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Inside

Ancient art and modern language

By Michael Winkler

International installation artist and language theorist

Art in its purest state is driven by an overwhelming desire to express something which the artist finds profoundly meaningful. The fact that the meaning of a certain piece of art may be communicated to someone else is merely a by-product of the artist's effort. In my mind, there has never been any question that ancient markings like the Bhimbetka Glyphs (rock engravings of ancient India, c.270.000 years old) are works of art which were probably motivated by the same compulsion for self-expression which continues to motivate the artists of today.

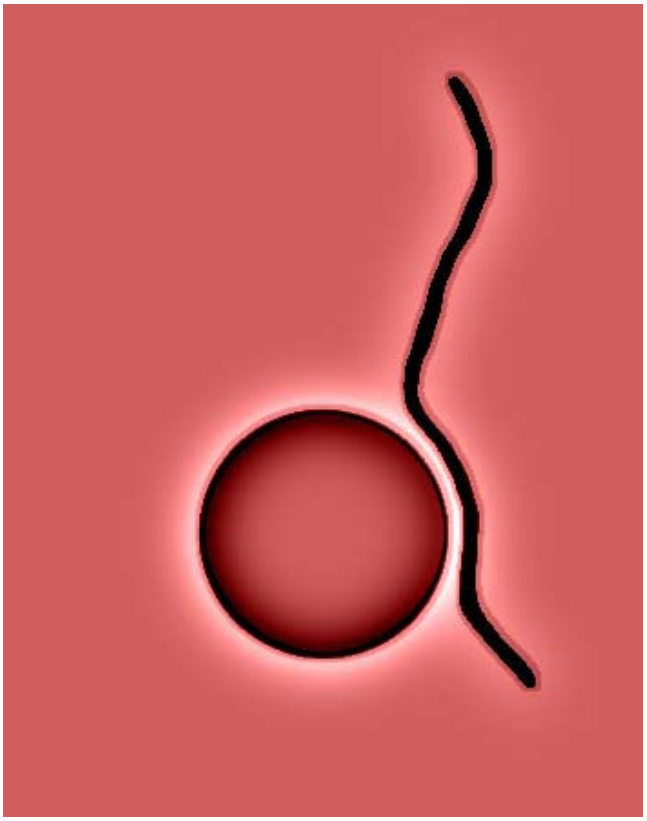

Fig.1. Artist's rendering of the 270,000-year old rock art glyphs at Bhimbetka, India

The Glyphs convey a wealth of visual information about the inherently meaningful nature of arcs, lines, and circles. A painted reproduction of the glyphs would not seem out of place in a gallery of contemporary art (Fig.1). The visual logic of the markings is timeless.

Academic researchers who doubt that ancient artists possessed the capacity for language are generally not basing their reasoning on any lack of visual logic in the markings themselves; their doubt arises from ideas about language which were first expressed a century ago by Ferdinand de Saussure (a founder of modern linguistics). Saussure concluded that since there was no consistent relationship between the sounds for words and the things or concepts they conveyed, their relationship must be arbitrary. Saussure's theory of "the arbitrariness of signs" was later extended to written language, and it is now almost universally accepted by psychologists, philosophers, and cultural theorists.

Psychologists embraced Saussure's theory of arbitrariness because it aligned with Bouma Theory, a long-standing theory of word recognition based on the belief that we read words by their overall shape rather than reading their individual letters. Contemporary philosophers then jumped on the bandwagon by theorizing that since we had learned to associate specific meanings with the arbitrary shapes of written words, all expressions of meaning must be arbitrary, even images.

Cultural theorists such as Roland Barthes championed this philosophical viewpoint. The theory seemed to suggest that a visual artist can-

> **Contd on page 2**

Ancient art—modern language (contd.)

"The spelling of a word...can be visualized in uppercase, lowercase, script, Braille, Morse Code, or even spelled verbally with no effect on the meaning of the word."

not express a level of meaning equivalent to a writer or poet unless they use words as their images. The result was that in the 70's visual art comprised primarily of words began to appear in all the major museums.

This focus on linguistic philosophy as the critical foundation for visual art continued; a major exhibition entitled "Word as Image" was mounted by the Milwaukee Art Museum in 1990. It has been very difficult to challenge the current academic viewpoint because any argument based on inherently meaningful aspects of signification was treated as irrelevant. But quite recently, the cornerstone of the accepted theory cracked, although no one seems to have noticed.

It turns out that Bouma Theory is incorrect; advances in eye-tracking technology have shown that we actually do read the individual letters of written words (Parallel Letter Recognition [1]). Additionally, brain injury studies seem to indicate recognition of speech is more dependent on the ability to decipher the sequencing of the vocalic gestures than the characteristics of the sound itself [2]. These new discoveries tell us that the aural or visual features of a word are only relevant in relation to transmission of its sequencing; the meaning is actually being conveyed by the encoded content of the sequence. This means that in language, as in the genetic code, the visual form of the letter-characters is irrelevant. We know this is true because we can transmit spelling sequences using characters of any form without affecting meaning. The spelling of a word, for instance, can be visualized in uppercase, lowercase, script, Braille, Morse Code, or even spelled verbally with no effect on the meaning of the word.

Since the identity of a letter is defined by its role in spelling rather than its letter-character, Saussure's observation that a written word doesn't visually resemble the concept it conveys is very much like an observation that the genetic letter-sequence for the human hand doesn't look like the visual form of a human hand. To actually determine if there is any inherent relation between language and meaning, we would need to look for a logical patterning encoded within the spelling sequence.

English spelling did not evolve according to any conscious plan so any logic present in its sequencing would have to result from a purely innate tendency to replicate some deeply-rooted principle of patterning associated with meaningful conceptualization. Since isolated instances of coincidental structure can arise in arbitrary formulations, we would need to uncover "thematic" features of structure. Another challenge to uncovering structure is that living languages are in a constant state of evolution, words can have competing uses relative to meaning—any perceptible structure might not appear to be entirely consistent because spelling is no longer permitted to evolve in relation to changes in word use (it is now fixed as a result of education and mass media).

Looking for inherent patterning in the sequencing of spelling also seems highly problematic because the patterning is linear. But surprisingly, a solution is conveyed by the design of the Bhimbetka Glyphs: the line tracing a portion of the arc of the circle maintains its integrity by never actually touching the circle; the glyphs visually illustrate how a line can become a circle while retaining its linear identity and structural content. The visual expression of logic conveyed by the glyphs provides us with insights which are applicable to uncovering the patterning of language.

If we curve a line of language until it touches end to end, the linear sequence assumes the spatial form of a circle. The structural content of the line remains intact. All 700,000 words of the English language are spelled using only 26 letters so the patterning of all English words can be visualized by means of a simple process: **the letters of the Roman Alphabet are arranged in a circular configuration of 26 letter-points (the consonants are spaced between an equal spacing of the 5 regular vowels). When lines or chords are inscribed according to the spelling of words, a pattern emerges** (see Fig.2 on Page 3 for examples)**.** Although the entire configuration is rotated so that "E" rather than "A" is at the top (to orient our view of the symmetry); the 26 letter-points always remain in their fixed locations. Consequently, all variations in the patterning from word to word result entirely from the differences in their spelling.

References:

1. Rayner, K. (1998). Eye movements in reading and information processing: 20 years of research. *Psychological Review*, 124 (3), 372-422.

2. Vesna Mildner (2008). The Cognitive Neuroscience of Human Communication. *Language Arts & Disciplines*.

> Conclusion on page 3

Ancient art—modern language (contd.)

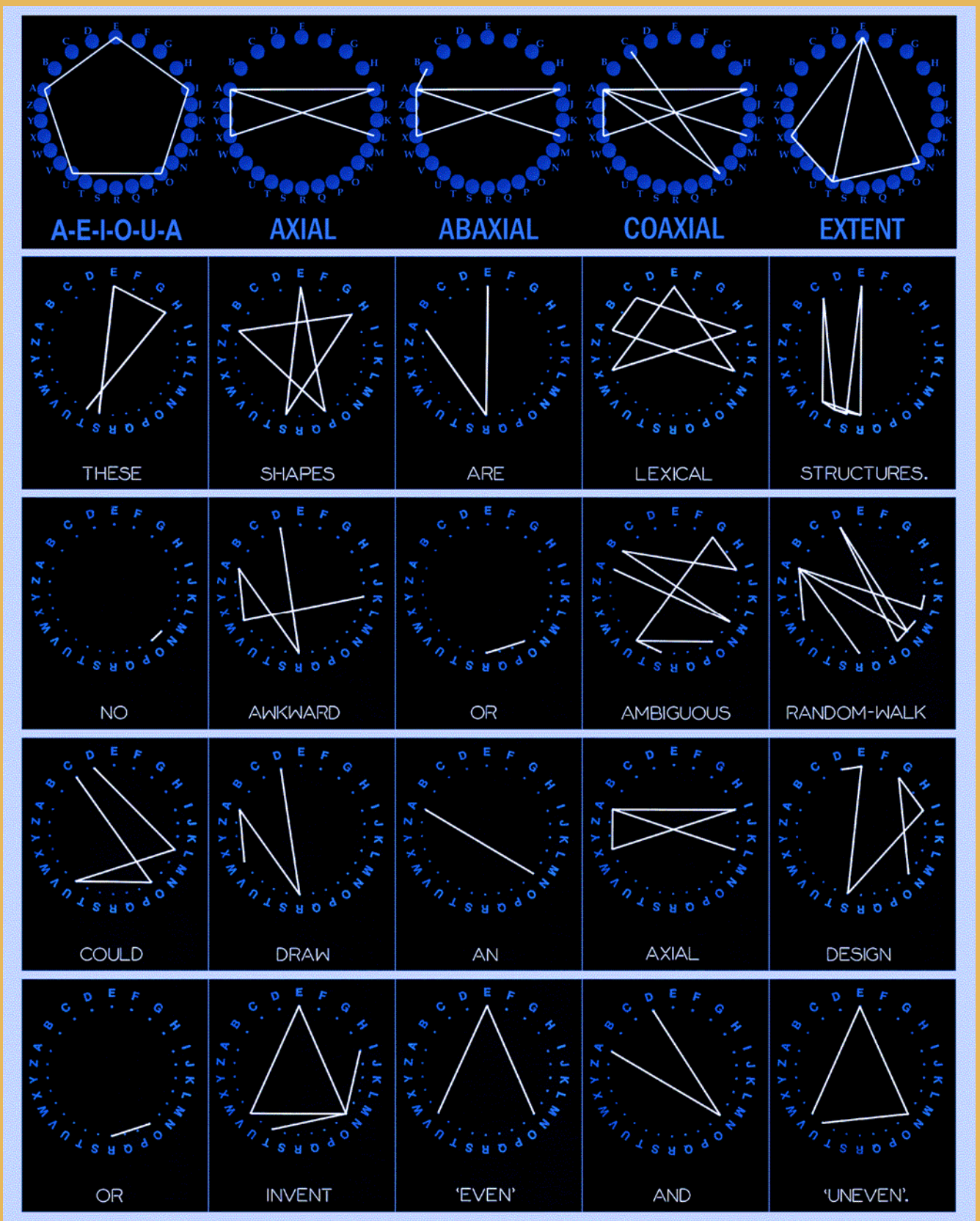

Fig.2. The letters of the Roman Alphabet arranged in circular configuration. Patterns emerge when letters connect to form words.

PALEO-CAMERA AND THE CONCEPT OF REPRESENTATION

by Matt Gatton

One of the most befuddling conundrums of human development is how we began making signs and figures that stood for real objects.

"The invention of art (and eventually the written word) enabled communication in the physical absence of the communicator."

The invention of art (and eventually the written word) enabled communication in the physical absence of the communicator, spreading ideas and beliefs, and engendering social cohesion over greater distances and populations.

Representational visual communication was, and still is, the engine of our advance. The archeological record charts the evolutionary changes in the *Homo* lineage and the progress of material culture: there was a time before art and then there was art. What happened? How can an event so pivotal be so murky?

The answer is ultimately based in our biological design. Compared to the rest of the animal kingdom we are woefully under equipped.

We have no fangs, claws, scutes, venom, strength, or speed; and so must make our way as opportunists who use creativity to secure resources. We read the surroundings and react. Where is fresh water? Which plants are edible? When do they blossom and fruit? What animals are here? When do they migrate?

We are not tied to one food source or locale. Our competitive advantage is flexible response to an ever-changing climate. We have survived because we swiftly learn the lessons our environment teaches.

One of the first lessons we learned was how to survive in extremes of heat and cold by making fire, clothing, and shelter. The earliest evidence of controlled use of fire dates to 790,000 years ago and the earliest evidence of shelter construction dates to 600,000 years ago.

One peculiar feature of simple Paleolithic shelters—whether animal-hide, brush, or mud-stick—is their natural propensity to act as camera obscuras, where a small hole allows daylight to enter and project an inverted moving image of the outside world onto the interior surfaces.

> Contd on page 5

Paleo-camera (contd.)

"The camera's image instantly splits a quasi-reality away from reality, peeling off an 'other' from the 'is'; instilling the very idea that animals, plants, and humans have existences in other forms, spirits, on other planes."

A camera obscura works because of contrasts—the difference in illumination level between the sunlit world and the dim interior. All that is left in order to form a simple camera obscura is a small hole, and there are myriad forces of decay which can accomplish the task including weather, insects, animals, and even human activity.

But not every hole will cast an image, as some holes are too large and some too small. Even a properly sized hole will only project an image when the sun is at an optimum angle. As the sun arcs daily, a hole that produces a beautiful image in the morning won't show anything in the afternoon. As the sun changes course seasonally, a hole that makes an image at one time of year won't at another.

Coincidentally projected images would seem almost randomly granted, though they are the result of optical physics acting in a predictable fashion.

Imagine a Paleolithic family waking in the morning to see the image of clouds floating across the floor and a herd of bison grazing on the wall. How would the denizens react? What would they make of the vision?

PHASE I: Two potent ideas

The people inside the tent camera obscura cannot see the living animal outside at the same time they see its image inside. The image and object are in opposite directions from each other. In that perceptual moment the animal on the wall is independent of any real object—it is a representation, a two-dimensional approximation of the physical world.

A randomly projected image stands for a real object; it says bison without being a flesh and blood bison, planting the idea of a referent, the conceptual beginning of art.

To be in a room-size camera and behold the beauty and wonder of the objects and beings of the outside world floating ephemerally on every surface, people included, provokes deep spiritual questions. What are these ghostly beings? Why have they come to us?

The camera's image instantly splits a quasi-reality away from reality, peeling off an 'other' from the 'is'; instilling the very idea that animals, plants, and humans have existences in other forms, spirits, on other planes.

The idea of 'otherness' is sowed in the human brain sparking a radical change in the perception of the world and opening new possibilities. The incidental image is perhaps our first glimpse of the divine.

Philosopher Martin Heidegger saw truth (but using the word more in the sense of a revelation) as the source behind the origin of art and religion, which were, in turn, the origins of human history and existence.

In a manner of speaking, we are turning Heidegger's circle of origins and revelations, on its side to reveal a spiral, and following the spiral back to the initial revelation behind the origins. Theologian Rudolf Otto held that the origins of religion are to be found in the concept of the sacred, the divine presenting itself as something "wholly other" (*ganz andere*).

Mircea Eliade saw the critical forming factor to religion as the separation of the world into two distinct realms: the sacred and the profane, humans becoming "aware of the sacred because it manifests itself, shows itself, as something wholly different from the profane." The image inside a paleolithic tent does exactly that, in a matter of moments cleaving apart the world into two distinct realms—the spiritual and the mundane. This is a simple, and yet powerful, reconfiguration of the concept of the world.

Let's pass over nomenclature issues related to *H. erectus*, *H. ergaster*, *H. heidelbergensis*, *H. antecessor*, *H. neanderthalensis*, and *H. sapien*; and the questions of who spawned whom, or who interbred with whom, because the critical point is that these people in their various diaspora and reaction to local climate change had to make shelter.

The larger issue is that human evolution occurs within the context of randomly projected images. Over time many eyes see the images. The open question is in whose brains would the ideas of representation and spirituality slowly begin to germinate?

MATT GATTON is an international artist and Palaeolithic studies theorist and originator of paleo-camera theory. He has done invited demonstrations in the UK, Germany, France, Portugal, and the USA.

Coming next issue:

PHASE II: Command of light: When humans use projected light images in ritual and artistic practice or why European Upper Paleolithic art looks the way it does.

At the core of language and culture

By Lutz Fiedler

State Archaeologist, Hesse, Germany

Note: This article is a condensed version of a paper titled, *Conceptions, methods, techniques and traditions in the Early Palaeolithic.* The complete paper with full references is available at: pleistocenecoalition.com/fiedler/index.html.

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"...thinking and acting in logical lines or steps toward a defined goal is the basis for the grammatical structure of language... In this light, the process of producing tools can be compared with the process of producing words and sentences."

If we look at the earliest known human artifacts from Koobi Fora at Lake Turkana, Africa (c. 2.5 to 2.6 million years old) we find that most of them are smashed and battered stone fragments only characterized by more or less useful cutting edges. But technology developed dramatically from that period of Koobi to what can be seen in the Early Oldowan tool kit (c. 2.6-1.8 million years ago). With this new toolkit, artifacts were generally produced by a well defined flaking technology.

The knowledge of this early technology spread from South Africa over East and Northwest Africa to Southern Europe and Asia. This prompts the question; Was man simply naturally-inclined during this time period to work stone in a certain way or was it something more?

TOOLS AND WORDS

To help understand why stone tools were made in certain ways we need to realize that tools were not made simply because early man had the ability to make them. They were made with clear pre-conceived uses in mind. In this way tools belong to the social conception of life. This means, that all members of early human groups knew what tools were, what they looked like, and how they were produced. This equates to tradition in a communicative system.

Methods of tool production, and tool use were stored in memory as "pictures in the mind." These abstract, mental images could then be reproduced as physical tools by anyone when needed (See Fiedler 1993, 1997, 2002 a-b).

It is not possible to state with certainty whether or not vocal language would have been necessary to continue such a tradition of tool-making; but thinking and acting along logical lines or taking logical steps toward a defined goal is the basis for the grammatical structure of language (Fiedler 1993). In this light, the process of producing tools can easily be compared with the process of producing words and sentences in language.

Like words tools are classified for special reasons. Desired results of work can be managed only with the right

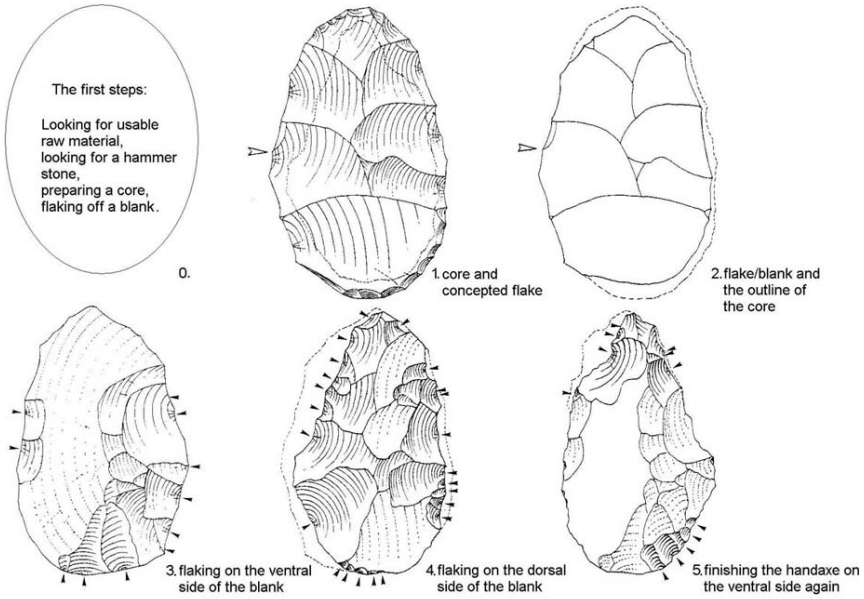


Fig.1. Reconstructed steps of handaxe production from the Early Acheulian site of Makuyuni, Tanzania. Drawings by Lutz Fiedler.

> Contd on page 7

At the core of language (contd.)

"...a hammer stone serves to produce flakes, a flake is the blank for a denticulate, a denticulate serves as a scraper for wood working, a wooden digging stick is necessary for the group's supplements and subsistence. These types of specialized uses and ordered working processes speak for a social pattern emerging in human groups."

tools in a correct and logical order of use. So work has a special, object-connected grammar (Wittgenstein 1953).

To understand a process of work means to understand what one does while working. By extension, this means that one can also understand what another person does when working similarly. These are ways of both self-awareness or self perception and the basis for communication.

Oldowan tools are classified into several functional types: cutting tools, scrapers, chopping tools, drills, anvils, and hammer stones. The archaeologist's typological classification, based on shape, contains hammer-stones, simple cores, diskoide cores, polyhedrons, spheroids, flakes, denticulates, notched pieces, borers/drills, unifacial worked choppers, bifacial worked chopping tools, chisel like punches, proto-bifaces, and pitted anvils.

All these tools are related to special tasks and most can be seen in a wider range of uses sometimes linked one to another.

For instance, a hammer stone serves to produce flakes, a flake is the blank for a denticulate, a denticulate serves as a scraper for wood working, a wooden digging stick is necessary for the group's supplements and subsistence.

These types of specialized uses and ordered working sequences speak for a social pattern emerging in human groups relying on communication about effort and time required, as well as participation. This is dramatically different from most tool using seen in animal behaviour. It is a special human system of life, and it could be called proto-cultural.

The Oldowan stage of culture ended about 1.8 million years ago. In Bed II of the Olduvai Gorge geological sequence in eastern Africa, the Oldowan tool kit changed its character toward what is known as the Lower or Early Acheulian tool kit.

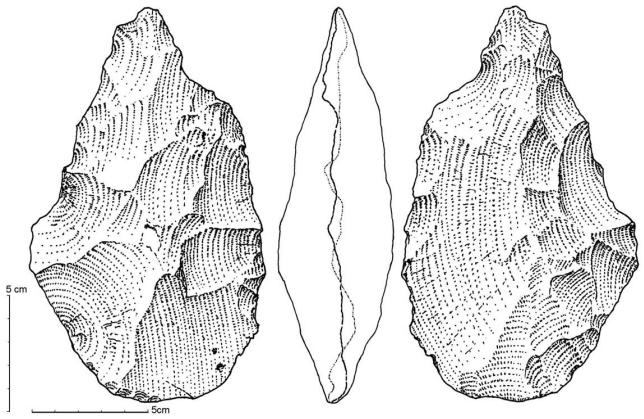


Fig.2. Makuyuni MK4 sf, handaxe made from a basalt flake. Drawing by Lutz Fiedler 1999.

Most Acheulian tools have a much more defined shape than Oldowan tools, especially the cleavers, handaxes (bifaces), picks, and knives. So it is possible to say that the abstract, held-in-mind Acheulian-age tool models were more complex than those of the Oldowan.

PRODUCING AN ACHEULIAN HANDAXE

A handaxe, for example, was not easy to create. First, the producer had to look for the appropriate raw material. He also had to look for good hammer stones and for bones or ivory as 'soft' hammers. Once he found the right stone, his first step was to split off a single heavy flake (often much more than 20 centimeters in diameter) as a blank for the final handaxe. Prepared heavy flakes with some smaller chipping already begun on them before they were chipped off of the core rock are better than those that are not prepared in advance. Thus, preparation normally starts before flaking off the blank **(Figs. 1 & 2).**

Working out a handaxe on a flake blank starts with heavy blows along its edge. In this way the planned handaxe gets its first rough shape. Then the blank has to be flipped over to its backside and flaked in the same manner. The rough-out now has a crude ovate or oval contour. After correcting the shape with several other blows the kind of hammer used must be changed. A smaller one or a so-called 'soft hammer' of ivory or bone is necessary. From this point onward the producer has to split off a series of flat and thin flakes to form both a sharp cutting edge around the contour and flat surfaces on both sides of the tool

After completion the handaxe has an elongated ovate shape (such as seen in Figs. 1 & 2)

> Contd on page 8

At the core of language (contd.)

"It was manufactured by fathers, grandfathers, and all the – mythological – ancestors. By maintaining such an all-important tradition, the world could be held in balance."

and more or less two straight cutting edges down from the tip to the base.

Such a handaxe serves to butcher carcasses of large game like elephants, rhinos or hippos. It can also be used for woodworking, carving, scraping and cutting.

On the African Plains, where raw material for stone tool production was rare, handaxes carried by the hunters also served as cores from which light duty flakes were chipped (Fiedler 2002a).

WHY SUCH AN ELABORATE PROCESS?

Millions of Acheulian handaxes such as those described above have been found in Africa, Asia and Europe. The question is, why all that labour-intensive work for a simple cutting tool? A simple, heavy sharp flake could certainly have fulfilled nearly all the requirements of such a handaxe!

The reason for this is surely due to cultural tradition. Some of the "pictures in the mind" have developed more and more to determine imperative symbols: A butchering tool for big game, for example, had a long and important history within the culture. It was manufactured by fathers, grandfathers, and all the—mythological—ancestors. By maintaining such an all-important tradition, the world could be held in balance.

Another cultural reason is individual identity because every person who is able to fulfil the traditional tasks is seen as a good member of the society. It is necessary for each individual to belong to their group and they are expected to do things in the right way.

All in all, maintaining important traditions is a better explanation for the longevity of Acheulian culture (which lasted more than one million years) than simply attributing its great length to the supposed limited technological abilities of *Homo erectus* which is the common position. In fact, rather than as a sign of improvement technological changes and innovations are often seen as dangerous for man and the world. An imperative cultural pressure and feeling of safety were in balance throughout the Acheulian, the longest period of human history or prehistory (Fiedler 2002a). Progress came slowly (Clark 1991, 1999).

SIMILAR SEQUENCING IN OTHER TOOLS

What was valid for handaxes can equally be applied to cleavers, wooden spears, fire places, huts, hunting methods, and the social organization. All the different archaeological findings from the Acheulian period bear witness of an extremely slow development. Changes came late, about 400,000 years ago, when the Levallois technique came into use in the world of the Upper Acheulian. From then on and into the Middle Palaeolithic - innovations happened faster and faster straight through to the beginning of the Upper Palaeolithic, 40,000 years ago.

CONCLUSION

What do these things mean for understanding early humans, particularly in regard to cognition, intelligence, communication, planning, and comprehension of existence? A well functioning techno-social system like the Acheulian had to be stored in mind by all members of the society by means of a huge amount of connected details.

Everybody has to have very similar, comparable images related to the system's function (Cassirer 1944). So these things require communication. The amount of Acheulian images and their associated networks cannot be communicated without gestures, vocalizations, symbols, or language.

In the Acheulian system the abstract and symbolic tool types, methods of manufacturing, and aims of tool production could be realised both as virtual objects and as actions. Vocal symbols between abstraction and reality should have existed as spoken language, too. In these ways, the Acheulian system was realised and represented permanently by every individual and in the community as a whole. Therefore, we cannot state that abstract or symbolic representation and the realisation of symbols are characteristics of anatomically modern man only. They are characteristic abilities of man since his first appearance two million years ago.

Abbr. references for this version:

Cassirer, E. 1944. An Essay on Man—An Introduction to a Philosophy of Human Culture. 1972.

Clark, J. D. 1991, 1999.

Fiedler. L. 1993, 1997, 2002*a* & *b*.

Wittgenstein, L. 1953: Philosophical Investigations. Oxford.

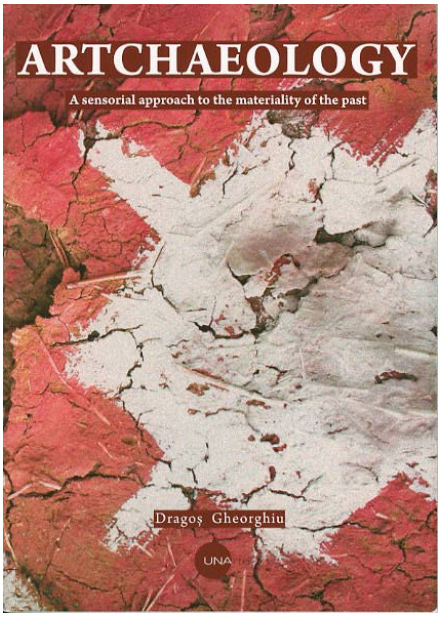
For the complete paper upon which this shortened version is based and full references go to:

http://pleistocenecoalition.com/fiedler/index.html

LUTZ FIEDLER is the discoverer of the Tan Tan figurine from Morocco. The artifact, found in context with Acheulian handaxes, is commonly known as the "Venus of Tan Tan," and is dated 200,000-400,000 years old.

BOOK REVIEW

ARTCHAEOLOGY: A sensorial approach to the materiality of the past
By Dragoş Gheorghiu



Virginia Steen-McIntyre

"This means primarily right-brain thinking (intuitive, wordless, image-forming, time free, analog) as opposed to left-brain thinking (our logical, list-forming, word-and-number, digital side.)"

ARTCHAEOLOGY: A SENSORIAL APPROACH TO THE MATERIALITY OF THE PAST by Dragoş Gheorghiu, UNARTE, 2009, 119 pp., ISBN 978-973-1922-61-4.

Be ready to expand your thinking!

Artchaeology is a slim paperback volume with over 100 illustrations in superb color. It primarily demonstrates various aspects of ten years' research by Dragoş Gheorghiu, professor of anthropology and prehistoric ceramics, National University of Arts, Bucharest and colleagues at the Vadastra, Romania archaeological site (Chalcolithic to Roman).

Fig.1. Burning of a wattle-and-daub house at Vadastra, Romania—a controlled study.

Not your usual research.

As the subtitle of the book indicates, they have left the excavation and cataloging of physical evidence to others and instead aim for "a sensorial approach to the materiality of the past." This means primarily right-brain thinking (intuitive, wordless, image-forming, time free, analog) as opposed to left-brain thinking (our logical, list-forming, word-and-number, digital side.)

To do this they have had help from archaeologists, artists, art students, and enthusiastic local villagers. They have reconstructed a full-size Chalcolithic village, using as guides field evidence, ethnology, and what remains of the paleolandscape. The village becomes the focus for a series of experiments wherein modern humans go through their own motions/emotions as they seek, not to recreate, but rather to evoke in themselves and spectators their feelings as they confront the "critical demands of life in traditional societies, i.e. space, water, fire and landscape." (p.24.)

Fig.2. Sample of ancient pottery designs from Vadastra, Romania.

Gheorghiu uses a minimum of text and many illustrations as his team explores kilns, metal, houses, rites, environment. One very positive outcome of their years of research is the attitude of the local villagers, which went from couldn't-care-less about the Chalcolithic pottery shards spaded up in their gardens to enthusiastic potters in their own right, employing the ancient designs to decorate modern pieces.

Is *Artchaeology* an art book based on archaeology or an archaeology book influenced by art? Hard to say. It does seem to straddle the gap between these two very different disciplines. As apparently it was meant to do.

An enjoyable read.

DRAGOŞ GHEORGHIU, Ph.D., is Professor at the University of Art, Bucharest, Romania, with a specialty in pyrotechnologies. He is also a member of the EU's Project SCIENAR bridging science and the arts.

Atepitzingo Part 1

Was American *Homo erectus* fashion conscious?

by Virginia Steen-McIntyre

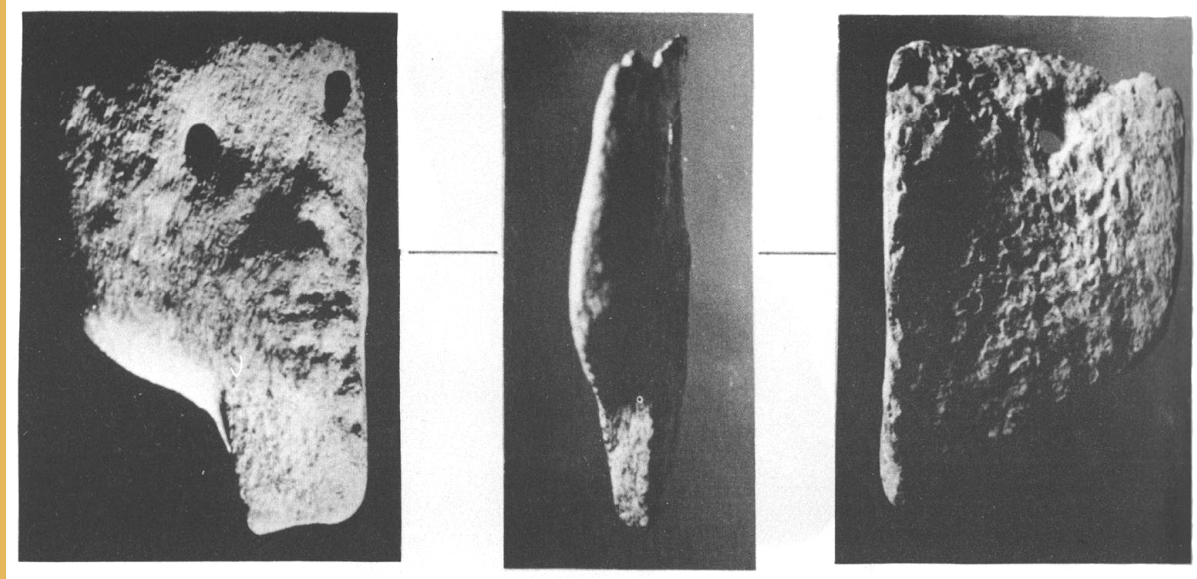


Fig.1. Juan Armenta's Figure #62 of a possible 300,000-year old small bone pendant from Atepitzingo, Mexico.

Beauty and personal adornment: how far back in human pre-history do these ideas extend?

Previous articles in this newsletter by Rick Dullum mention the Neanderthals' penchant for beads and pendants 200kya, and evidence for body paint at least 50kya. What about *Homo erectus*? A cluster of hard data consisting of a fragment of proboscidian (elephant) long bone with what appears to be a scribed horse's head "hidden" in the engraving, a possible bone pendant, and a couple of associated radiometric dates suggests they too, or a contemporary intelligent creature yet to be identified, could separate "the mundane" from "the lovely" some 300,000 years ago at Atepitzingo, in east-central Mexico.

Atepitzingo Barranca

The Atepitzingo Barranca is located some 5 km north of the Hueyatlaco archaeological site in the town of San Francisco Totimehuacan, Valsequillo area, State of Puebla, Mexico. [Barrancas are steep-walled, flat-floored gullies.] What evidence remains (the actual specimens have disappeared) can be found in Juan Armenta Camacho's 1978 monograph, *Vestigios de Labor Humana en Huesos de Animales Extintos de Valsequillo, Puebla, Mexico* and my English translation (text only), *Traces of Human Workmanship on Bones of Extinct Animals from Valsequillo, Puebla, Mexico.* The possible pendant will be discussed here; the horse's head in a companion piece.

Possible Bone Pendant

Information on the possible bone pendant starts on page 91 of the monograph (here shown in Figures 1 & 2). The left photo on page 92 (Fig. 62 of the monograph) shows what appears to be an abraded area above the lower left perforation (perhaps for a thong?) Armenta's comments in Spanish and my translation in italics follow:

PERFORACIÓN

Un excellente trabajo de perforación puede observarse en una pequeña lamina de hueso, descubierta en la localidad Atepitzingo (Figs 62 y 63). La pieza tiene el conformo modificado; en su cara externa conserva restos de un relieve, que no se ha precisado si es artificial; su cara interna, ocupada por el tejido

Atepitzingo Part 1 (contd.)

esponjoso, esta desgastada y pulida. En la parte superior, la pieza conserva dos perforaciones, oblicuas y a diferente nivel.

Por su aspecto general, tamaño y, principalmente, por sus dos perforaciones, esta pieza sugiere que pudo haber sido un adorno, como esos que se acostumbra llevar colgados al cuello.

Como detalle curioso, este ejemplar se encontró debajo del cráneo de un mastodonte ye exactamente en el sitio de donde se tomaron las muestras W-1899 y M-B-4 para las pruebas geocronológicas (V. Cronología).

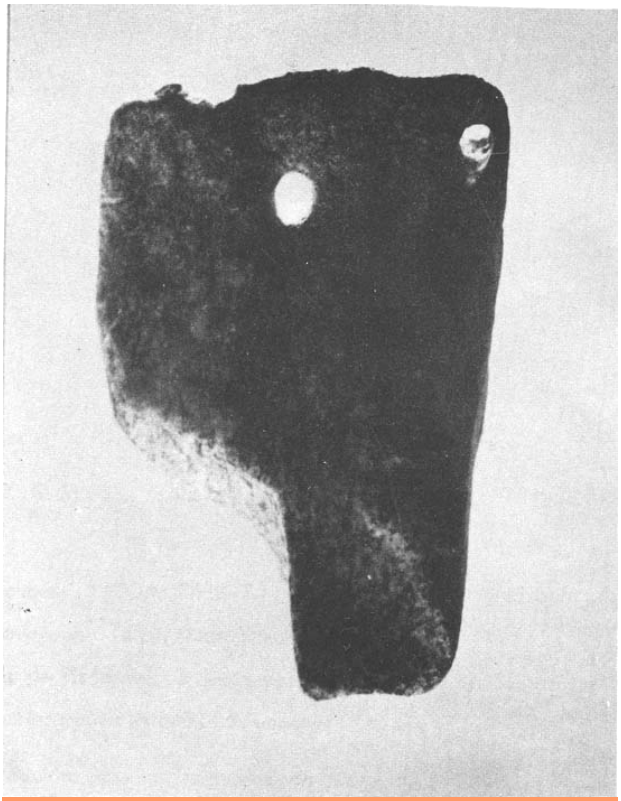


Fig.2. Juan Armenta's Figure #63 of a possible 300,000-year old bone pendant from Atepitzingo, Mexico.

PERFORMATION

An excellent work of perforation can be observed in a small bone flake found in the Atepitzingo locality (Figs. 62 and 63). The piece has a modified contour. On its external face it shows the remains of a relief -- whether artificial or not one is not able to say. Its internal face, occupied by the spongy tissue, is abraded and polished. In the upper part, the piece retains the perforations, slanted, and at different levels.

Because of its general appearance, size, and principally because of its two perforations, this piece was probably an adornment, such as those that one is accustomed to hang from the neck.

As a curious aside, this example was found under the cranium of a mastodon, exactly at the site where samples W-1899 and M-4 were later taken for geochemical tests (See Chronology, below).

Chronology

The table of radiometric dates, including those for Atepitzingo, is given on Armenta's page 121, details from Szabo et al., 1969 and Malde & Irwin-Williams, 1967. A 14C date for associated snail shells lay beyond the limits of the method at that time, 35kya. The U-series dates are similar to those for a tooth fragment from a butchered mastodon at the El Horno site, and considerably older than a camel pelvis associated with bifacial tools from the upper artifact-bearing levels at Hueyatlaco. All three localities occur in what the late Hal Malde has informally mapped as the "Valsequillo gravels" (personal communication; the Malde geologic maps are in preparation by Joshua M. Feinberg, Institute of Rock Magnetism, University of Minnesota.)

Sample W-1899: 14C, [associated molluscan fossils], >35kya.

Sample M-B-4: [horse metapodial], Th-230, 340+/-100kya; Pa-231, >180kya; Open System date, 260+/-60kya.

Discussion

A possible piece of ancient adornment directly associated with radiometric dates in the ca 250-350kya range was found near an engraved proboscidian bone with a "hidden" horse's head (described elsewhere). A rare combination! Are there any other signs that *H. erectus* may have thought outside the convenient box we moderns have placed him in? My training is in geology, not anthropology, and I don't have the background to hazard a guess. Hopefully others will want to comment.

VIRGINIA STEEN-MCINTYRE is a tephrochronologist (volcanic ash specialist) who has been involved in preserving and publishing the Palaeolithic evidence from Valsequillo since the late 1960s.

If you would like to submit a comment, letter, or article for publication in *Pleistocene Coalition News*, please e-mail the editor or Virginia Steen-McIntyre

Google Earth as a support tool in paleo-anthropological studies

BY ALAN CANNELL
International civil engineer

"This opens up the possibility for paleoanthropology to examine what were the coastlines during different time periods."

There is no doubt that Google Earth has become a powerful tool worldwide in the fields of urban and transport planning, specifically in the identification of occupied areas, infrastructure alignment and pre-design. Special 'layers' have been introduced for environmentalists to investigate deforestation and recently a new feature was added that allows users to explore the depth of the sea floor. This opens up the possibility for paleoanthropology to examine what were the coastlines during different time periods.

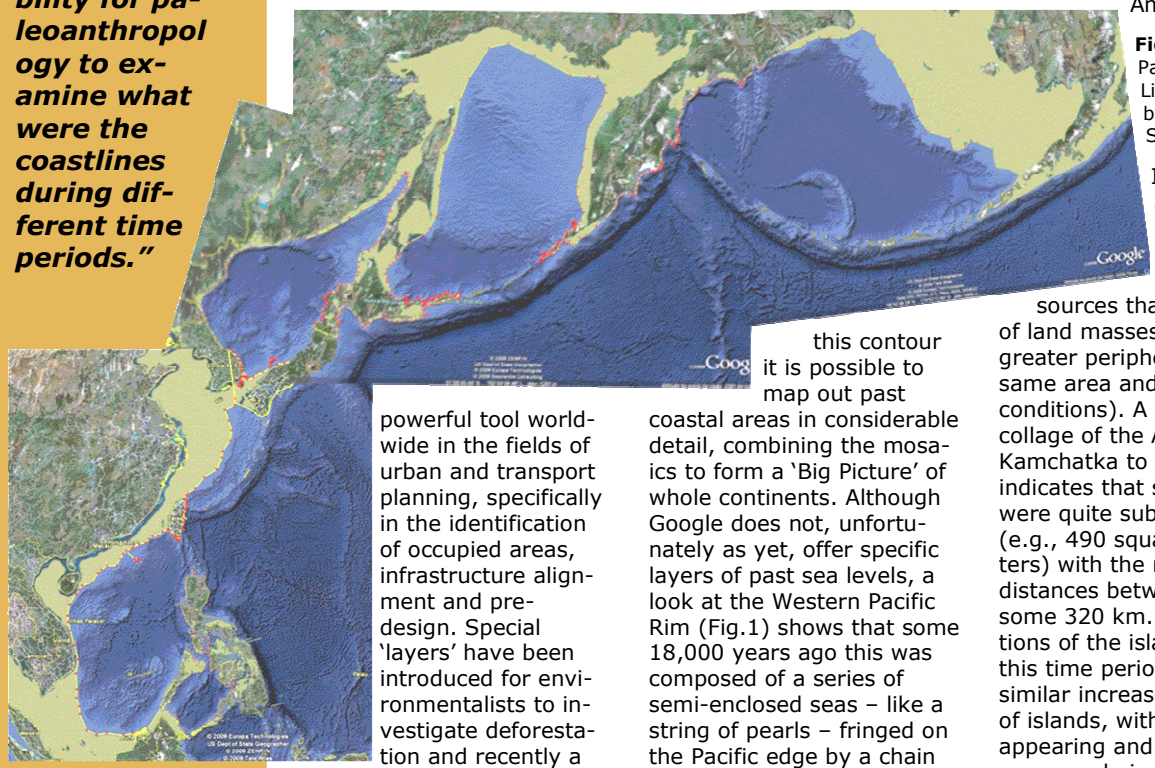


Fig.1. Collage of Pacific Rim Coast-Lines at 120m below the Present Sea Level

Data available from NASA (1), for example, indicates that the 'equilibrium' position for sea level during the last glaciation was 120 meters below the present level. By tracing this contour it is possible to map out past coastal areas in considerable detail, combining the mosaics to form a 'Big Picture' of whole continents. Although Google does not, unfortunately as yet, offer specific layers of past sea levels, a look at the Western Pacific Rim (Fig.1) shows that some 18,000 years ago this was composed of a series of semi-enclosed seas – like a string of pearls – fringed on the Pacific edge by a chain of islands stretching from Indonesia to Alaska. This diagram differs from other representations of the coastline during the ice-ages, such as the *National Geographic* (2) in that the Northern latitudes have not been distorted by map projection and all segments are thus at the same scale, (map projection tends to increase the size and thus importance of Beringia (linking Siberia and Alaska) while 'pushing' the continents of Asia and the Americas apart).

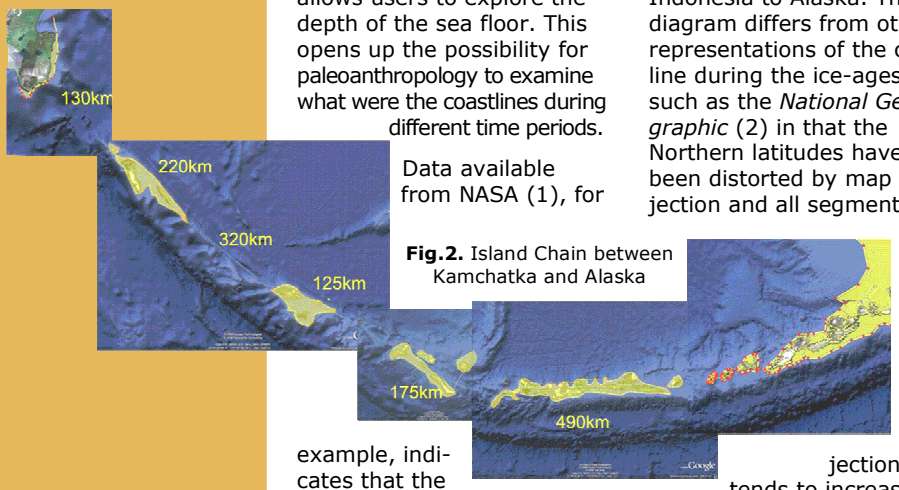


Fig.2. Island Chain between Kamchatka and Alaska

Islands generally lack predators and provide more food resources than the coasts of land masses (having a greater periphery for the same area and varied sea conditions). A more detailed collage of the Aleutians from Kamchatka to Alaska also indicates that some islands were quite substantial in size (e.g., 490 square kilometers) with the maximum distances between them of some 320 km. Other sections of the island chain at this time period also show similar increases in the size of islands, with new islands appearing and distances of open sea being reduced. According to *National Geographic* these were ice-free waters during the last ice-age.

Coastal migration, developed in the sheltered and warmer bays of southern Asia, would thus offer a rapid means of movement to the south and east. This may help to explain why the oldest officially-recognized skeletons in the Americas (Lagoa Santa man in central Brazil) have cranial features that are close to those of indigenous Australians. It also helps to explain why the oldest officially-recognized site in the Americas (c. 14,500 years old) is on the coast at Monte Verde in

Google Earth (contd.)

Southern Chile, at the other end of the Americas from Alaska.

A description of the site is given by Dillehay *et al* in *Monte Verde: Seaweed, Food, Medicine, and the Peopling of South America* (3) where evidence was found of harvested kelp species, together with mollusks and fish, dated at 14,600 calendar years ago. The paper shows a map of the sea line during this time frame, which puts the site at a height of 120m with the Pacific coast some 90km to the west; a point which argues against the importance of the role of seaweed in the diet of these folk.

Fig.3. Monte Verde Coastal Cliffs at Time of Settlement

"...other sites of this period along the Pacific Rim were either destroyed by wave action or are now under water."

However, this study overlooks the fairly constant tectonic uplift that the region suffers. Hervé and Ota (4), in Fast Holocene Uplift rates at the Andes of Chiloé, Southern Chile, estimate this uplift at between 3.1 to 9.6 m/ky (meters per thousand years) – an average of about 6m/ky. The Monte Verde site currently lies at a height of 58m (according to Google Earth) and 50km from Chiloé Island, in the same region that suffers constant – and sometimes violent – tectonic shifts. As the Monte Verde site is estimated to be 14,000 calendar years old, the site would thus have suffered a rise of some 84m and its original level would be therefore -26m (in relation to the present sea level of zero). At this time the sea level was about 60m below the present (NASA), hence the site was originally around 34m[60m minus 26m] above the sea. Human presence has been discovered at this site exactly for this reason: other sites of this period along the Pacific Rim were either destroyed by wave action or are now under water.

Google Earth clearly shows the ancient cliffs of this part of Chile that have been exposed by uplift. The principal formations are roughly at levels 16, 34 and 46m, and although there has been some overlapping of meltwater events and uplift is far from constant, 34m has be taken to represent the ancient sea level at the time of settlement and 46m to represent the tops of the surrounding cliffs. The coastline (at high tide) at the time of settlement would therefore have looked something like the figure above (Fig.3).

Note that the site of Monte Verde would have been just above high tide on a fresh water source next to a deeply indented bay with two small islands (highlighted in yellow-green). This suggested correction – made possible by Google Earth - actually strengthens the case made by Dillehay *et al*, that seaweed was an important resource in coastal migration and the peopling of the Americas.

The question still remains as to how coastal migration could have taken place with much of the route in Alaska and Patagonia under ice (as shown, for example, by *National Geographic*). Patently, Monte Verde was not under an ice-cap when settled, the remains of prehistoric llamas indicate abundant local grasslands and the presence of the seaweed, *Sargassum,* suggests that the sea off the coast of Chile was actually warmer than today. If similar conditions existed on the coast of Alaska then the extension of these ice-caps needs to be revised.

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ALAN CANNELL is a civil engineer structuring cities worldwide.

Freshwater ostracodes

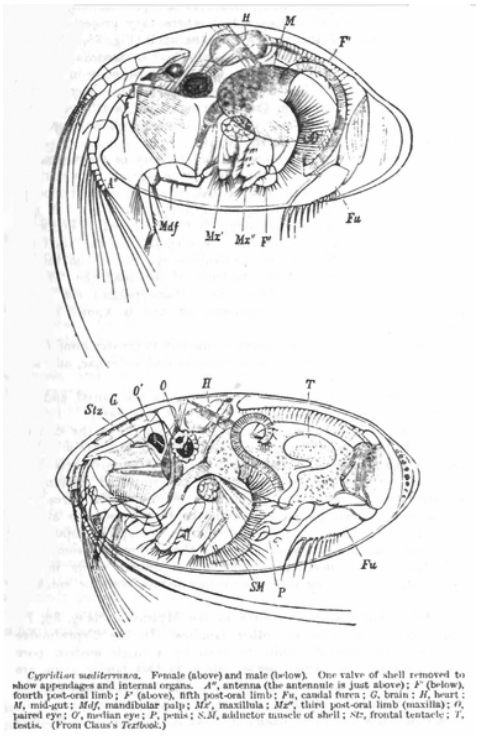
by Ed Gutentag

Hydrogeologist, USGS, retired

EDITOR'S NOTE: This article is the first in a new section offering information on little-known subjects which can help us understand early peoples and their environments. Future articles could include subjects such as paleobotany (fossil plants), palynology (fossil pollen), and dendrochronology (tree rings). Researchers are invited to submit short articles for this section on any other area of scientific study which is not well-known to the general public but which may be of interest to our readers or to archaeologists.

...the presence of ostracodes in the sediments exposed at an archaeological site may give some indication of the local paleohydrology and climate when other evidence is not available.

Ostracodes are tiny crustaceans, fresh-water relatives of crayfish and lobsters.



Cypridina mediterranea. Female (above) and male (below). One valve of shell removed to show appendages and internal organs. A^1, antenna (the antennule is just above); F^1 (below), fourth post-oral limb; F^2 (above), fifth post-oral limb; *Fu*, caudal furca; *G*, brain; *H*, heart; *M*, mid-gut; *Mdf*, mandibular palp; Mx^1, maxillula; Mx^2, third post-oral limb (maxilla); *O*, paired eye; *O'*, median eye; *P*, penis; *S.M*, adductor muscle of shell; N^2, frontal tentacle; *T*, testis. (From Claus's *Textbook*.)

The Germans call ostracodes "muschelkreebsen" or mussel-shrimp, because they each resemble a tiny shrimp contained in the shell of a fresh-water mussel.

Ostracodes (often spelled "ostracods") range in length from, 0.5 to 2 mm and have bivalved shells composed of low magnesium calcite.

Because they generally have a narrow tolerance to certain physical and chemical parameters, ostracodes make sensitive hydrologic, and climatic indicators.

[Hydrology is a branch of geology that studies water on the earth, its sources, movement, quality, soil moisture, precipitation, distribution, conservation, etc.]

Ostracode taxa often are restricted to particular hydrologic settings such as groundwater discharge areas like springs and seeps.

In arid and semiarid areas, springs and seeps are the most important sources of natural water, and act as foci for faunal (animal) activity, including human.

Thus the presence of ostracodes in the sediments exposed at an archaeological site may give some indication of the local paleohydrology and climate when other evidence is not available.

Unlike diatoms, with their short life-spans and relatively rapid extinction rates, ostracodes do not make good age indicators as individual taxa live too long.

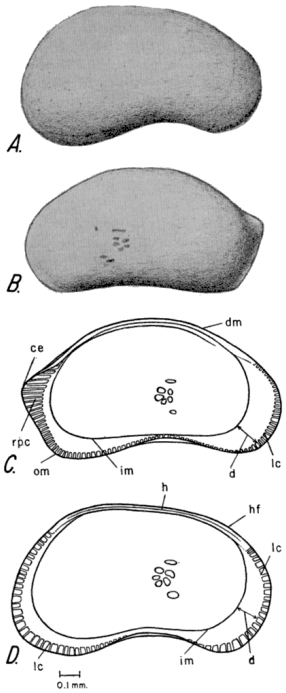


Fig.10 from: Gutentag, Edwin D., and Richard H. Benson. 1962. Neogene (Plio-Pleistocene) fresh-water ostracodes from the central High Plains. *Kansas Geological Survey Bulletin 157*, Part 4. Online version available at: http://www.kgs.ku.edu/Publications/Bulletins/157_4/04_desc.html

*Among many other assignments, the author worked as hydrogeologist on paleoclimate for the Yucca Mt. Nuclear Waste facility, using freshwater ostracodes and Sr isotopes in efforts to predict the future of the site.

On the European Project SCIENAR

by John Feliks

"It says something about the open-mindedness at the core of SCIENAR and perhaps of mathematicians in general. They are not pre-committed to the idea that early peoples such as* Homo erectus *were less intelligent than us as are those in anthropology. This better position allows them to be open to the possibilities of Acheulian-age mathematics."

Seeing that this is the issue we have informally called the "arts" issue it seemed the perfect time to introduce the recently-formed European mathematics and physics-based arts community called SCIENAR.

SCIENAR began as a cross-disciplinary and cross-cultural proposal to the European Union (EU) with the goal of uniting science and the arts by way of mathematics.

The organization was officially approved for funding by the EU in 2008 and is now in its operating phase.

The directors of SCIENAR are Pietro Pantano, Professor of Mathematical Physics at the University of Calabria, Italy; Mauro Francaviglia, Professor of Mathematics at the University of Torino; and Dr. Marcella Giula Lorenzi, Multimedia, Psychology of Programming, and Artificial Intelligence, also at the University of Calabria.

Put in general terms, SCIENAR was formed not only to promote the union of science and the arts (and primarily for the sake of producing new art) but also to encourage international collaboration. The project is promoting mathematics and physics as historical common languages in the arts.

The intentions of SCIENAR are perhaps best summed up in excerpts from their homepage, scienar.eu/main/

"The central idea of SCIENAR consists in developing and building three emblematic scenarios at the intersection of Science & Art. Each scenario is closely linked to one of three different historical ages in which the interaction between Mathematics & Art was deep and fruitful. The three scenarios that we have selected are:

- **Geometry**—The Birth of Mathematics in the Antiquity: Arithmetic and Geometry
- **Symmetry**—Development of Mathematics from Renaissance to XX Century: Perspective and Symmetry
- **Relativity**—Mathematics in the XX Century: Curvature, Motion, Relativity and Chaos"

My own interest in SCIENAR began when I was invited to post on their page some of my original work on *Homo erectus* mathematics and especially the golden mean (Phi). This was proof to me that the group was far more scientifically-open than the anthropology community which has for nearly four years held back from publication my Introductory Part 1 geometry and linguistics paper, *The Graphics of Bilzingsleben*. The Part 2 paper, *Phi in the Acheulian*, itself took effort to publish being the first to suggest the concepts of the golden mean and ratio in Lower Palaeolithic studies beyond handaxes and other stone tools. SCIENAR decided to post one of the original color slides made for the XV UISPP Congress in Portugal, 2006 (Fig.1), along with a brief accompanying paper called,

Phi-based conceptual units: Pushing math origins back to the Acheulian age.

It says something about the open-mindedness at the core of SCIENAR and perhaps of mathematicians in general. They are not pre-committed to the idea that early peoples such as *Homo erectus* were less intelligent than us as are those in anthropology. This better position allows them to be open to the possibilities of Acheulian-age mathematics.

Openness to evidence is also one of the primary tenets of the Pleistocene Coalition, so I am very proud to be associated with SCIENAR and encourage our readers to visit their website.

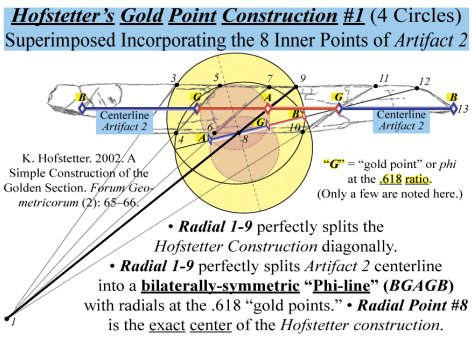


Fig.1. The author's original Phi study created for the XV UISPP Congress 2006 to be posted on SCIENAR.

JOHN FELIKS is Founder of the Pleistocene Coalition and Editor of *Pleistocene Coalition News*. He is also a member of SCIENAR.

Atepitzingo Part 2

Was American *Homo erectus* a right-brain thinker?

by Virginia Steen-McIntyre

"...suddenly, a beautiful horse head with what might be some kind of band across its muzzle 'popped out' at him."

In the companion article in this issue, "Atepitzingo Part 1: Was American *Homo erectus* fashion conscious?," I mentioned a possible bone pendant dated by Uranium-series methods at roughly 250-350,000 years old.

The pendant was found many years ago in the Atepitzingo barranca, south of the City of Puebla, in east-central Mexico.

(A "barranca" is a steep-walled gully).

From the same barranca as the pendant an engraved fragment of a large elephant bone was also collected. This engraved bone is shown in the monograph of Juan Armenta, Figures 75 & 76 (pp. 112-113.)*

Along with the figures reproduced in this article, I have included below what little written information exists for the piece. It is presented first in the original Spanish version for Figs. 75 & 76 and then in my English translation:

Fig. 75: Huesos grabados: Espécimen "Atepitzingo 1." Este ejemplar es un fragmento de hueso largo de proboscideo, cuyos grabados se han dejado cubiertos por materiales de terreno de hallazgo, para identificación de su procedencia estratigráphica. Fue hallado por Luis Vázquez Rangel, en la localidad de Atepitzingo.

Fig.1. Juan Armenta's Fig. 76, an unadorned sketch of the bone engravings of "Atepitzingo 1" before being cleaned. Can you see the horse's head?

Fig. 76. Calca simple de los grabados de hueso "Atepitzingo 1," antes de ser limpiado.

Fig. 75: Engraved bone: specimen "Atepitzingo 1." This example is a fragment of a proboscidian long bone, whose engravings have remained covered with the sediment in which it was found in order to identify the stratigraphic provenience. It was found by Luis Vázquez Rangel, in the Atepitzingo locality.

Fig. 76. Unadorned sketch of the engravings of the bone, "Atepitzingo 1" before being cleaned.

ENGRAVING WITH POSSIBLE HIDDEN PORTRAIT OF A HORSE

Late one September night in 2005, archaeologist Christopher Hardaker was looking at the Atepitzingo 1 sketch, and suddenly, a beautiful horse head with what might be some kind of band across its muzzle "popped out" at him.

Armenta certainly didn't see the horse head when he so carefully copied the lines in the engraving. Neither did archaeologist Cynthia Irwin-Williams. Neither did others who have reviewed Armenta's publication these past 30-plus years! At least no one has commented on it.

First look at Armenta's careful sketch of the engraving, **Fig.1**, above. (Those who have not viewed a small reproduction of the sketch with overlay from Volume 1 Issue 1 of this newsletter will probably see only a complex series of thin and thick lines.)

Then look at the sketch with the overlay of the horse's

> Contd on page 17

H. erectus, right-brain thinker? (cont.)

"Atepitzingo… An ancient piece of adornment; an ancient engraved horse's head that can't be seen unless the mind is in a certain state of consciousness; associated radiometric dates of well over a quarter-million years."

head, **Fig.2.**

If my reaction is typical, once you see the horse's head, you can never again NOT see it when you view Armenta's original sketch, no matter how hard you try!

Fig.3 is Juan Armenta's original photograph of the engraved artifact.

DISCUSSION

Again, I am somewhat out of my field here as a geologist. Still, I would ask, have "hidden figures" been found in ancient art from other parts of the world? Has anyone looked for them? Isn't that part of right-brain thinking?

To risk sounding very unscientific, I felt a wrench in my gut when that horse's head suddenly swam into view. And once more when I discovered I could no longer "not" see it!

FINAL CONCLUSION OF *ATEPITZINGO PARTS 1 & 2*

Atepitzingo. Only one small cluster of data, and that preserved in a few pages of a Spanish-language monograph published privately in Puebla, Mexico 32 years ago...

It combines a possible piece of ancient adornment (pendant) and an ancient engraving of what is perhaps a horse's head that can't be seen unless the mind is in a certain state of consciousness, with associated radiometric dates of well over a quarter-million years.

Insignificant? Earth shaking? Perhaps someone would like to comment.

* Juan Armenta's complete 1978 monograph (50MB), *Vestigios de Labor Humana en Huesos de Animales Extintos de Valsequillo, Puebla, Mexico (Traces of Human Workmanship on Bones of Extinct Animals from Valsequillo, Puebla, Mexico)*, is available at

http://pleistocenecoalition.com/steen-mcintyre/index.html

Fig.2. Juan Armenta's Fig.76 sketch of the bone engravings with colored-in overlay added by Dave McIntyre as per Chris Hardaker's discovery of what appears to be the portrait of a horse.

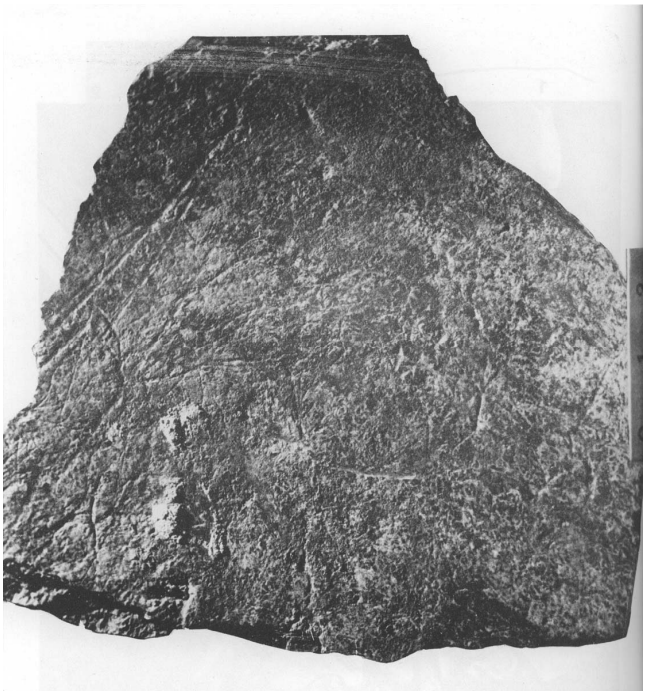


Fig.3. Photograph of the artefact, Figure 75 from Armenta's monograph. It is the long bone of an elephant containing many enigmatic engravings.

The Pleistocene Coalition

Challenging the precepts of mainstream scientific agendas

- Learn the real story of our Palaeolithic ancestors, a story about highly-intelligent and innovative people, a story quite unlike that promoted by mainstream science.
- Explore and regain confidence in your own ability to think for yourself regarding human ancestry as a broader range of evidence becomes available to you.
- Join a community not afraid to challenge the status quo. Question any paradigm promoted as "scientific" that is so delicate as to require withholding conflicting data in order to appear unchallenged.

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