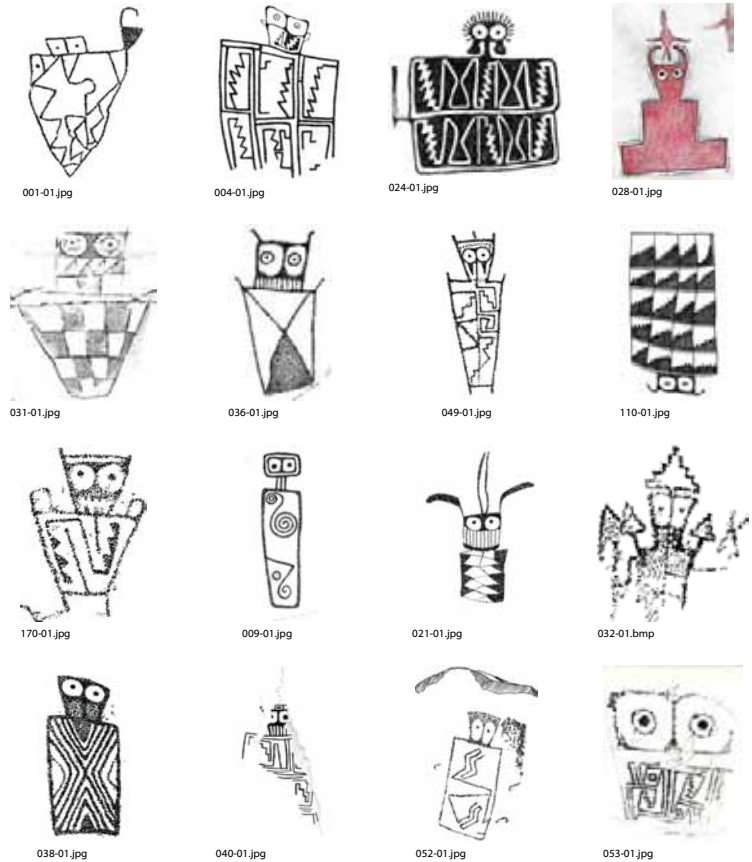


Figure 3 shows drawings of some of the diversity of goggle-eye figures.

data base that presents the variation and distribution of these figures.

Figure 2 shows schematics of preliminary categories of the types of goggle eyes we found. The first category includes the prominent round

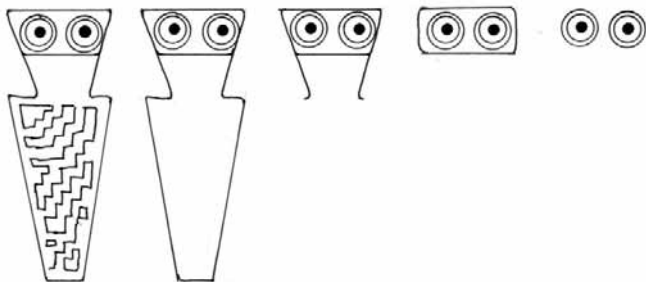


Figure 2 shows schematics of preliminary categories.

or quadrilateral eyes, and a generally quadrilateral shaped head and decorated torso. Since previous researchers used the term “classic” for this form I have retained this label for consistency. The second category has a simplified torso. The third is “head only” and the fourth and fifth are “eyes only” (rectangular and round). There are numerous variations on these types. Defining categories too narrowly may yield different conclusions. Therefore a wider definition of torso decoration was used rather than the limited “step-fret” or “lightning” designs chosen by previous researchers.

646 images (collected from site visits and published or archival sources) were placed in the database as “possible” goggle-eyes. These

included any paired nucleated circles and any stylized anthropomorph that had a torso shape similar to the “classic”.

Figure 3 shows drawings of some of the diversity of these figures. I hope that additional analysis of distribution and attributes of these figures will be presented and continued field work will provide more information for researchers.

CONSTRUCTING CONTEXT: ROCK ART AND ARCHAEOLOGICAL FEATURES AT THE WHITE ROCK SHELTER SITE, EL PASO TEXAS

Leonard Kemp

Geo-Marine, Inc.

Recent art rock investigation suggests that “dirt” archaeology has both ignored and been ignored by researchers in creating a viable context to investigate rock art and its relationship to the archaeological site. The spatial distributions of features, both rock art and non-rock art, as well within the general landscape can inform of us of context. A preliminary examination of the White Rock Site is presented to examine context of a Late Archaic/ Early Formative site in the Jornada Mogollon.

COAXING THE RAIN: JORNADA MOGOLLON RAIN-RELATED IMAGES

Lawrence Loendorf

Sacred Sites Research, Inc. Albuquerque, New Mexico

The pictographs and petroglyphs within the Jornada Mogollon region are varied, complex, and an extremely fascinating part of the regional archaeological record (Schaafsma 1992). Previous researchers have recognized that rain-making imagery is an important part of the Jornada rock art tradition (Schaafsma and Taube 2006). Recent research in Picture Cave has allowed us to identify rock art figures that are apparently directly dedicated to rain-making ritual (Miller et al 2012).

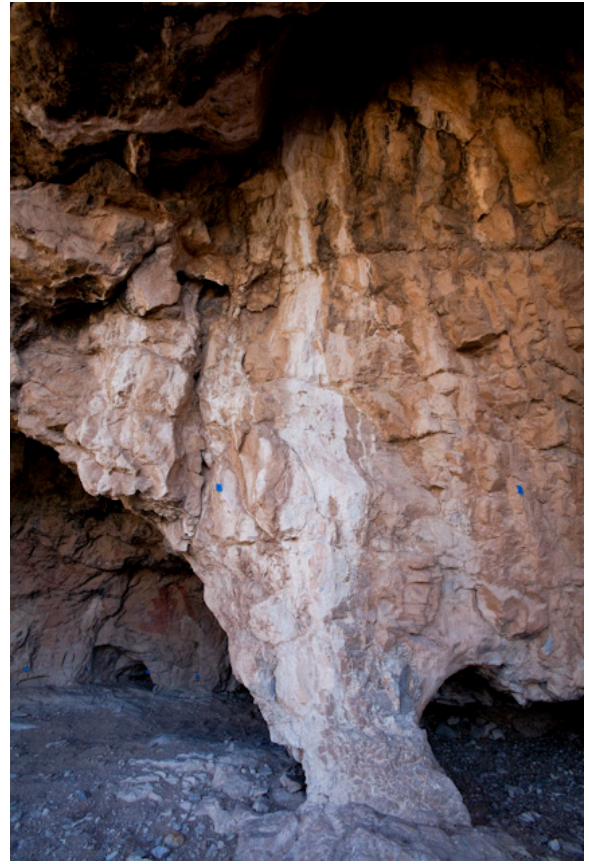


Figure 1 The photograph shows Panel 3 in Picture Cave, Texas. Note the heavy mineral stain down the vertically oriented panel. The rock paintings are found from the top to the bottom of the panel within this mineral stain. Photograph by Laurie White.

Horned serpents, cloud terraces, katsina faces with cloud terrace-like tablitas, goggle-eye figures, toads and tadpoles are the most obvious Picture Cave figures related to rain making. The true key to understanding the Picture Cave rock paintings is the position and orientation of one of the panels of paintings. The images in Panel 3 are on a water-stained surface that is oriented vertically down an exposed column of the limestone wall (Figure 1), A bird is found at the top of the panel; below this, there is a group of parallel vertical way lines that represent rain; below these lines there is a full-faced flower representing an important rain-related image (Hays-Gilpin et al 2010). A lightning streak is



Figure 2. Panel drawing of Panel 3, Picture Cave, Texas. The bird at the top of the panel has rain lines below it. These are followed by a flower, lightning, cloud terraces, a possible tadpole and a goggle-eye figure. Illustration by Laurie White.

same kinds of lines are often found at the base of a cloud terrace, but in this case they occur without the associated cloud figure. Importantly, these same parallel, wavy lines are found at other rock art sites in the Jornada region. At these sites they are often connected to cracks with evidence of water seepage (Figure 4 page 101).

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Figure 3. Photograph of the flower in Panel 3, Picture Cave, Texas. The figure is nearly covered with mineral stain, so it has been enhanced for clarity. Paintings of flowers are not common at Jornada rock art sites but they are found on Mimbres pottery bowls. Photograph by Laurie White.

found below the flower with two cloud terraces, a possible tadpole, and a goggle-eye figure at the bottom of the panel (Figure 2 and 3).

The vertical arrangement of the figures is on a surface that is stained by water that emanates from a crack at the top of the panel. Their placement is almost certainly purposeful to connect them with the water and create a metaphor for coaxing the rain.

The simple parallel groups of vertical lines are an important addition to our understanding of Jornada region rock art. These simple lines are usually assigned to some sort of “counting” scheme but in fact their placement in this panel suggests they are metaphors for rain. These

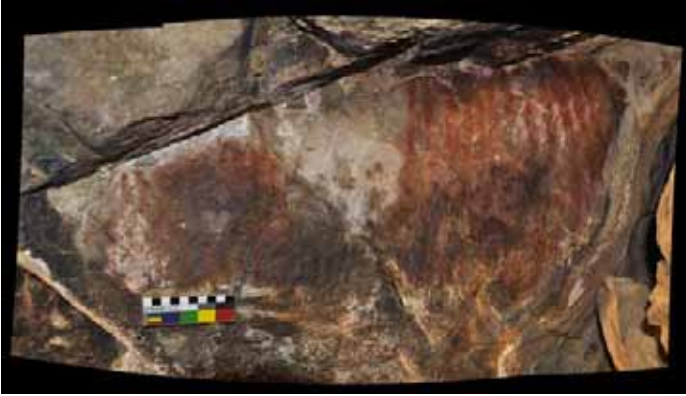


Figure 4. Rain lines emanate from a wet crack in a rockshelter at the White Rock site, Texas.

Hays-Gilpin, Kelley, Elizabeth Newsome, and Emory Sekaquatewa

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RADIOCARBON DATING AND THE ORIGINS OF JORNADA STYLE ROCK ART ICONOGRAPHY

Myles R. Miller

A general chronology of Jornada Style rock art has been proposed by Polly Schaafsma and other researchers but the specific age range of the style remains poorly understood. Our cur-

rent understanding of the dating of the Jornada Style is hampered by ambiguous dates and data. Radiocarbon age estimates obtained from Jornada style rock art elements at Hueco Tanks by Marvin Rowe range from AD 600 to 1450, a span of 850 years. Several of the signature icons and motifs of the Jornada style are well represented on Mimbres Black-on-white Style III vessels dating from AD 1000 to 1140. However, until recently there was little evidence of such iconography in the material culture of the Jornada region until after AD 1150 and particularly after AD 1300.

Refining the dating of the Jornada Style is a fundamental concern for understanding the emergence and florescence of iconographic elements of Jornada rock art and origins of the ideological beliefs underlying the imagery. Dating is critical for establishing the inception and florescence of the Jornada Style and how it relates to similar iconographic and ritual developments in the Mimbres Valley during the after AD 1000 and throughout the prehistoric Southwest during the Pueblo IV period after AD 1300, including the development of the katsina cult. Moreover, the possibility that the ideology and cosmology of the Jornada Style have earlier roots in the region merits further consideration and has profound implications for understanding the development of ritual and religious



Figure 1. Tablita from Ceremonial Cave (courtesy of the Texas Archaeological Research Laboratory, The University of Texas at Austin).



Figure 2. *Tablita* fragments from Ceremonial Cave (courtesy of the Centennial Museum, The University of Texas at El Paso). The fourth specimen from the top and the lowermost specimen were dated.

traditions in the prehispanic Southwest.

One of the most reliable and useful means of refining the chronology of Jornada Style rock art is to date the signature iconographic elements and motifs of the style as expressed in other media, especially perishable items of wood, fiber, and cactus stalks. The remains of portable or mobiliary ritual objects such as *tablitas*, prayer sticks (*pahos*), pipes, wooden serpents, and mask fragments often have signature icons such as painted or carved cloud terraces (or stepped frets), serpents, and the so-called “goggle-eye” figure commonly found at Jornada rock art sites. These items have been recovered from numerous caves in the Jornada and the greater Mogollon region, including Ceremonial Cave, Chavez Cave, and Picture Cave. We have successfully dated six such items from Ceremonial Cave that

are curated at the Texas Archaeological Research Laboratory of the University of Texas at Austin and the Centennial Museum, University of Texas at El Paso. Three of the dated objects are illustrated in Figure 1 and Figure 2. Additional specimens are being dated or will be dated in the near future.

The results of the study indicate that iconography associated with *tablitas* is earlier than thought. The study also establishes that ritual use of caves in the Jornada region had greater time depth than previously suspected. The concepts of underworld, caves, mountains, rain, and emergence were part of an ideological and conceptual world of great antiquity that had deep structural relationships with broader pan-Southwestern and Mesoamerican belief systems.

X-RAYS, LASERS, AND OTHER FUN THINGS: THE SCIENCE BEHIND ROCK ART

CONSERVATION AT HUECO TANKS STATE PARK AND HISTORIC SITE, EL PASO COUNTY, TEXAS

Tim Roberts

Hueco Tanks State Park

In 2010, in advance of using lasers to treat painted graffiti on pictographs at Hueco Tanks State Park and Historic Site, near El Paso, Texas, small samples of graffiti paint not directly on pictographs were taken to a laboratory and subjected to a battery of tests. Other non-invasive techniques, including X-Ray Fluorescence, Raman Spectroscopy, and Fourier Transform Infrared Spectroscopy, were used in the field to identify the pigments and binders of the pictographs themselves. The resulting information was used to create test samples and to calibrate the lasers. In 2011, lasers were successfully used to treat graffiti at Hueco Tanks.

CHIHUAHUAN POLYCHROME ROCK PAINTINGS IN SOUTHERN NEW MEXICO

Karen L. Steelman
Marvin W. Rowe
Lawrence L. Loendorf

Our laboratory utilized plasma oxidation and accelerator mass spectrometry to radiocarbon date a Chihuahuan Polychrome painting. The Martin Canyon Rockshelter FB16372 (LA117221) is located in extreme southern New Mexico on lands administered by the Fort Bliss United States Army. Paintings in the rockshelter are abstract figures in red, black, yellow and white. Chihuahuan Polychrome paintings, in red, black, yellow, orange, and white, are found in caves, rockshelters and other protected locations across southern New Mexico and northern Chihuahua. The paintings are abstract designs that include zigzags and rows of vertical lines that are sometimes rake-like forms. Circles and dot figures are often part of the imagery. The paintings are generally considered to be Archaic in age and predate the Jornada Mogollon petroglyphs and pictographs in the region.

LANGUAGE OF THE STONE: THE INTEGRATION OF NATURAL FEATURES INTO JORNADA MOGOLLON ROCK ART DESIGN.

Laurie White
 Whitelight Images

The pictographs and petroglyphs of the Jornada Mogollon frequently incorporate natural features as a part of an overall rock art panel. Some sites and panels, like Hueco Tanks are associated with freshwater spring, other sites are in areas near stream beds or areas where water stands in pools. Sites with basalt rock outcroppings like Three Rivers have a high frequency lightning activity and may have been of interest to early people because of this. Individual rock



Figure 1. Petroglyph at Three Rivers, note the use of natural features of basalt boulder to evoke the emerging visage out of the stone.

art figures are frequently connected to cracks in the rock or in some cases the figures are made by incorporating natural features into the design. These natural associations demonstrate the interrelationship between Jornada rock art and the physical realm associated with the images.

The integration of nodules, convex surface contours, holes, natural niches with the imagery can be appreciated for the diversity of subjects and the rock art creator's ability to incorporate a natural canvas. In addition to these examples, we have found that Jornada rock images are associated with water stains on the panel surface, cracks that emanate water, crystals and fossils in the rock surface, and red-colored inclusions in

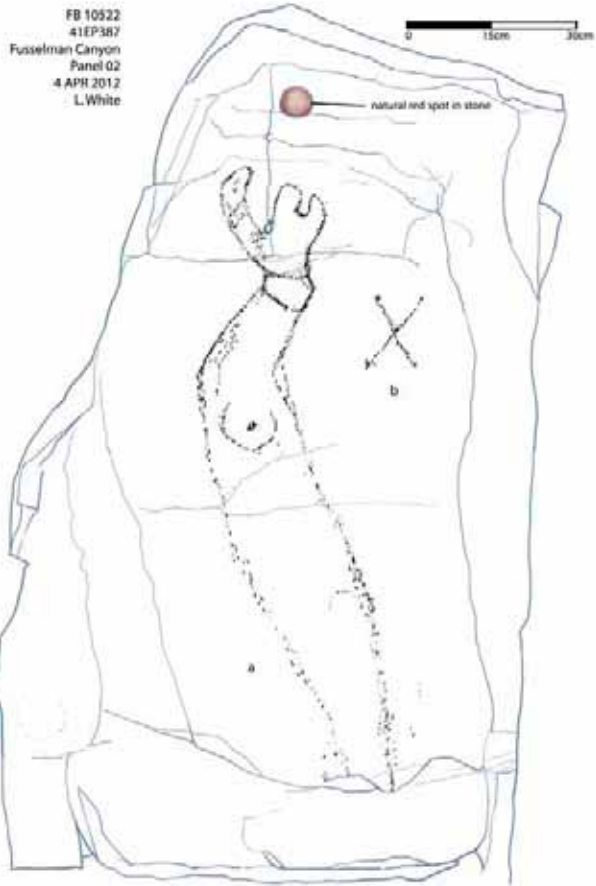


Figure 2. Horned serpent petroglyph at Fusselman Canyon on large basalt boulder with potential lightning strike site nearby.

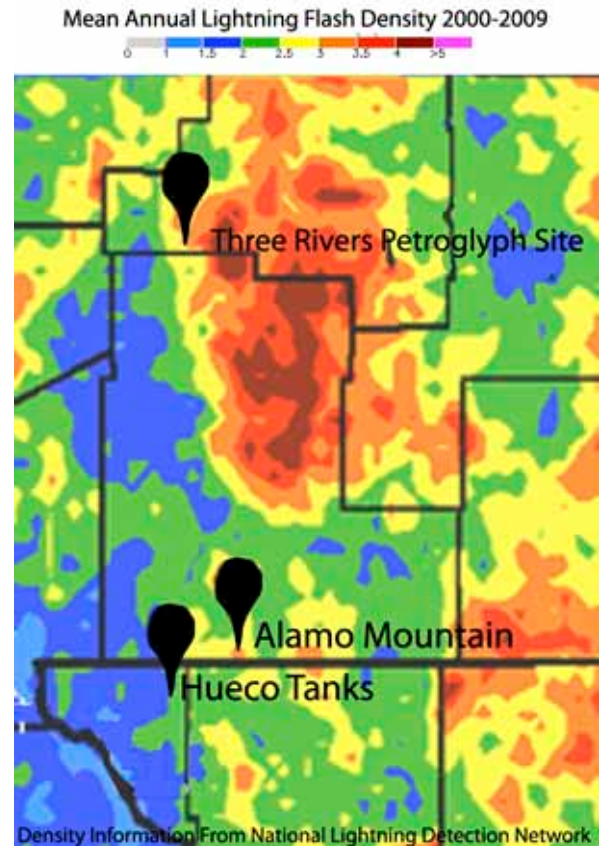


Figure 4. Map of lightning frequency and several Jornada Mogollon rock art sites.



Figure 3. Picture Cave panel 1 figures have numerous interactions with water seeps, cracks and natural contours of limestone cave.

the rock. Sometimes plants growing at the base of the panel, like wild tobacco, are important indicators of the site's use. Pigment sources at a rock art site can also be a significant part of a site.

It is evident understanding Jornada rock art is enhanced by recognizing the contextual natural features at a site. Careful study of the site setting and the physical make-up of the rock art panel often give insights into the creation of Pueblo rock art.

INEXPENSIVE 3D MODELING AND ROCK ART EXPLORATION

Mark Willis

Elements of rock art panels are often more than pigment and incisions. The natural form of the rock can complete pictograph and petroglyph shapes and appear to inform the placement of certain designs. Presenting the complex interactions of natural and manmade elements in rock art has long been a challenge for researchers. New and innovative 3D modeling techniques, which allow for the inexpensive exploration, discovery, analysis, and presentation of these data will be discussed. Results from the use of these techniques at Picture Cave and other rock art sites in West Texas and Southern New Mexico will be presented. The examination of these techniques' application and how they can be further applied to evaluate damage and to detect changes in rock art over time will also be discussed.

Session 13 21ST CENTURY DISCOVERIES AND RESEARCH OF CHINESE ROCK ART

Zhang Yasha Professor, Rock Art Research Association of China (RARAC)
Minzu University of China, Beijing, P.R.C

Tang Huisheng Professor, Dept. of Archaeology and Museology
School of Society Development, Nanjing Normal University, Jiangsu Province, P.R.C

During 2000-2012, a new era of Chinese rock art has been carved out succeeding the golden age of discovering rock art in 1980s, resulted from a boom of diffuse discoveries over the entire country. The new discoveries, especially made in the third national survey of cultural relics (2007-2010), included enormous numbers of hand stencils around western Yangtze River, a barely rendered style of primitive animals in Jinsha River within Yunnan Province, two-third of rock art in Xinjiang that has been found in this period, and the initial discovery of cupules in the Central Plain, etc., based on which Chinese scholars have been striving for further achievements in rock art research concerning its age, image features, symbolic system, surrounding environment, as well as all the other relevant aspects.

PEOPLES IN NORTHERN CHINA AND THE ANCIENT NORTHERN NOMADS TRIBES

An Li

Bachelor degree in Art and Museum of Inner Mongolia University. Researcher, former section leader of Ethnic Group Culture in Inner Mongolia Museum.

The prairie landscape spreading in North China has been considered as one of the major integral parts of the Eurasia Continent. Ranging in the span of history from Late Paleolithic to the Yuan and Ming dynasties at middle ages, and to recent Qing dynasty, tremendous amounts of symbols in the rocks and stones reserved, the recent archeological researches and interpretations to those pattern and figure remains have revealed the abundant information of figures and images of palm, foot, animal, face, the Sun, the Moon, stars, reproduction worship, hunting, herding, and dancing, etc as a picture of old inhabitants.

Apart from the depictions for herding and hunting, a lot of contents of pantheistic symbolism from rock art had emerged during the Stone Age span, the most distinguished figure, the symbols of the God of Sun and other figures of

spirits indicated nature and ancestor worship. In Bronze and Iron age, the everyday life of a growing mixed culture of hunting and animal husbandry and the later prosperous animal husbandry culture of the old residents have been introduced through the images of wild animals and "Stall" shape stacks and herding, the domesticate of horses and riding have also firstly occurred. The rock art estimated of Tang dynasty to Yuan, Ming and Qing dynasties have transited their information from animal forms to primitive early literal symbols. Abstract symbol were drawn and established from specific forms, which has been considered as the predecessor of the first linguistic characters, Turkic script of the northern people. In a time span of history, when characters started to thrive and accommodate the daily lives, the rock art as a means in their everyday life expression and information recording have gradually vanished in the history.

PRAYER IMAGE OF ROCK ART IN THE MANDELA MOUNTAIN

Ao Yun Geril

The Mandela cliff paintings have a long history in China. This paper ties the cliff paintings to

local folklore to explain the graphic representations within the pictographs.

THE PETROGLYPHS SYSTEM BLANK HAS
BEEN FILLED BY QINGLONGSHAN
PETROGLYPHS IN WUGANG, CHINA

Bai Lifan

Wugang of China, which be located in the funiu mountain, and it is the excellent tourism city of China, the National Garden City and the National Sanitary City. Preliminary ascertain that there are more than 240 rock paintings in the area of Qinglongshan, and it happened about 4,000 years ago which covered areas about 3 square kilometers. Qinglongshan rock paintings are very different from the other parts of the country because of their fundamental forms, combination, contents, production techniques and so on. They show the regular geometry, including both early stone grinding and the advanced metal tools which used chisels. They are the new type of rock paintings of their own and unique system. They filled the gaps of China rock painting systems and possess the possibility of cracking, so it is great significance for the study of Chinese civilization heritage history. One of the most characterized rock paintings is known as "painting on the back of turtle". It's a solid rock almost more than 40 square meters which looks like "the back of turtle", Concentrated mainly more than a dozen groups of circular concave rock painting. It's the largest one at present which includes graphics as the maximum, concentration of marks, the most varieties of symbols discovered in the central plains of China.

THE AESTHETIC CHARM OF PETROGLYPH
GRAPHIC SYMBOL

Bao Qinglin

Beijing: China Women's University

Ancient petroglyph is a special cultural phenomenon in the history of human culture and

the arts. It is the accumulation of human emotion in the ancient "age of barbarism" and the original symbols of human's artistic creativity in the early ages. Before characters were created, rocks were used as a place to cave symbols and mark events by people for a long time, recording colorful historical moments and life essences. With respect to the aesthetic qualities of these petroglyph symbols, their vague expressions indicate infinite imagination, their simple graphics enrich schematic visual perception, and their eroded and incomplete symbols contain mysterious vicissitudes. The ancient petroglyph functions as a chaotic vocabulary, but in a sense, the charm of its formal language gets the modern art into reflection and inspiration. If today, a conjunction can be sought between the ancient petroglyph and the times we are living in, it should bring a new vigor for the multidimensional construction of the modern art.

Key words: petroglyph, vagueness, Symbolization, incompleteness, modern art

THE RELATIONSHIP BETWEEN CUPULE
ROCK ART DISCOVERED IN JIANGSU AND
HENAN PROVINCE OF CHINA

Dai Yue

postgraduate candidate of Minzu University of China

Cupules are a form of prehistoric rock art found mainly in Jiangsu Province and Henan Province in China. They consist of concave depressions pecked into rock surfaces and often surrounded by concentric circles also etched into the stones. There are many points of similarities between Jiangsu Province and Henan Province in the aspect of rock art. For example, on the basis of depression diameter, the rock art in Jiangsu Province is divided into three types: Type I, II and III. Additionally, based on the data provided by microerosion dating, Type I is considered as the later period of Paleolithic Age while Type II as Beixin Culture period and Type

III as Longshan Culture period. It roughly demonstrates a developing tendency of "I→II→III". In view of this tendency, the rock art in Henan Province is in the period between Yangshao Culture and Longshan Culture, which belongs to the development stage of "II→III". And then, on the basis of the research achievement of archaeological culture, the cupules in Jiangsu Province and Henan Province are the result of long-term communication and development of archaeological culture in these two areas.

Key words: Cupules; Relationship; Archaeological culture; Communication

LOOKING AT ROCK ART THROUGH A DIFFERENT PRISM. A NEW WAY OF APPLYING THE CHAÎNE OPÉRATOIRE APPROACH TO ROCK ART

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Université du Québec à Montréal, Montréal, Québec, Canada

Prof. Margarita Diaz-Andreu

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Ms. Sarah Qian Gao

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French scholars were the first to propose the "chaîne opératoire" approach to archaeology. The concept was first used to analyse lithic tools, from production to the moment they were discarded. In rock art analysis the chaîne opératoire concept has been used to explain the different steps leading to the making of a morph or a graphic (see works by R. Bednarik, A. Leroi-Gourhan, M. Lorblanchet or M. Menu among others). In contrast, in this paper we will apply this concept to the site as a whole, considering rock art as a "visual cultural tool" that was conceptualised, made, used and sometimes eventually abandoned. In other words, we will argue that rock art sites can be scrutinized following their "chaîne opératoire" process, that is (a) the selection of a proper locus chosen according to a specific worldview, (b) the conception

and production of the graphic (i.e. the motifs to be depicted and their placement on a rock surface), (c) the procurement of raw materials and tools used to produce the art, (d) the subsequent uses and reuses of the place, with (e) its possible abandonment. Using three different rock art contexts (rock painting sites in Canada, Spain and China) as targets for analysis, this paper will discuss the potential for Chinese rock art research of referring to such an operative concept for better studying and understanding rock art.

REASONABLE THOUGHTS TOWARD CONSERVATION AND DEVELOPMENT OF NINGXIA ROCK ART

Gao Xisheng

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Rock art is widely distributed in Ningxia. It is not only known for its large quantity, abundant subject matters and consummate making skills, but also as a representative of rock art in northern China. Ever since discovered in the 1980s, rock art in Ningxia has always been subjected to damage both caused by natural force and human activities. In recent years, rock art has suffered from increasingly intense damage. Through analyzing the cause of damage, the paper aims at exploring a new way in protecting rock art.

Key words: Present status of rock art; Protection; Research.

UTILIZATION OF GPS IN THE FIELD INVESTIGATION INTO ROCK ART

Gong Libin

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Alongside the changes of environment and effect brought by wind erosion, water erosion, weathering as well as damage caused by human activities such as quarrying, mining and land reclamation, etc., phenomena like cracking,

spalling and collapse do exist in most of the rock art. Until now, some of the rock art has become indiscernible or even disappeared completely. Hence, in addition to photography and rubbing, the approaches used before, the utilization of GPS system becomes both important and imperative while constructing comprehensive files on rock art and reducing errors in statistics. The establishment of "identity file" for rock art enables the switch from paper-based record to the electronic one. This will lay a solid foundation for the rock art's database construction, advanced research and investigation as well.

Key words: Rock art; GPS location system; Protection.

NU PEOPLE'S HISTORICAL AND CULTURAL DEVELOPMENT AND THE PETROGLYPH IN NUJIANG AREA

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The petroglyphs in Nujiang are mainly located in the Lushui area in Fugong County, in which the Nu people have been living since ancient times. The Nujiang Petroglyph's connotations demonstrate the great intelligence of Nu ancestors, which played an important role in the historical development of human society.

Keywords Nujiang, petroglyph, the Nu people, historical culture

REMAINING PRIMITIVE PEOPLE'S HISTORICAL MARK ON ROCK IN NORTHWESTERN YUNNAN, INVESTIGATION AND PROTECTION OF JINSHA RIVER PICTOGRAPHS

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Yang Xueyin

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The pictographs of Jinsha River are the oldest and largest pictographs found in Yunnan Province so far. This paper reviews the process of discovery of the pictograph of Jinsha River and several detailed investigations on it, and systematically expounds its location, environment, distribution, condition and skills of the authors, contents. As the experts on conservation of historical relics and organizer of several investigations on pictographs, the authors of the paper express their concern on the current situations of the existing pictographs and put forward some practical suggestions on rescue and conservation on the pictograph of Jinsha River.

Key Words: Pictograph of Jinsha River; petrogram, investigation; conservation

GRINDING BASE FORM ROCK ART IN FANGCHENG: THE RUDIMENT OF JADE BI

Li Yingnian

The rock art in Fangcheng is mainly made up of various motifs based on cupules on the surface of rocks as well as some others made by carving and grinding. Fangcheng rock art belongs to a part of history, recording early human civilization and is a vivid "history book" carved on rocks. Fangcheng rock art is not only the living memory about ancient civilization but also the root of culture in the Central Plains. Here with the help of experts and scholars who care and love rock art, we are going to explore the connotation of grinding base form rock art and the relationship between it and jade Bi.

A BRIEF INTRODUCTION TO ROCK ART IN XINJIANG

Liu Guorui

The research on rock art in Xinjiang has been mentioned in historical documents and paintings. More intense research was done in the last ten years where it was determined art in Xinjiang similar to researches on other rock art in China, mainly focuses on the methods of

creation, artistic characteristics, reproduction worship and cultural implication.

BRIEF INTRODUCTION OF ROCK ART IN DONG MOUNTAIN OF LINGWU, NINGXIA

Liu Hui

Researcher of Rock Art Research Association of Ningxia

The Mt. Dong rock art in Lingwu was firstly found in 1990s. Its subject matters mainly include life customs, social forms as well as concepts of totem. The discovery of rock art in this region has provided us with ample and accurate material for understanding the region's history, culture, religion and the relationship among different ethnic tribes.

Key words: Dong Mountain in Lingwu; Rock art; Brief introduction.

ARTISTIC GALLERY OF PREHISTORIC HUMAN—INTERPRETATION OF CANGYUAN ROCK ART IN YUNNAN

Ma Juan

Director of Archaeology Institute of Lincang

Rock art is a kind of image carved or painted on the rocks, which is sort of cultural form for describing the life and self-expression. Chinese rock art was divided by some scholars into northern, southeastern, and southwestern systems. Within the southwestern system, the rock art in Cangyuan, Yunnan province is richest in its content.

Key words: Rock art; Cangyuan in Yunnan; Content; Art style; Age

SURVEY AND RESEARCH OF HUANSHAN CLIFF PAINTING IN GUANGXI, CHINA

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Through survey and combinations with the previous research and historical, archeologi-

cal and ethnological data, this thesis purposes that the upper limit age of Huashan cliff painting could be traced back to the Neolithic Age while its lower limit could be Tang dynasty. And the huge beast pattern on the cliff drawing is the water god -- flood dragon worshipped by Luoyue ethnic group.

Key words Huashan cliff painting, age, beast pattern

THE ARTSTIC STYLE OF ROCK ARTS IN LONGLI OF GUIZHOU PROVINCE

Mu Xiaomei

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The Wushan Rock Paintings in Longli of Guizhou discovered in 2001 is a verification of early human being's life. The contents are of human being's labor life of the times, like hunting, farm ploughing, herding etc, through the description of the paintings of sacrificial rites, dancing, reproduction worship, frogman and so on to reflect human being's spiritual world of that time.

The Rock Paintings in Longli takes man as a theme, with those animals like cows, horses, dogs and sun, signs of life as a supplement, which are closely connected with human life.

The techniques of the paintings are succinct. With reference to mold-making, dots and lines are mainly used in man and animals like horses and dogs, and planes are used in cows. What's original is a plenty of use of dots, making the rock paintings here rhythmic and full of vitality. With grey rocks and green trees as the background, the pure red paintings are of a strong visual impact, which makes the rock paintings here unique, and every one of them is full of lively vigor and vitality, showing a romantic artistic style.

In a word, the Wushan Rock Paintings in Longli of Guizhou enjoy not only artistic value, but also a rare cultural heritage of the whole world.

ROCK ART IN BAQIANGZI

Pan Xiao

Researcher of Rock Art Research Association of Ningxia

In 1985, Xinjiang Institute of Cultural Relics and Archaeology conducted an investigation into rock art at Baqiangzi site, located in Balikun County. But this investigation did not cover all the samples. Hami census team re-examined this site and filed all their findings in detail including 180 rocks with over 300 figures carved on them. This data has a great importance in both quantity and content. However, articles about the study of this material are few.

This thesis, based on these records and files, consists of four chapters, not including the conclusion. The first chapter introduces the current situation of rock art studies in North China. The second and third chapter, the main body of the article, introduces all the material about rock art at the Baqiangzi site. The methodology of typology is applied to the research of the rock art, classifying the material related into different types and periods. In the introduction to the rock art, the concept of "Fu" is used, namely, dividing the rock art on one rock into several parts according to its content, style and technology, etc. The fourth chapter primarily dates the Baqiangzi rock art and discusses the nationality of its makers.

The research on Baqiangzi rock art, on one side, is to introduce these findings in a brand-new way. On the other side, it is an immature method to apply typological methods to the research of rock art, which proves to be feasible in the study on Qiongkeke rock art.

Keywords: Balikun Baqiangzi rock art typology

RESEARCH ON FILE CONSTRUCTION
SYSTEM OF ROCK ART**Qiao Hua**

Researcher of Rock Art Research Association of Ningxia

Rock art is a kind of production characterized by non-renewability. It has been weathered or damaged and may disappear after all. Through more than ten years of on-field investigation, the author eventually made a thorough, scientific and accurate record of the rock art in Ningxia, both damaged and still well-preserved. On the basis of this work, a file on the rock art has been constructed, which constitutes a foundation of further database construction, protection of rock art and future advancement of the entire discipline.

Key Words: Rock art; Data; File construction

EYE-LIKE PATTERNS IN THE HUMAN FACE
PETROGLYPHS OF CHIFENG AREA**Ruan Jinyi**

Postgraduate candidate of Minzu University of China

The rock art in Inner Mongolia, a part of which is petroglyphs in Chifeng Area featuring the human face motifs, plays a prominent role in northern Chinese rock art system. Both realistic and nonrepresentational human faces are engraved in the petroglyphs of Chifeng area, the latter including figures profiled or not, facial organs or bare abstracted eyes presented, being dominant in proportion. Despite some current research of images in other types of manufactures such as "spiral eyes", "concentric eyes", "swirl grains", etc., there has hardly been exclusive, profound research on the eye-like patterns in rock art. The article nominates these patterns as the most representative rock art in Chifeng. Additionally, a prudent interpretation of them will undoubtedly benefit the study on evolution rules of petroglyphs in this area,

or even the entire country. Based on a review of previous research, the article endeavors to process relevant information of these patterns comprehensively, thus coming up with some viewpoints concerning the age and connotation of human face petroglyphs in Chifeng area.

EXPLORATION OF THE ROCK ART GROUP
IN ONUGIUD BANNER

Siqinbatu

Onugiud Banner, Chifeng City, Inner Mongolia, China is located in the east of Inner Mongolia. Onugiud Banner is the name of a Mongolian tribe, meaning "people under the region of their king". The region used to be rule by Genghis Khan's brothers. Genghis Khan conferred Eastern Kings on his brothers, so Onugiud tribe became people under the region of their king. A large number of wide-spread rock art have been discovered recently on this wonderful land. This paper comprises three parts. Part One briefly introduces Onugiud Banner's history evolution and current situation, Part Two characteristics of Onugiud's rock art, and Part Three discusses the research significance of Onugiud's rock art. Onugiud's rock art is an important component of northern prairie nomad rock art, and it has far-reaching significance and research value.

FIELD SURVEY AND ANALYSIS OF MASK OF
EYES WORSHIP IN XILIAOHE RIVER BASIN

Sun Xiaoyong
Zhang jiaxin

From July, 2011 to September, 2012, the writer of this essay traveled with the expedition of the Chinese Rock Art Research Center that went to the Xiliaohe River Basin for field work on rock art and conduct a systematic review of field work and analysis of the mask with eyes petroglyph.

The investigation of the eye worship mask not only can enrich the study of rock art, promote the contrast rock art in the Pacific Rim and con-

notations exploration, but also has particular significance to the research of national migration, cultural evolution, and the formation of the Chinese yin and yang concept.

NEW DISCOVERY OF ROCK ART AND
MEGALITHIC SITES IN THE CENTRAL
PLAIN OF CHINA

Tang Huisheng

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Since the turn of this century, an immense amount of rock art has been discovered in Henan Province (located in the Central Plains region of China), centred at Mt Juci. Over 90 percent of the rock art consists of cupules and the remainder comprises linear groove patterns, chessboard-like designs and other motifs. The rock art features mainly ground motifs and patterns chiseled by metal tools. There are a variety of cupules, varying in size, depth and arrangement, e.g. occurring in rows, concentric patterns and so on. Rock art was executed on over 10 000 boulders, some of which could be classified as megalithic sites, such as menhirs, dolmen, 'stone altars' and the like. The cupules and the megaliths from the Central Plains region appear to show a structural context, which will help us to understand and identify their cultural nature, contents and ages. Based on cross-dating, their production could be considered as spanning the Neolithic and the Bronze Age.

HUMAN FACE PATTERNS IN HELAN
MOUNTAIN

Wang Gusheng
Gao Xisheng

Researchers Rock Art Research Association of Ningxia

Petroglyphs scattered in Helan Mountain are the kind of art made by the northern nomadic people of the primitive age. From these

ancient figures, one can easily know about a true life of the people in the past and the development of primitive economy, as are particularly demonstrated in more and more newly discovered human-faced figures. Only by having a deep recognition and understanding of these human-faced figures can we then have a better understanding of the cultural connotation of these art products.

Key words: Helan Mountain; Rock art; Human-faced figures.

THE STUDY FOR HUASHAN ROCK
PAINTINGS CONSERVATION CHINESE
ACADEMY OF CULTURAL HERITAGE

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Guangxi Ningming Huashan Rock Paintings are the largest rock paintings both in China and in the world, depicting over 1900 images. In 1988, the State Council designated the paintings as national level heritage. On December 15, 2006, the Huashan Rock Paintings were nominated to "China's Preparatory List of World Cultural Heritage" Due to long-term exposure to natural environmental factors, the Huashan Rock Paintings have been damaged by cracking and spalling, landslides, water erosion, stalactite deposition as well as weathering damage. This paper presents the Huashan rock painting conservation project development.

THE NORTH-SOUTH DIVIDE IN CHINESE
ROCK ART: A COMPARISON OF ROCK ART
IN GUIZHOU AND INNER MONGOLIA

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Chinese rock art can be divided into two broad families, northern and southern, based on its form, content and technique. Most northern rock art is in the form of engravings (petroglyphs). The petroglyphs of the Yin Mountains in Inner Mongolia are an archetypal example. Southern rock art mostly takes the form of red ink paintings (pictographs), of which the rock art of Guizhou is one example.

This paper compares and interprets northern and southern Chinese rock art from an artistic and anthropological standpoint. The petroglyphs of the Yin Mountains in Inner Mongolia reflect the life and world of the ancient nomadic herding cultures of northern China; in contrast, the rock art of Guizhou reflects life scenes of the slash-and-burn rice cultivation and mountain agriculture of the ancient peoples of southern China.

A deeper analysis of these two types of rock art helps us to discover the differences and similarities between the northern and southern cultures of ancient China.

DISCUSSION ON SOME QUESTIONS OF
THE ZUOJIANG RIVER ROCK ARTS

Xiao Bo

Qing Pu

Peng Pengcheng

The Zuojiang River rock arts are all painted on the cliffs with red pigment by the ancestors of the Zhuang People along the Zuojiang River, they distribute in the Ningming, Longzhou, Fusui, Daxin and, Tiandeng counties, Jiangzhou District, and the county-level city of Pingxiang in Chongzuo City in Guangxi Zhuang Autonomous Region, most scholars believe that they are the works of ancestors of Zhuang People from Warring States to the Eastern Han Dynasty. Since 1956, a total of 80 rock art sites have

been found. Among them, there are 5 sites in Ningming County, accounting for 6.25% of the total. There are 17 sites in Longzhou County, accounting for 21.25% of the total. There are 31 sites in Jiangzhou district, accounting for 38.75% of the total. There are 25 sites in Fusui County, accounting for 31.25% of the total. There is also one site each in Daxin County, and in the county-level city of Pingxiang each accounting for 1.25% of the total. In addition, there are also some rock art sites, whose age and style are different from the others and belong to the late works. One site in Pingxiang County, two sites in Fusui County, and one site in Tiandeng County are noted but this article does not involve these rock art sites.

The contents of the Zuojiang River rock art include human images, animal images, circle symbols and some other types of images, the most of the images are human images. After more than half a century's research since 1950, the problems of their ages, the makers, the painting reasons and the artistic styles have been preliminarily solved, and a preliminary discussion on the relationship between the rock arts of Zuojiang River and the adjacent areas of Sichuan, Yunnan and Guizhou Provinces has continued. With the work of the Zuojiang River rock arts nomination, scholars strengthen the efforts to advance the Zuojiang River rock arts' research, they begin to further break through the regional limits to do some systematic research on the rock arts of Zuojiang River and the surrounding regions' rock arts in a unified framework, and to research their outstanding universal value over future research. Our intent to combine the results of the previous studies and learning experiences, to talk about the choice of location, the reasons for the demise of the painting custom under the shamanism theoretical framework, and to ask for experts' advice will be the focus of this paper.

Key words Zuojiang River Rock Arts; Painting Custom; Shamanism

XINJIANG PETROGLYPHS AND RELEVANT STUDY

Xiao Xiaoyong

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As an intermediate zone of Eastern, Southern and Central Asia, Xinjiang occupied a place for the studies on the relationship of rock art in these areas. An increasingly number of petroglyphs has been discovered in this region during the past century. However, general study on them was hardly paid academic attention to, nor did the comprehensive classification. There are only a few books on certain rock art sites. As a result, the meaning and interrelation of the rock art remain unclear. This paper is focused on a comprehensive sorting of these petroglyphs on the basis of reviewing the discovery history of Xinjiang petroglyphs and relevant research.

CHANGES OF THE CONCEPTS ON WORLD CULTURAL HERITAGE AND THE DEVELOPMENT OF THE APPLICATION FOR ROCK ART AS CULTURAL HERITAGE IN CHINA

Yang Huiling

Researcher of Rock Art Research Association of Ningxia

Abstract: Based on the changes of concepts on applying for the world cultural heritage, the author analyzed the World Heritage List and the enrollment reasons, deeming that the future work of applying for the world heritage should be done under the global background. Apart from adhering to the six universally-adopted norms, we should also make a timely adjustment to the recognition perspective towards the value of Chinese rock art, with an attempt to show its peculiarity and uniqueness and to eventually realize the goal of enrolling more rock art into the List.

Key words: Cultural heritage; Concept; Rock art in China; Application work.

A CHRONOLOGICAL STUDY OF VEHICLE
ROCK ARTS OF THE YINSHAN MOUNTAINS
IN INNER MONGOLIA

Zhang Wenjing

Rock art or petroglyph is a kind of archaeological record that ancient people drew and carved marks and symbols on caves and rocks with stone implements and mineral pigments in order to record early history. It has been found worldwide since 17th century in Northern Europe where it was first discovered (Chen Zhaofu 2010). In recent years, rock painting has become a professional subject with the goal of recovering early human society through decoding the symbols. Unfortunately, dating remains one of the biggest problems in the study. Based on the data of 33 rock art works collected in Yinshan Mountains, the paper will discuss the vehicles of the Rock arts in this area and their chronology via typological method.

Key words: Dating of vehicle rock arts, Typology, Yinshan Mountains, China

THE ROCK ART OF THE ANCIENT TIBET

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The rock art of the Tibetan plateau has distinctive characteristics. Its distribution is centered on the southern lake area of the grasslands in northern Tibet, which forms a wide strip east to west and a narrow strip north to south. Most Tibetan rock art is carved, with only some red painting. Images are carved on precipices, some within rock shelters or caves, and some on open rock boulders. In the earliest rock art, two animal styles are popular on the plateau. The earliest is the yak, which is followed by beautiful painted deer, only found in Rutog County. Later rock art is centered more on the religious life of humans. Outlined engravings, which are popular in western Tibet, and red paintings, which are popular in northern Tibet, have strong as-

sociations with bird worship and the faith of Bon-po.

A REVIEW OF CHINESE ROCK ART
RESEARCH IN 21ST CENTURY

Zhu Lifeng
Xiang Jiangtao

In China, rock art sites spread all over the country and the rock art's places, representation methods, themes and content are closely connected with the nation's cultural development and changes. In the 21st century, thanks to the fervent promotion of the government, scholars and amateurs, the discovery and research of Chinese rock art have entered a new period. The new discovery of tens of thousands of various rock art such as cupules in Henan, hand prints rock art in the southwest, human-faced rock art in Chifeng and other places like Xinjiang or Yunnan bears great significance. Since 2008, exciting new discoveries have brought about a new passion for rock art research. The range of rock art investigation, recording and conservation has been enormously expanded; the development of cultural industry in some regions has demonstrated obvious characteristics; scholars' researches have explored different fields, especially in the disciplines of archaeology, anthropology, art history, aboriginal region, region and iconography and semiotics, etc. However, scientific conservation and proper development will be the most urgent mission for Chinese rock art in the new century.

Key words: Rock art, Discovery, Research, Conservation, Development

Session 14
**CERAMICS AND ROCK ART: RELATIONSHIPS, CONNECTIONS,
AND CONFLUENCES**

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Session abstract Relationships and links between rock art and ceramic remains have been traditionally handled autonomously in rock art studies. Sometimes archaeologists have used the ceramic material found on sites either as a chronological indicator (dating) or a vehicle for the reconstruction of subsistence patterns of the cultural group (emerging farmers, horticultures, etc.). Today this kind of analysis is changing through the integration of new dimensions of ceramic material related to rock paintings and engravings. As a result, aspects such as stylistic patterns, motifs, colors and pigments are incorporated into the analysis for determining the links between material culture and rock art. Current approaches that include these dimensions of ceramic material in rock art studies are beginning to deconstruct historical dualism in research of rock art, the disconnect between rock art and portable art. This session aims to reestablish relationships and confluences of ceramic material and rock art. Investigations completed, ongoing, or emerging studies from around the world are welcome.

Las relaciones y vínculos entre el arte rupestre y los vestigios cerámicos han sido tradicionalmente abordados en forma autónoma en los estudios de arte rupestre. En algunas ocasiones se ha utilizado el material cerámico hallado en los sitios como indicador cronológico (datación), o como medio para la reconstrucción de los patrones de subsistencia del grupo cultural (agricultores incipientes, agricultores-horticultores, etc.). Actualmente esta perspectiva de análisis está cambiando a través de la integración de nuevas dimensiones del material cerámico vinculados a las pinturas y grabados rupestres. En ese sentido, aspectos tales como padrones estilísticos, motivos, colores y pigmentos son incorporados al análisis para la determinación de los nexos que existen entre la cultura material y el arte rupestre. Los enfoques actuales que incluyen estas dimensiones del material cerámico en los estudios de arte rupestre comienzan a deconstruir un dualismo histórico en la investigación y análisis del arte rupestre: la desconexión entre el arte rupestre y el arte mobiliario. Esta Sesión pretende reestablecer las relaciones y confluencias del material cerámico y el arte rupestre. Investigaciones concluidas, en marcha o estudios incipientes de todas partes del mundo son bienvenidos.

PLASTIC CHOICES OF WHAT, HOW AND
WHERE TO REPRESENT. COMPARISON
BETWEEN YAVI-CHICHA POTTERY AND
ROCK ART IN THE ARGENTINE-BOLIVIAN
BORDERLAND. CENTURIES XI TO XVI.

Florencia Ávila

CONICET- INAPL, Argentina.

Visual representations expressed in different media bring to mind different actions and production techniques of different actors with particular knowledge and expertise, whether

engrave in rocks, paint pots, or pyre engrave pumpkins. But this is not all. Social practices that go along with these actions are different. Who are handling the pottery, who appropriate it, how and where they circulate/travel (in this case at great distances), in which contexts participate, etc. The access to pieces is broad and not restricted spatially or temporally. By contrast, the petroglyphs involve completely different practices. Their visibility, location, function (as markers of transit routes, boundaries, ownership of spaces) and durability over time are just

some examples. In this paper we discuss the chromatic and pictorial design of Yavi-Chicha pottery (XI-XVI Centuries), comparing with rock art of nuclear area (Middle Rio Grande Basin of San Juan, valleys of southern Bolivia) in aspects such as: production techniques, motifs and configurations represented, plastic space utilization, among others. This will allow us to shed light on the different plastic elections made in times of endemic conflict, conformation of new social groups and regional identities in the southern Andes.

ELECCIONES PLÁSTICAS DE QUÉ, CÓMO Y DÓNDE REPRESENTAR. COMPARACIÓN ENTRE LA ALFARERÍA YAVI-CHICHA Y EL ARTE RUPESTRE EN LA FRONTERA ARGENTINO-BOLIVIANA. SIGLOS XI A XVI.

Las representaciones plásticas que se expresan en distintos soportes traen a la mente acciones y técnicas de producción diferentes, de actores con saberes y pericias particulares, ya sea grabar en las rocas, pintar en vasijas, o pirograbar en calabazas. Pero esto no es lo único. Las prácticas sociales que acompañan estas acciones son distintas; quiénes manipulan la alfarería, quiénes se apropian, de qué forma y a dónde circula (en este caso a grandes distancias), en qué contextos entran en acción, etc. El acceso a las piezas es amplio y no restringido espacial o temporalmente. Por el contrario, la situación de los grabados rupestres conlleva prácticas totalmente diferentes. Su visibilidad, su emplazamiento, su función (marcadores de rutas de tránsito, límites territoriales, apropiación de espacios) y su perdurabilidad en el tiempo son sólo algunos ejemplos. En este trabajo discutiremos el diseño cromático y pictórico de la alfarería Yavi-Chicha (Siglos XI a XVI) comparándolo con el arte rupestre del área nuclear (cuenca media del Río Grande de San Juan, valles del sur de Bolivia) en aspectos tales como: técnicas de producción, motivos y configuraciones representadas, utilización del espacio plástico, entre otros. Esto nos

permitirá brindar luz sobre las diferentes elecciones plásticas que se ejecutaron en momentos de conflictos endémicos, conformación de nuevos colectivos sociales e identidades regionales en el ámbito del sur andino.

POTTERY TECHNOLOGY AND ROCK ART TECHNOLOGY: CONNECTIONS AND DISCONNECTIONS

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Traditionally archaeological studies in pottery technology have been associated with a female task exclusively, from the extraction of different types of clay to execution of aesthetics decoration. Moreover, aesthetics of pottery objects almost always appears in geometric patterns, either through additive processes [pigments] or reductive process [incisions]. Pottery technology emerges in Neolithic period and was linked to earliest forms of agriculture. In that sense, presence of similar motifs in ceramic objects and rock art confront us with a problem of complexity. If ceramic decoration belongs exclusively to women's work: can we infer that the same motifs in pictographs or petroglyphs were also executed by women? If motifs executed in ceramic remains and rock art are identical: can we set the same chronology for both motifs? If the same pigments are used for decoration of pottery and execution rock art motifs: the process of preparation of pigments is the same? All these questions lead us to debate of connections and disconnections between portable art and prehistoric rock art.

TECNOLOGÍA CERÁMICA Y TECNOLOGÍA DEL ARTE RUPESTRE: CONEXIONES Y DESCONEJONES

Tradicionalmente en los estudios arqueológicos la tecnología cerámica ha sido asociada a una tarea exclusivamente femenina, desde la extracción de los diferentes tipos de arcilla hasta la ejecución del decorado estético. A su vez, la estética de los objetos cerámicos casi siempre se

manifiesta en motivos geométricos, sean estos a través de procesos aditivos [pigmentos] o reductivos [incisiones]. Además, la tecnología cerámica emerge en el período neolítico y se vincula a las primeras formas de agricultura. En ese sentido, la presencia de motivos similares en objetos cerámicos y en soportes con arte rupestre nos enfrenta a una problemática de carácter complejo. Si la decoración cerámica pertenece exclusivamente a un trabajo femenino: podremos inferir que los mismos motivos en pictografías o petroglifos también fueron ejecutados por las mujeres? Si los motivos que aparecen en los restos cerámicos y en soportes con arte rupestre son idénticos: podremos establecer la misma cronología para ambos motivos? Si los mismos pigmentos son utilizados para la decoración cerámica y la ejecución de los motivos rupestres: el proceso de preparación de los pigmentos es el mismo? Todas estas interrogantes nos conducen al debate de las conexiones y desconexiones entre el arte mobiliario y el arte rupestre.

THE ROCK ART OF THE GRAN NAYAR AND AZTATLÁN CERAMICS. MANIFESTATIONS OF A SAME CULTURAL TRADITION.

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Although the graphics rock is abundant in southern Sinaloa, Mexico, there are few studies that have addressed and often have been by fans, but through inspections and search and rescue work we have archaeological register 12 sites with more than 200 prints. In northern Nayarit the perspective is brighter and almost 20 years there has been a sustained study of his rock art are being registered at least 170 sites with more than two thousand petroglyphs. Both

are part of the extensive cultural area of the Gran Nayar. Their designs are the most conspicuous spiral, double spiral or propeller, blade or cross of St. Andrew, the soles and stairs, scalliform, vulvas, the human figure in ritual status, and so on. These motifs are repeated in Aztatlán ceramics, one of the most elaborate ceramic of New World, characterized by a profusion of painted motifs, and Codex type scenes, which is considered one of the distinctive elements of the archeology of southern northern Sinaloa and Nayarit. We make a comparison between both data sources and rehearse your interpretation based on ethnohistory and ethnography.

LA GRÁFICA RUPESTRE DEL GRAN NAYAR Y LA CERÁMICA AZTATLÁN.

MANIFESTACIONES DE UNA MISMA TRADICIÓN CULTURAL.

Aunque la gráfica rupestre es abundante en el sur de Sinaloa, México; son pocos los estudios que la han abordado y casi siempre ha sido por parte de aficionados; sin embargo, a través de visitas de inspección y trabajos de rescate y salvamento arqueológicos hemos logrado registrar 12 sitios con más de 200 grabados. En el norte de Nayarit el panorama es más alentador y desde hace casi 20 años ha habido un sostenido estudio de sus manifestaciones gráfico rupestres y se llevan registrados al menos 170 sitios con más de dos mil petroglifos. Ambas forman parte de la extensa área cultural del Gran Nayar. Sus diseños más conspicuos son la espiral, la doble espiral o hélice, el aspa o cruz de San Andrés, los soles y escaleras, la greca, las vulvas, la figura humana en situación ritual, etcétera. Estos motivos se repiten en la cerámica Aztatlán, una de las cerámicas más elaboradas del nuevo mundo, caracterizada por una gran profusión de motivos pintados, incisos y esgrafiados y escenas tipo Códice, la cual se considera uno de los elementos distintivos de la arqueología del sur de Sinaloa y norte de Nayarit. Hacemos una comparación entre ambas fuentes de datos

y ensayamos su interpretación con base en la etnohistoria y la etnografía.

AMAZON ICONOGRAPHY - SIMILARITIES
BETWEEN POTTERY AND ROCK ART

Edithe Pereira

Museo Pareense Emílio Goeldi

Study of rock art to have archaeological significance needs to be done in conjunction with other material record that exist in deposits. However, establishing comparison is almost never possible because many rock art sites do not offer good conditions for excavation. Trying to contextualize these remains it has searched to analyze material culture of the same region where rock art is present. In Brazilian Amazon, particularly in the lower Amazon region (State of Pará), some ceramic objects attract the attention by hold some form of decorative subjects whose representation is similar to rock art of the same region. These similarities suggest a possible link between construct groups and rock art pottery.

ICONOGRAFIA AMAZÓNICA – SIMILITUDES
ENTRE CÉRAMICA Y ARTE RUPESTRE

El estudio del arte rupestre para tener significado arqueológico precisa ser realizado en conjunto con otras evidencias materiales existentes en los yacimientos. Sin embargo, establecer alguna comparación casi nunca es posible debido a que muchos sitios con arte rupestre no ofrecen condiciones para realizar excavaciones. Intentando contextualizar esos vestígios se ha buscado analizar la cultura material de la misma región donde el arte rupestre esta presente. En la Amazonía brasileña, particularmente en la región del bajo Amazonas (Estado de Pará), algunos objetos cerámicos llaman la atención por poseer determinados temas decorativos cuya forma de representación es similar al arte rupestre de la misma región. Estas similitudes sugieren una posible vinculación entre grupos productores de cerámica y de arte rupestre.

THE CANTIL OF ÁNIMAS: NEW EVIDENCE
OF DECAPITATION IN ROCK ART OF
AZTATLÁN, NAYARIT, MEXICO.

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The decapitated skulls representations are no longer a novelty among the iconography of ceramic Aztatlán, nor burials of skulls in the archaeological sites of the region in the early and late Post-classic, but the evidence we have just finally found clearly this practice relates to the rock art. Its location is also extremely suggestive in light of ethnohistorical seventeenth century and contemporary ethnography that associates this micro-region of the Mid-basin of Santiago River with the forces of darkness and therefore fertility.

EL CANTIL DE LAS ÁNIMAS: NUEVAS
EVIDENCIAS DE DECAPITACIÓN EN LA
GRÁFICA RUPESTRE AZTATLÁN DE
NAYARIT, MÉXICO.

Las representaciones de cráneos decapitados no son ya una novedad entre la iconografía de la cerámica Aztatlán, así como tampoco los entierros de cráneos en los sitios arqueológicos de la región con ocupación en el Posclásico temprano y tardío; pero las evidencias que recién hemos encontrado al fin relaciona con claridad esta práctica con la gráfica rupestre. Su localización además resulta extremadamente sugerente a la luz de las fuentes etnohistóricas del siglo XVII, y de la etnografía contemporánea que asocia esta micro-región de la cuenca media del río Grade de Santiago con las fuerzas de la oscuridad y, por ende, de la fertilidad.

REINCORPORATING ROCK ART AND
OTHER PORTABLE ART OBJECTS WITH A
GEOGRAPHY OF STYLE: A CASE FROM THE
ARKANSAS RIVER VALLEY

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The iconography found on ceramic vessels, engraved shell and other art objects from the Pre-Columbian Southeastern U.S. is well documented. Many of the motifs found on these objects bear a great deal of similarity to motifs found in rock art across the region. However, until recently, the two artistic mediums have been studied independently of one another. An examination of the rock art, art objects and archaeological materials of the Arkansas River Valley provides an opportunity to re-incorporate the two through a careful examination of “style” in a geographic and temporal context.

Documentation and analysis rock art images, whole ceramic vessels and other artifacts from the region (now found in museum collections) and excavation of domestic structures and refuse pits at a large protohistoric site adjacent to concentrations of rock art imagery, has finally provided the large body of data necessary for a comprehensive, large scale comparison and synthesis of the protohistoric artistic style of the region. For decades, many of the artifacts from the region have been considered to be of limited research value due to a lack of detailed provenience. Previous research inquiries have examined the rock art of the area independently of the other art objects from the region, or have related the two artistic genres in a cursory fashion.

Using an analytic model that draws from practice theory (Bourdieu 1977), the concept of structuration (Giddens 1984; Sewell 2005) and the notion of (art) object agency (Gell 1998), the rock art of the Arkansas River Valley is treated as a genre of the overall artistic tradition or

style of the protohistoric residents of the Arkansas River Valley region – a genre that can help inform researchers on the missing contextual pieces for artifacts and objects in other regional genres, such as looted pottery vessels. When all available genres of this particular artistic style are considered in relation to one another, as part of a larger corpus of shared traditions and ideas, the relationships evident between them inform our understanding of the role of art in the protohistoric societies of the Arkansas River Valley and their interactions with their neighbors in surrounding regions.

REINCORPORACIÓN DEL ARTE RUPESTRE Y
OTROS OBJETOS DEL ARTE MOBILIAR

MEDIANTE UNA GEOGRAFÍA DEL ESTILO:
UN CASO EN EL VALLE DEL RÍO ARKANSAS

La iconografía encontrada en vasijas de cerámica, concha grabada y otros objetos artísticos de los EE.UU. precolombina del sudeste está bien documentada. Muchos de los motivos que se encuentran en estos objetos tienen una gran similitud con motivos encontrados en el arte roca en toda la región. Sin embargo, hasta hace poco, los dos medios artísticos se han estudiado independientemente uno de otro. Un examen del arte rupestre, objetos de arte y los materiales arqueológicos del valle del río Arkansas ofrece la oportunidad de volver a incorporar los dos a través de un examen cuidadoso de “estilo” en un contexto geográfico y temporal.

CERAMICS AND “SHADOWS OF MEANING”
IN THE ROCK ART OF MEDITERRANEAN
SPAIN

Dr. Amanda Wintcher

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The stylistic similarity between ceramics and the post-palaeolithic rock art in the Mediterranean region of Spain has been key in establishing the chronology of this body of images. Many researchers have linked the rock art with the

beginning of the Neolithic and the emergence of an agricultural economy. The similarities continue throughout the Chalcolithic and into later prehistory, in parallel with the development of increasing social and ritual complexity. While these similarities have been primarily considered in terms of chronology, they can also be used as an indicator of “shadows of meaning” in rock art. Recent work in Murcia has found that some rock art motif types were preferentially used in certain combinations and locations, confirming that there were distinct circumstances in which it was appropriate to use particular motif types. Insofar as similar motifs in both classes of artifact refer to similar concepts, the depositional context of ceramics and other portable objects may contain clues as to which aspects of ceremonial life were associated with particular types of motifs. Conversely, the lack of such parallels for certain rock art motif types suggests that they referred to concepts distinct from those reflected in ceramic decorations, and by extension, that different kinds of activities took place at the sites in which these motif types appear. Although the full meaning of the imagery can never be known, by considering these links we can cast some light on the connotations of the motifs, leaving a shadow of the ceremonial circumstances surrounding their creation.

CERÁMICA Y “SOMBRA DE SIGNIFICADO” EN EL ARTE RUPESTRE DE LA ESPAÑA MEDITERRÁNEA

La similitud estilística entre la cerámica y arte rupestre post-paleolítico en la región mediterránea de España ha sido una llave para establecer la cronología de este cuerpo de imágenes. Varios investigadores han vinculado el arte rupestre con el comienzo del Neolítico y la emergencia de una economía agraria.

Estas similitudes continúan a lo largo del período Calcolítico y la prehistoria tardía, paralelamente con el desarrollo del incremento social y la complejidad ritual. Mientras estas similitudes han sido en primera instancia consideradas

en términos de cronología, pueden también ser utilizadas como un indicador de las “sombras de significado” en el arte rupestre. Un trabajo reciente en Murcia ha descubierto que algunos tipos de motivos en el arte rupestre eran preferencialmente usados en ciertas combinaciones y lugares, confirmando que existieron distintas circunstancias en las cuales era apropiado usar ciertos tipos de motivos. Desde el momento en que motivos similares en dos clases de artefactos indican conceptos similares, el contexto deposicional de la cerámica y otros objetos portátiles pueden contener pistas en los que aspectos de la vida ceremonial son asociados con ciertos motivos en particular. A la inversa, la ausencia de dichas paralelas en ciertos tipos de motivos dentro del arte rupestre sugiere que están indicando distintos conceptos de aquellos reflejados en las decoraciones cerámicas, y por extensión, que diferentes tipos de actividades tuvieron lugar en los sitios en los que este tipo de motivos aparece. Aunque el significado completo de la imagen nunca se podrá saber, al considerar estos vínculos podremos arrojar alguna luz sobre las connotaciones de los motivos, dejando una sombra sobre las circunstancias ceremoniales alrededor de la creación.

Session 15
RECENT ROCK ART RESEARCH IN THE EASTERN UNITED STATES
Sponsored by Eastern States Rock Art Research Association

Carol Diaz-Granados Ph.D., Washington University, St. Louis, Missouri
Jan Simek University of Tennessee, Knoxville

Rock Art sites in the Eastern United States are being discovered at an increasing rate. Sites are turning up in states thought to be void of any petroglyphs or pictographs. Much more rock art occurs in the western United States where the climate is conducive to preservation. In addition, major regions of the eastern states are covered with a thick forest growth, making the discovery of new sites difficult. It is only with the recent increased interest by the public, avocational archaeologists, and a number of grad students, that more substantive research is finally taking place. Several major books and numerous journal articles have been published in the last decade. Along with traditional site documentation, hi-tech analyses (X-ray fluorescence, AMS dating, etc.) are also being carried out. This session includes nine papers that discuss sites and research in Arkansas (the eastern Ozarks), Georgia, Illinois, Missouri (the Mississippi River Valley), North Carolina, and Tennessee (The Cumberland Plateau).

**PHYSICAL VESTIGES OF THE CHEROKEE
SPIRIT WORLD: A LEGENDARY GIANT AND
THE POWER OF PLACE.**

Scott Ashcraft

Archaeologist, Pisgah National Forest

Jannie Loubser

Stratum Unlimited, LLC

The Judaculla Rock petroglyph site is one of several prominent landscape features found in a landscape associated with Tsul kälü', a powerful spirit world giant who held domain over ancestral Cherokee lands in the southern Appalachian Mountains. Anglicized as *Judaculla* (Mooney 1900:477), he was believed responsible for images at several petroglyph sites that denote this cultural-historic landscape. Recent research is allowing us to examine these petroglyphs and their ethnographic contexts on a broader, more comparative scale that provides for new perspectives.

Judaculla Rock is a large outcrop of soapstone densely packed with pecked and carved motifs (Ashcraft and Moore 1998:61), containing more

petroglyphs than any other known boulder east of the Mississippi River (Loubser and Frink 2008:74). Judaculla's large handprint (Figure 1) is said to be imprinted in the rock (Parris 1950b:36), and represents a type of makers mark (Tom Belt personal communication 2010). Based on recurrent occurrences of petroglyph designs on top of Late Archaic soapstone boulder extraction scars and stylistic correspondence with dated ceramic designs, the petroglyphs were probably produced over an extended period of time by numerous religious practitioners during repeated visits over hundreds of years, and generally date from ca. AD 500 to ca. AD 1700 (Loubser and Frink 2008).

Several Cherokee ethno-historic accounts describe spirit world beings and underworld passageways on the landscape (Haywood 1823; Mooney 1900; Zeigler and Grosscup 1883), including the physical and supernatural realm of the particularly powerful spirit being, Judaculla. He was Master of Game, also considered a Thunderer, shape-shifter, underworld guardian and a benefactor of medicine (Connely

Figure 1: Composite Night-time photograph of Judaculla Rock.



Figure 1. Judaculla's "Makers-mark".

2005:29; Haywood 1823:280; Mooney 1900:339-342,477,481; Zeigler and Grosscup 1883:22). There are currently at least twelve known landmarks once attributed to Judaculla, including six major topographic features, two prehistoric Indian towns and four petroglyphs (Figure 2). As many more namesake places for this spirit world giant are most likely lost to history. Petroglyph boulders occurred along estab-

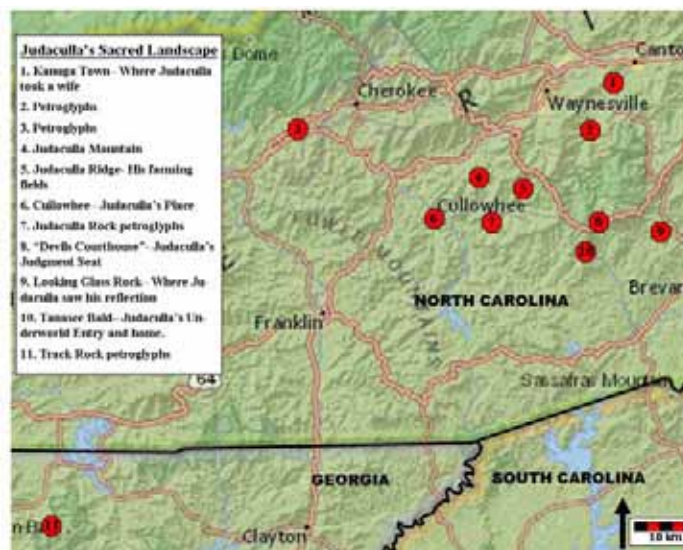


Figure 2 Landmarks and places of the Judaculla legends, western North Carolina and North Georgia.

lished trails (Loubser 2010a, Parris 1950b:37, Wilburn 1952b:21) and were terrain specific, selective to transitional areas between the bottomlands and the mountainous hinterlands, between the earthly valley settlements and prominent mountain tops of the supernatural (Wettstead, Loubser, and Ashcraft n.d.). Some Cherokees have suggested petroglyphs serve as a type of map (Wilburn 1952:21). Judaculla Rock represented a potent boundary marker (Parris 1950:37) that warned of a domain redolent with spirit beings, but also served as a multidimensional picture map of that domain (Loubser and Frink 2008, Henry Welch, Tom Belt personal communication 2007; 2010). They are located at natural transitions along the landscape that are also the transcendental boundary realm of spirit beings, where carved motifs ostensibly depict a picture map of the surrounding natural, ceremonial and spiritual landscapes (Loubser and Frink 2008:44-47; Loubser 2010a:112; Wettstaed, Loubser and Ashcraft n.d.:17).

For the Cherokee, petroglyph sites were gateposts, located at transition points beyond which supernatural potency could be tapped into, and where images coalesced into visual instructional guides (Figure 3). The *place* chosen and the *purpose* for these petroglyph sites seemingly articulated a congruent narrative: Fateful magic and supernatural guidance are of this place.

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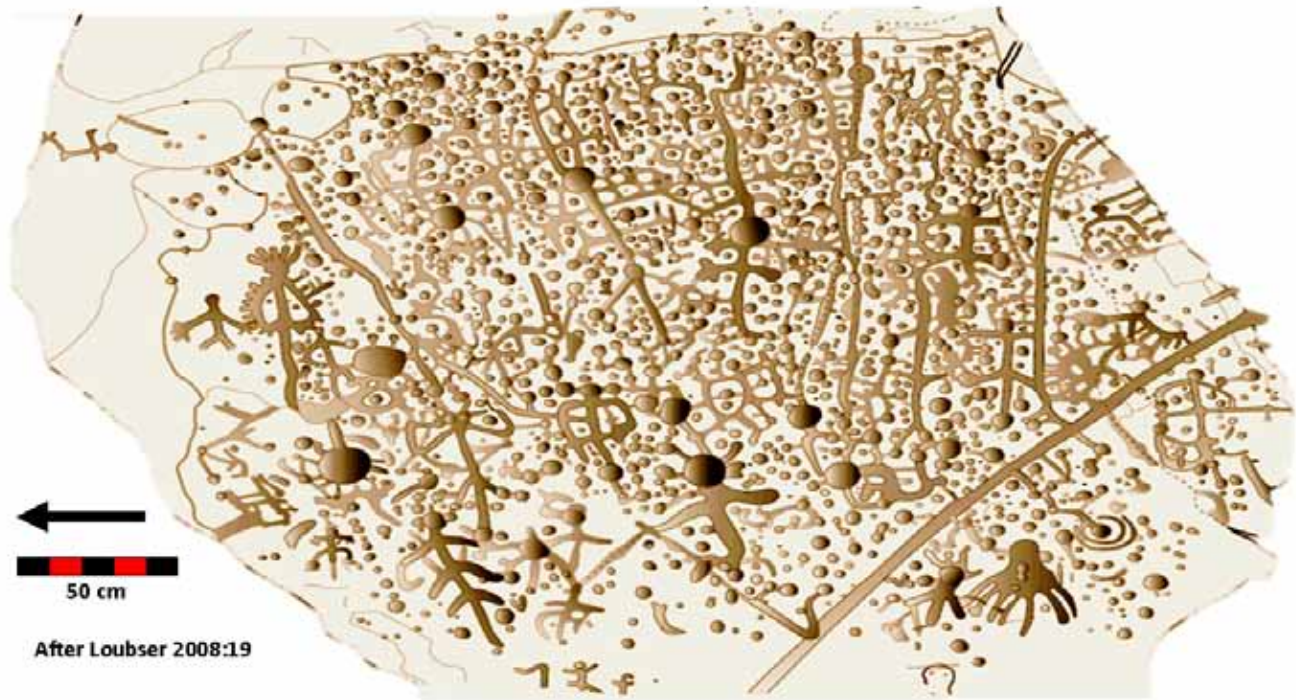


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-IF YOU CARVE IT, THEY WILL COME:
 CERAMICS, ROCK ART, AND PILGRIMAGE
 IN THE PREHISTORIC SOUTHEAST

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The question of who used prehistoric rock art sites is an important one, but answering the question in the absence of ethnographic data can be challenging. This paper examines pottery from several contemporary rockshelter sites from the Southern Cumberland Plateau of Tennessee. High precision portable X-ray fluorescence (pXRF) is used to compare pottery paste profiles from the sites under the hypothesis that rock art sites, being used by a different subset of a society's members, should show different paste and decoration diversity profiles than locally focused resource extraction sites. This assumes that rock art sites were used for sacred purposes via pilgrimage across a wider social landscape than were more profane sites.

MISSOURI ROCK ART AND THE MISSISSIPPIAN CONNECTION TO PORTABLE CULTURAL MATERIALS

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The Missouri landscape contains an abundance of American Indian rock art sites (150+) replete with motifs and symbols attesting to a multi-layered cosmos and complex belief system. This presentation will compare the iconography in a selection of the state's rock art sites with regional artifacts and makes the argument for expanding the inventory of Mississippian sym-

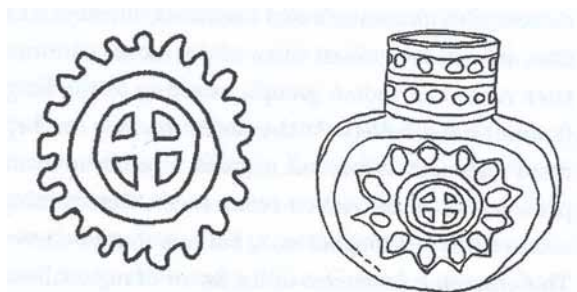


Figure 1a. Rayed cross-in-circle petroglyph at Maddin Creek site in Washington County, MO
 1b. Rayed cross-in-circle on ceramic pot found at Etowah Mounds, GA

bols (Waring and Holder 1945).

Mississippian motifs, more commonly associated with pottery, shell, copper and stone artifacts, are increasingly being identified in rock art contexts. Pictographs and petroglyphs found in Missouri's caves, rock shelters, on bluffs, and boulders contain an impressive variety of these Mississippian motifs belonging to the Southeastern Ceremonial Complex (SECC) and the more recent Mississippian Ideology and Interaction Sphere (MIIS, Reilly, 2004). This paper suggests that the complex western Mississippian societies in Missouri, Illinois, and environs worked with a larger inventory of motifs than previously recorded by Waring and Holder (1945). This judgment is the result of finding co-occurrences of unique motifs as well as between motifs in the rock art record and those associated with

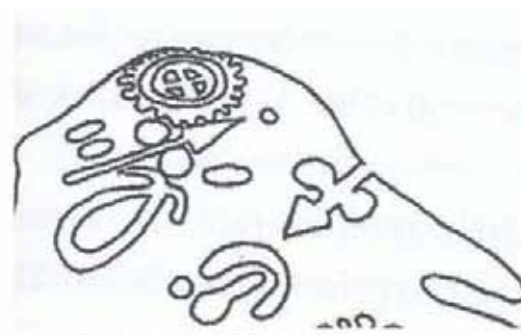


Figure 2. Rayed cross-in-circle positioned with bi-lobed arrows at Maddin Creek.

portable cultural materials. One example, at the Maddin Creek Site is the rayed cross-in-circle, a complex motif found from the Midwest into the Southeast (Figures 1 a and b). Moreover, the Maddin Creek rayed cross-in-circle is juxtaposed with the distinctive bi-lobed arrow motif (Figure 2).

Discovery of increasing associations shed new light on a selection of symbols in the western Mississippian sphere that have been heretofore either excluded or placed chronologically earlier or later. Tentative correlations to dated archaeological materials as well as to AMS dates from carbon-based pigments in pictographs, coupled with research in the ethnographic literature from the general region, allow for some intriguing interpretations.

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CIRCLING WITH THE STARS: EVIDENCE FOR DHEGIHAN SIOUX DANCE RITUALS IN MISSOURI ROCK ART

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In the last two decades there has been increasing attention paid to celestial phenomena appearing in both rock art and on other American Indian materials in the Missouri/Mississippi rivers confluence region. The complexities of comparing the invisible worlds with the visible world have been identified only recently in the rock art. This paper identifies a selected number of connections between Dhegihan Sioux rituals and the cosmic order. Plaza areas at Cahokia and at related sites may have had a major use as dance grounds. Imagery in Missouri rock art appears to portray sport and warfare, but there is also dancing. A portion of these dances appear to have had a connection to the movements of celestial bodies. They also involve First Man

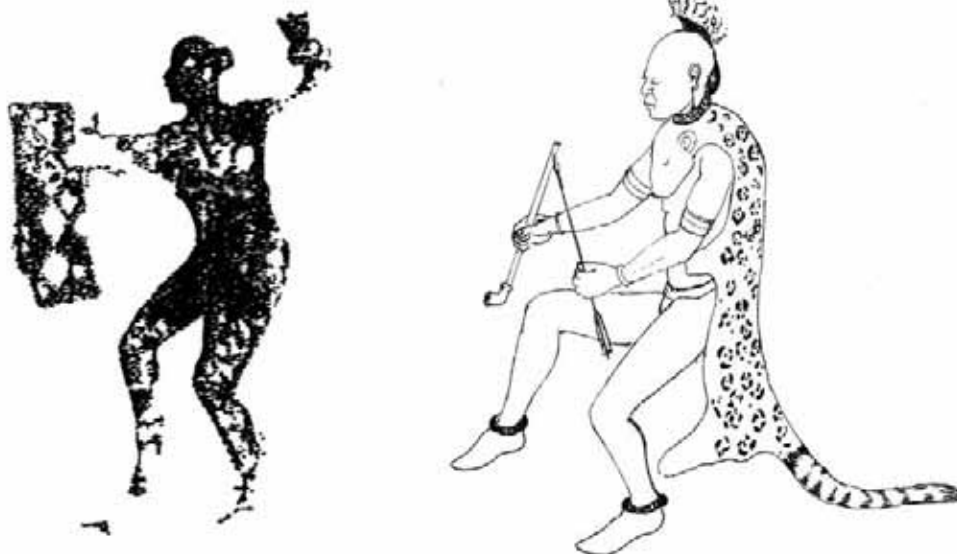


Figure 1 a. Red pictograph of anthropomorph in Dance posture in Franklin Co, Missouri.
1 b Detail of Tixier drawing (1940)

imagery. These important dances served to reinforce group unity as documented by Fletcher and LaFlesche in the early 20th century.

Relying on past ethnographic collections and our own work with the Osage over the past 20 years, the use of dance rituals is found to be paramount in the unification of corporate groups or clans. These dances are expressions of an ancient societal organization revealing relative numbers of warriors, their prowess and their material wealth. Although the three principle Osage bands acknowledge that their dance rituals (called the I^llon-shka) was “given” to them by their near kin, the Kansas and the Ponca, these rites contain many features that were common to all Dhegiha before the arrival of the Europeans.

While much of their culture has been adversely impacted, I believe that certain rites have been preserved in these dances and are reflected in the rock art. At least some of the ritual performances of the Dhegiha (Western Mississippian) was recorded by ethnographers and is evident within the corpus of rock art in Missouri, ancient homeland of the Osage.

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CREATING THE CENTER: AN
 INCREMENTAL PETROGLYPH TABLEAU IN
 ARKANSAS

Jerry E. Hilliard
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Leslie C. Walker
 Arkansas Archeological Survey

Where the White River leaves the eastern Ozark escarpment to continue its southward course toward the Mississippi Valley, pre-Columbian American Indians probably representing the Mississippi period Greenbrier phase

(A.D. 1450-1650) decorated a horizontal sandstone exposure with an extensive array of petroglyphs. The petroglyphs were added in sets, extending from a primary assemblage consisting of a large, engraved square—oriented to the cardinal directions—with an interior cross-in-circle motif that George Lankford (2007) interprets as a sacred center symbol. Surrounding this central assemblage of images are eight additional image clusters. Motifs within these clusters include anthropomorphic figures (rendered in action poses), sundry footprints and turkey tracks, birds, serpents, other sacred center and portal symbols, and petaloid geometrics that Reilly (2007) identifies as locative symbols referencing the Above World. We observed no obvious directional patterning in the image clusters, but



Figure 1. Composite tracing of a petroglyph tableaux along the White River in Arkansas.

we did note differential wear among the images. This, in addition to the common representation across the clusters of sacred center and portal symbols and Above World locatives, suggests an overall interpretation of a “world center” tableau that was created incrementally as a product of community ritual performances. In sum, we interpret the site as a special place where local community members gathered periodically to perform activities associated with the celebration, maintenance, or renewal of connections between the seen and unseen dimensions of the Mississippian world, producing in the course of such activities a set of material symbols based on a combination of observed This World phenomena and conventional cosmological symbols.

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TLALOC IN ARKANSAS

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Dardanelle Rock is a sandstone prominence located along the Arkansas River just south of the modern town of Russellville, Arkansas. Among its features are rock shelters and bluff lines decorated with American Indian rock art. One bluff line contains pictographs produced by protohistoric Carden Bottoms phase (A.D. 1500



Figure 1. Tracing of Tlaloc mask pictograph from Arkansas. Note that the lower portion of the image is obscured by lichen.

– 1700) artists that include abstracts, geometrics, and anthropomorphs along with a mask image—partly obscured by lichen—that exhibits the tell-tale eyes and other attributes characteristic of the Mesoamerican rain god Tlaloc. (Figure 1). This paper addresses two questions raised by the Tlaloc attribution: 1) how can we explain its appearance in Arkansas, and 2) to what extent did Carden Bottoms phase communities incorporate this exotic image and its conceptual referents within their own cultural repertoire?

The best explanation for the appearance of a Tlaloc-like image in Arkansas is information exchange with American Indian communities in the Southwest, where Polly Schaafsma (1999) has documented Tlaloc masks as a component of Jornada style rock art. Similarities between Southwestern Tlaloc images and the Arkansas example include *tablita*-style headdress elements



Figure 2. Tracing of a plumed serpent image from Arkansas.

that incorporate a stepped terrace motif. George Lankford (2006) has also identified this motif as an element linking Southeastern and Southwestern art.

Turning our attention back to the central Arkansas River valley, we can place the Tlaloc image within the regional rock art landscape (Sabo 2008). Here, rock art on landforms south of the east-west trending Arkansas River depict observable, earthly phenomena including animals, plants, people, and humanly crafted objects. Rock art north of the Arkansas River depicts spirit world subject matter, including mythic beings and events. This north/south duality of Spirit World/This World subject matter is a cultural expression emblematic of Dhegiha Siouan speakers, including Osages and Quapaws. Correspondingly, the Tlaloc mask image—depicting an element of ceremonial regalia—occurs south of the Arkansas River. At another site north of the Arkansas River there is an image of a human-headed plumed serpent (a local take on the Mesoamerican Quetzalcoatl personage?) that represents the depiction of an actual spirit being (Figure 2).

In sum, the landscape contexts of this pair of images of possible Mesoamerican origin, introduced to Arkansas via interaction with Southwestern communities, conforms to a local distinction between This World objects representing spirit beings (masks) versus imagery of

spirit beings themselves, within a directionally oriented cosmographic landscape.

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YOU CAN'T TAKE IT (ALL) WITH YOU: ARCHAEOLOGICAL SIGNIFICANCE AND LOOTED SITES IN THE CUMBERLAND PLATEAU.

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Archaeologists working in the numerous rock-shelter sites that line the bluffs of the Cumberland Plateau have long been confounded by the scale of looting that has compromised the archaeological record. Looter damage is often so severe that sites are considered emptied of the

record they once contained and deemed insignificant for management purposes. We examine the archaeological contents of three Southern Plateau prehistoric rock art sites (a site type especially subject to looting), two heavily looted and one pristine, in order to show that even in cases of extreme disturbance, significant archaeological materials remain in looter tailings that can address important research questions, for example chronology and intersite variability. These sites should not be presumptively precluded in cultural resource management considerations.

of rock art in southern Illinois over a period of almost 1,000 years from the Mississippian to historic (AD 1673-1835) periods.

PORTABLE X-RAY FLUORESCENCE

ANALYSIS OF PAINTS FROM PREHISTORIC AND HISTORIC PERIOD NATIVE AMERICAN ROCK ART SITES IN SOUTHERN ILLINOIS

Mark J. Wagner

Jan F. Simek

Sierra Bow

Heather Carey

Mary R. McCorvie

X-ray fluorescence analysis of paint chips from an exfoliated Mississippian period (AD 1000-1500) painting in southern Illinois in 2010 revealed the presence of gypsum, a mineral found in caves that was extensively mined by Native Americans in eastern North America for thousands of years. This suggested the possibility that Native American peoples may have traveled to caves (the Under World) to obtain minerals for the creation of paintings found on bluffs and cliff faces (the Upper World). In summer, 2012, we tested this hypothesis by using a portable X-ray fluorescent instrument to analyze the pigments in a series of intact paintings in the same region spanning the period AD 1000-1835. In this paper we present the results of our analyses as they relate to our initial hypothesis regarding the possible spiritual links between the exploitation of cave minerals and the creation

Session 16
**NEW CONTRIBUTIONS IN RESEARCH AND MANAGEMENT OF HERITAGE
ROCK ART IN MEXICO**

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In the last two decades, the study of the rock art in Mexico has experienced significant growth, and there are increasingly more scholars interested in this type of material evidence of the ancient societies of pre-Hispanic times. New theoretical approaches have been developed that have enriched our knowledge of these societies from different cultural contexts. However, pressures on this delicate cultural heritage - from urban growth to tourism, among others - have resulted in proposals for their protection, conservation, and management. The objective of the Symposium is to highlight and promote collaboration among scholars of Mexican rock art relative to the following topics: new theoretical contributions to methodology, new recording systems, classification and development of styles and traditions, differences and similarities with surrounding areas, and relationships with the landscape as well as experiences in the conservation and management of rock art. This work is expected to generate discussion for sharing proposals and solutions to research problems and protection of rock art in Mexico.

En las últimas dos décadas, el estudio de las manifestaciones rupestres en México ha experimentado un crecimiento importante, y son cada vez más los estudiosos interesados en este tipo de evidencia material de las antiguas sociedades tanto de la época prehispánica como del virreinato, e incluso de fechas posteriores. En este sentido, se han desarrollado nuevas propuestas y enfoques teórico metodológicos que han enriquecido nuestro conocimiento de esas sociedades en diferentes contextos crono-culturales. Por otro lado, las presiones sobre este delicado patrimonio cultural -desde el crecimiento urbano hasta el turismo, entre otros-, han propiciado que se generen diferentes propuestas para su protección, conservación y gestión. El objetivo del Simposio es destacar y fomentar la colaboración entre los estudiosos del arte rupestre en México en los siguientes temas: nuevos aportes teórico metodológicos, sistemas de registro, clasificación y elaboración de estilos y tradiciones, diferencias y semejanzas con áreas circunvecinas, relación con el paisaje, agencia e identidad, etcétera, así como experiencias en la conservación y gestión del patrimonio rupestre. Con la presentación de los trabajos y su discusión se espera generar un espacio de reflexión que permita compartir propuestas y soluciones a la problemática de la investigación y protección del arte rupestre en México.

**RITUAL SPACES, LANDSCAPE SYMBOLISM
AND ROCK ART IN THE TRINCHERAS
HILLSITES OF NORTHWESTERN SONORA**

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The most outstanding features of the Trincheras archaeological sites in northwestern Sonora (A.D. 200-1450) are the complex settlements associated with the fluvial basins and the volca-

nic hills. We are able to observe a morphological regional pattern with minor variations in the different sites. Based on archaeological, archaeo-astronomic, ethnographic data and rock art analysis we suggest that this settlement pattern construction serves to practical everyday activities and, at the same time, reproduces some aspects of the mythic cosmological structure that play a primary role in rituals. Within the site of La Proveedora in the Asunción river basin, hilltop wall structures, rock alignments on the plains and petroglyphs have a well-defined ritual function. Based on the archaeological

remains, the rock art symbols analysis and the ethnohistoric and ethnographic records, we hypothesize that the most probable type of magical and religious ceremonies that occurred in this sites are ritual deer hunting and rain making ceremonies that preceded summer gathering and sowing activities.

ESPACIOS RITUALES, SIMBOLISMO DEL PAISAJE Y ARTE RUPESTRE EN LOS CERROS DE TRINCHERAS DEL NOROESTE DE SONORA. ESTUDIO DE CASO: EL CERRO SAN JOSÉ

Los rasgos más destacados de los cerros de trincheras en el noroeste de Sonora (200-1450 d.C.) son los asentamientos complejos asociados a las cuencas fluviales y a los cerros volcánicos. Podemos observar un patrón morfológico regional que se manifiesta con variaciones menores en los distintos sitios. A partir de los datos que arrojan la arqueología, la arqueoastronomía, el análisis del arte rupestre y las aportaciones de la etnografía, sugerimos que la estructura del patrón de asentamiento sirvió a la realización de actividades prácticas cotidianas y, al mismo tiempo, reproducía algunos aspectos de los esquemas cosmológicos que desempeñaban un rol primordial en las prácticas rituales. En el conjunto del sitio de La Proveedora en la cuenca del río Asunción destacan espacios en los cuales se han construido estructuras de muros sobre las cimas y alineamiento de grandes rocas en las planicies que tienen una función ritual bien definida, dentro de la cual, los grabados rupestres sobre los afloramientos rocosos de gran tamaño juegan un papel fundamental. En base al análisis de los restos de actividades, de los símbolos presentes en el arte rupestre y a la evidencia etnográfica y etnohistórica, proponemos la hipótesis de que las ceremonias mágico-religiosas que más probablemente debieron de realizarse son aquellas dedicadas a la petición de lluvias y a la cacería ritual del venado que se le asocia y que precede a la recolección de frutos silvestres y a la temporada de siembra del verano.

WHO'S RIDING THE CABALLO DE UFFINGTON? A CAUTIONARY TALE

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The Uffington Horse is an early iron age geo-figure from southern England. It measures about 110 by 20 m. A little over ten years ago a replica measuring 960 by 40 m appeared on the southern face of the Sierra de Juárez. Chihuahua, Mexico. Its origin is masked in mystery and in recent years it has even given rise to an urban narco-legend unfettered by the facts. And then there is Homer Simpson around the corner. So, what are the facts? How come the Uffington Horse is riding the Sierra de Juárez and why did Homer Simpson decide to join him?

THE CONSERVATION OF CULTURAL PATRIMONY AND THE TRANSFORMATION OF SOCIETY IN THE CENTRAL MOUNTAINS OF THE PENINSULA OF BAJA CALIFORNIA, MEXICO

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The following paper presents some iconographic concerns regarding the spatial location of the representations reflected in the archaeological site of Arroyo Seco, assigned to groups of hunters and collectors in the northeast of the State of Guanajuato in Mexico. The complexes studied - La Zorra and los Cerritos - are located in two lower elevations that are divided by a dry Creek. This paper is based on an analysis of the corpus of rock expressions of the site which makes it possible to identify and differentiate the representations reflected on the rocks. Certain items associated with paintings, such as geometric shapes, representations of plants, animals, graphic pattern associated with the colony, the location of the rocks as well as the

colors show representative differences between the scenes painted on each one of the hills, yet frequent representation of the human figure with various attributes prevails throughout the site. In this sense, the choice of painted spaces and rock iconography of the place seems to have not been reflected at random, everything seems to indicate that despite its proximity, each of the hills served as scenarios that possess a sense of different ritual. This paper seeks to analyse all these elements to understand space, the way of life and the direct relationship of groups with this sacred space.

CONSERVACIÓN DEL PATRIMONIO Y TRANSFORMACIÓN DE LA SOCIEDAD EN LAS CORDILLERAS CENTRALES DE LA PENÍNSULA DE BAJA CALIFORNIA, MÉXICO

El siguiente trabajo presenta algunas consideraciones iconográficas en cuanto a la ubicación espacial de las representaciones plasmadas en el sitio arqueológico Arroyo Seco, asignadas a grupos de recolectores cazadores del Nororiente del estado de Guanajuato en México. Los complejos estudiados- La Zorra y los Cerritos- se localizan en dos elevaciones menores que están divididas por un arroyo seco. Es a partir del análisis del corpus de las expresiones rupestres del sitio que hace posible identificar y diferenciar las representaciones plasmadas sobre las rocas. Ciertos elementos asociados a las pinturas, como las formas geométricas, representaciones de plantas, animales, motivos gráficos asociados a la colonia, la ubicación de las rocas, así como los colores muestran diferencias representativas entre las escenas que se pintaron en cada uno de los cerros, sin embargo la frecuente representación de la figura humana con diversos atributos prevalece en todo el sitio. En este sentido, la elección de los espacios pintados y la iconografía rupestre del lugar parece no haber sido plasmada al azar, todo parece indicar que a pesar de su cercanía cada uno de los cerros fungió como escenarios que poseen un sentido ritual diferente. En esta ponencia se pretende

analizar todos estos elementos para entender el espacio, la forma de vida y la relación directa de los grupos con este espacio sagrado.

ROCK ART SANCTUARY IN ALTOS DE JALISCO, MÉXICO

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During April to July 2012 the research project recording of Rock Art took place in the proximity of "Presa de la Luz", on Jesús María, Jalisco, México. The rock art recordings showed are very important and unique compared to other sites with petroglyphs in west Mexico. The presence of the 4 pecked cross in relation to some other petroglyphs, as well as a possible observatory of celestial phenomena, and a cluster of signs consisting of some landscape elements make us think about the importance of the site as an observation center of celestial movements which could be as old as 500 to 1000 A.D. For that reason we have called this site "The Rock Art Sanctuary".

In this paper we show the preliminary results of the recording of the petroglyphs in the first field season of work and a proposal of conservation on a long term basis of this cultural heritage rock art. Since the water of the dam as well as the human activities are the main factors (partial or total) for the loss of this cultural heritage. The project is now in progress and we hope to make a second field work season at the site for the registration of some other archaeological sites near to the "Presa de la Luz" and therefore, to be able to understand better the dates for a more accurate age of the petroglyphs and their relationship with the landscape.

UN SANTUARIO RUPESTRE EN LOS ALTOS DE JALISCO, MÉXICO

Durante los meses de abril a julio de 2012 se llevó a cabo el proyecto de investigación de registro de manifestaciones gráficas rupestres (MGR) en las cercanías a la Presa de la Luz, Municipio de Jesús María, Jalisco, México. Las MGR registradas denotaron una singularidad muy importante a diferencia de otros sitios del Occidente mesoamericano con petrograbados. La aparición de cuatro pecked cross relacionados con otros petrograbados, así como un posible observatorio de fenómenos celestes y un conjunto de registros de determinados elementos del paisaje nos hacen pensar sobre su importancia como centro de observación de los movimientos celestes y la construcción de un espacio ritual desde tiempos tempranos (entre el 500 al 1000 d.C.), tal aseveración hace que se le haya bautizado como “El Santuario de los Altos.”

En esta ponencia se muestran los resultados preliminares del registro de los petrograbados en su primera temporada de trabajo y una propuesta de conservación a largo plazo del patrimonio cultural rupestre de la zona, ya que el agua de la presa y la acción antrópica ponen en riesgo la pérdida parcial o total de este patrimonio cultural. El proyecto se encuentra en proceso y se espera abrir una segunda temporada de trabajo durante el 2013 en el área de estudio para el registro de sitios arqueológicos circundantes a la presa de La Luz y con ello poder amarrar los datos obtenidos hoy para un fechamiento más estricto de los petrograbados y entender mejor su relación con el medio ambiente.

ICONOGRAPHIC CONSIDERATIONS AROUND THE SITE ARROYO SECO, GUANAJUATO: A RITUAL SPACE OF LONG DURATION

María Magdalena García Espino

This paper presents the features of the spatial distribution of the rock art motifs embodied in the Arroyo Seco archaeological site, located in

the town of Victoria, Guanajuato. Rock art on this site is distributed into two small hills (La Zorra and Los Cerritos) separated by a creek bed. Among the pictorial motifs include geometric shapes and the representation of the human figure, plants, animals and other elements embodied after the sixteenth century. The election of painted spaces have significant features and, despite their proximity, each of the hills became the setting of different rituals.

CONSIDERACIONES ICONOGRÁFICAS EN TORNO AL SITIO ARROYO SECO, GUANAJUATO: UN ESPACIO RITUAL DE LARGA DURACIÓN

El siguiente trabajo presenta las características de la distribución espacial de los motivos rupestres plasmados en el sitio arqueológico Arroyo Seco, ubicado en el municipio de Victoria, Guanajuato. El arte rupestre de este sitio están distribuidos en dos pequeños cerros (La Zorra y Los Cerritos) separados por el cauce de un arroyo. Entre los motivos pictóricos destacan las formas geométricas así como la representación de la figura humana, de plantas, animales y otros elementos plasmados después del siglo XVI. La elección de los espacios pintados y la iconografía presenta rasgos significativos y todo parece indicar que a pesar de su cercanía, cada uno de los cerros sirvió como escenario de diferentes rituales.

THE ENHANCEMENT OF THE ROUTE OF THE PETROGLYPHS IN LA PIEDAD, MICHOACÁN

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Armando Anaya

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This paper presents a proposal for a reevaluation of the archaeological heritage, in particular the petroglyphs of the municipality of La Piedad

and Ecuandureo, Mexico. This proposal is within the framework of a comprehensive project that is directed toward the protection of the heritage of La Piedad. It is based on the development of an instrument for consultation using the internet. Communication over the internet brings mainly young people from secondary education and above average intellect, an understanding of this heritage and also serves as a support for teaching history.

LA PUESTA IN VALOR DE LA RUTA DE LOS
PETROGRABADOS EN LA PIEDAD,
MICHOACÁN

Este trabajo presenta una propuesta para la revaloración del patrimonio arqueológico, en particular los petrograbados del municipio de La Piedad y de Ecuandureo, en el marco de un proyecto integral dirigido hacia la protección de los bienes patrimoniales de La Piedad. La propuesta se hace a partir del desarrollo de un instrumento de consulta en internet, cuyo objetivo es acercar principalmente a los jóvenes de educación media y media superior a este patrimonio, y que sirva también como apoyo al docente de la Historia.

OLMEC ROCK PAINTINGS AT OXTOTITLÁN
CAVE, GUERERRO, MEXICO 3: NEW
DOCUMENTATION THROUGH
ARCHAEOLOGICAL ILLUSTRATION

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As part of the recent research initiative examining the Oxtotitlán cave paintings directed by Drs. Mary Pohl and Christopher von Nagy, re-illustration presents new images of the ancient artworks. Building on the original documentation by David Grove in 1968, the authors created new archaeological illustrations. Detailed field drawings are combined with multispectral imaging data and analysis of painting technology to

precisely record the art, even when lines are no longer visible to the naked eye. The drawings capture new art and refine previous iconography to provide a better understanding of the people who made the paintings and the activities that took place at this impressive site. New documentation and characterization of the art at Oxtotitlán sheds light on the development of later Mesoamerican iconographic systems and painting techniques.

THE CAVE OF THE MONKEYS, AN
APPROACH TO THE PICTORIAL
REPRESENTATIONS OF THE CUCURPE
VALLEY, SONORA, MEXICO.

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The Cueva de los Monos or Cueva de la Higuerrilla, is located south of the town of Cucurpe (Sonora, México). The shallow cave is about 15 meters long by 10 meters wide and 3 meters high, and in its walls made are several rock paintings captured in two panels were used for making dyes red, black and white, with the red color and highlights prevails among others, this color is characteristic in such valley sites. The importance of the site lies in its representations that refer both geographic features like historical scenes of Cucurpe Valley.

LA CUEVA DE LOS MONOS, UN
ACERCAMIENTO A LAS REPRESENTACIONES
PICTORICAS DEL VALLE DE CUCURPE,
SONORA, MÉXICO.

La Cueva de los Monos o Cueva de la Higuerrilla, se localiza al sur del poblado de Cucurpe (Sonora, México). La cueva es de poca profundidad de aproximadamente de 15 metros de largo por 10 de ancho y 3 metros de alto, y en sus paredes se elaboraron varias pinturas rupestres, realizadas en diversos momentos, y plasmadas en dos paneles; para su elaboración se emplearon colorantes en rojo, negro y blanco, siendo

el color rojo el que prevalece y resalta entre los demás; este color es característico en este tipo de sitios del valle. La importancia del sitio radica en sus representaciones que aluden tanto elementos geográficos como a escenas de carácter histórico del Valle de Cucurpe.

OLMEC ROCK PAINTINGS AT OXTOTITLÁN CAVE, GUERRERO, MEXICO 1: CONTEXT AND CONCEPT OF ROCK ART IN MIDDLE FORMATIVE CAVE WORSHIP

**Mary DeLand Pohl
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This paper addresses rock art and the ritual use of caves in Middle Formative (800-400 B.C.E) period Mesoamerica. The archaeological and iconographic records document the essential role of caves in prehistoric ritual practice. Discussion centers on the early painted murals in caves in western Mexico and the place of Oxtotitlán Cave within the context of this unusual artistic expression. Analysis focuses both on the unique imagery represented at Oxtotitlán and on the features that link these cave murals to the wider phenomenon of pan-Mesoamerican Olmec art. The research probes the significance of cave paintings and cave worship in this critical period of evolving social hierarchies.

AGENCY AND PERSONHOOD IN ROCK ART. PERSONS DWELLING THE SIERRA DE NUEVO LEÓN

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This work takes two concepts: Agent and Person. Addressing them from the epistemological proposes "Theory of Agency and Theory of Personhood". Apply these theoretical precepts in particular in the archaeological research about rock art sites linked with hunter-

gatherers groups; in particular 6 rock shelters with paint which were recorded in Aramberri, Nuevo León; and are included into Sierra Madre Oriental Project investigation. The subject is developed meaning and defining the concepts for explain: What these concepts involving and with that link?. And finally reflects about the application and viability of agency and personhood in rock art archaeological studies.

AGENCIA Y PERSONEIDAD EN PINTURA RUPESTRE. PERSONAS HABITANDO LA SIERRA DE NUEVO LEÓN

Este trabajo retoma dos conceptos: Agente y Persona. Abordándolos desde las propuestas epistemológicas conocidas como Theory of Agency y Theory of Personhood. Se aplican dichos preceptos teóricos concretamente en la investigación arqueológica de sitios con pintura rupestre vinculados a grupos de cazadores-recolectores; en particular a 6 abrigos rocosos con pintura que fueron registrados en el municipio de Aramberri, Nuevo León; y que son contemplados para su investigación, como parte del proyecto Sierra Madre Oriental. Se desarrolla el tema significando los conceptos y definiéndolos para explicar ¿Qué involucran y con qué se ligan?. Y finalmente se reflexiona sobre la aplicación y viabilidad de la agencia y la personabilidad en los estudios arqueológicos de pintura rupestre.

VALLE DE CONCHOS, NUEVO LEÓN. STRUCTURING HUNTER-GATHERER LANDSCAPE THROUGH THE ROCK ART

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The objective of the present study deals with the rock art in the Nuevo León Conchos Valley region from the perspective of archaeology of landscape. The aim is to contextualize the petroglyphs and the painting in the context of their surrounding area as they relate to processes of

appropriation and perception of the environment. As tangible evidence of the symbolic expression of past societies, the rock graphic can be a resource to deal with technological, social and ideological aspects.

Beyond the graphic analysis as an artistic performance, this paper seeks to determine the relationship with territorial delimiters or specific resources, as well as to deal with the art as signals, and as specific codes, for those that used them and perceived them in the landscape. Finally, a brief registration and deconstruction of the iconography of some of the rock core elements of the Sub areas- El Muerto and Barbechos, are included.

VALLE DE CONCHOS, NUEVO LEÓN.
ESTRUCTURACIÓN DEL PAISAJE
CAZADOR-RECOLECTOR MEDIANTE LA
GRÁFICA RUPESTRE

El objetivo del presente estudio aborda la gráfica rupestre en la región del Valle de Conchos N.L., desde la perspectiva de la Arqueología del Paisaje, esto es, pretende contextualizar los petrograbados y la pintura en el marco de su espacio circundante, relacionándolos con procesos de apropiación y percepción del entorno. Como evidencia tangible de la expresión simbólica de las sociedades pretéritas, la gráfica rupestre puede ser un recurso para abordar aspectos tanto tecnológicos como sociales e ideológicos.

Más allá de su análisis como representación artística, se busca determinar su relación con delimitadores territoriales o recursos específicos, y así abordarlo como señales, como códigos concretos, para quienes los utilizaron y percibieron en el paisaje. Finalmente se incluye un breve registro y deconstrucción de la iconografía de algunos de los elementos rupestres centrales de las Sub- zonas El Muerto y Barbechos.

MONOGRAMS ART MISSIONARIES IN THE
SOUTHERN MOUNTAIN AREA: THE MU-
RALS OF GALENA, NUEVO LEÓN

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In a recondite place of the Sierra Madre Oriental, registered in the year 2010 an archaeological site with manifestations of rock art that consist both of painting and of identical engravings, emphasizing in the context one probably delineated during the first years of the preaching and Franciscan catechizing in the south of the state. Its iconography incorporates monograms in Latin and others possibly in indigenous language; as well as religious and satanic images.

MONOGRAMAS RUPESTRES MISIONEROS
EN LA ZONA SERRANA MERIDIONAL:
LA MURALLA, GALENA, NUEVO LEÓN

En un recóndito paraje de la Sierra Madre Oriental, se registró en el año 2010 un sitio arqueológico con manifestaciones gráfico- rupestres que constan tanto de pintura como de grabados pintados, destacando en el contexto uno probablemente delineado durante los primeros años de la predicación y catequización franciscana en el sur del estado. Su iconografía incorpora monogramas en latín y otros posiblemente en lengua indígena; así como imágenes religiosas y satánicas.

OLMEC ROCK PAINTINGS AT OXTOTITLÁN
CAVE, GUERRERO, MEXICO 4: CHEMICAL
ANALYSES

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We analyzed black and polychromatic pictographs in the Oxtotitlán site in Guerrero, Mexico

using a portable x-ray fluorescence (pXRF) spectrometer with two primary objectives. The first was to establish the basic chemical composition of the various paint pigments; the second was to identify areas of the paintings that could be sampled for radiocarbon analysis. Paint samples from three pictographs were ultimately collected for further chemical study. These include specimens from solid black paintings as well as from the large, iconographic "Man Seated on a Throne" painting that has been linked to Olmec motifs. Here we report the results of these chemical studies.

RESEARCH AND CONSERVATION OF THE
HERITAGE ROCK FROM THE NORTHEAST
OF GUANAJUATO

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Research, protection, management and administration of archaeological heritage is responsibility of the National Institute of Anthropology and History (INAH). However, since the 1990s it implemented a new management model in the state of Guanajuato, through the active participation of the three levels of government (federal, state and municipal) has opened up to the public six archaeological sites, while driven research, conservation and promotion of cultural heritage Guanajuato. The aim of this paper is to document the scope of this model applied to the rock art site of Arroyo Seco, located in the municipality of Victoria, Guanajuato.

Investigación y Conservación del

INVESTIGACIÓN Y CONSERVACIÓN DEL
PATRIMONIO RUPESTRE DEL NORORIENTE
DE GUANAJUATO

La investigación, protección y divulgación del patrimonio arqueológico, así como su gestión, manejo y administración es responsabilidad del Instituto Nacional de Antropología e Historia (INAH). Sin embargo, desde la década de 1990

se instrumentó un nuevo modelo de gestión en el estado de Guanajuato que, a través de la participación activa de los tres niveles de gobierno (federal, estatal y municipal) ha permitido la apertura al público de seis sitios arqueológicos, al mismo tiempo que impulsado la investigación, conservación y difusión del rico patrimonio guanajuatense. El objetivo del presente trabajo es exponer el alcance de este modelo aplicado al sitio de manifestaciones rupestres de Arroyo Seco, localizado en el municipio de Victoria, Guanajuato.

OLMEC ROCK PAINTINGS AT OXTOTITLÁN
CAVE, GUERRERO, MEXICO 2: NEW HIGH
RESOLUTION PHOTOGRAPHIC

DOCUMENTATION OF OLMEC CAVE ART
FROM HIGHLAND GUERRERO, MEXICO

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We report on a series of new high resolution visible and infrared wavelength still and video images of murals and attendant rock art at the important Middle Formative site of Oxtotitlán, Guerrero, Mexico and at nearby Cahuaziziqui rock shelter. Careful natural light and balanced flash photography at Oxtotitlán coupled with computational enhancement revealed new details and elements in a corpus that contains Archaic through Postclassic elements yet marks the beginnings of Mexico's mural tradition. Oxtotitlán was the sacred eastern edge of the major Middle Formative town, Cerro Quiotepec, and its art formed part of the visual vocabulary and semiotic space of this community. At Cahuaziziqui, too, a palimpsest of art dating to a variety of periods includes apparent Middle Formative components potentially linked to nearby settlements. Continuing imaging work at these sites, planned high-resolution documentation of the art of Juxtlahuaca cave, and

contextualizing and comparative excavations at Oxotitlán-Quioytepec will further enhance our understanding of the sacred landscape of ancient Guerrero and of the special role of caves within the region's emerging political economy. Our National Geographic / Waitt grant supported research followed crucial cleaning work by a team of Mexican national archaeologists and conservators and will provide an enhanced digital and print record of the art of Guerrero's sacred caves for scholarly, pedagogical, and local community use.

Session 17
**SEEING WITH NEW EYES: ADVANCES IN PIGMENT ANALYSIS AND
IMAGE ENHANCEMENT TOOLS IN ROCK ART STUDIES**

**Anne Q. Stoll
George Stoll**

Rock art research makes a significant leap forward with the introduction of new techniques and strategies for non-destructive testing and image enhancement. Adapted from procedures once thought beyond the domain of rock art research, new tools bring us closer to the artists' choices and original results. In addition to large laboratory analysis of pigments, small-sample devices open new portals to the understanding of binders and pigments used in rock art around the world. Researchers using digital photography obtain significant results with decorrelation stretch, CPED technology and other image manipulation and enhancement programs to reveal and rescue obscure images. We ask the age-old questions but in a new way, with enhanced perception and insight.

**EXAMINING PETROGLYPHS IN THE
BIRCHAM UPLANDS THROUGH THE USE
OF DIGITALLY ENHANCED IMAGERY**

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The color-range tool in Adobe Photoshop® can be applied to digital photographs of complex rock art panels to identify shared color densities of patination in petroglyphs, and to delineate their extent and frequency across a panel in an objective and consistent manner. Results of digital image enhancements serves for analytical purposes since sets of layers are generated in Photoshop of a single image. Each layer, in a sense, represents a single production event (Figure 1). Once digital images have been processed, layer visibility can be enhanced by replacing the natural background color and layer visibility can be opened or closed as a way view one production event at a time (Figure 2).

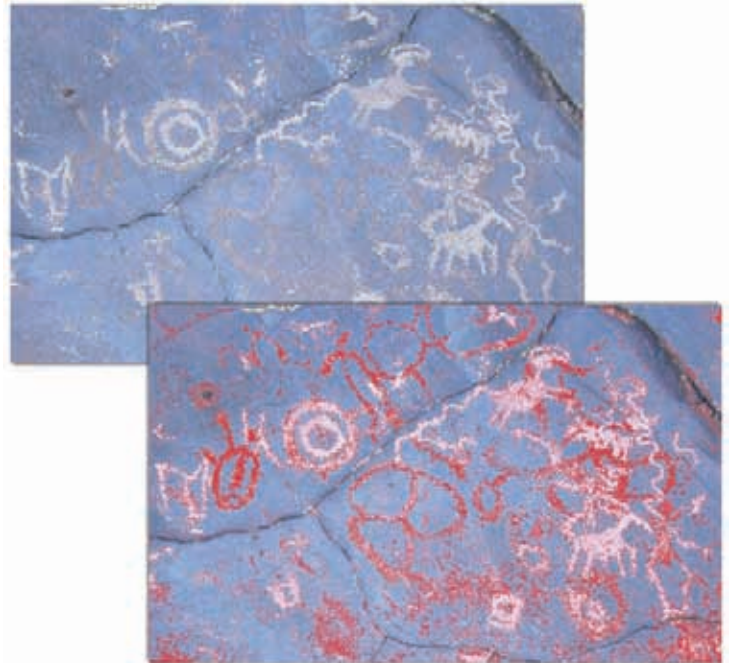


Figure 1. The Enhancement Process

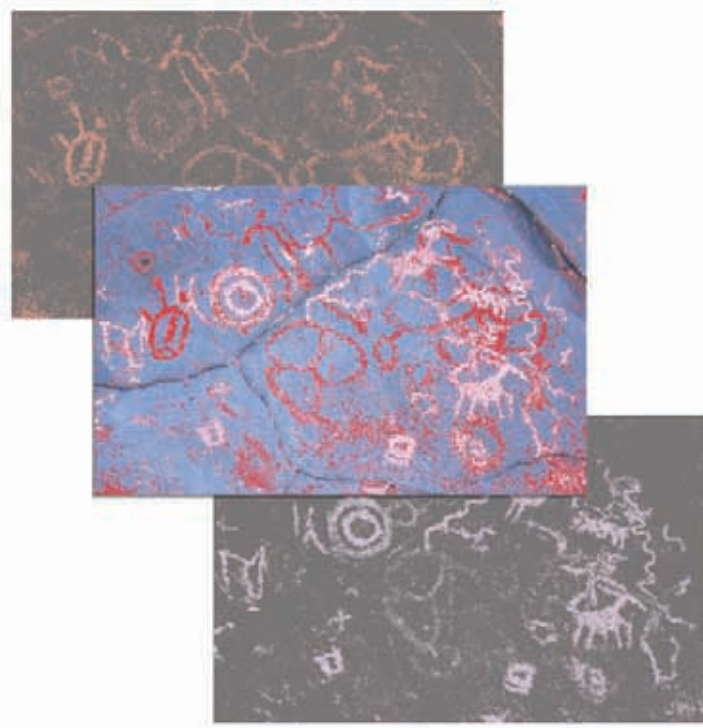


Figure 2. Analysis of Image Layers

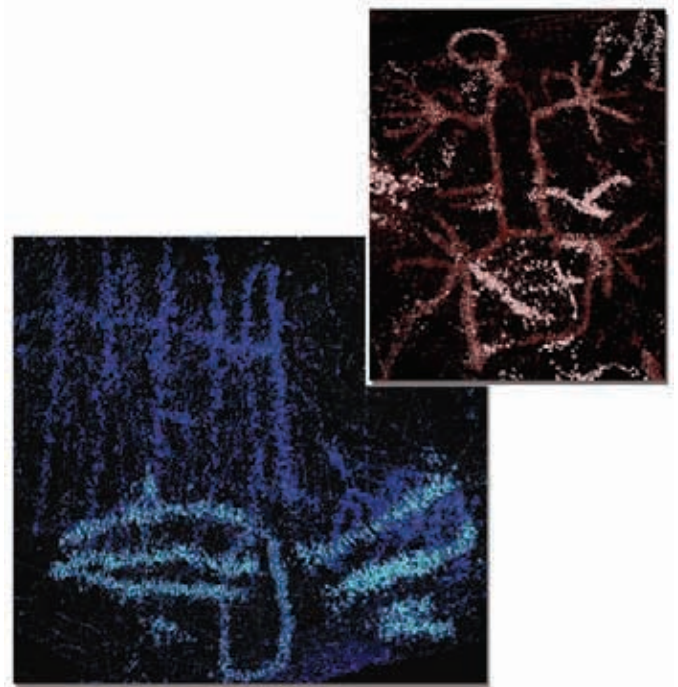


Figure 3. Superimposition and modification.

The Enhancement Process

The color range tool was applied to define areas with the same color value as seen in the original image (top) and then replaced with infill colors (bottom). Results show at least two production events, as well as, various forms of element reuse.

Analysis of Image Layers

Three visible layers were produced from one image; the entire panel (at center), the earliest (top) and latest production event (bottom).

For individual sites identified in the Bircham Uplands, this technique reveals an interesting range of behaviors associated with panel reuse in the form of element superimposition, modification, rejuvenation, and integration. These findings suggest that rock art was not a 'fixed' product, but part of an active process in the cultural landscape. The images reflect how separate production events at one place interact through time. Individual panels were intention-

ally altered on multiple occasions for various purposes: to improve, maintain, revise or even cancel out images that had been created previously (Figures 3 & 4).

Superimposition – (bottom left)

Patterns of element superimposition in complex and simple compositions may exhibit a difference in style and even application.

Modification – (top right)

Subtle changes or additions to an existing feature in a panel may serve to accentuate the overall design; however, it is uncertain how meaning or function is compromised with modification.

Rejuvenation – (top right)

Specific features or a single component of an older element are re-pecked without being altered, placing an emphasis on its reappearance possibly as a form of maintenance.



Figure 4. Rejuvenation and integration.

Integration – (bottom left)

New elements are incorporated in an existing composition, and styles appear to replicate older forms.

Through extended study, these patterns of reuse may ultimately provoke key insights to the long-term continuity, transition, or replacement of certain images, and stylistic traditions in the western Great Basin.

This study is based on the assumption that in an arid environment desert varnish accumulates in a more regular and consistent manner on an individual rock art panel and older petroglyphs are more heavily varnished or patinated and darker in color than younger ones, which are either unpatinated or significantly lighter in color.

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DOMINICAN REPUBLIC PICTOGRAPHS: RADIOCARBON DATING AND CHEMICAL STUDIES

Daniel DuVall
Mohammad Yousef
Marvin W. Rowe

There is a substantial amount of rock art documented in the Dominican Republic, most of which is attributed to the indigenous, but now extinct, Taíno people. The art is thought to date from about 2000 years ago to the arrival of Columbus, but there has been practically no scientific analysis of any of the available materials.

We examined ten samples taken from rock art panels and associated unpainted background rock and soil in the Dominican Republic using optical microscopy, scanning electron microscopy with energy dispersive X-ray analysis capability, and portable X-ray spectroscopy. Of the five rock art samples, three (M-1, V-1 and V-2) show evidence of charcoal pigment. If true, that should make them good candidates for radio-carbon dating, assuming they are large enough to contain enough carbon for dating. Radio-carbon dates will be attempted. More detailed analysis of the non-carbon containing samples may also shed interesting light on the processes and methods of the art makers.

HISTORIC AND PREHISTORIC IMAGES ON PUBLIC SITES FROM TEXAS TO CALIFORNIA: RECORDATION OF EVENTS AND INTERPRETATION FROM PICTOGRAPHS AND PETROGLYPHS.

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Independent Scholar

Pictographs and petroglyphs are often found in areas where BRM's (Bed Rock Mortars) are located. Archeological sites have been documented with BRM's and often near pictographs

or petroglyphs in food processing sites, habitation areas and near water sources. Questions arise if there are stylistic patterns, colors and methods used that represent certain characteristics that transcend geophysical barriers and are these carried on over time but with different colors and designs based on seasonality of plant pigment. Can our new technology (Dstretch) show new interpretations of “washed out” panels and will this open up new research questions or make a new paradigm shift. Sources of material for discussion range from projects conducted with various Federal agencies. These areas include: Lake Isabella Rock Art Project on the Sequoia National Forest in California, Tonto National Forest in Arizona, BLM land in New Mexico and Hueco Tanks in Texas are areas examined and discussed

PICTOGRAPHS FROM MAHLAC CAVE,
GUAM: RADIOCARBON DATING AND
CHEMICAL STUDIES

Rosalind L. Hunter-Anderson
Mohammad Yousuf
Marvin W. Rowe

We collected six pigment samples from pictographs at Mahlac Cave in Guam, Mariana Islands, Micronesia and examined them using optical microscopy and scanning electron microscopy with energy dispersive X-ray analysis capability. Our purpose was to determine elemental composition of the pigments and to see which, if any, of the samples were suitable for radiocarbon dating. While the white and brown pigments (Samples 3-6) contained no indication of organic compounds, Samples 1 and 2 from two black images, both apparently containing charcoal, gave us the best opportunity for successful radiocarbon dating. Sample 1 was too small but Sample 2 was large enough to attempt an AMS radiocarbon date; the assay was successful, yielding an earlier date than anticipated. We review Marianas rock art scholarship and

formal variability and conclude with a discussion of our results within changing cultural contexts for rock art production in the islands.

AN OVERVIEW OF IMAGING TECHNOLOGIES FOR ROCK ART DOCUMENTATION

Robert Mark
Rupestrian CyberServices
Evelyn Billo
Rupestrian CyberServices

We will review current state of technologies, including panoramic photography and Gigapans, digital image enhancement, Reflectance Transformation Imaging (RTI), photogrammetry and 3-D models, and techniques for overhead photography. We will also discuss the use of databases, GIS, and iPads in the field. Relatively inexpensive or free software and web services has opened up new techniques for rock art documentation.

THE CHURCH ROCK PETROGLYPH SITE:
FUNCTION, STYLE, DIGITAL
DOCUMENTATION, AND 3D
VISUALIZATION

Marshall Millett
Eric Ritter

Recent advancements in emergent technologies have created a marked interest in 3D documentation and visualization capabilities for heritage resource studies. This paper explores the methods and overall value of 3D data and advanced visual documentation applied to the Church Rock petroglyph complex in Shasta County, California. Investigations focused on LIDAR and digital capture techniques for 3D data acquisition alongside the use and interface of 3D visualization as a means of public outreach and scientific analysis. The resulting data and digital visualization was then examined alongside traditional consideration of motif complex

categorization, ethnic uses of the landscape, management, and public and tribal outreach.

4D – MONITORING OF ROCK ART SITES OVER TIME

Juan F. Ruiz

Principal Investigator 4D – project.

While I am writing this text and you are reading it, rock art sites are changing all around the world --- at a very slow rate, but steadily. Natural factors affect them at a constant rate, and episodic catastrophic events are an undeniable reality. At the same time anthropic activities, ranging from occasional graffiti to the complete site destruction, are a source of serious preservation concern.

The goal of this research project is to develop a system for supervising rock art sites over time. The imagery and associated bedrock at a rock art site are monitored using a three-dimensional recording of the site and observing changes to its features over time (4D = xyz+t). This approach will be tested during the first half of 2013 at five open-air shelters in Spain that contain Levantine and Schematic rock art: Abrigo Grande de Minateda (Hellín, Albacete), Solana de las Covachas (Nerpio, Albacete), Abrigo del Buen Aire (Jumilla, Murcia), Cañaica del Calar (Moratalla, Murcia), and Cueva del Mediodía (Yecla, Murcia).

The base of this system will be a life-size 3D model and a continuous high-resolution picture (Gigapixel size) of every single shelter. The 3D models will be composed of two parts: first, we will create a highly accurate volumetric mesh using photogrammetry software like PhotoModeler Scanner or PhotoScan Pro, and secondly, we will use a very dense cloud point produced by a structured-light scanner. These techniques will be used to record the pictograph areas of these shelters. The precision level of the structured-light scans will be higher than equivalent laser scans. Photogrammetry mesh and structured-light models will be aligned and coupled in

order to create a unique 3D model with two different levels of detail. A high-resolution DSLR camera and a top-quality lens attached to a Gigapan Epic Pro head will be used to obtain multi-gigapixel pictures. These huge images will then be mapped onto the 3D model to obtain a photorealistic, life-size result.

Monitoring of sites demands regenerating the 3D models and recreating the gigapixel images over specific time intervals. The analysis of change over time will be carried out by two parallel and complementary procedures: volumetric and remote-sensing analyses. Volumetric comparisons will be performed by specific software such as PhotoModeler Scanner or CloudCompare to detect any change in the 3D surface of the bedrock, paying particular attention to the pictographs. Remote-sensing techniques will be carried out using software like MultiSpec or ArcGIS in order to identify changes in humidity, temperature, extension of macro-organism communities, flowstones, patina, spallations, faults, and so on.

This cost-effective managing system will be a significant help in the preservation of rock art sites if the expected results are achieved. Several working seasons will be necessary to check its feasibility and accuracy. Final results and conclusions are expected by the second half of 2014. This project is funded by Ministerio de Educación, Cultura y Deporte, Secretario de Estado de Cultura and Ayuntamiento de Jumilla (Murcia), Spain.

NEW EYES FOR THE ABBÉ BREUIL: IMAGE ENHANCEMENT OF SAN ROCK ART IN THE ERONGO MOUNTAINS, NAMIBIA

Anne Q. Stoll
George Stoll

The pioneer prehistorian, Abbé Henri Breuil, used watercolors to record San rock art in the shelters of Anibib and Omandumba in the Erongo Mountains of Namibia. In the 65 years since

his fieldwork in this part of Africa, the Abbé's interpretations have largely been discarded, supplanted by the better-informed ethnographic explanations of David Lewis-Williams and his successors. Nevertheless, the basic underpinning of all rock art research remains accurate visual analysis. As new tools for non-destructive enhancement of painted images such as decorrelation stretch become available, we look with "new eyes" at sites painted by the Abbé Breuil. Often faint, sometimes nearly invisible, San rock art in Namibia is enhanced for improved viewing and preservation.

Session 18
CONSERVATION OF ROCK ART: PANEL DISCUSSION

Diane Orr
Leigh Marymor

A worldwide look at successful rock art conservation projects through grassroots, individual, and community initiatives as well as educational programs resulting in positive outcomes will be discussed. Collaborative actions among conservation groups, professionals, landowners, and local communities will also be examined. We will focus on discussion about "What Works" with people who have made a difference, the symposium audience, and a panel of world trend setters in rock art conservation. Our goal is to highlight and encourage community based actions on behalf of rock art site protection. A PowerPoint presentation which summarizes participants projects will be used to stimulate panel discussion.

Session 19
WRITTEN IN ROCK

Carolyn McClellan Smithsonian Institution - National Museum of the American Indian

Six members of Pueblo Indian communities and six individuals from Azerbaijan were selected to participate in Written in Rock, an innovative and exciting educational and community outreach project that spanned ten months and included two weeklong study trips in two locations; one in Albuquerque, New Mexico, and one in Gobustan, Azerbaijan. The 12 participants were chosen for their demonstrated passion for and engagement in their home communities, as well as their enthusiasm for cultural exchange. During each of the weeklong studies, participants learned about petroglyphs at the Gobustan Preserve and the Petroglyph National Monument. They trained with archeologists and professionals specializing in petroglyph research, conservation, and site management; they learned basic preservation and recording techniques and the different interpretations of what the rock carvings might mean. Participants were immersed in the local culture and learned about the unique history, arts and customs of each region. At the conclusion they created collaborative projects that were presented to their communities and the broader public.

Session 20
NATIONAL PARK SERVICE AND ROCK ART: PANEL DISCUSSION

Chair: **Diane Souder**, Petroglyph National Monument

Invited National Park archaeologists within the western United States will discuss management of rock art sites. The focus will be on exchange of ideas with the audience.

Session 21
CONTRIBUTED PAPERS

Mavis Greer, Ph.D., Greer Archeology, Casper, WY USA

American Southwest and Northern Mexico Contributed Session

Central and South America Contributed Session

European Rock Art Contributed Session

Miscellaneous Contributed Session (I and II)

Plains and Western USA Contributed Session

Various Countries Contributed Session

**LEAVE ONLY FOOTPRINTS: THE CONTEXT
OF PUEBLO III SANDAL IMAGERY IN THE
NORTHERN SOUTHWEST**

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Moving across the landscape with sandals had special meanings to ancestral Puebloan peoples, as did leaving one's mark on the land with the depiction of sandals or sandal tracks. Distributions of rock art and of intact wall murals, tree-ring dating of intact roof beams, and textile studies suggest that a tradition of rock art depicting sandals or sandal tracks was pervasive in the Western Mesa Verde area between A.D. 1180-1225. Evidence indicates that the shaped-toe twined sandals depicted in much of this art likely functioned as a distinctive part of costumes used in ritual dance performances on formalized roadways and in great kivas of the region. These sandal images provide an immobile record of an otherwise highly mobile and

perishable technology, which by design literally walks away from its place of manufacture. Further, this approach helps us to understand the role of sandals and sandal imagery in the formation and maintenance of ritual traditions and social identities in the ancient Southwest. I discuss ongoing research investigating the context and chronology of this important iconography in ancestral Puebloan social and ritual landscapes.

**DINWOODY TRADITION: METHODS USED
TO PRODUCE THE IMAGES**

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Many researchers believe the Dinwoody Tradition is restricted to pecked images. Most easily accessible publications illustrating images from the Dinwoody Tradition show only pecked petroglyphs. Petroglyphs have been identified that were produced using abrasion or incising as well as pecking. Pictographs have also been identified. Several images are a combination of

several production techniques. Examples of each technique are presented with additional information regarding the distribution of the tradition within the Wind/Bighorn River drainage.

SEARS POINT ROCK ART RECORDING
PROJECT, ARIZONA, USA

Evelyn Billo

Rupestrian CyberServices

Robert Mark, Ph.D.

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Plateau Mountain Desert Research

The Sears Point Archaeological District is a large and complex site extending along the terraces on the south side of the Gila River. The area is characterized by steep volcanic cliffs that have over 2000 panels of petroglyphs on vertical faces of basalt mesas and on boulders. Rupestrian CyberServices and Plateau Mountain Desert Research mapped an additional 87 archaeological features including geoglyphs, rock piles, rings, alignments, cleared areas, extensive trails, historic features from the 1800s, and evidence of temporary habitation. Sears Point is considered a major regional gathering area where people came together to collect food resources and participate in ceremonies. A variety of cultures, including the Desert Archaic, Patayan, and Hohokam, used the site, and it is possible there was Paleoindian presence. Documenting the archaeological features and analyzing the relationship of approximately 10,000 petroglyph elements to their natural setting increases our overall understanding of the prehistory of the lower Colorado and Gila River valleys. However, additional in depth documentation of regional sites must be done and analyzed before definitive patterns of prehistoric use can be confirmed.

NEW CALEDONIA ROCK ART, IMPRESSIONS
AND COMPARISONS

Evelyn Billo

Rupestrian CyberServices

Robert Mark, Ph.D.

Rupestrian CyberServices

Certain rock art motifs are found worldwide, such as the handprints on the 2013 IFRAO Conference logo. Not only does New Caledonia have negative and positive handprints, but most of the 40 categories of glyphs found there, as documented by Jean Monin and Christophe Sand, show a distinct similarity with other global geometric and representational symbols. Spirals, enclosed crosses, circles (concentric, rayed, spoked, and tailed), cupules, ovals, polygons, arcs, hatch marks, parallel and undulating lines, and both rectilinear and curvilinear complex forms are all present. Anthropomorphs, zoomorphs, and more also occur. Examples of the imagery from six locations we visited in New Caledonia and Loyalty Island along with a museum collection will be contrasted with other sites. While the basic designs are close to what we find elsewhere, the New Caledonians, like most cultures, have created their own variations on these themes indicating shared humanity with individual expression.

INKA ICONOGRAPHIC ROCKS

Jessica Joyce Christie

East Carolina University

In South America during the fifteenth century, the Inka conquered a vast empire larger than any contemporary nation-state. It was ruled and administered from the central capital Cusco situated in the south-central highlands of Peru. Spanish writers record a succession of thirteen rulers covering a time span from the early fifteenth century through the 1530s. This dynastic history has been accepted in the mainstream literature. It was most likely the ninth ruler in this list, Pachakuti Inka Yupanki, who mapped out

Cusco as an imperial capital and authored the geometric sculpture style of the Inka state. Inka artisans went to work on boulders and outcrops in their natural settings and carved vertical and horizontal cuts forming seats, steps, and platforms. This style was displayed in many state installations in and near Cusco as well as in outlying regions to signal the presence and identity of the Inka state. I discuss selected carved rocks which fall outside the geometric category and present iconographic information such as landscape depictions and landscape references. Some examples (Sayhuite, Tetecaca) exhibit a realistic style yet their settings are idealized and generalized. Others, such as at Moray and the image stones at Machu Picchu, are sculpted more abstractly but refer to specific manmade or natural landscape features. It is argued that Inka iconographic rocks reflect a view oriented outward into the surrounding land, which is consistent with the values of an expansionistic state and an Inka ideological landscape.

NAUTICAL RITUAL IN EARLY EGYPTIAN ROCK ART

Dr. John Coleman Darnell

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Rock inscriptions in the Egyptian and Nubian Deserts provide a rich corpus of Predynastic and Protodynastic iconography, spanning the fourth millennium BCE and complementing the oft discussed but comparatively more meager evidence from decorated ceramics, small objects, and rare painted fabrics and plaster. Recent discoveries in the Western Desert, in the hinterlands of Aswan, el-Hosh, and Thebes, provide additional images that augment the known depictions of Dynasty 0 rulers. These nautical tableaux emphasize the importance of boats in early royal imagery and ritual, and the use of nautical scenes to create place-making "theaters" in the desert. The Early Hieroglyphic

annotations accompanying two of these cycles of images bridge the worlds of Predynastic iconography and the royal imagery of the Archaic Period, and provide a final, textual commentary to the tradition of Iconographic Attraction and Iconographic Syntax in Predynastic Egyptian art, and a first glimpse into the ritual world of early Egyptian kingship.

ALGUNAS CONSIDERACIONES SOBRE LAS REPRESENTACIONES DE LA COLUMNA VERTEBRAL EN EL DIBUJO RUPESTRE DE LOS GRUPOS AGRICULTORES DE LAS ANTILLAS

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In the aboriginal cave archaeological record of the Antilles, common anthropomorphic or zoomorphic images have either detailed representations of the backbone or slightly schematic spines. Usually this portion of the figure is not described and is either minor or forgotten. It is not brought to the viewer's attention even taking into consideration the relatively frequent presence of the backbone in these images. This study isolates some regional styles and transformations that are specific to the geographic area of concern. We discuss designs of this important isolated bone structure in the Antillean Aboriginal iconography as shown in rock drawings, with the aim of understanding the likely symbolic significance for possible direct relationship with the worldview of human groups that inhabited this geographic area.

En el registro arqueológico rupestre aborigen de Las Antillas perduran representaciones

antropomorfas o zoomorfas en las que no es extraño encontrar, ya sea bien representada o ligeramente esquematizada la columna vertebral. Habitualmente esta porción de los ejemplares no es descrita y por lo general queda relegada u olvidada o no se le presta la debida atención si tenemos en consideración la relativamente alta presencia de esta grafía en las imágenes. Su estudio permitió aislar algunos diseños regionales y sus transformaciones que son particulares del área geográfica que ocupan. Se pretende además traer a discusión los diseños aislados de esta importante estructura ósea en la iconografía aborígen antillana empleada en el dibujo rupestre, con el objetivo de abordar también su probable significación simbólica por su posible relación directa con la cosmovisión de los grupos humanos que poblaron esta área geográfica.

ROCK ART ELEMENTS AS ARTIFACTS: A
CASE STUDY FROM THE COASTAL RANGES
CALIFORNIA

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Teresa Miller Saltzman, M.A.

Independent Researcher

Paula Reynosa

Independent Rock Art Recorder

A marked boulder in the Central Coastal Ranges of California provides a case study for developing a consistent method for documenting and acquiring quantitative data for an under-recognized tradition of cultural markings known as PCNs (Pecked Curvilinear Nucleated) and associated elements. The model demonstrated here is being applied in an ongoing recording project to document or, in some cases, re-document this rock art tradition that extends from Oregon to Southern California and possibly beyond. Presently over 120 similar sites have been identified. This study treats the individual types of markings as artifacts, which allows for a comprehensive study of their attributes. The information generated from this research will

provide an objective and quantifiable database for future studies.

UPPER ORINOCO ROCK ART OF
SOUTHWESTERN VENEZUELA

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Painted rock art along the Orinoco is organized into a series of temporal styles representing local multi-ethnic organization and external influences. An attempt has been made to link the chronology with local archeology, including ceramic designs. Early animal and geometric figures suggest an age for paintings back at least 8000-10,000 years, while historic period pictographs date at least into the 1800s. There was a change from early hunting-gathering to agriculture and into increased drug use. It appears that a strong local political and belief system was influenced at least 2000 years ago by major politico-religious movements up and down the river, but with local culture remaining relatively intact. Local reaction to invading systems — including late Caribe slavery expeditions, European religious expansionism, sickness epidemics, and later rubber exploitation — was to change the settlement system, with retreating groups eventually moving back into riverine areas and increasing in size and complexity. Relatively little survey or detailed analysis has been done, and geographic extent and internal diversity within the suggested chronology are unknown. Additional intensive ceramic comparisons and ethnographic input are needed, including body painting, use of paints, and modern explanations of iconography. Petroglyph production, mostly along river channels, appears late within the overall sequence and has a different internal structure and distribution.

El arte rupestre pintado por la cuenca Orinoco y sus aluentes pueden considerarse como una serie de estilos temporales que representa desarrollo local multi-étnico y las influencias

externas. No hay síntesis de los alrededores, y no se sabe el extenso de la cronología sugerida. Semejanzas con áreas cercanas de Brazil, otras partes de las tierras bajas de América del sur, y el Caribe sugieren la posibilidad de una esquema de desarrollo general muy extendida por toda la región.

La cronología sugerida se basa en la superposición de los cambios en tecnología, iconografía, y forma de expresión en sólo unos pocos sitios de estudios preliminares, junto con comparaciones de estilos de cerámica. Se hizo muy poco estudio y registro de sitios pintados entre cientos de sitios existentes, muchos pequeños y que representan una actividad limitada y algunos más de un kilómetro de largo. Se ha hecho sólo una pequeña cantidad de análisis detallado, igual como mínima información o interpretación por habitantes indígenas de la región.

Producción intensiva de los petroglifos grabados aparece sobre todo ha sido introducida generalmente tarde dentro de la secuencia cronológica, con una estructura interna y distribución diferente de las pinturas. El arte pintado acerca de los ríos hasta la espalda de los valles y los cerros alrededores de las tierras altas, y los petroglifos en su mayoría por las orillas de los ríos probablemente representan dos sistemas distintas pero sobrepuesto en sus sistemas de distribución y estructura en relación a los actividades, creencias, expresión artística, historia, y pertenencia étnica.

Investigaciones recientes no están dando la cuenta suficiente la cronología del arte, los numerosos períodos del desarrollo, or la variación vinculada con función, edad de los participantes, sexo, afiliación etnográfica, o relacionada con la mitología. Hay que relacionar el arte variada con la estructura arqueológica regional muy compleja y esencialmente no bien estudiada. El arte rupestre pintado es solo un aspecto menor de la énfasis regional en el uso de pintura preparada. Pintura corporal y otros aspectos de pintura todavía continúan hoy día, con signifi-

cados relacionados y asociadas cuentas distintas entre grupos étnicas pero con la capacidad de identificar elementos y temas dentro del arte. Las representaciones tempranas de camélidos en algunos sitios sugieren una edad para la parte posterior de la pintura al menos de 8000-10.000 años, mientras que pictografías de períodos históricos fechan por lo menos hasta el siglo XIX.

FINDING THE DOG IN ARIZONA ROCK ART

Barbara Gronemann

Southwest Learning Sources, Inc.

The domesticated dog, *Canis familiaris*, came with people into North America about 14,000 years ago. Ethnographic information mentions early dogs, and historic drawings and early photos show some characteristics of these canines. To identify the dog portrayals among the many quadrupeds in the rock art, the diagnostic characteristics of the domesticated dog, *Canis familiaris*, the wolf, *Canis lupus*, and the coyote, *Canis latrans*, were listed, and these characteristics along with photographs were used to distinguish one from the other in Arizona rock art. Ethnographic research on early dogs in the Southwest and the ever-growing number of scientific papers on the dog in archaeological excavations helped round out my understanding of these canines. The results of this research not only brought about the recognition of the dog in some rock art panels, but it also identified some of the previously unknown roles that they played in indigenous cultures.

ICONOGRAPHY OF UPPER PALEOLITHIC CAVE PAINTINGS – METHODOLOGICAL CONSIDERATIONS

Gernot Grube

The critical tenor concerning our understanding of cave paintings is that we seem to be unable to obtain reliable interpretations. There are many reasons that contribute to our hesitation to tackle the question of meaning. However,

when our subjects are pictures or other works of art, we should not ignore the dimension of meaningful contents that are connected to more material aspects of these objects. I discuss how to make the meaningful content more accessible to us by means of iconography based on new techniques such as 3-D modeling. I define an iconographical approach that stems from insights derived from Max Raphael, and apply this approach to Upper Paleolithic cave paintings.

IS THE MEDIUM THE MESSAGE?
PETROGLYPHS AND PICTOGRAPHS AS
CULTURAL MARKERS AT THE INTERFACE
OF THE GREAT BASIN AND COLUMBIA
PLATEAU IN OREGON

Don Hann

Malheur National Forest, Oregon (dhann@fs.fed.us)

In eastern Oregon it has long been recognized that pictograph sites dominate in the northeastern portion of the state while petroglyphs dominate in the southeast. The break between these technological areas is just south of the southern Blue Mountains, which form the divide between the hydrological Columbia Plateau and Great Basin. The southern Blue Mountains are also near the boundary between the ethnographically and linguistically defined Columbia Plateau and Great Basin cultural areas. Archaeological evidence along the margins of the Great Basin suggests that this cultural boundary was fluid over time. Rock art sites in the adjacent upper John Day River Basin and Harney Basin, in the southern Columbia Plateau and northern Great Basin respectively, are considered. Pictograph and petroglyph sites in eastern Oregon are determined to be effective cultural markers distinguishing Columbia Plateau from Great Basin occupation.

FLOWER WORLD IMAGERY IN
PETROGLYPHS: HINTS OF HOHOKAM
COSMOLOGY ON THE LANDSCAPE

Janine Hernbrode
Peter Boyle

Images of flowers hold special meaning to speakers of Uto-Aztecan languages throughout the Southwest and Mesoamerica. Flowers represent a flowery, colorful, glittering paradise that can be evoked through prayers, song and other human actions. Flower imagery representing this flowery spiritual landscape, the Flower World, have been reported in Kiva murals and ceramics; in 1992 Jane H. Hill's work suggested that such imagery might also be found in rock art. We report here that flower images are among the prehistoric petroglyphs present at Sutherland Wash Rock Art District near Tucson, Arizona. Some petroglyphs are rather literal representations of flowers and others are more abstract forms associated by other researchers with flowers and the Flower World. Additional features associated with the Flower World are also present, such as images of birds, butterflies and the presence of iridescent rocks in the landscape.

THE CHAUVET-PONT D'ARC CAVE REPLICA
(FRANCE): TRYING TO IMPLICATE
SCIENTISTS IN A CULTURAL PROJECT

David Huguet

Project Manager, Grand Projet La Grotte
Chauvet-Pont d'Arc (France)

Jean Clottes

Conservateur général du Patrimoine (Honorary), President of the Scientific Committee
Grand Projet La Grotte Chauvet-Pont d'Arc
(France)

Because of its antiquity (36kaBP cal), the quality of its art, and its perfect state of preservation, it is likely that the Chauvet-Pont d'Arc Cave (Ardèche, France) will soon be put on



Figure 1. Comparison of the map of the Chauvet-Pont d'Arc cave with its replica.

UNESCO's World Heritage List; the application has already been made. In order to protect it, the French government, owner of the cave, decided not to allow visitors except for scientists. This was a strong incentive for the country and its partners (Rhône-Alpes Region, Ardèche Département, European Union) to pool their scientific and technical resources to create a replica of the cave. This ambitious cultural project not only has the goal of sharing a unique form of world heritage but also the goal of recreating an archaeological and geological framework faithful to the original and to do so as scientifically accurately as possible. This is why designing the Replica has been done by scientists and engineers working closely together, which is different from most museographic projects where only scientists participate the earlier stages of the program.

Five major phases were identified during the initial conception of the Chauvet-Pont d'Arc Replica:

1. Since it has become nearly impossible to work inside the real cave, a decision was made to entirely digitize the cave with complete scans down to an infra-millimetric scale and with

complete photographic coverage, which were used to create a 3D numerical model to evaluate the scientific and technical constraints of the project.

2. The basis was established for making a methodological decision to select (in a strictly scientific manner) the panels in the cave (called "scales") to be duplicated inside the Replica.

3. The "scales" were chosen from all parts of the cave and their digitized 3D representations were cut out of the overall scans, reassembled, and attached to one another in order to obtain a homogeneous finished product. In all, the surface of the Replica will be 3000m², and the total surface recreated (ground surfaces, walls, vaults) will be 8600m² (Figure 1). In addition, nearly all the drawings, paintings and engravings (about 450 now recorded) will be recreated to scale (1:1).

4. Once the general topography of the Replica was worked out, it became necessary to entirely re-think its geology, geomorphology, sedimentology, and stratigraphy by scientists competent in those fields. The end result is a complete geological map of the Replica setting with careful



Figure 2. Alain Dalis, Art Director, reproducing a red woolly rhinoceros on a surface mainly made of polyurethane resin.

attention to the geomorphological phenomenology observed in the real cave. For example, the location and orientation of the cave bear skulls moved by water flows or the depth and position of the calcite coverings and of speleothems will conform to topography as well as to the dynamic water flows as they have been worked out.

5. Once the geomorphological and geological setting was complete, archaeologists and paleontologists could choose and set up animal (bones, footprints, paths, rock polish, scratches) and human (displaced bones and rocks, constructions) remains as they will be recreated in the Replica.

The above phases required nearly five years of conceptual work, and this initial work is not yet over. Its result is a restructured Chauvet-Pont d'Arc II by means of a numerical model including all necessary information (topography, geology, geomorphology, stratigraphy, sedimentology, archaeology, paleontology). All the firms involved will have to adhere to the model. Building of the Replica will begin on 8 July 2013 in Vallon-Pont d'Arc (Ardèche), only two kilometers from the real cave, with projected concrete and polyurethane resins on which painters will reproduce the art work (Figure 2). As to the geological environment (deposits, rock surfaces, facies), the sculptors will shape the concrete

accordingly at the rate of at least 1m² per day depending on the intrinsic difficulties they encounter. As to the speleothems, also in resin, they will be constructed in the workshop and then set in place once the concrete framework is finished.

The Chauvet-Pont d'Arc Replica will be a model with which engineers and scientists are closely associated. Working in this way enables us to make changes at any time depending on scientific advances (such as the discovery of new images in the cave) and also depending on technical and technological progress. The end result will be a scientifically accurate Replica to be visited by the public that will also be a tool for scientists unable to access the real cave at will. Finally, the Replica, a real heritage monument in itself, will contribute to firmly asserting the place of the Chauvet-Pont d'Arc Cave among world cultural assets.

RED IS THE COLOR OF BLOOD: WOUNDS IN BIOGRAPHIC ROCK ART

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Plains Biographic art is characterized by the depiction of small details, which elucidate the story line that animates these characteristic narrative compositions. Wounds are one such detail, but in rock art these are usually shown by arrows sticking in a horse or human or a bullet drawn in the body of a human hit by gunfire (Figure 1). In contrast, biographic ledger art or robe art narratives often show wounds much more realistically, frequently gushing copious red blood from the wound site. Wounds are routinely shown this way in robe and ledger drawings because of the typically much broader color palette, which includes red, yellow, blue, green,



Figure 1. Petroglyph at Dg-Ov-9 at Writing-On-Stone showing a mounted warrior counting coup on a pedestrian opponent armed with bow and arrow.

black, and brown pigments (Ewers 1968:7; Horse Capture et al. 1993; Keyser and Klassen 2001:259). Most Biographic rock art, on the other hand, is done as scratched and lightly incised petroglyphs, and the rest is almost exclusively drawn or painted as red or black monochrome pictographs (Keyser 1977b:52; Keyser and Klassen 2001:225).

Rattlesnake Cave (DgOw-20), in Rocky Coulee at Writing-On-Stone, has a series of historic period pictographs drawn with charcoal, among which are scattered a constellation of red marks drawn with naturally-occurring red ocher nodules or native-made crayons. Interestingly, previous reports (e.g., Keyser 1977a, 1977b; Klassen 1995:269) overlooked these red marks and failed to understand their significance. Recent research at the site brought these red marks to our attention, and we were able to realize that they were neither random nor simply earlier drawings superimposed by the charcoal pictographs, but rather they had been intentionally drawn as

parts of compositions to represent blood flowing from wounds and trails of bloody footprints leading to and from combat scenes.

Images drawn on the rockshelter walls are figures representing 20 humans, 15 horses, and at least a dozen different kinds of material culture items, including weapons, headdresses, clothing, tipis, and a fortification (Figure 2). These images are arrayed in at least 10 different scenes showing combat and horse stealing—typical subjects of Plains Biographic art. Analysis of the content of these images demonstrates that they are the work of artists from the Blackfoot confederacy, drawn sometime in the 1800s. This is based on the site's location in the heart of Historic period Blackfoot territory, and the presence in the art of characteristic Blackfoot Style motifs including a fortification, a triangular body human, and the use of an ethnically-identifying convention for members of the Blood tribe (Figure 3). Dating is relatively straight forward, given the presence of guns, horses, and a possible White man in the figures drawn at the site.

Seven of the scenes in Rattlesnake Cave contain red ocher marks that represent wounds and trails of bloody footprints. In several instances

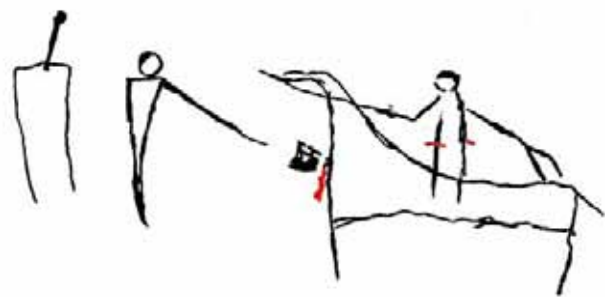


Figure 2. A scene, from DgOw-20 at Writing-On-Stone, shows a triangular human wounding the horse or his mounted enemy. Note the red pigment used to represent both the horse's wound and a "through and out" wound on the horseman's torso.



Figure 3. A narrative at DgOw-20 shows a fortified gunman, wounded by an arrow. Red pigment indicates the blood pouring from his wound and then his path as he leaves the fortification to go to an enemy camp.

these wound marks serve as the key to understanding the narrative content of the scene. Although such wound marks are a common occurrence in other Biographic art media, this is the first documented instance in Plains rock art where red pigment is contrasted to another color to show a fresh wound.

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BIOGRAPHIC ROCK ART TALLIES: EXPLICIT, IMPLICIT, OR INFERRED NARRATIVE?

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A recent paper (Keyser et al. 2013) described and categorized three types of rock art narrative. These are: **explicit narrative**, in which the formal arrangement of figures clearly indicates that a narrative story or event is being depicted; an **implied narrative**, which is a composition that lacks explicit markers of movement and interaction between figures, but which give hints or clues of varying strength as to what the story behind the art actually was; and an **inferred narrative**, which is entirely reliant on external evidence, the composition itself lacking any markers for storyline or event that could provide clues as to what story was intended by the original artist.

Plains Biographic rock art is probably the most explicitly narrative rock art so far identified, and it is certainly the most intensively studied. Within this tradition, one conventionalized depiction—the coup count tally (Figure 1)—appears in essentially unchanged form throughout the nearly four-century history of Plains Biographic Art (from ca. A.D. 1550-1920). This widely used and well-known convention, whereby a warrior of high status “kept score” by illustrating his various war honors as a row of images showing individual conquered enemies or items of captured war booty, is found in all three Plains Biographic tradition art expressions (rock art, robe art, and ledger art). Since the earliest research, such “score-keeping” tallies have been recognized as a key component to understanding the story behind Biographic drawings (Mallery 1893; Vatter 1927; Wissler 1911), and numerous examples have been intensively studied and well published (Keyser 2011a, 2011b; Keyser and

Klassen 2001:279-280, 2003:10-11; Maurer 1992; Parsons 1987).

Because coup count tallies are a significant part of the otherwise explicitly narrative Biographic art tradition (and are sometimes even embedded within larger explicitly narrative scenes) our first reaction was to assume that they were themselves explicitly narrative, but close examination showed that such tallies include examples that fit all three of the types of narrative that we had defined; depending on their different structures and the amount of ethnographic information needed to read them. Most Biographic art tallies are, in fact, implied narratives, primarily because they lack one or the other of the two key components—indication of movement or interaction between figures—that make a drawing explicitly narrative. But some of these so strongly imply a narrative that they can be clearly understood with only a minimal amount of ethnographic information (e.g., Figure 2). Other tallies, however, are obvious explicit narratives, containing both movement and interaction between figures in such clear detail and structure that the basic story-line can be read by anyone without external information (Figure 3). Still others are inferred narratives that confound even the most fluent readers of Plains Biographic



Figure 1. An 1830s-era Sioux war shirt with a tally of enemies on whom coup was counted.

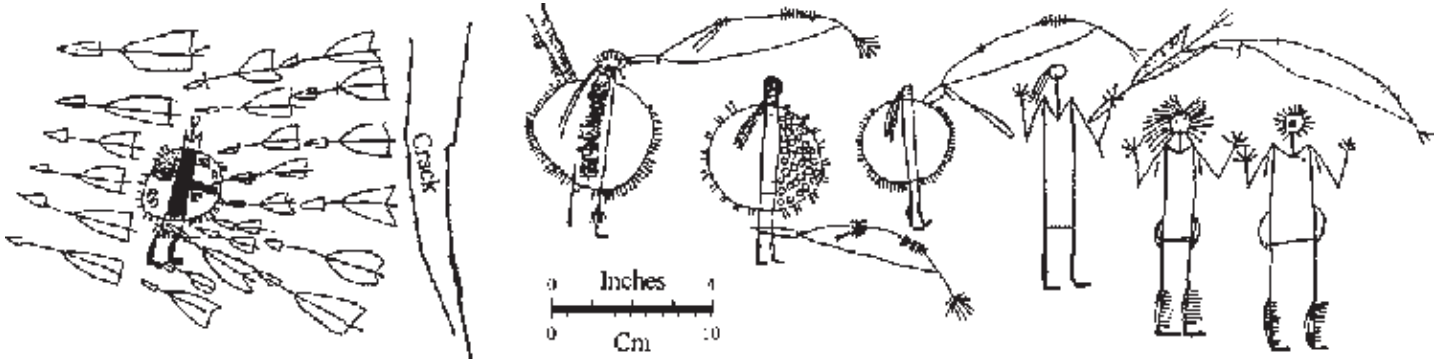


Figure 2. This Blackfoot tally at Bear Gulch (24FR2) shows the artist braving a fusillade of enemy bow and arrow fire (at left) and then further to the right, six enemies on whom he had counted coup.

ic art precisely because they lack sufficient detail to determine anything about them without reference to ethnographic information external to the drawing itself.

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Figure 3. This tally, painted on an 1830s-era Mandan war shirt, is a fully explicit narrative.

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ROCK ART AT LITTLE LAKE RANCH, INYO COUNTY, CALIFORNIA

Audrey Kopp
UCLA Rock Art Archive

Under the direction of Dr. Jo Anne Van Tilburg, volunteers from the UCLA Rock Art Archive have dedicated ten years of seasonal field work in order to document the rock art of Little Lake Ranch, Inyo County, California. The data obtained were used to define motifs, which were then analyzed as to position, characteristics, quantity, and, in many cases, relationship to Great Basin motifs. Since the study area contains three well-known and previously investigated archaeological sites, we set our results in specific archaeological and ecological contexts. We further amplified our analyses by extending our re-

search to include museum studies, ethnography, history, and geology of the area. Our interpretation of painted elements, scratched patterns, and representative motifs such as bighorn sheep and atlatl forms was consequently enhanced by these combined methodologies. We describe distribution patterns relative to site use and suggest multiple social goals for rock art production at Little Lake Ranch.

“THE DREAMING PUT THAT THERE, BACK IN THE DREAMTIME”

ETHNOGRAPHY IN THE LAND OF THE LIGHTNING PEOPLE

David Lee

The Wardaman people of northern Australia have a continuing oral tradition linking them to the waterholes, outcrops, and rock art sites in the country their ancestors have occupied for thousands of years. For the last seven years, we have worked with Yidumduma Bill Harney, the last fully-initiated Wardaman man and custodian of his people's country, songs, and stories. Together we have documented twenty-seven of the rock art sites in Wardaman Country, and all of Yidumduma's traditional and historical knowledge about them. This information provides many insights into how rock art functioned in the ceremonial lives of early peoples and offers a glimpse into the complexity of Indigenous worldviews. Today the Wardaman and other Aboriginal people are struggling to stay connected to their lands and their past, and recording the knowledge of their elders is seen as vital to that effort.

CROSS CONNECTIONS: RELIGIOUS
ICONOGRAPHY OF THE HISTORIC PERIOD,
MESA PRIETA AREA, NORTHERN NEW
MEXICO

Janet MacKenzie

Project Coordinator, Mesa Prieta Petroglyph
Project

Candie Borduin

Recording Coordinator, Mesa Prieta Petro-
glyph Project

Objectives of this project included identifica-
tion of Historic Period religious depictions in
petroglyph data recorded over ten years and
the identification of probable Christian crosses
and related patterns as well as their variations
and frequency. About 1000 records were exam-
ined, and of 23 cross forms identified, almost
70% were Latin crosses and approximately 10%
were Greek crosses. Nearly 40 variations of the
cross forms occur, as well as representations of
churches, crucifixions, and other religious sym-
bols. Jewish menoras and Stars of David were
also found. The results illustrated the impor-
tance of the Catholic Church in the daily life of
early settlers and users of Mesa Prieta, which
lies on the late 15th century Camino Real de
Tierra Adentro of Northern New Mexico. While
most crosses seem to have been created by local
herders and harvesters on trails and near pas-
tures, some images may relate to the Penitentes,
a Catholic Brotherhood important to communi-
ties during the Pueblo Rebellion 1680-1692 and
still functioning today. Jewish iconography may
be a legacy of members of the early Spanish
incursion who were “Crypto-Jews” escaping the
Inquisition in 1598.

DESERT ROCK ART: A COMPARATIVE
PERSPECTIVE

Dr. Jo McDonald

University of Western Australia; Director, Jo
McDonald Cultural Heritage Management Pty
Ltd; Director, Centre for Rock Art Research and
Management

Occupation of the Australian arid zone started
soon after the arrival of modern humans to this
continent – some 50,000 years ago. Throughout
this remarkable period of time, hunter-gatherers
have demonstrated all of the modern-human
hallmarks - resilience and aesthetics – as a re-
sponse to signing the land and living through
changing environmental landscapes. The nature
of changing rock art production over time in the
Western Desert of Australia is described, and
some preliminary observations about similar
hunter-gatherer responses to landscape and rock
art in the Great Basin through time are made.
The movement of people into the arid zone and
their use of rock art as an information strategy
are discussed as global phenomena.

THE CULTURAL DIFFERENCES OF
ASTRONOMY

Kaye McPherson

Historical Geographer and Archaeologist,
Manuta Tunapee Puggaluggalia Historical and
Cultural Association; Elder and Cultural Custod-
ian, Lia Pootah Community

Study of the night sky is as old as man. Today
astronomy has many universal concepts, but
there is one cultural view of the night sky that
never changed. The Aboriginals of Australia
and Tasmania have an oral and pictorial tradi-
tion about the night sky that has been passed
down for at least 60,000 years. The rock engrav-
ings, scarification on the body, and stories tell
the same unchanged story of the night sky since
the Dreamtime. Distortions and misunderstand-
ings about the night sky only occur when the
view of outsiders overwhelms an oral history

and long established cultural traditions of the original people. By translating and interrelating star knowledge from an oral tradition to that of the outsiders then significant differences in perspective are overlooked. Astronomy today is observed from the outsider's Newtonian based perspective and viewed through instruments. This is far removed from the naked eye observations of the Aboriginal where stories and engravings are the same as observations. For the Tasmanian Aboriginal of today and yesterday there cannot be one without the other.

UTE INDIAN ROCK ART MAPS AND GAME DRIVES IN WESTERN COLORADO: A PRELIMINARY STUDY OF UTE ROCK ART MAPS IN GUNNISON GORGE NATIONAL CONSERVATION AREA AND DOMINGUEZ-ESCALANTE NATIONAL CONSERVATION AREA

Carol Patterson, Ph.D.

Dominguez Anthropological Research Group (DARG)

Native American consultants of the Northern Ute Tribe have identified certain abstract linear rock art motifs located at sites in their traditional homelands of west central Colorado that may represent maps of aboriginal trails and hunting areas. A preliminary study of all petroglyph sites within the Early and Late Historic Ute era, limited to sites located in and near Gunnison Gorge National Conservation Area (GGNCA) and Dominguez Escalante National Conservation Area (DENCA), devised and tested a conceptual framework for objectively identifying possible correlations between what Utes identified as map-like rock art figures and existing natural and archaeological features within surrounding locals. The results of the study are preliminary and suggest further investigations be undertaken with a larger sample size following the model put forth here.

ICONOGRAPHY, SCIENCE, AND LIGHTNING FIGURES

Albrecht Ploum

Belgium

Some ancient Australian Aboriginal figurative paintings in the Kimberley and the Northern Territory, known as 'lightning figures', show remarkable resemblance in morphology with strange atmospheric phenomena such as Red Sprites (upper-atmospheric optical phenomena associated with thunderstorms). The Red Sprites sometimes can be perceived with the naked eye in those parts of the continent. I argue that some ancient markings can be related in a consistent way to atmospheric phenomena.

EXTENDING FREMONT ROCK ART AND CULTURE INTO SOUTHWESTERN

WYOMING

George Poetschat

Oregon Archaeological Society

James D. Keyser Ph.D.

Indigenous Cultures Preservation Society

The Fremont Culture has been identified in Utah, Northwestern Colorado, and Eastern Nevada. The most recognized Fremont rock art is the elaborate Vernal Style of the Uinta Fremont located in northeast Utah and northwest Colorado (Figure 1). Recent research has identified Vernal Style and solid pecked anthropomorphs in southwest Wyoming extending from Flaming Gorge Reservoir to the Rock Springs area (Figure 1).

Vernal Style anthropomorphs (Figure 2) have large trapezoidal bodies, large rounded, rectangular, bucket-shaped or inverted bucket-shaped heads, often with relatively elaborate headgear resembling antlers, and horns of various shapes. These figures also usually wear earrings or earbobs, necklaces, yokes, or collars, breastplates, and kilts, breechclouts, or sashes. Many have distinct facial features. Interestingly, a significant

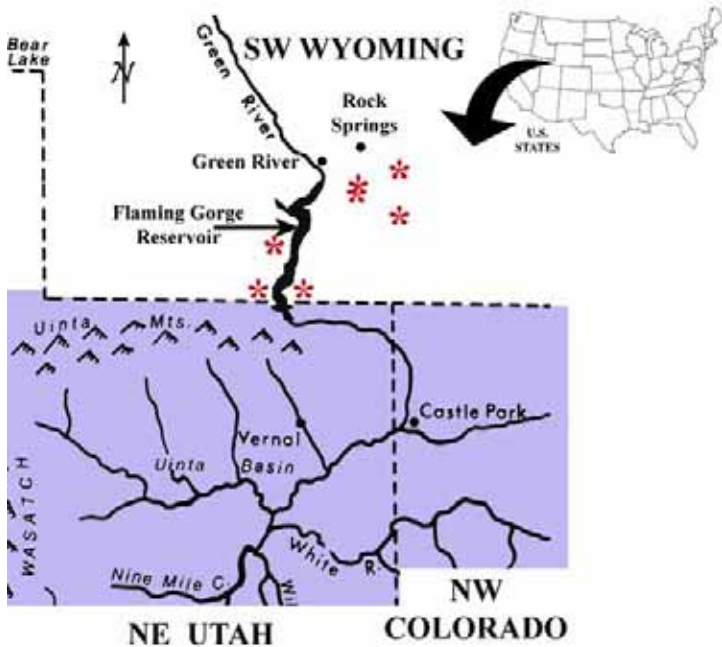


Figure 1. Location of southwest Wyoming Fremont rock art (red stars) in relationship to the Uinta Fremont area (purple shading).

minority of pecked Vernal Style figures is represented only by necklaces, earbobs, and belts or sashes, presumably because fugitive pigments used to paint the rest of the figures are no longer visible. Other Vernal Style anthropomorphs include solid pecked trapezoidal bodies with elaborate antenna headgear (Figure 2).

Fremont rock art has recently been recorded at seven southwest Wyoming sites. Day and Dibble (1963) reported two “necklace figures” at the Minnie’s Gap just east of Flaming Gorge Reservoir and about 100 meters north of the Utah/Wyoming State border. Our research at this site found four of these pecked necklace figures complete with belts and kilts (Figure 3c). Site 48SW88 just west of Flaming Gorge Reservoir and just north of the state line, has eight Fremont style images. The rabbit ear image (Figure 3b) is nearly identical to three figures at Steinkaker Reservoir just north of Vernal, Utah (Castleton 1984). The most elaborate Vernal Style image

in Wyoming is at the Keeper of the Canyon site less than 10 mile south of Rock Spring (Figure 3a).

Solid body Fremont Style anthropomorphs are also found at four sites in southwest Wyoming. 48SW45, 20 miles north of the Utah border on the west side of Flaming Gorge Reservoir, has one solid body figure (Figure 4a) with a horned headdress, ear bobs and a trapezoidal body. Six Fremont solid body figures with elaborate

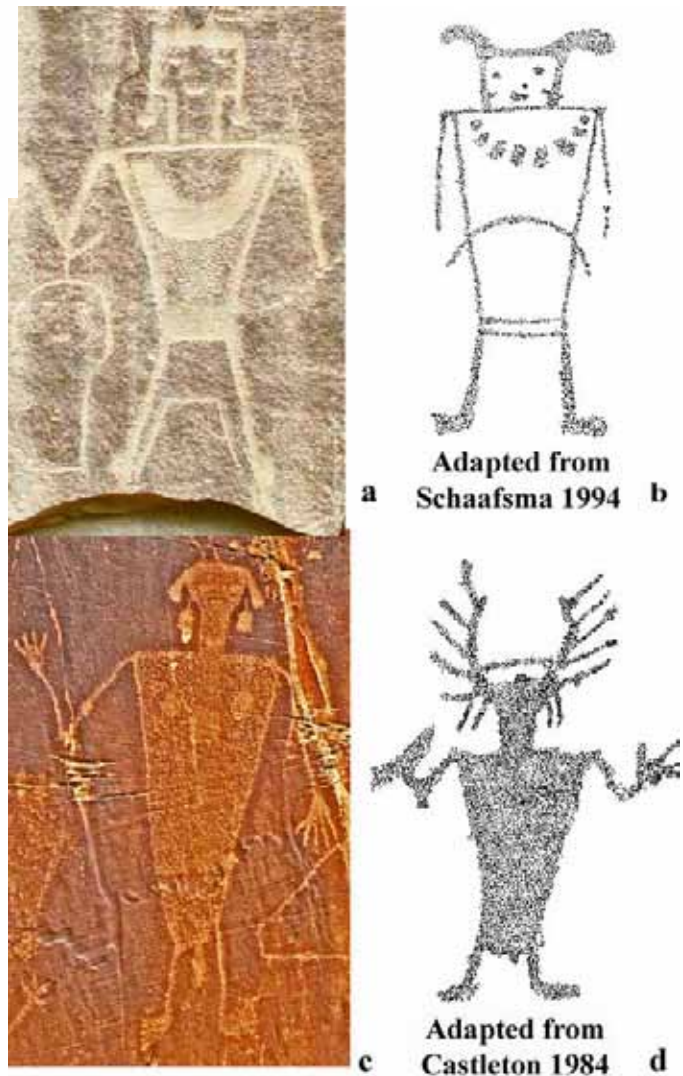


Figure 2. Uinta Fremont images from northeast Utah. Vernal Style image from the McConkie Ranch (a) and McKee Springs (b); Solid body image from McKee Springs (c) and Hill Creek (d).

antenna headgear (Figure 4b-c) are found at Jack's Glyphs site. The nearby Mud Springs site has ten trapezoidal, solid body figures, two with elaborate antenna headgear (Figure 4d).

A recent poster (Finley et al. 2010) discussed pottery from nearly 200 sites in Western Wyoming. Their map showed that Fremont pottery is found predominately around Rock Springs and extending west, south, and slightly south-

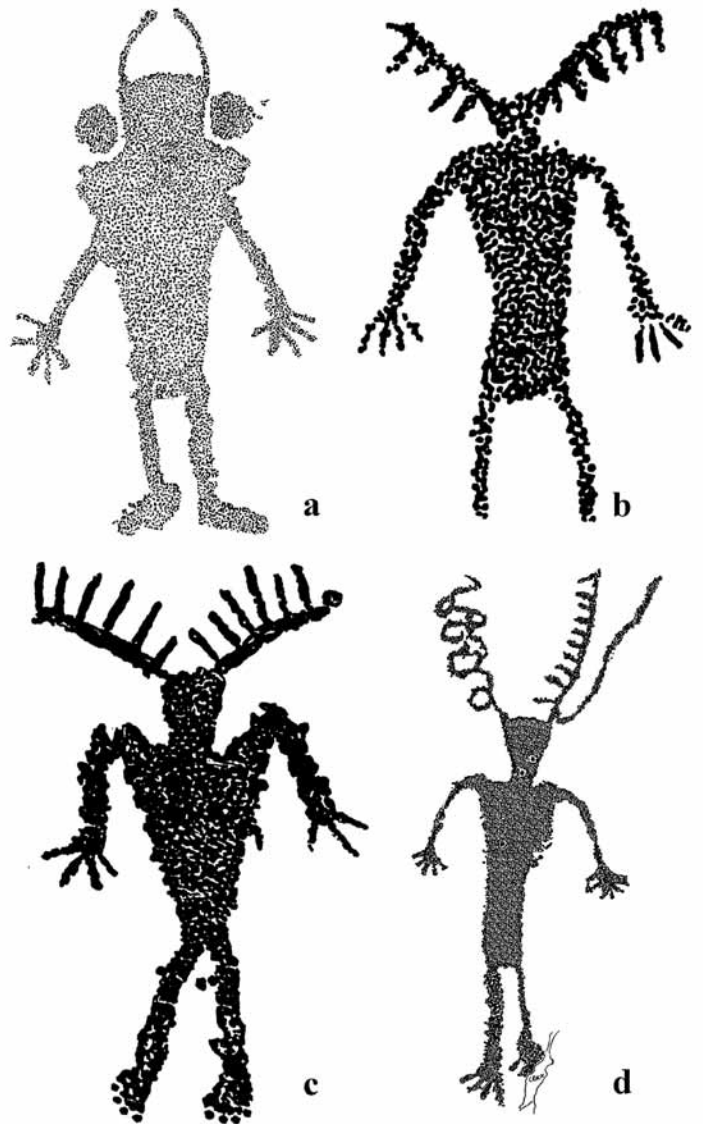


Figure 4. Solid body Fremont Style images from southwest Wyoming show typical head and body shapes and headdresses. (a) 48SW45; (b, c) Jack's Glyphs; and (d) Mud Springs.

east. The southwestern Wyoming Fremont rock art mimics this distribution of verified Fremont Pottery in the same area. Thus, we can confidently extend the Uinta Fremont occupation into southwestern Wyoming north at least to the Rock Springs area.

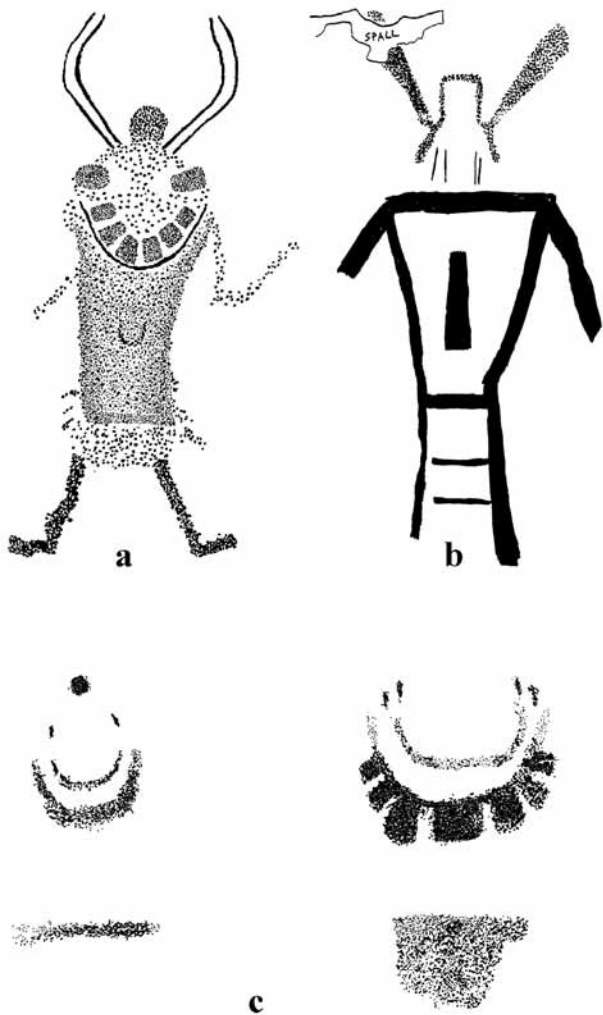


Figure 3. Vernal Style Fremont images found in southwest show all the characteristic elements, including necklaces, ear bobs, headdress, breastplates, and belts. (a) Keeper of the Canyon, 48SW18434; (b) 48SW88; (c) Minnie's Gap, 48SW61.

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THE IMPORTANCE OF THE REPRESENTATION OF HANDS ENGRAVED IN ROCK ART IN THE REGION OF THE CEIRA AND ALVA RIVERS (PORTUGAL), ITS SYMBOLISM AND COMPARISON WITH OTHER REGIONS OF THE WORLD

Nuno Ribeiro

Portuguese Association for Archaeological Investigation (APIA), Portugal

Anabela Joaquineto

Portuguese Association for Archaeological Investigation (APIA), Portugal

The region of the Ceira and Alva rivers is located in the interior of Portugal where over 1000 rock art sites and dozens of prehistoric structures were discovered during investigations led by the Portuguese Association for Archaeological Investigations (APIA). The landscape is mountainous, with average heights of over 800 m, and ranges separated by deep valleys. The rivers demarcate hydrographic basins, while important mountain ridges have aided the passage of people and animals, since Chalcolithic times with the beginnings of transhumance. It is in this area of transit that we find many rock art sites and assemblages of prehistoric, proto-



Figure 1. Petroglyph panel at Piedras Marcadas with spiral, flute players, quadruped, and twin faces.

historic, and historic monuments of various types. They testify to the importance of human occupation of an area which was until recently considered poor in human remains.

PIEDRAS MARCADAS PETROGLYPHS: AN ETHNOASTRONOMICAL CONTEXT FOR A PUEBLO CEREMONIAL SITE

Paul Rodriguez

Independent Researcher

Petroglyphs in the Piedras Marcadas area of Albuquerque, New Mexico, are associated with a ceremonial site of an ancient Pueblo culture living along the Rio Grande. The petroglyphs of

interest (Figure 1) include a spiral, flute players, twin faces, and a quadruped animal (perhaps a mountain lion). I present evidence of previously unrecognized astronomical features of these petroglyphs. At the time of summer solstice, the morning sun casts a well-defined and straight edge shadow that slowly moves across the width of the spiral petroglyph. There is evidence that the adjacent rock surface defining the shadow was partially worked to achieve the straight edge geometry. Near autumnal equinox, the moving solar shadow becomes pointed, with the point crossing near the center of the spiral petroglyph. At winter solstice sunrise, the spiral is not shadowed at all, while the quadruped animal now becomes the figure to which the shadow is directed, with the shadow moving along the length and width of the quadruped. The winter solstice sunrise is observed with a significant new feature: the sun is seen to rise above the horizon in a notch of the distant mountain profile, providing a dramatic cast of the first shadow on the quadruped petroglyph. I discuss the petroglyphs and shadow castings and how their astronomical context may be associated with Pueblo cosmology.

ICONOGRAPHIC RELATIONS ON PRE-HISPANIC PETROGLYPHS IN NORTHERN SINALOA AND SOUTHERN SONORA:

PLACES AND SYMBOLS OF POWER

P.A. Lizete Cristal Mercado Sánchez

ENAH, INAH Sonora

Dr. John P. Carpenter Slavens

Instituto Nacional de Antropología e Historia

This study involves an examination of the dynamics of interaction at five different petroglyph sites (Cerro de la Mascara, Ocolome, San Pedro Huaiparime, Carrizalejo, and Goro) in the valley north of the Rio Fuerte in Sinaloa and Sonora. The problem was to match the inferred iconography within the different landscape contexts and place them within the previously defined styles, Rio Fuerte and Central Sierra Barobampo.

In this brief analysis we determined tentative dates and ethnic affiliations, which provided a perspective on how the sites were part of the cultural dynamics of the area at different times. This research is part of site recording and cataloging petroglyph of the Rio Fuerte. The Northern Sinaloa Archaeological Project in the winter-spring 2011 was under the direction of Dr. John P. Carpenter Slavens.

RELACIONES ICONOGRÁFICAS SOBRE PETROGRABADOS PREHISPÁNICOS EN EL NORTE DE SINALOA Y SUR DE SONORA: LUGARES Y SÍMBOLOS DE PODER.

Este trabajo, trata sobre las dinámicas de interacción en cinco diferentes sitios arqueológicos con presencia de petrograbados en el valle norte del río Fuerte, en el estado de Sinaloa y Sonora, estos son: Cerro de la Máscara, Ocolome, San Pedro Huaiparime, Carrizalejo y El Goro. La idea es equiparar la iconografía inferida a través de espacios marcados en los diferentes paisajes que los contextualizan, para ubicarlos dentro de los estilos que se han planteado, Río Fuerte y Sierra central Barobampo. En un breve análisis la intención es, acercarse a fechas tentativas y ubicar filiaciones étnicas, de tal manera que podamos tener una perspectiva de cómo participaron los sitios en las dinámicas culturales de estos lares y de qué forma en su momento. Esta investigación es parte del registro de sitios y complemento al catálogo de petrograbados del río Fuerte, que se hizo durante el Proyecto Arqueológico Norte de Sinaloa: Rutas de intercambio, en el invierno-primavera del 2011, bajo la dirección del Dr. Jhon P. Carpenter Slavens.

CLASSIFICATORY CRITERIA IN ROCK ART STUDIES: MAKING EXPLICIT THE IMPLICIT

Vivian Scheinsohn

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Claudia Szumik

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Florencia Rizzo

INAPL, Argentina

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INAPL, Argentina

When studying rock art from an archaeological viewpoint, classification of motifs is one of the necessary steps. Within this system a recorded figure is identified or explained in terms of similarity with a motif type. This explanation consists in establishing a description within a defined range of variation for a series of similar figures. This is called coding, a step so incorporated in the process that its mere existence is often overlooked. The same happens with rock art motif classification, where the level at which classes are established is rarely discussed. Conversely within biological classification systems, where hierarchical classifications are also used, this issue receives considerable attention, as in the lumpers and splitters classification debate (Simpson 1945). Here we analyze the classification process by which rock art figures are identified as motifs types and how the criteria and scale of hierarchy utilized in that process can influence the results. For this purpose we examine a Northwest Patagonian rock art motif database we have been working with during the last few years (Scheinsohn *et al.* 2009, 2011). Since there has not been much work done in this area, we are doing the initial work, and in so doing we assume that closer sites will share more motifs and with higher replication accuracy than remote sites, which will share fewer motifs with lesser replication accuracy. Then, we considered that a splitter classification would be able to detect geographical variation while a lumping one would tend to homogenize the sample by minimizing variability. If this is so, when trying

to delimit subareas that share rock art motifs the criteria employed in classification will influence the results obtained. In order to test this hypothesis, we developed an experiment consisting of two coding criteria, one lumping and the other splitting. Our hypothesis proposes that when analyzing a set of motifs at different rock art sites within a given area, a lumping classification will tend to group together most of the sites, resulting in one or few areas, while a splitter classification will tend to establish different subsets, being more sensitive to geographical variation.

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CONTACT, CONFLICT, AND ACCOMMODATION AT PETROGLYPH NATIONAL MONUMENT

Matthew Schmader

Albuquerque City Archaeologist

Central New Mexico has experienced dramatic cultural changes in the past 700 years as reflected in its rock image traditions. Influxes of native people into the Rio Grande valley about A.D. 1300 created large settlements, whose spiritual symbolism is prevalent at Petroglyph National Monument. In 1540, the Coronado expedition

initiated a series of tumultuous events culminating in colonization by the end of the sixteenth century. The Pueblo revolts of 1680-1696, Spanish resettlement, and Anglo immigration also left their cultural marks. Each cultural layer is symbolically expressed at Petroglyph National Monument and is discussed in terms of conflicting or accommodating behaviors.

ROCK ART AS A MANIFESTATION OF TRIBAL LIFE; ITS SOCIETY AND HEALTH ASPECTS AND MOTIFS

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Northwestern Mexico and the southwestern USA, including the states of Baja California, Sonora, California, and Arizona, belong to the Great American Desert (GAD) with the Colorado River as its central geographical element. The global cultural relevance of rock art is evident by the activities of the diverse international and national professional associations, universities, research institutions, government authorities, and museums involved in all aspects of rock art science, conservation, exhibition, and restoration as evidenced by such organizations as IFRAO; ARARA, USA; AURA, Australia; SIARB, Bolivia; INAH, Mexico. UNESCO invests efforts to protect rock art by designating some rock art sites as "World Heritage" locations.

The Desert Environment

The arid lands of the GAD constitute a vast expanse of territory with intense solar radiation, sparse vegetation, less than 250 mm of rain per year, and high summer and low winter temperatures. The Colorado River desert region, which includes the valleys of Mexicali, Mexico, and Imperial, California, is subjected to periodic floods by the swollen river and to droughts causing the inhabitants to migrate towards the Pacific Ocean coast during summer and returning to the territory of their rock paintings when winter arrived (Schorr and Alvarez 2006).

Tribal Life

Many ethnic groups that shared a cultural tradition, a language, religious beliefs, and a temporary or permanent territory lived in those immense desert lands. The indigenous people of the GAD were nomadic within the inhospitable terrain obtaining their daily sustenance by hunt-

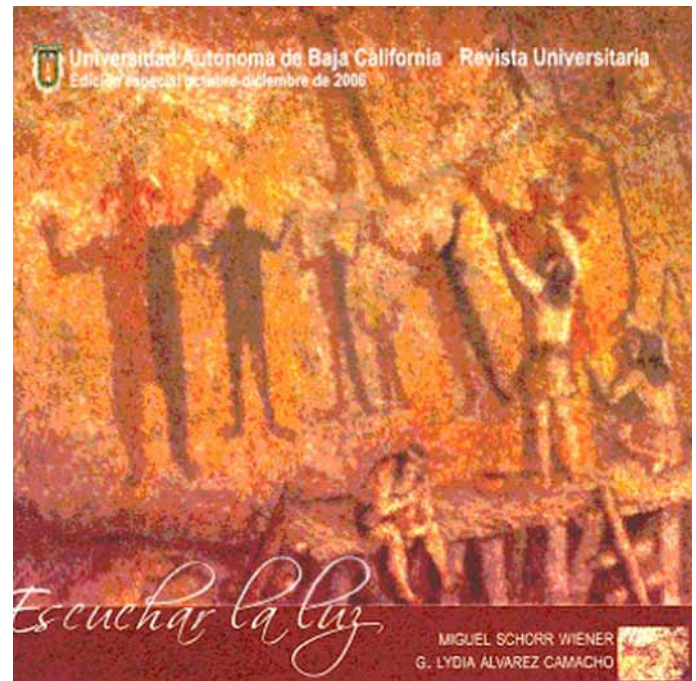


Figure 1. Painters on a wooden platform (Schorr and Alvarez 2006).

ing small and big animals and gathering fruits, seeds, and roots. They created rock paintings using local, colored minerals that were abundant in their habitat, and these paintings were a form of ceremonial, representational, imaginative, or abstract aesthetic expression. The skilled painters that made these paintings belonged to a special group, with a mission to tell a story; perhaps connected to the young hunters. A vivid scene of painters standing on a wooden platform and their assistants grinding the minerals is depicted in Figure 1 (Schorr and Alvarez, 2006). Natural disasters such as earthquakes, floods or droughts, and disease epidemics altered the lives of the tribes and provoked displacements and changes of habitats.

Baja California Rock Paintings

Many large representational paintings are located in the northern and southern parts of

the peninsula of Baja California, and these are known as the “Great Mural Rock Art” (Bendimez 1999; Crosby 2000). Great Mural art consists of paintings of humans and animals, often larger than life-size, on the walls and ceilings of natural rockshelters. They occur in the Sierras de Guadalupe, San Francisco, San Juan and San Borja in the central part of the peninsula (Figure 2). The paintings at the archaeological site “El Vallecito” in the village “La Rumorosa” (near the Mexico-USA border) were made on the surface of granite rocks. Tiny samples were collected and analyzed, and their physicochemical characteristics determined (Valdez *et al.* 2008, 2012).

Society Aspects

The people of the prehistoric tribes lived in autonomous bands in small villages (Rancharias, in Spanish). Their social organization was



Figure 2. Humans (a) and animals (b) in Baja California rock paintings

based on a common ancestry, a temporary or permanent integration above the family level, and a shared language, culture, and tradition. They worked and collected food together, and they participated in ceremonial rites and funerary practices. These practices were driven from a sense of extended kinship ties. The paintings played a significant role in communicating cultural values in a social context, including scenes of their life such as magic hunting. Perhaps, they believed that a deer depicted on the rock wall would help to capture it in the wilderness. The tribes had a high degree of mobility during summer and winter moving from highlands to the lowlands.

Health Aspects

The collection of food required a dedicated, physical, daily activity that involved traveling from one place to another. Their nutrition was rather poor, but it included proteins from hunting and starch from plants. No obese persons appear in the paintings nor in early photographs of tribal groups. Robust humans with arms raised towards the sky and large animals are painted with strong red and black colors, without physical defects or mutilation by animals. The aspects of body and mind health were under the care of the tribal healers, elders, and especially the shamans, who stood at the peak of the social structure. They gathered and distributed special herbs to cure ailments, injuries and diseases. The shaman protected the tribe from the malign spirits that caused the diseases.

Conclusion

Rock art is a prominent part of the national heritage of many nations, and at the same time, it is a global heritage of humankind. Therefore, it should be preserved, protected, conserved, and restored.

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WHO'S INCISING WHAT: CAN ANY OF THE LOST CITY MUSEUM'S INCISED STONES BE ATTRIBUTED TO THE ANCESTRAL PUEBLOANS?

Dena Sedar

Lost City Museum, Nevada

The Lost City Museum has a collection of one hundred and twenty-four incised stones from Clark County, Nevada. Incised stones in the Lost City Museum's collection were recovered from lands within the culture area of the Ancestral Puebloans and the Southern Paiute. Researchers have argued that none of the incised stones can be attributed to the Ancestral Puebloans; rather the stones date to the Archaic period or to the post-Puebloan period in southern Nevada. An analysis of the incised stones and the sites

from which they were recovered was conducted to determine if the incised stones within the museum's collection could be attributed to the Southern Paiute or the Ancestral Puebloans. The results of the analysis suggests that the Lost City Museum's incised stones should be attributed to the Southern Paiute, although there are examples of painted and incised stones that can be attributed to the Ancestral Puebloans.

AFTER THE GREAT FLOODS: THE FISHERS LANDING ROCK ART COMPLEX

Michael W. Taylor

Culture Watch Northwest

Oregon Archaeological Society

The north bank of the powerful Columbia River in the vicinity of Vancouver, Washington (Figure 1), has been occupied for thousands of years and is home to numerous prehistoric and historic heritage sites (Ames and Maschner 1999:110). Long before any Europeans visited the area Indian people left indelible marks on over 125 Bretz Flood-deposited basalt boulders along the



Figure 2. The Vancouver Monolith is covered with hundreds of pecked cupules. Photo by Michael W. Taylor.

edge of the river (Taylor, 2006). Between October 2000 and June 2007 the Oregon Archaeological Society and the United States Forest Service sponsored a rock art project on the north shore of the Columbia River (Taylor and Keyser 2000). Ultimately the project identified five significant sub-sites which, when taken together, make up the Fisher's Landing Petroglyph Complex.

Rock art sites have been noted along the North shore of the Columbia near Vancouver since at least 1930 (Strong *et al.* 1930:130), but to the knowledge of the author have never been formally documented. The area of this study includes various types of rock art from simple pecked cupules to intricately carved bedrock sculptures and freestanding carved stone effigies (Figure 2). Prehistorically, numerous Native American villages were located in the Portland Basin and at least one of the study sites (45CL6, the Beaver Bowl Site, Figure 3) is located in the midst of what appears to have been a long-term habitation site (Hamilton and Roulette 2006). Because our research was primarily designed to survey a rock art complex that had been partially discovered, but only minimally documented, we dealt with each site equally whether it contained only simple cupules (45CL763) or more



Figure 1. Map of Vancouver, Washington, and the north shore of the Columbia River. Map by the City of Vancouver as a free download at: http://www.cityofvancouver.us/upload/contents/486/Vancouver_PageSize.pdf

complex imagery (45CL6, 45CL7).

The sites contain between 2 and 36 native basalt boulders and from a few to over 500 pecked cupules and other motifs (Figure 4). Cupules are, by far the most prevalent motif with a total of over 1400 counted. In most cases each motif (including individual cupules) was counted, but in several instances where counting would have been difficult an estimate was made of the number of cupules on a specific boulder. All petroglyphs are fully repatinated and indistinguishable in color from the surrounding rock.

Since the conclusion of the fieldwork a site number has been obtained for the newly identified site (45CL763), and the site reports on file with the Washington State Historic Preservation Office for the four additional sites have been updated with the new information. A more newly found fifth site is being analyzed for possible inclusion in the complex.

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Figure 4. This intricately carved effigy boulder is at site 45CL118. Photo by Michael W. Taylor.

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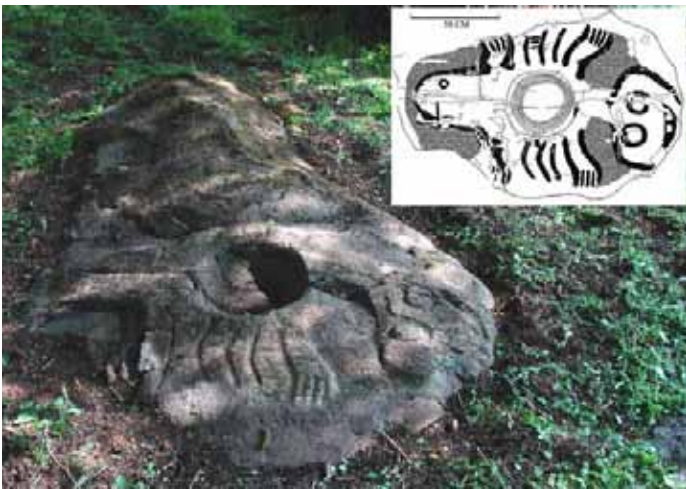


Figure 3. The Beaver Bowl at 45CL6.
Photo by Michael W. Taylor.

MAKE UNSPOKEN PREHISTORY SPOKEN HISTORY

Ilaz Thaqi

KRARA - Kosovo Rock Art Research Association

Kosovo is a European country with many Neolithic sites. But one phenomenon still unexplored and also almost unrecognizable is unspoken prehistory and maybe the only resource to speak for it is rock art. Within the last decade many rock art sites have been studied, but hundreds are still unknown that could provide information about beginning of art in



Figure 2. A menhir (single standing stone).
Photo by Ilaz Thaqi, Staradran Kosovo,
November 2012.

this area. There are several sites with menhirs (single standing rocks), which in most cases do not contain signs and symbols, and perhaps this was why they have been treated as unimportant and qualify as a an unspoken monument (Figures 1 and 2). However, these sites are important because we have oral traditions about their context and their sacred symbolic meaning associated with power, and some of these sites have schematic rock art signs and symbols. The menhirs were part of a widespread culture from the early years, and it is important to learn more about the first beliefs, architecture constructions, and ideologies of these cultures. Sometimes not only did the images and signs serve a purpose, but the monuments without engraved signs also did because they are the result of visions by our ancestors. I believe that the more we understand the importance of the monuments from prehistoric to modern times the more they will tell us about our present culture.

Many places in the world are famous for their architecture, ancient artistic visions, figures, and monuments with decorations, and these ambitions works define what people thought and tell us what was significant about the culture, religion, and civilization of their time as well as providing us with memories of past human civilization. But there are other monuments throughout the world that we still do not know anything about, including what purpose they served or why they were built, and although these monuments from prehistoric time represent human cultures, they are ignored by scientists. In other places the beginning of civilization were dynamic, such as in many countries in Europe, and we know the figurative art from this time in prehistory because that art is represented in the schools books. It is easy to understand, especially for children, because it is something concrete made by ancient man. However, monuments without carvings or figures, such as menhirs and others objects, do not receive similar treatment because they are much more abstract and represent thinking without signs



*Figure 1. A menhir (single standing stone).
Photo by Ilaz Thaqi, Staradran Kosovo,
November 2012.*

and symbols. Those monuments are not treated in art monographs or archeological databases, and therefore we do not have a general chronology for them.

One of these undecorated monuments in Kosovo has a story associated with it that is known by the people who live near it. Unlike sites with many different stories associated with them (such as many rock art images), this menhir has only one story that has come down with it. The story says that this is a very old and holy place of the ancestors, and it confirms that there may be more original stories associated with undecorated monuments. Although interpretations

may change for some sites when people try to achieve power to govern the region, often local stories with a long tradition in the memories of the people retain unspoken history. These stories passed from ancient to modern times, and they are important sources of information regarding the visionaries of rock art makers.

KIMBERLEY FUTURES: WHY THE EARLIEST ROCK ART OF THE KIMBERLEY REGION DATES TO THE TERMINAL PLEISTOCENE

Peter Veth, Ph.D.

Winthrop Professor

Kimberley Foundation Ian Potter Chair in Rock Art

In this paper I build on previous publications that argue art would have been part of the colonizing repertoire of the first groups in to Sahul as part of the southern dispersal. A new chronology is proposed for Kimberley art schema which aims to incorporate those McDonald and Veth have developed from adjacent areas of the Western Desert and Pilbara regions. While we should not expect art styles and phases to necessarily change in unison across the northwest of Australia, this has been under-theorized given the more obvious similarities between the early dynamic figures of the Victoria River district and Arnhem Land. Cultural, biogeographic, climatic and social factors are considered in this new review of northwest art.

ROCK ART AND THE POLITICAL LANDSCAPE. TOWARDS A NEW INTERPRETATION OF THE SOUTH SCANDINAVIAN PETROGLYPHS

David Vogt, Ph.D.

Museum of Cultural History, University of Oslo

The claim has been made that the petroglyphs in Østfold and Bohuslän in South Scandinavia were distributed near Bronze Age fields and habitation sites. This claim formed the basis for

the idea that the rock art was part of a fertility cult. However, new GIS-analysis data for habitation sites in the area and metal remains indicate that this is not the case. Petroglyphs are systematically located in areas with heavy clay soil, which are areas not associated with pre-historic fields, agriculture, and habitation sites. Pollen analyses indicate that these plains were forested before being altered in the Late Bronze Age when they were rapidly transformed into vast grasslands for use as pasture. At this same time rock carvings appeared by the thousands. The fact that rock art is closely connected to the landscape context is a new departure for interpretation. In the Late Bronze Age general intensification and expansion of production areas are documented for all of Europe and southern Scandinavia. This intensified agricultural activity has been interpreted as an increasing need for larger economic surplus in connection with financing a warrior elite and increasing political activity. Increasing control over larger landscape areas and the intensification of production were important political strategies for centralization and development of power. This paper takes an economic and political perspective on the role of rock art within the landscape relative to its dramatic transformation.

Session 22 **CULTURAL HERITAGE IMAGE WORKSHOP**

Carla Schroer, Cultural Heritage Imaging
Mark Mudge, Cultural Heritage Imaging
Tommy Noble, USDOJ-Bureau of Land Management
Neffra Mathews, USDOJ-Bureau of Land Management

Workshop: Advances in computational photography techniques for scientific rock art recording and analysis; Reflectance Transformation Imaging (RTI), Algorithmic Rendering (AR), and Structure from Motion (SFM) Photogrammetry
This workshop will present the robust new empirical capture and analysis tools Reflectance Transformation Imaging (RTI), Algorithmic Rendering (AR), camera calibration, and image-based Structure from Motion (SFM) generation of textured 3D geometry. These techniques will be explored in the context of the emerging science of “Computational Photography.” Computational Photography extracts and synthesizes information from image sequences to create a new type of image containing information not found in any single image in the sequence. Examples of existing and cutting-edge uses of photography-based imaging will be presented.

This two-hour workshop can be attended for either one or both hours

Hour 1 – Thursday 2:30-3:30 – Reflectance Transformation Imaging (RTI) and related technologies. Presentation and Demonstration

Reflectance Transformation Imaging RTI creates scientific digital representations of an imaging subject’s shape and color. These digital representations are generated from image sequences where the light illuminating the photo’s subject is moved to a new location for each photograph. The lighting information from this image sequence is mathematically synthesized into an RTI image. The subjects shape and color is examined in an RTI by interactively re-lighting the subject from any direction and applying mathematical enhancements.

The workshop will show examples from inscriptions, rock art, manuscripts, and lithics. It will also provide an overview of the free RTI software, along with a demonstration of the RTI photographic capture sequence, using standard digital photographic equipment. New developments in the related technology Algorithmic Rendering (AR), which uses the same data sets as RTI, will also be presented.

Hour 2 – Thursday 4-5 Scientific Imaging requirements, and Photogrammetry Presentation and Demonstration

The second hour will focus on two subject areas. First we will explore the necessity for transparent evaluation of scientific digital representations. The goal is to establish the conditions under which a “real world” rock art panel can be digitally represented as a “digital surrogate”, which can reliably serve as a digital stand-in that can be used for subsequent scientific or scholarly examinations.

The remainder of the second hour will present examples of rock art and related sites documented using the SFM photogrammetry technique. A demonstration of capturing a photogrammetry sequence will be included. We will also discuss how to capture the photographic image sequences for both an RTI that is spatially registered with the 3D geometry derived from a subsequently captured SFM photogrammetry image sequence.

Session 23
Center for Digital Archaeology

University of California Berkeley
Berkeley, CA

The Center for Digital Archaeology is a non-profit organization created to assist archaeologists and cultural-heritage managers create, archive, and share their digital data and media through sustainable practices and technical innovations.

Visit our blog site dedicated to the IFRAO conference at www.codifi.org/events/ifrao-2013/

FORUM | WORKSHOP

FROM DIGITIZATION TO PRESERVATION:
DIGITAL COLLECTIONS, NEEDS AND
CHALLENGES.

This is a two part forum/workshop that emphasizes key issues and challenges in the life cycle of digital collections from digitization and digital capture to preservation and access. The forums will engage the IFRAO community on three intersecting sets of issues that embody the digital cultural heritage lifecycle:

Moving from physical to virtual: Digital representations and born-digital materials making

Where does it all go? Hard drives and cloud repositories

Digital Stewardship and Sharing. Planning for long term (10+ years) preservation and access to digital heritage

This forum | workshop was initially designed for the 2013 Association of Tribal Archives, Libraries and Museums ([ATALM](#)), sponsored by the Institute for Museum and Library Services (IMLS), to be held from June 10-13, and is further informed by the training program

designed for the [Digital Humanities Summer Institute](#) (DHSi), which will take place June 6-10. An essential finding when designing successful preservation workflows is accounting for all the stakeholders who may have rights to, or interests in, the physical objects and the digital files that represent them

The issues around the long-term care and sustainability of digital heritage, especially in community/stakeholder contexts, should resonate fully with IFRAO, especially when it comes to 21st century techniques in digital documentation.

You are encouraged to come with your questions and expertise to participate in a lively and crucial set of discussions.

To get the most out of the forum | workshop, please pre-register and we will send you a pre-conference survey, so we can best adjust the sessions to your needs.

We post all news and information on the blog site, www.codifi.org/events/ifrao-2013/

PART 1:
DIGITAL PRESERVATION WORKFLOWS
FORUM

Location: Cozumel Room

Time: Friday, May 31, 8-10am

Moving from physical to virtual: Digital representations and born-digital materials making. Best practices for producing archival quality digital surrogates of cultural heritage, digitizing documents, video, images, maps, etc. Planning for access (most granting agencies are not funding mass digitization projects that don't plan for access and archiving these days). Outcomes: Clear advice on what to digitize, where/how/who to get it done (from DIY to full service and partnering).

Where does it all go? Hard drives and cloud repositories. Decisions, discussions, tradeoffs for how to keep digital content 'born-archival', safe, secure and shareable. Content Management vs. Collections Management.

Outcomes: Understanding of tradeoffs/risks/options for different hosting scenarios. Partnerships with trusted repositories and other organizations that can help support. Training options.

BREAK

PART 2:
CULTURAL MANAGEMENT SYSTEMS AND
DIGITAL HERITAGE WORKSHOP

Location: Cozumel Room

Time: Friday, May 21, 10:30 - noon

Digital Stewardship and Sharing. Planning for long term (10+ years) preservation and access to digital heritage. Managing access. This is the heart of the matter for many communities who want to keep their content safe, and share it on their own terms, while still taking advantage of the state-of-the-art in content management. Outcomes: Content Management options (including Mukurtu CMS), best practices in digital stewardship, new partnering opportunities.

As more communities are gaining the ability to produce and store digital heritage content, there needs to be an increasing amount of care and security placed around allowing this content to live in the digital world.

Mukurtu is a free and open source content management solution for Indigenous communities, museums, archives and libraries to share, license and curate their digital heritage. Mukurtu is built on top of the powerful, secure, free and open source Drupal 7 content management system. Leveraging the power of Drupal 7, Mukurtu CMS creates a custom management solution specifically designed for the cultural, ethical and legal needs of Indigenous peoples globally.

In this introductory workshop, participants will learn what Mukurtu is, how it works and decide firsthand if it's the right tool for them.

Topics include:

- * features overview
- * installation overview
- * add and manage cultural protocols
- * add and organize content
- * manage content and media
- * define and manage groups
- * manage users access and roles
- * get support
- * give feedback
- * get informed on updates

To get the most out of the workshop, please pre-register and we will send you a pre-conference survey, so we can best adjust the curriculum to your needs. If you decide that Mukurtu CMS meets your needs we will work with you to help you decide the best hosting solution for your community needs.

Mukurtu CMS is designed to be configurable to your local needs and easy-to-use. A basic understanding of content management systems and digital management is helpful, but anyone interested in this topic will benefit from the workshop.

Sponsored by the Center for Digital Archaeology and the American Rock Art Research Association.

The Center for Digital Archaeology is a California 501 c(3) non-profit company affiliated to UC Berkeley. Our staff is composed by archaeologists and cultural heritage professionals, scholars from Berkeley, and technologists specialized in cultural data and media management. We focus on efficient data designs and workflows for effectively integrating cutting-edge digital technologies into the practice of archaeology and cultural resource management. Together with consulting with colleagues and institutions on data and media management workflows, we are developing two great products, Codifi and Mukurtu, that solve the main problems we have in managing cultural heritage data: digital data integration and sharing/preservation.

Session
CONTRIBUTED POSTERS

Mavis Greer, Ph.D., Greer Archeology, Casper, WY USA

ALPHABETIZED BY LAST NAME

THE HERMAPHRODITE OF FOPPE DI
NADRO: DIGITAL EXPLORATION OF THE
THIRD DIMENSION IN EUROPEAN

ROCK-ART

Christopher Chippindale

University of Cambridge, UK

Marcel Karnapke

Bauhaus University, Weimar, Germany

• P • I • T • O • T • I • research team

When rock-art is cut *into* a surface, rather than painted as a thin layer onto a surface, it has by its very existence a third dimension. Yet most recording of this kind of rock-art is primarily two-dimensional, whether by tracing, drawing, or photography. It proves hard to describe the form of the incision except in the most general way – *deep, shallow, of varying depth* – or to characterize the visible peck-marks – *tiny, large, of varying form*. New work using a high-resolution digital scanner now enables this third dimension to be reliably recorded with sufficient accuracy and precision to make possible close observations impossible to do at the actual figure, in whatever natural or artificial lighting conditions.

A single figure, of the type of human or anthropomorphic figure conventionally called an *orant*, has been so recorded from a surface in Foppe di Nadro, one the several zones of the celebrated rock-art complex in Valcamonica (BS), Alpine Italy. Observing and analysing the 3D record make possible a clear understanding of the form of the figure, which marks are part of it, which marks are not. It proves to be *hermaphrodite*, in

having traits thought diagnostic both of female and of male gender – unusually in that *orant* figures appear usually gender-neutral, sometimes feminine, sometimes masculine: only one such hermaphrodite has been observed before.

Important though this identification and the chief purpose of this poster is a contribution to method: 3D scanning is not just a handy new way to record intricate surfaces but opens the door to new and decisive observations.

COASTAL FIGURES: A SPATIAL STUDY OF
MURUJUGA ROCK ART

Lucia Clayton Martinez

University of Western Australia

The Pilbara is one of the major rock art areas of Australia and a foremost region for petroglyphs. The Dampier Archipelago, now a coastal area but 8,000 years ago an inland range, stands out in this region for its high-density rock art assemblages and extreme heterogeneity of rock art motifs. It is an exceptional locale for researching changes in a dynamic landscape as reflected in rock art. My research focuses on rock art assemblages in Happy Valley on the Dampier Archipelago where I am studying spatial relationships of rock art. I identify patterns in the location of motifs, their association with other motifs, and the rules that determine where rock art is located in the landscape. The poster presents spatial analyses identified during the 2012 annual rock art field school.

VERIFICATION OF HUMAN AGENCY IN
APPARENT PREHISTORIC NORTH
AMERICAN "PORTABLE ROCK ART"

Alan E. Day

Independent Researcher

The subject of prehistoric portable rock art in North America is often controversial. Although such material has been recognized in other areas, such as at the Gault Site in Texas (Clovis or Early Archaic) and in the southeast (associated with the Cahokia Culture), in other regions (notably Ohio) it remains strongly disputed, not for lack of evidence but because of preconceptions



Figure 1. A bird figurine made of limestone with artificial striations from grinding and polishing.



Figure 2. A solid quartz bird figurine.

and the difficulty in obtaining knowledgeable assessments of whether a suspected iconic artifact acquired its morphology entirely through natural geological processes or also through human modification. Usually such verification is based on the extent to which the object outwardly resembles traditionally recognized Native American artifacts. My experience indicates that when a suspected lithic artifact's appearance does not fall within the accepted taxonomy, a more realistic appraisal is gained when an assessment is made by an expert in petrology (a branch of geology that studies the origin, composition, structure, and alteration of rocks) and considered along with the evaluations of archaeologists.

Several figurine stones presented in this poster have been verified by professional geologists/petrologists and forensic scientists as human-modified. Most of these are from the prehistoric habitation site 33GU218 in southeastern Ohio, where temporally diagnostic evidence including ceramics, a large astronomically aligned linear earthwork, and projectile points indicate a human presence from the Early Archaic through the Middle Woodland periods. Others are from other sites in eastern North America. Confirmation of their cultural modification has been



Figure 3. A possible bison figure painted on limestone.

made by Dr. Eric W. Law, a specialist in petrology and professor of geology at Muskingum University, and/or by other experts in the field. Examples of these artifacts are shown in Figures 1-3.

A limestone bird figurine with artificial striations from grinding and polishing was found about 20 cm below the surface in dense, previously undisturbed, clay (Figure 1). It was on a hill in Muskingum County, Ohio, just above Zane's Trace, a pioneer road cut along an old Indian trail. Arguments by archaeologists in Ohio that this stone is entirely a product of natural weathering will be argued to the contrary in a laboratory report from the geology laboratory at Muskingum University, and in an article to be published in *Ohio Archaeologist*, the journal of the Archaeological Society of Ohio.

A solid quartz bird figurine was likely formed by bipolar reduction, then by freehand direct percussion (Figure 2). It was found on the surface near Cary, North Carolina, in close proximity to Archaic Period projectile points. A figure painted on limestone may be the profile of a legless bison (Figure 3). It eroded from an apparently artificially terraced terrain at site 33GU218 in Guernsey County, Ohio. The pigmentation

is an iron oxide, and it was formed into a paste that was applied to the surface as verified by visual examination and SEM/XRF analysis at NSL Analytical Services in Cleveland, Ohio (formerly National Spectrographic Laboratories).

Simple iconographic artifacts such as these are apparently rather common in North America based on extensive communication and exchange of images with finders of such materials throughout the continent as well as from actual lithic material sent to me by post from sites in North and South Carolina (the latter having appeared in context with temporally diagnostic Archaic Period artifact material). Although currently ideologically unpalatable to some in some regions, it is proposed that when human agency is scientifically verified in such material, it should be acknowledged as part of the archaeological record.

WHO MADE THE FIRST ART?

Mary Jordan

American School in London

Rock art images are fragile remnants of human's first language and must be preserved. Sites around the world are subject to erosion,

vandalism and exploitation. The idea of respecting and preserving rock art needs to begin early in our schools and museums. The American School in London introduced the concept of rock art to students in grades 1 - 4 by asking the question: Have you ever wondered who made the first art? Students then explored the reasons for rock art: (1) where it was made, (2) how it was made, and (3) why it was made. This poster exhibits the First Grade students' response to the questions with their creations of hands on sandpaper. Descriptions of the lessons for grades 2 - 4 are provided.

PETROGLYPHS AS A MEANS TO UNDERSTANDING THE CULTURAL LANDSCAPE OF THE RIO GRANDE GORGE

Hannah R. Kligman

Bureau of Land Management- Taos Field Office, Columbia University, Northern New Mexico College, Taos Archaeological Society

The Rio Grande Gorge, from the town of Velarde to the New Mexico-Colorado border, is filled with petroglyph panels. The glyphs illuminate routes of movement through the Gorge area. Cultural interactions can be seen layered on the rocks themselves, from archaic glyphs to early 20th century names and dates to modern "graffiti." As representative features of historic cultural interactions and migrations, petroglyph sites in the Gorge are associated with the broad patterns of expansion and exploration through the American West. What ties these cultural groups together throughout time is a continued use of the specific landscape of the Gorge as a route of movement, and the use of the basalt boulders and cliffs of the Gorge as a tablet for leaving marks. Through a holistic study of petroglyphs in the Gorge this project analyzes the ways in which archaeologists stylistically organize, record, and preserve petroglyphs.

SONG LINES IN TIME: THE STORY OF TROWERNNA ROCK ART

Tereete Lore/Kaye McPherson

Historical Geographer and Archaeologist, Manuta Tunapee Puggaluggalia Historical and Cultural Association; Elder and Cultural Custodian, Lia Pootah Community

Study of the night sky is as old as man. Today astronomy has many universal concepts, but there is one cultural view of the night sky that never changed. The Aboriginals of Australia and Tasmania have an oral and pictorial tradition about the night sky that has been passed down for at least 60,000 years. The rock engravings, scarification on the body, and stories tell the same unchanged story of the night sky since the Dreamtime. Distortions and misunderstandings about the night sky only occur when the view of outsiders overwhelms an oral history and long established cultural traditions of the original people. By translating and interrelating star knowledge from an oral tradition to that of the outsiders then significant differences in perspective are overlooked. Astronomy today is observed from the outsider's Newtonian based perspective and viewed through instruments. This is far removed from the naked eye observations of the Aboriginal where stories and engravings are the same as observations. For the Tasmanian Aboriginal of today and yesterday there cannot be one without the other.

CONTINUING DOCUMENTATION OF CUEVA PINTADA, BCS, MEXICO

Elanie Moore

Cueva Pintada is located in Arroyo San Pablo in the desert mountains, Sierra de San Francisco, BCS, Mexico. It is the largest of the Great Murals in the middle of the Baja California peninsula. Twenty years of work, documenting and cataloging Pintada's images, will be presented in drawings and photographs.

CALIFORNIA ARCHAEOLOGICAL SITE
STEWARDSHIP PROGRAM

Beth Padon

CASSP Coordinator, Society for California Archaeology

The California Archaeological Site Stewardship Program (CASSP) is a network of concerned people who are committed to protecting California's rich cultural heritage. CASSP recruits and trains volunteers to regularly visit assigned sites on public lands and report changes, especially damage from visitors or natural events, so that problems can be treated before they become more serious. CASSP site stewards work under the guidance of BLM, USFS, NPS, and California State Parks archaeologists. In order to become a site steward, CASSP volunteers attend a two-day training workshop and sign a confidentiality agreement concerning sensitive site location information. Since its beginning in 1999, more than a thousand people have participated in CASSP training workshops, held all over the State. There are more than 200 active site stewards. CASSP is a program of the Society for California Archaeology (SCA). For more information about CASSP and the SCA, visit www.cassp.org and www.scahome.org.

THE ANTELOPE CHARMER, AN
ANTHROPOMORPHIC FIGURE FROM THE
TABLE LANDS, MODOC COUNTY,
CALIFORNIA

David J. "Jack" Scott

Archaeologist, Alturas Field Office, Bureau of Land Management

Jennifer Rovanpera

Archaeologist, Surprise Field Office, Bureau of Land Management

During post wildfire inventories, numerous rock art sites were identified and recorded. While viewing discovered panels, it was noted that one anthropomorphic figure was frequently

represented in different locations. This poster explores the possibilities that this figure is a representation of the ethnographic pronghorn charmers of the Pit River Indians.

ON THE SOLAR CORONA PETROGLYPH IN
CHACO CANYON

José M. Vaquero

Departamento de Física
Centro Universitario de Mérida, Universidad de Extremadura, Spain

J. McKim Malville

Department of Astrophysical and Planetary Sciences University of Colorado

One of the petroglyphs on the south face of Piedra del Sol in Chaco Canyon may depict the solar corona during the total solar eclipse of July 11, AD 1097. The petroglyph appears to represent the solar corona during a coronal mass ejection (CME), which is common during the maximum of the solar cycle. This hypothesis can be disproven by assessing the degree of solar activity in AD 1097. The year is located very close to an activity maximum, the first one after the Oort Minimum (AD 1010–1070) and the first one belonging to the period of high solar activity called the Medieval Solar Maximum (AD 1100–1250). Analysis of a variety of metrics such as cosmogenic-isotopes, C14 from tree rings, naked-eye sunspots, and annual number of auroral nights establishes that the eclipse did indeed occur during a period of high solar activity, compatible with the hypothesis. On the east side of the rock a spiral petroglyph marks June solstice and provides a 15-16 day anticipation of the event. Monitoring the sun after solstice could have continued past July 11, and hence sun watchers may have been in the neighborhood of Piedra del Sol at the time of the eclipse.

ANIMAL FLUTE PLAYERS ON MESA PRIETA,
NORTHERN NEW MEXICO

Katherine Wells

Images of humans playing flutes abound in rock art in the Southwestern United States. They appear in large numbers in Utah, Arizona, and New Mexico. In Arizona and Utah a few appear in animal form, but as far as is known the Wells Petroglyph Preserve on Mesa Prieta in Northern New Mexico has the largest collection of animal flute-playing images in North America and perhaps the world. About 15 images of such animals have been found there. At least five exist as quadrupeds with tails (one is outside the Preserve). Four others are drawn as tailed humans, and four are insect-like with small waists and are called ant-bodied flute players. Finally, there is an image of what all proclaim to be an armadillo that has been piping away for hundreds of years on a rich brown basalt boulder.