

TANGENTS/Reviews

Ice Age Art and Science

by Bart Jordan

Ice Age Art

The American Museum of Natural History
New York

An exhibit of the golden age of Ice Age art, featuring about 250 items and staggering in its implications, has recently opened at the American Museum of Natural History in New York City. From the moment we enter this astonishing exhibit, we feel, each in our own way, a sense of communion with the distant past of 30,000 or more years ago. We sense that our cultural roots are here in this place. The physical space is small, but the spiritual space is vast.

Immediately to the left and right of the entrance to this veritable womb of Time are panoramic photographs of the area surrounding the Ice Age cave of Font-de-Gaume in France. In and around the center of the entranceway is a broad view of the Dordogne region (where so many important finds have been uncovered), a fine engraving of a mammoth, an actual mammoth foot, a large mammoth tusk, and a reproduction of an exquisite cave-painting of some reindeer,

Nearby is a highly informative climate chart showing the difficult conditions under which all kinds of life had to be sustained while the great sheets of glacial ice dominated much of Europe and Asia. Life and culture prevailed despite the harsh conditions imposed by the ice and the intense cold. The major Upper Paleolithic cultures of Europe and Asia highlighted in this exhibition are represented as being five in number:

1. West European, or Franco-Cantabrian:
c. 35,000-10,000 B.C.,
2. Mediterranean, or Italian and East Spanish:
c. 22,000-8,500 B.C.,
3. Central European, or Czechoslovakian (Moravian):
c. 28,000-10,000 B.C.,
4. East European, or Upper Ukrainian:
c. 28,000-10,000 B.C., and
5. Central Siberian, or Lake Baikal:
c. 20,000-10,000 B.C.

For both animal and man, the climatic conditions which existed 35,000 years ago and which persisted for almost 25,000 years made life difficult in much of Europe and Asia. Agriculture, such as we see it in the warmer periods following the Ice Age, was impossible. The Ice Age

peoples hunted and gathered what Nature provided for them. They survived and they created. They developed to an inordinately high degree of sophistication the very art we view in the present exhibition. That it is their art and that it does embrace an extraordinary range of styles and techniques is now admitted, However, as the *Time* magazine report of the exhibition pointed out, this was not always the case:

When the first of these subterranean galleries was discovered in Spain nearly a century ago, Europe's savants, still reeling from the shock of Darwinian evolution, refused to believe that the find was anything more than a hoax. Since then, nearly a hundred richly decorated prehistoric caves have been found in Spain and France, and the existence of paleolithic painting has been established beyond doubt.

Leaving the entranceway, we come into a room filled with a wide variety of animal, fish, bird, snake, and insect depictions which were done by Ice Age artists from each of the major cultures cited above. There are powerfully rendered bison and boar, a magnificent Irish elk, ibexes, horses, bears, lions, wolves, rhinos, aurochs, butting mammoths, an indolent musk ox, a pert hare, and a skulking wolverine,

Whether we view the Ice Age artists' pictorially captured creatures in the beautiful silk-screen renditions by artist Douglas Mazonowicz, the vibrant photographic reproductions by Jean Vertut, the Altamira ceiling frescoes in replica, or the detailed casts of engravings and carvings painstakingly copied by various members of the museum staff, we experience the feeling that many behind-the-scenes persons cared very greatly that the objects should be as close as possible to the originals. Due to their efforts and those of Alexander Marshack, the curatorial consultant, and designers Henry Gardiner and Margaret Cooper, the exhibit does permit us to appreciate more deeply Upper Paleolithic art and the peoples who created it.



As we move through the collection, we become increasingly aware that the Ice Age artists valued almost every observable aspect of life that they encountered. Their art was based on encounter—physical, emotional, and intellectual encounter. They could not have done what they did without this last, without *thought*. However, the unthinking popular judgment of them has been that they did not think, at least, not on an advanced level. The common view held of Upper Paleolithic peoples, especially of Neanderthal males, is that they ran about clad in little more than the smiling state of nature, that they wielded oversized clubs to batter wife or foe into submission, emitting meaningless *macho* utterances in *basso profundo*.

The popular view is hardly justified and has never been held by the more perceptive of archaeologists and anthropologists. One of the exhibition's captions by Marshack addresses the question of Ice Age man's intelligence:

An early type of Homo sapiens, Neanderthal man had a brain as large or larger than that of modern Homo sapiens. Neanderthals lived in Europe and Asia from about 100,000 to 35,000 B.C. and made beautiful stone tools, buried their dead, had other rituals, used red ocher and fashioned simple symbolic objects.

Modern man in Europe, popularly called Cro-Magnon for the site in France where the first skeletons were found in 1868, arrived with a new tool kit and more complex tradition of making and using images. There was probably no sharp difference in intellectual capacity between these two human types. But carvings such as the pendant, the Vogelherd horse and early female figurines suggest a use of image and symbol by Cro-Magnon man requiring a more complex use of language and more complex social relations than are suggested by Neanderthal symbol.

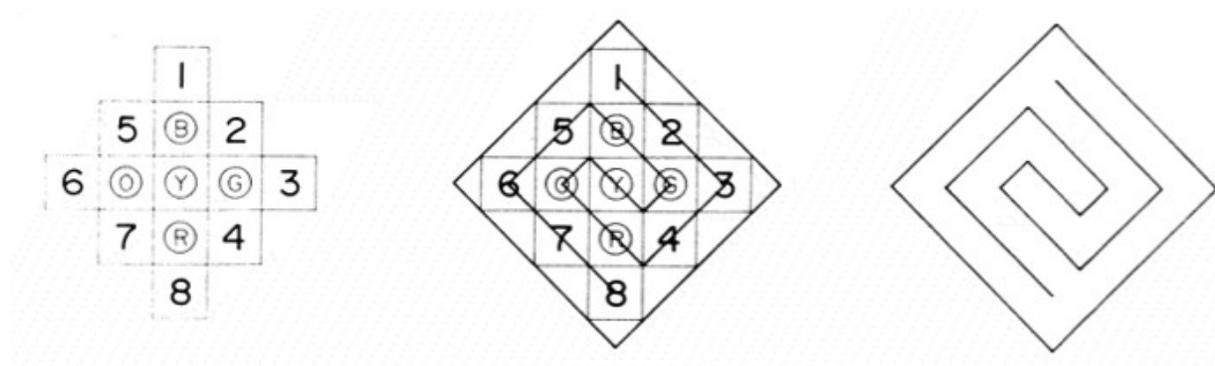
Does Marshack go far enough in his assessment of Cro-Magnon's cognitive capabilities and use of symbolism in image-making? Regrettably, he does not. In both the exhibition captions and the Ice Age Art catalogue he prepared, Marshack avoided any mention of the growing body of evidence which shows Cro-Magnons to have developed some of their most artistic symbols and images in direct relation to various mathematical expressions of time. Ample evidence is provided through their art that the Cro-Magnon peoples recorded meticulously and accurately the diverse periods of day or night, sennight or week, fortnight, "common law" month (28 nights), lunar-menstrual year (364 nights), average year (365 days), and leap year (366 days), Cro-Magnons, not limited to mere counting as Marshack has publicly maintained, transformed their carefully obtained counts into mathematical equations and then artfully symbolized the equations themselves.

This exhibition misses the mark by neglecting to reveal that part of the Ice-Age peoples which makes them, in my view, far more than crude artisans toiling over lumps of clay and shards of bone, shaping and scraping them, through happenstance, into rough images of themselves and their world. Let us examine a few of the items which were included in the collection or excluded from it, to see what might have been brought to the public's attention had the exhibit presented Ice Age art not as art alone but as science as well.

One of the more revealing items in the collection with regard to art as an expression of science is the renowned meander bracelet of ivory from Mezin in the Ukraine. The bracelet has often been cited solely for the artistic value of its elegant patterning. However, the significance of the meander symbol which underlies the bracelet's geometrical ornamentation elevates this Mezin masterpiece to a plane far beyond the realm of art alone. The meander itself is a mathematically ordered symbol: a compressed graphic shorthand way of diagramming a year.

Utilizing such diverse source materials as early Chinese astronomical data, a commentary on Pythagorean mathematics in Plutarch's *Moralia* and information gleaned from concentrated study of Venus masks throughout the world, I was able, by the mid-1960's, to reconstruct successfully an early calendrical diagram which, upon completion, revealed the meander to be at the very core of the diagram's structure. This diagram, which was eventually to provide the

foundation for the great symbol systems and calendars of both the Old World and the New, shows the average year to have been calculated at exactly 365 days by Ice Age astronomers, and consists of thirteen compartments (considered "celestial halls" by the ancient Chinese and other cultures). By referring to the first of the three illustrations appearing below, it will be seen that the eight outer compartments contain the counterpoised numbers of 1 through 8 (North-1 opposite South-8, Northeast-2 opposite Southwest-7, East-3 opposite West-6, and Southeast-4 opposite Northwest-5). These eight numbers add up to four nines, or 36, which signifies four ninety-day divisions, or 360 days. The five inner compartments contain the five additional days of the 365-day year. These five days are designated by the five principal rainbow colors, which are also associated with the five principal directions and the year with its four seasons (red for South/ Summer Day, orange for West/Autumn Day, yellow for Center/Year Day, green for East/Spring Day, and blue for North/ Winter Day).

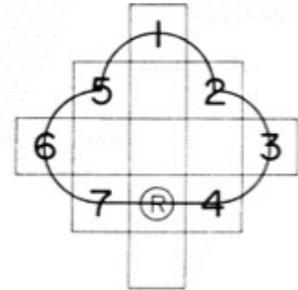
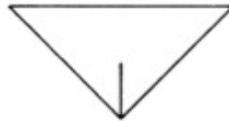
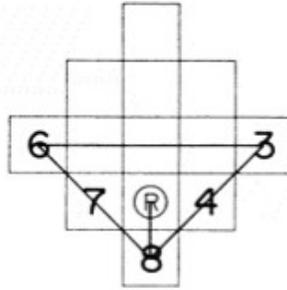
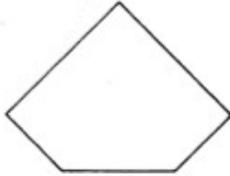
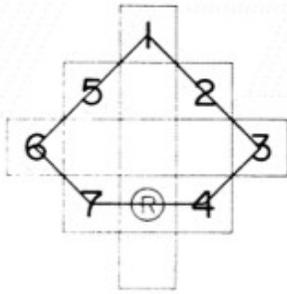


Therefore, the meander symbol itself derives from the simple fact that a single line, beginning at North-1 and moving through the 13 compartments in strict numerical and spectral sequence, progresses clockwise to the yellow of Center/Year Day and then progresses counter-clockwise until it reaches the terminal point at South-8 with the result that the entire 365-day calendar diagram is embraced and expressed. These illustrations should enable anyone viewing the exhibit in future to understand more about the scientific basis for the meander patterning of the beautiful Mezin bracelet.

The meander is only one of many Ice Age calendrical symbols attesting to Cro-Magnon's extraordinary ability to express the abstract in both art and science.

It would have been important for the fundamental menstruation/gestation symbols of the art to have been presented and explained in the current exhibition. Omission of the information concerning them is almost as indefensible as the omission of information concerning the meander. [Below] are illustrations which will acquaint the reader with some of these symbols and with the method of their construction.





Also not shown in the exhibition is an engraved mammoth bone from Mezhirich in the Ukraine excavated by I.G. Pidoplichko and reported by him almost a decade ago. This unique bone constitutes a vital omission in that the primary engraving on the bone appears to relate to a major calendar symbol of probable Ice Age origin. (See [below].)



A calendar symbol reconstructed by the author before seeing the bone below. Five notched rectangles embrace four notched “horns of consecration.” Reading from right to left, these four figures with their four circles (Sun, Evening Star, Morning Star and Moon) signify Summer, Autumn, Spring and Winter. Each season has 90 days, totaling 360. The 5 notched rectangles signify the remaining 5 days of the 365-day year. Less obviously expressed are the additional time-formula of 364 nights for the lunar-menstrual year, 366 days for the leap year, and 584 days for the average synodical revolution of Venus.



The main difference between the symbol above and the mammoth bone is that the notched element has been replaced by a zig-zag motif. The zig-zag motif may well have been taken from the famed "magic square of three" which utilizes a zig-zag configuration to link the numbers 4, 3, 5, 1, and 6 together as a year formula. When multiplied, these five numbers result in 360, the remaining 5 days being represented by the fact that there are just five numbers in the formula. Investigations have shown that scratches outside the central symbol were made at a later date.

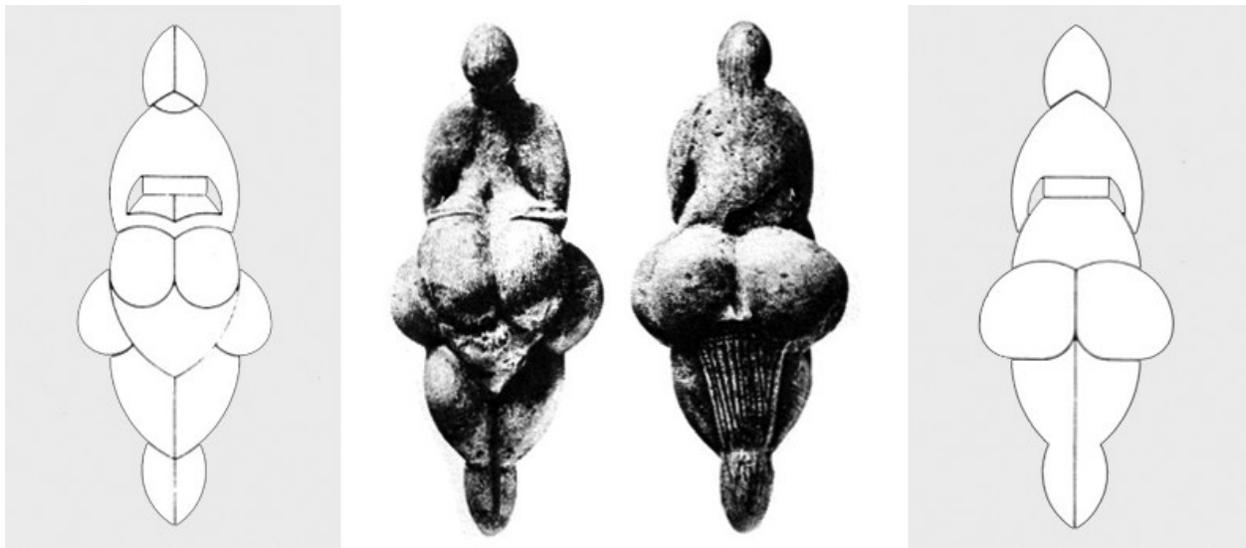
If the time-formulae have been discerned correctly, especially with relation to the planet Venus, then there is no question that the engraved mammoth bone from Mezhirich is one of the most remarkable finds ever to have emerged from the Ice Age. Why it has been omitted from the exhibition is beyond my comprehension. Whatever Marshack's reason for its present omission, one would hope that the bone and a brief explanation of its apparent significance will be entered into the collection before the exhibit leaves New York. Irrespective of any scholarly controversy which might attend the bone as to its final interpretation, the public has the right to know of its existence, to view it firsthand, and to have an explanation as to its probable significance. The public would then be put in touch with what may be one of the most astonishing scientific achievements of our Ice Age forebears.

For many observers, the most enigmatic yet appealing items in the entire show are the diminutive statuettes and relief carvings collectively known as "Venus" figures. Enormously obese yet oddly graceful, with exaggeratedly female sexual characteristics—great pendulous breasts, enormous jutting buttocks, heavy thighs, and huge upper legs dwindling down to small, pointed lower legs—they form a distinct and unified assemblage that, as the exhibition's catalog states, suggests a common origin antedating the years 30,000 to 22,000 B.C. when they were sculpted.

There are pictorial, sculptural, physiological, and possibly mythological reasons for the shape of these Venuses; they are fertility symbols, undoubtedly mother goddesses or female ancestors, whose exaggerated physical characteristics represent the mysterious female processes of gestation and birth. Yet there are compelling reasons to believe that this is by no means the complete explanation for why the Venuses look the way they do. Why the insignificant lower legs? Why does the line that separates the buttocks continue upward to the top of the small of the back? Why the featureless face, the pitched forward head?

One explanation, though it may disturb those who conceive their Ice Age ancestors to have been avowedly artistic but ignorant of any abstract cognitive skills, is that the Venuses are also symbolic representations of calendrical information—in effect, mathematical formulations in ivory or stone.

The evidence for this admittedly startling statement is summed up in a series of diagrams which I prepared almost a decade ago and published shortly thereafter. Starting with graphic representations of certain basic calendrical formulae embracing the lunar-menstrual month, and utilizing the simplest and yet strictest geometrical transformations, a pair of two-dimensional figures was generated that turned out to have the almost exact dimensions, front and back, of one of the earliest and most distinctive of the Venus figurines: the Venus of Lespugue, which I had not previously seen nor heard of. That this is no fortuitous construction is indicated by two factors: first, the geometrical transformations referred to are based on the three most fundamental female/calendrical cycles: the 28-night lunar-menstrual month, the 280-night gestation period, and the 364-night lunar-menstrual year; second, the interim designs formed during several critical steps of the procedure survive today in the form of exact analogs in the primitive art of five continents.



Corroborative evidence is provided by the presence of a band across the top of the breasts in the drawings—a band that is demanded by the method of construction. Such a band does not appear on the Lespugue statuette, although there is a carved-out area under the armpits that would permit one to be affixed; however, the band does appear, clearly sculpted, across the top of the breasts of the Kostenki Venuses from the Ukraine. Photographic renditions appear below of the Lespugue Venus, flanked by the lunar-menstrual female figures which I reconstructed geometrically.

The conclusion seems inescapable that Cro-Magnon artists followed essentially the same steps as I did to produce the Lespugue statuette, and the resulting drawings served as patterns for their three-dimensional Venus. To believe otherwise is to stretch the bounds of coincidence. Yet the implications of the belief are almost equally staggering: that Cro-Magnon artisans were also scientists and mathematicians capable of performing, at the very least, basic arithmetical manipulations; that they were fully cognizant of fundamental biological and astronomical cycles and of their mathematical relationships; and that they had developed a complex and sophisticated graphic and sculptural tradition to symbolize these cycles.

Of the beautiful art and science symbols which Ice Age human beings devised in honor of Time, of wide-wheeling Heaven, and of ever-turning Earth, tragically little remains today. Can anything whole be made of the scattered fragments? Yes, if the findings of many minds from various parts of the world can be brought together in common cause. It is only by gathering up with an abiding care the scattered fragments of our Ice Age ancestors' extraordinary art and their remarkably architected science symbols—by reconstructing all with a severely dispassionate logic—that we will come to know something of their deeply artistic and scientific minds. To know them better is to better the knowledge of ourselves. To search for their meaning is to search for our own,

Bart Jordan, performer-composer, artist, and cultural decipherer has lectured on Ice Age art and science in colleges and universities, both here and abroad.