

The first stirrings of creation

BY ROBERT G. BEDNARIK

Rock art, found in almost all the world's regions, is a mine of information about early man's intellectual development



Handprints in a rock shelter at Rio Pinturas in Argentina's Chubut province.

Prehistoric rock art is by far the largest body of evidence we have of humanity's artistic, cognitive and cultural beginnings. It is found in most countries of the world, from the tropics to the Arctic regions, in sites ranging from deep caves to high mountains. Many tens of millions of rock art figures or motifs have been found, and more are being discovered each year. This massive, semi-permanent and cumulative record is the most direct evidence we have of how pre-humans first became human and then evolved complex social systems.

Some widely held misconceptions about the origins of art must be dispelled at the outset. Art as such did not appear suddenly, but developed gradually with the cognitive evo-

lution of humans. By the time that the famous cave art of France and Spain was being produced, art traditions are thought to have been well established at least in southern Africa, the Levant, eastern Europe, India and Australia, and no doubt in many other regions that have yet to be examined adequately.

When were humans first able to produce abstractions of reality? In addition to its interest for the art historian and the archaeologist, this question is of wider concern, if only because ideas of cultural precedence have been effective in shaping racial, ethnic and national value judgments and even fantasies. The notion that art began in the caves of western Europe furthers myths of European cultural precedence, for example. Secondly, the origins of art





Rock carvings at an open-air site at Twyfelfontein, Namibia.

are thought to be intimately intertwined with the emergence of several other distinctively human faculties: the ability to form abstract concepts, to symbolize, to communicate at an advanced level, to develop a notion of the self. Apart from prehistoric art we have no tangible evidence from which to infer these capacities.

The beginnings of art

Art production was preceded by “non-utilitarian” behaviour patterns, i.e. behaviour that seems to lack practical purpose. The earliest discernible archaeological evidence for this is the use of ochre or haematite, a red mineral pigment collected and used by people several hundred thousand years ago. These early humans also collected crystals and petrified

fossils, and colourful or oddly shaped pebbles. They had begun to distinguish between ordinary, everyday objects and the unusual, the exotic. Presumably they had developed concepts of a world in which objects could be categorized into different classes. Evidence of this appears first in southern Africa, then in Asia and finally in Europe.

The oldest known rock art was produced in India two or three hundred thousand years ago. It consists of cup marks and a meandering line hammered into the rock of a sandstone cave. At about the same time, simple line markings were made on a variety of portable objects (bone, teeth, ivory and stone) which have been found at the camp sites of early humans. Sets of bunched engraved lines



Stylized animal figure at Helanshan, Ningxia (China).

- first appear in central and eastern Europe; they developed into distinctive arrangements that can be recognized as motifs such as zigzags, crosses, arcs and sets of parallel lines.

This phase, which archaeologists call the Middle Palaeolithic (perhaps 35,000 to 150,000 years ago), is crucial in human intellectual and cognitive development. This was also the time when people developed seafaring capacity, and crossings of up to 180 km were eventually made by colonizing parties. Regular ocean navigation clearly required an advanced system of communication, presumably language.

People of this period also mined ochre and flint in several world regions. They began building large communal dwellings of mammoth bones in southern Russia, and erected stone walls in caves. But most importantly, they produced art. In Australia, some specimens of rock art may be up to 60,000 years old, as old as human occupation of the continent itself, and hundreds of sites contain examples which are thought to predate the cave art of western Europe. But during this

phase rock art also appears in Europe, the oldest known example being an arrangement of eighteen cup marks in a French cave, on a rock slab placed over a child's burial spot.

Perhaps the most interesting aspect of this period is the cultural uniformity that prevailed throughout the then-settled world. Despite differences in tools, doubtless due to responses to environmental differences, cultural behaviour was surprisingly consistent. The use of ochre and the fairly uniform repertoire of geometric markings are indications of a universal artistic language among archaic *Homo sapiens*, including the Neanderthal people of Europe and others about whom we know from fossil remains.

Figurative depiction in the round (sculpture) first appears in Israel (c. 250-300,000 years ago), as modified natural form, then in Siberia and central Europe (c. 30-35,000 years ago), and later in western Europe. By 30,000 or so years ago, rock art included complex finger markings on soft cave surfaces in Australia and in Europe, and hand stencils in France. Finally, two-dimensional pictures of objects began to



Examples of early rock art, dating back to the Middle Palaeolithic (35,000-150,000 years ago). Object (c) is a tooth, (d) is a fossil nummulite, and the rest are bone fragments. The finds are from Ukraine (a-c), Hungary (d), France (e) and Bulgaria (f).

very differently. In Russia and across Asia, geometric art forms were elaborated into highly developed systems, some of which resemble formal records, while others may have been mnemonic devices, memory prompts designed to record texts.

From about the end of the Ice Age, about 10,000 years ago, rock paintings begin to appear outside caves. This almost certainly reflects the selective survival of rock art rather than a new preference in the choice of sites. Rock paintings can survive very well in the stable environments of deep limestone caves but not on rock surfaces that are more exposed to damage. The apparent proliferation of rock art around the end of the Ice Age therefore indicates, not an increase in art production but that a threshold of preservation has been crossed.

On all continents except Antarctica, rock paintings now bear witness to a multitude of art styles and cultures, to the progressively increasing ethnic diversification of humanity on all continents, and to the development of the major religions. Even the recent historical developments of mass migrations, colonization and religious expansion are all reflected in rock art.

Dating

There are two basic forms of rock art, petroglyphs (or carvings) and pictographs (or paintings). The motifs of petroglyphs were created by engraving, hammering, incising or abrading ►

appear; the oldest examples, about 32,000 years old, are from France, followed by paintings from Namibia in southern Africa.

By about 20,000 years ago, quite recent in terms of human history, cultures began to diverge noticeably. In western Europe, Upper Palaeolithic people developed sophisticated traditions of both sculpted and graphic art for ritual or decorative use. By 15,000 years ago, this tradition produced glorious masterworks in such caves as Altamira (Spain) and Lascaux (France), and thousands of finely carved figurines made of stone, ivory, bone, clay or other materials. This is the time of the finest polychromatic cave art, painted or engraved with the confident strokes of master artists. Graphic art traditions elsewhere, however, developed

Rock carvings of four human figures. Toro Muerto (Peru).

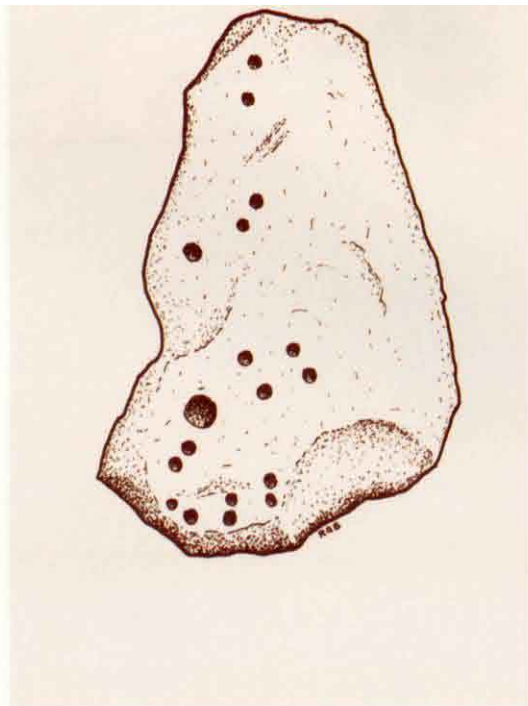


► rock surfaces. In pictographs some material was added to the rock surface, usually paint. The distinction is important because it determines approaches to dating.

The methodology of dating rock art scientifically has only developed over the last fifteen years or so. It is still therefore in its infancy, and nearly all the world's rock art remains effectively undated. This does not mean that we have no idea of its age, however, since there are often various indicators of approximate or at least probable age. It is sometimes possible to determine the age of rock paintings quite accurately, especially when the paint contains organic substances or microscopic inclusions that are datable through their radiocarbon content. Careful interpretation of such analytical results can make dating quite reliable.

Set of 18 cup marks on the underside of a rock slab placed over a Neanderthal child's grave (France).

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Stylized painted animal figures at Raisen, near Bhopal (India).



Dating petroglyphs, on the other hand, remains very difficult. Most current methods seek to establish the age of a mineral skin that may have formed over the rock art and thus provide merely minimum ages. One technique is to analyse microscopic organic material encased in such mineral skins; laser technology can be used successfully for this purpose. But currently only one method is available to determine the age of the petroglyph itself. It is based on the fact that the mineral crystals that were fractured when the petroglyph was hammered into the rock initially had sharp edges, which became blunt and rounded with age. By determining from nearby surfaces of known ages how fast this process operates, the age of a petroglyph surface can be estimated.

Several archaeological dating methods can also provide limited assistance. If, for instance, an archaeological, datable layer of soil covers petroglyphs on a rock wall, it can be assumed to provide a minimum age for the rock art. Stylistic comparison has often been used to construct chronological frameworks for rock art, but not very successfully.

The most promising methods of studying rock art often resemble those of forensic science. For instance, paint components may tell us how the paint was mixed, what implements and additives were used, where the pigment came from, and so forth. Human blood, which was used as a binding agent in the Ice



Stencilled outlines of boomerangs, axes and hands. Carnarvon Gorge, Queensland (Australia).

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Age, has been detected in ancient Australian rock paintings. Australian researchers have also found as many as forty very thin superimposed layers of paint at many sites, indicating continuous repainting of the same rock surfaces over long periods of time. Like the pages of a book, these layers record the history of the site's use by artists of many generations. The study of such sequences is only just beginning and may result in entirely new insights.

Paint brush fibres have been found in rock art paint, and so has pollen which can indicate vegetation contemporary with the time of painting. In some French caves, distinctive paint recipes have been identified from their chemical makeup. In the case of charcoal pigment in a black painting, even the genus of the tree from which the charcoal originated has been established.

Rock art research has become a scientific discipline in its own right, and already draws on many other disciplines, from geology to semiotics, from ethnography to computer science. The methodology includes colour enhancement of electronic imagery derived

from very faded, barely visible pictures; various specialized recording techniques; and microscopic study of tool marks and minute residues.

Fragile vestiges

Methods of rock art conservation are also being developed and increasingly applied. Rock art panels and even entire sites are being replicated in order to protect the original from deterioration. Yet much of the world's prehistoric art is now severely threatened. Acid rain dissolves the protective mineral coating that covers many petroglyphs. Increasing cultural tourism, encroaching urban, industrial and mining development, even misguided research all take their toll.

Efforts are being made in some countries to protect and preserve this remarkable but fragile cultural resource. International agencies, especially UNESCO, can help by encouraging international uniformity of protective legislation, streamlining research and applied science, and helping develop global approaches to rock art conservation and site management. ■