

Structure of Art, Structure of Mind

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The context

For over four million years hunting has shaped humanity and has left profound marks on the intellectual nature of the species. The fundamental process of association and 'logic' of the human mind came into existence and developed throughout a long series of millennia during which the species acquired its basic behavioural patterns. These millennia are characterized by hunting bands which shared activities and refined communication; team work enhanced socialization.

This way of life reached a high level of perfection and efficiency in the last 200,000 years with the appearance of our direct forefather, *Homo sapiens*. He acquired developed technological skills and mental abilities, he was capable of producing precise and efficient implements and was responsible for creating an ideology whose matrix is still present at the core of modern man's conceptual thought. Our ancestor developed the capacity for synthesis and abstraction which, among other things, led him to produce art. Visual art as a common pattern is documented only in the last 50,000 years, that is the latest 1% of the age of humankind.

So far as we know, artistic manifestations are exclusive to the human species. Graphic art has multiple functions including communication, memorization, interpretation, commemoration and self-expression. Art is the mirror of mind, and constitutes a precious record of man's conceptual and psychological matrix. Graphic art is a cultural pattern, like writing, dancing or singing. It implies specific abilities of synthesis, abstraction, mental associations and logic.

A few cases of early graphic expressions are recorded in various parts of the world. These predecessors of figurative graphic art appear to be of two main kinds: abstract markings; and collections of natural shapes that attracted the human mind. Abstract markings are known from Africa, going back, at Blombos Cave, South Africa, some 75,000 years. In Europe, at Bacho Kiro, Bulgaria and at Tata, Hungary, they may be as old. According to a current debate, these finds may have been produced by Neanderthaloid people or by archaic *Homo sapiens*. The collection of

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natural shapes is documented from excavations and surface finds in layers of both *sapiens* and *pre-sapiens* humans.

As a cultural pattern, figurative art that includes images is first documented as a production of *Homo sapiens*. The evidence concerns finds executed on durable materials. Art objects in wood, on animal skins or other organic supports have not survived.

Populations whose livelihood is based on hunting and gathering are today almost extinct and are confined to the most inhospitable parts of the planet, such as the deserts of Australia and of southern Africa, the Congo basin, the tropical forests of the Amazon river, southeast Asia, the Arctic tundra of Lapland, Siberia, Alaska and the great Canadian north. They have been pushed to 'marginal' areas, and although they occupy territories that constitute more than 20% of the Earth's surface, account for less than 1% of the world population. Only 500 years ago, when America became known to Europeans, 70% of the Earth's surface was populated by hunting people, who then may have accounted for more than 20% of the world population. At the end of the Pleistocene, some 12,000 years ago, the entire population of Earth pursued this means of subsistence, which was gradually replaced by economies based on food production. Since then other ways of life have developed and patterns of visual arts have become broadly differentiated.

Tribal societies around the world have the common habit of producing art and in particular rock art, i.e. paintings and engravings on rock surfaces. Rock art is recorded in thousands of zones distributed over more than 100 countries. It is a widespread means of expression and of communication, and over 45 million pre-historic images from about 70,000 sites are known today. More than 70% of all known rock art was produced by hunting and gathering societies, while less than 30% is the work of pastoralists and of agriculturalists.

Rock art is the product of pre-literate societies. Until the communities that practised it acquired a 'written' form of communication it includes the earliest preserved visual art. It thus constitutes by far the most relevant record we possess of human history before the invention of what is officially recognized as writing. It also provides invaluable source material for the study of human cognitive development.

Almost all prehistoric art focuses on three basic themes: sex, food and territory. These themes expressed directly or indirectly, realistically or metaphorically, display the focus of interest of the human mind. Humans' main concerns do not seem to have changed much down the ages, as these remain the dominant themes faced by the literate societies, in their visual arts and in literature, in dance and in music. From the earliest historical documentation they appear to have been a source of inspiration for ideology and religion, and to have represented the principal causes of war. Similarly, they are the main causes of conflict among other species.

Broad comparative studies are possible when the pertinent documentation is available. Until recently, cataloguing and making inventories of rock art has been predominantly the work of students and amateurs, occasionally supported by universities and museums. It is only in the last few years that some governments have become aware of the importance of this documentation as an immense cultural and historical heritage, and are now embarking on systematic inventories.

Mobiliary art, objects, figurines, plaques and decorated objects, on the other hand, have received different treatment. Once discovered they are usually acquired by museums and collections where inventories are produced in order to evaluate the patrimony of the institution. A whole-world inventory would be of significant value in the sector of mobiliary art. However, both in terms of the volume of existing documentation and of world distribution, rock art appears to be a global phenomenon that constitutes more than 90% of known prehistoric art. It is found on all continents and has remained in situ where early man produced it. Despite this accessibility, it has received only minimal academic attention and still less public attention and recognition.

Cultural patterns

Comparative studies bear witness to the presence of constant patterns in the production of art across five continents. They appear to be primarily derivative of mental conditioning reflecting social and economic habits. Certain elements of style and content have been shown to be constant at a global level, and five categories of rock art have been defined according to subject-matter, syntax and style (Anati, 2003).

Early hunters

This is the art practised by bands of big-game hunters, who made no use of the bow and arrow but usually hunted with the help of spears and other throwing implements. Teamwork action and the in-depth observation of animal characteristics are reflected in the style, and animal depiction is the main theme. The syntax consists chiefly of logical sequences and metaphorical associations, combining signs ('ideograms') and figures ('pictograms') while realistic anecdotal scenes are rare. Two main subjects appear to be animals – either as food and prey or as totemic symbols. The animal is the main protagonist. Ideograms primarily emphasize the binary relationships between male and female. For the Early Hunters their primary concern and, likely, their main source of food, was big game. In this category there is very



Fig. 1. Les Trois Frères, Ariège (France). Early Hunters' rock engravings depicting horses and bovines (from Breuil, 1952; WARA W05366)



Fig. 2. Gabillou Cave, Dordogne (France). Engraving of an anthropo-zoomorphic figure with ideograms (from Gausсен; WARA W07170)

little human fighting and warfare. Anthropomorphic figures are not common, but when they do occur they often represent anthropo-zoomorphic beings belonging to the realm of myth.

In the past, hunters and gatherers have been thought of as one category. Recent studies show consistent stylistic and conceptual differences between the art expressions of early hunters of big game, late hunters of small and medium-size game and gatherers. They represent three different lifestyles and different models of social interplay, and their art shows differences of visual output, styles, patterns of syntax and subject-matter.

Early gatherers

This is the graphic expression of peoples whose main economy was based on the gathering of wild fruits, leaves, tubers and other edible vegetables. Several such groups probably collected snails and other small animals, but may have had a pre-vaillingly vegetarian diet. Animal depictions do not feature. While Early Hunters had a pattern of life based on dynamic team activities, Gatherers rely on individual activities and this is reflected in how they express themselves visually. Their syntax is characterized by simple scenes of an allegorical nature depicting a surreal world. Human faces are often transfigured. The subject-matter mainly deals with epic events involving what appear to be supernatural anthropomorphic beings, and the mysteries of communion between man



Fig. 3. Narbalek, Arnhem Land, Australia. Rock paintings by Food Gatherers depicting anthropomorphic plants of yam (by Lewis, 1988; WARA W00215)

and the forces of nature. Tendencies to depict monstrous and deformed human shapes reflect alterations in the state of consciousness, and some of this art seems to have been produced in a state of hallucination. Human fights and warfare do not appear very much, but social events are important, as are music and dancing, which are often represented.

Late hunters

Hunters who use the bow and arrow usually operate alone or in small teams. Their visual art consists of realistic-dynamic anecdotal and descriptive scenes of the hunt. Social and economic events are represented. The human figure appears as the main protagonist. They tend to associate the hunt with sex, and mythic beings are present in daily events. The animals depicted vary according to the area: usually they are caprines and cervines. Both in North Africa and in the Levant of Spain human fighting and warfare is a common subject. In major areas of Late Hunters' rock art in the Middle East and Central Asia, scenes of human fights are rare or non-existent, and hunting is by far the predominant theme.



Fig. 4. Msana, Zimbabwe. Rock painting of Evolved Hunters carrying bows and arrows (from Goodall et al., 1959; WARA W00242)



Fig. 5. Engraving from Wadi Ramliye, Central Negev Desert, Israel. Evolved Hunters are helped by dogs. Dots near the arrow indicate that it is in motion (from Anati, 1979; WARA W00259)



Fig. 6. Rock painting from South Africa representing the art of the Pastoralists (from Tongue, 1909; WARA W00280)

Pastoralists and herdsmen

This is the art practised by peoples whose primary economic activity is depicted as raising livestock with a focus on domestic animals and scenes of family life. Ethnic identity and wealth, in the form of livestock, are major issues. Human figures are given specific shapes and attributes, including hats, body decorations and associated ideograms, likely to define their social status and ethnic belonging. Tribal disputes are occasionally represented in an otherwise idyllic atmosphere.

Complex economy

Non-urban, non-literate peoples with a diversified economy, including farming, produce art like this. Two main trends are identifiable: one of mythological and commemorative scenes; and the other of symbolic compositions made up of signs and patterns. Anthropomorphic divinities and/or supernatural beings are frequently represented. The Complex Economy group has a variety of styles, from the narrative scene to schematic compositions, with a much broader range of themes than the other categories. Like its economy its art is characterized by diversity.

This classification is intentionally schematic; there are *transitional* phases and groups that display a mixture of characteristics, there also exist marked differences within each given category. Minor groups also include the art of fishermen, of late food collectors and shell-eaters. In the present state of research and given the considerable amount of available evidence, an approach based on style, typology and subject-matter is followed in order to transcend the limitations of regional or ethnic borders. Considering the immense volume of material already recorded, there is a need to create such a device for effective cross-cultural comparative analysis, based on thematic and stylistic elements that go beyond the limits of geographical boundaries.



Fig. 7. Bedolina, Capo di Ponte, Valcamonica, Italy. Engraving by a complex economy group, Iron Age (from CCSP; WARA W00373)

As far as the distribution of rock art is concerned, Early Hunters, Early Gatherers and Late Hunters exist wherever human beings arrived before the domestication of animals and plants began. These three categories are so far missing from the art of Melanesia and Polynesia. Pastoralists are mainly concentrated in Africa and Asia. Complex Economy groups are concentrated mainly in Asia and Europe and are almost entirely missing from Australia, southern Africa or the southernmost part of South America, and from several areas which are now deserts.

Rock art analysis employs three principal criteria: *grammar*, based on themes and typology; *syntax*, which relates to the associations, intentional sequences and scenes; and *style*, derived from the importance given to certain wild or domestic animals, the presence or absence of certain symbols which act as 'fossil guides', the emphasis on specific features such as the stylization of animal horns, of human genitals, and the degree of schematization and synthesis of images. Use of these criteria has led to the identification of a series of significant, recurrent elements. Such comparative studies suggest that living conditions, the economy and patterns or way of life influence associative processes, behaviour, thought, ideology and, consequently, artistic manifestations. Visual art appears to be a synthesis of the human wit. Analysis of the essential elements of rock art assemblages at a global level is leading to a recognition of what are universal factors, identifying and distinguishing them from the local factors and providing a typological definition of art trends. This kind of analysis is particularly useful for defining the cultural significance of various patterns of rock art.

According to current data, the earliest known rock art expressions are located in Africa and Australia. It would be logical to consider that Asia, situated between these two regions, should also have had such early manifestations, but so far there is

no clear evidence. Known records of rock art in Europe and the Americas are all of a later date.

In the cases recorded so far, in over 100 countries, rock art is a product of *Homo sapiens*. In all countries and in all the zones examined there are great concentrations of rock art which do not reflect an analogous concentration of people. It seems to be a universal pattern that where the population is more concentrated, rock art is scarce.

There appear to be many zones the world over where people purposely went for artistic or other ritual and social activities connected to rock art. Like holy sites in recent and current societies, in most regions of the world and among most religions, such a pattern implies an attitude of reverence towards 'holy' or particularly meaningful places of congregation at rock art sites. This trend persists from the earliest large-scale rock art manifestations to the latest.

Typology and grammar of art

Subject-matter selection is a factor of the art analysis of every period, including prehistoric art. Each human group in each period has a restricted repertory that differs in each case. Fighting scenes, for example, are the main subject-matter of the Iron Age rock art of Europe, yet are not found in Paleolithic, Mesolithic or Neolithic art. Female or male subjects were preferred during different phases. Weapons and tools are profusely represented in certain groups or during different periods of rock art but remain totally absent from others.

Three types of signs are to be found, each grammatically different from the other. They recur globally both in rock art and in mobiliary art.

Pictograms (or *mythograms*) are representations of real or imaginary objects, animals or human beings. Pictograms are images whose shapes we may identify as Anthropomorphic, Zoomorphic, Objects and Tools, Structures and Tectiforms. Only rarely do other themes occur, such as vegetation, landscape or realistic portraits, and only in specific contexts. The subject-matter of prehistoric art appears to be globally restricted to these themes, and within each category the themes are even more limited.

Ideograms are repetitive signs or combinations of signs and they occur in prehistoric art, as well as in early ideographic writing. Their recurrent nature and the particular relationships between them indicate that they are intended to convey conventional concepts. Three main types of ideograms are:

1. *Anatomical*: reflecting real or symbolic functions or parts of the human body;
2. *Conceptual*: giving a conventional shape to ideas;
3. *Numerical*: quantifying the real, the hypothetical or the imaginary.

Such definitions do not necessarily imply their function. They reflect our way of seeing and classifying them. Altogether there appear to be just over 20 ideograms with a wide distribution:

1. *Anatomical*: phallic, vulvar, hand and foot prints.
2. *Conceptual*: disk, zig-zag, snake, branch, 'lips', 'T' shape, 'U' shape, 'H' shape, mouth shape, trident, half-ring, cup and ring, star, stick, triangle, square.
3. *Numerical*: groups of dots, rings, half-rings or lunates and of parallel lines.

Psychograms seem neither to represent objects nor to be symbols. Sometimes they may have the role of exclamation marks. They appear as a result of discharges of energy, perhaps in order to express feelings about life or death, love or hate, but they could also express wishes or expectations. They are signs that convey sensations from he/she who represents to he/she who observes. The psychogram works at a subconscious level, as do certain archetypal signs that our conscious memory is no longer able to define. The choice of rock surface and its actual shape often fulfil the psychogram's role. In such cases, the location and nature of pictograms and ideograms appear to be related to the shape-psychogram upon which they are depicted. Such interpretation of natural shapes is still widespread among Australian Aborigines.

The syntax of association between pictograms, ideograms and psychograms reflects the mental process of *Homo sapiens*. In present-day tribal societies it occurs in the graphic arts as well as in diction and storytelling, in music (sound) and dance (body movement). The information that can still be provided by surviving hunter-gatherers may constitute an important support for the reconstruction of the cognitive processes of early art. In fact, the associative and metaphoric system has never ceased to be a basic means of expression. For Renaissance painters, the dove was undoubtedly a dove; but when Fra Angelico of Florence painted it in the Annunciation scene, an understanding of its meaning is not sufficiently conveyed by stating that in a particular part of the painting there is a dove. Similarly, Picasso's dove is not merely a dove. In this case it is a pictogram, which is combined with the ideogram, the olive branch, that we may recognize as meaning 'peace' only if we are initiated. For a non-Christian Bushman of the Kalahari desert, the reading of this ideogram would be as improbable as our ability to read some of the Palaeolithic ideograms, unless some reliable hints are gathered. A thousand years hence, perhaps, someone could be asking whatever could be meant by the ideogram near the beak of that strange pictogram that vaguely resembles a bird.

In the art of Early Hunters naturalistic portraits of people are rare, while naturalistic portraits of animals are common. In the rock art of all five continents in all categories, landscapes are extremely rare, as are images of plants, but they are common in a few specific cases. They are either completely absent or indicative of some particular characteristic if they do exist. Landscape, in the sense we conceive it, is present only in the art of groups with a complex economy. Figures of plants, leaves, roots or fruits are present in a circumscribed context. They are primarily depicted by food-gatherers.

In the past, as mentioned already, gatherers and hunters had been considered a single category. In some cases we may identify groups showing mixed characteristics of both hunters and gatherers. However, recent studies have shown marked differences in the grammar and syntax of art between groups with a prevalently carnivorous diet and those with a mainly vegetarian diet. The dynamic of daily activities has an impact on the cognitive system of a human being, and that of hunters of big game develops quite differently from that of hunters of rabbits or ducks, and both are different from that of shell or yam collectors.

In Tanzania, for example, the rock art sequence spans thousands of years, yet all the images of the vegetal world are concentrated in one phase which may be related

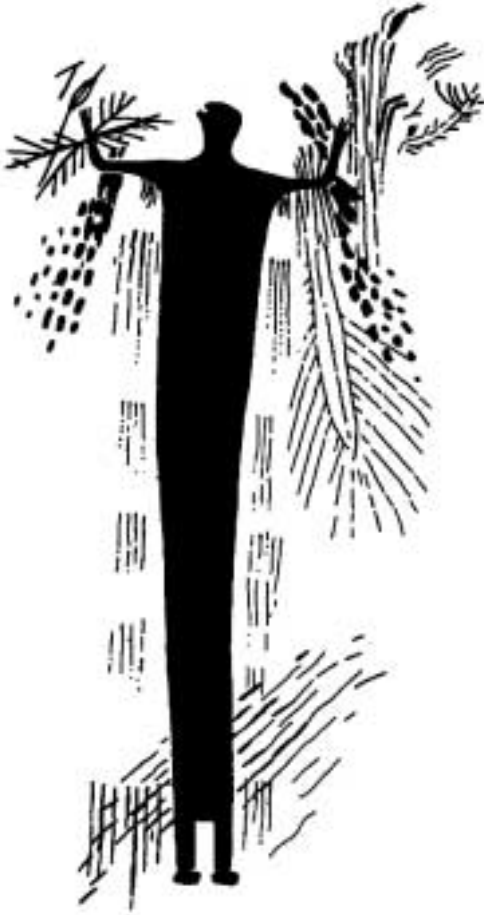


Fig. 8. Rock painting from Panther Cave, Seminole Canyon, Texas, USA. In the Early Gatherers' art, ideograms, pictograms and psychograms may combine to form a complex graphism (from Wellman; WARA W07173)

to the end of the Pleistocene or the beginning of the Holocene, in a period of 2–3000 years between 14,000 and 8000 years ago. It would appear to have been a phase of gatherers rather than of hunters, even though it is considered to belong to a 'Hunting and Gathering' period (Anati, 1986). After this identification, analogous 'gatherer' styles and themes were recognized in the Kimberley region of northwest Australia, in the Tassili and other oases of the central Sahara, in northern Mexico, in Texas and elsewhere. Similar patterns, similar typological categories, are present in different parts of the world.

Might we postulate that similar cognitive processes have led different people to similar visual outputs? In other words, is it possible to claim that the structure of art reflects the structure of mind? These sorts of studies are relevant to psychologists and sociologists as well as to philosophers and anthropologists, and a perspective of 50,000 years cannot fail to be useful in improving our understanding of the complex data-processing we perform in our brain.

Recurring characteristics

Each of the five categories of rock art display widespread 'paradigms', some of which are rather obvious. Rock art is a world phenomenon practised by tribal groups on rock surfaces or on cave walls. In the production of rock art there are preferences for the type of place, whether cave, shelter or open-air rock surface; and for the type of surface, be it horizontal, oblique or vertical, floor or ceiling. For each of the five categories choices are made in respect of the surface on which the painting or the engraving is performed, and the chosen surfaces may have recurring characteristics of colour and form.

Technical preferences appear to have influenced the methods employed, whether for painting, engraving, graffiti, hammered pecking or various types of relief. Certain elements are widely repeated, and the phenomenon does not seem to reflect a process of acculturation or diffusion. In some cases it may be the result of a given technological level, or lifestyle, or way of thinking, or all of those combined.

In every category there are themes of preference. For example, large representations of animals at life-size or above, painted or engraved, are almost exclusively by the Early Hunters. Such depictions among pastoralists are only to be found in certain zones that today are deserts, especially in Arabia and the Sahara, and then the large animal representations are mainly concentrated in archaic phases of the pastoralist art. It is likely that these people had an economy reliant on both hunting and animal breeding. Their stylistic pattern is quite different, however. Animal representations are extremely rare in the rock art of the Complex Economy. On the other hand, there are phases in Early and Evolved Hunters' art in which medium-sized or even miniature animal representations are found.

An interesting phenomenon has been noted: when large animals are prevalent, human figures are rare. Where the animals are smaller, the percentage of anthropomorphic figures is usually higher. Hunters' art always tends to have animal images as the subject-matter. Sometimes humans have animal faces and other zoomorphic features. The art of food collectors, on the other hand, has anthropomorphic beings as the main subject-matter. Anthropomorphic images of life size or more are almost exclusively represented in the art of Gatherers. In the rock art of northern Australia, Kimberley, Arnhem Land, the York Peninsula and also Texas (Pecos River) and northern Mexico (Baja California) large-size anthropomorphic beings had been attributed to Hunting-Gathering groups. They do, however, belong to Gatherers rather than Hunters.

In the art of Early Hunters, when there are associations, there are primary and secondary subjects. An initial choice determines the dominant subject and then minor complementary themes are added. This may well reflect a particular way of thinking (primary focus and secondary focus). Repetitive elements like ideograms and pictograms accompany the dominant figure. It is currently stated that the animal is the most commonly represented figure in European Paleolithic art and in Early Hunters' art throughout the world. They are undoubtedly the main feature. However, isolated animal figures are practically non-existent, they are almost always accompanied by ideograms. Animals may occupy a major space on the painted surface, due to their size, but symbols vary in quantity

and they frequently exceed the number of animal figures with which they are associated.

As was brought into evidence by A. Laming (1962) and A. Leroi-Gourhan (1965), in the Paleolithic art of western Europe there are frequent cases of animal figures of different species being associated. The bison and the horse are more frequently represented together than others, usually one in front of or alongside the other. If they are represented facing each other this seems to imply something quite specific in the dialectic of associations. According to Leroi-Gourhan they would be symbols for male and female. In the Gobustan region of Azerbaijan, in a rich concentration of rock engravings, the main such association of Early Hunters animal figures concerns the ox and the horse, with types of composition similar to those of the bison and the horse in western Europe.

In Tanzania the Early Hunters art contains representations of the elephant and giraffe, associated in a similar way and playing a similar role in terms of associations and quantitative proportions to other animals as do the horse and bison in western Europe and the ox and horse in Gobustan. They are frequently associated and are by far the most commonly represented animals (Anati, 2000). In all three areas other animal species are represented in similar associations. There are also representations of animals of the same species facing each other.

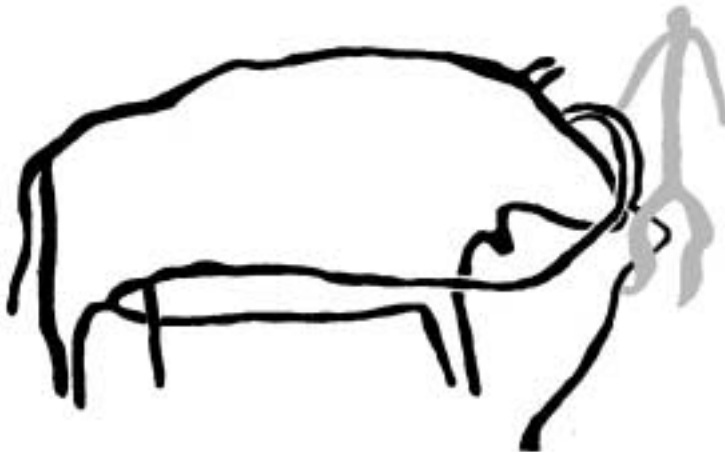


Fig. 9. Büyük Dash, Gobustan. Rock engravings by Early Hunters showing an intentional association of animal figures (from Djafarsade; WARA W05811)

Obviously the repetitive depiction of two animals of the same species or of two different species facing each other is intentional. It has been suggested that they may be totemic animals representing different clans facing each other, or that they may reflect a dual system of values symbolized by the animals, or may constitute tribal or clan agreements on selection of partners, and so on.

These are premises for yet another paradigm: the presence in the depictions of dominant animal species with a dialectic, metaphorical relationship between them.

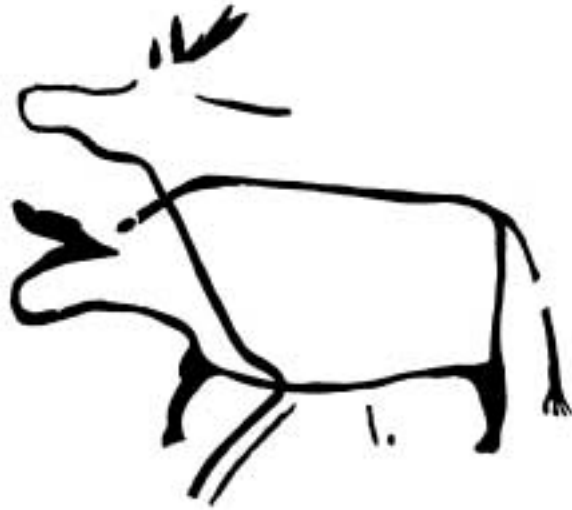


Fig. 10. Lena Valley, Siberia, Russia. Rock engravings by Early Hunters (from Okladnikov; re-worked at CCSP; WARA W00025)

In rock engravings of the late pre-literate Metal age in Valcamonica, Italy, and in Bohuslaan, Sweden, there are frequent fighting scenes where one fighter has an oval or round shield and the other a rectangular shield. Similar scenes appear in other corners of the world such as Mongolia and Kazakhstan. The shape of the shield is likely to indicate the ethnic or social identity of the fighter. Some of the fights in these different areas represent images of both sexes, male facing female. They may be 'metaphorical' fights. Recurring characters appearing in different groups of rock art reveal similar systems of defining relevant identity details.

The syntax of art

A definition of the syntax of art is determined by the presence or absence of various types of association: the scene, the sequence, the assemblage and the abstract composition. They reflect different kinds of cognitive logic. Among Early Hunters the prevailing association is the sequence. Abstract compositions appear among Early Hunters and Complex Economy. Some scenes are common to all categories but are rare among the art of Early Hunters. However, many groups in all the categories do not include scenes. Pastoral people and Complex Economy groups often represent scenes of daily life. In the art of the Evolved Hunters, scenes are common, such as hunting scenes, war, dancing or other events. Early Gatherers have produced allegorical and simple surreal scenes probably to illustrate mythical stories.

Certain types of associations resemble one another. An animal in the context of other associated figures does not necessarily reflect a naturalistic reality as our present-day thinking would infer. Large animals are placed on cave walls or on rock surfaces as if they were levitating or suspended in mid-air. In most of the art of the Early Hunters there is apparently no concept of a 'base' or 'ground level'. It has often been asked if they are meant to be the spirits of animals or totemic images rather than

(a)



Fig. 11. Tassili n'Ajjer, Algeria. Rock painting and detail (below) in the 'Round Heads style', c. 5000 BC, illustrating the effect of hallucinogenic mushrooms (from Samorini; WARA W00138)

(b)



the animals themselves. This trend is common in Europe as well as in Tanzania, Australia and elsewhere.

The association between animal and symbol recurs with analogies within all the Early Hunting groups. For the Early Gatherers, however, the main subject-matter is not the animal but the anthropomorphic image, often monstrous, likely to represent spirits or other supernatural beings. The presence of certain kinds of deformations in the faces and in the limbs appears to indicate states of hallucination, and reflect dreamy states of mind generally.

With the Evolved Hunters the main syntax is based on scenes, and shows a specific approach to a temporal reality, with a focus on realistic events of daily life. To our way of thinking, the associations of the Evolved Hunters are more narrative, naturalistic and less abstract than those of the Early Hunters. Early Hunters are more hermetic with a high degree of symbolism and a metaphorical approach.

Early Hunters also frequently display sequences of ideograms that appear as some sort of proto-writing. Symbols are engraved or painted in a row in the form of a written message. Such proto-writing is present for millennia in the proto-literate periods in China, Mesopotamia, Egypt and Mexico. The concept of 'writing', or making readable messages through conventional graphemes, may go back 50,000 years.

From an analysis of the thematic typology of the figures, marks and other graphemes, patterns emerge which constitute the 'grammar' of prehistoric art, considering the images as words in sentences or in composite concepts. Isolated marks are rare, just as isolated words are rare in a conversation. In rock art there are sentences composed of groupings or sequences of graphemes just as in the spoken and written languages of today. Thus we may postulate the existence of logical archetypes.

Students who analyse isolated figures without considering them as part of associations will end up with a catalogue of separate figures. It would be like reading each word in a sentence separately, without seeing the sentence as having grammatical sense and a syntax.

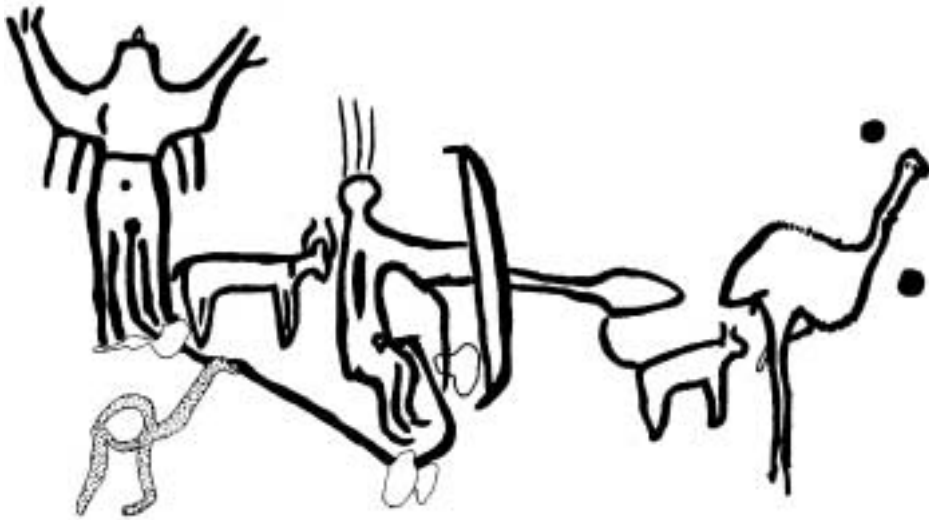


Fig. 12. Tiout, Atlas Range, Algeria. Rock engravings by Evolved Hunters, in which the hunter's penis is related to the pubis of the female figure, the caprine between them might represent the woman's name or identity, and the two cup marks near the ostrich designate it as the object of an action or, in this case, as the hunted subject. (Drawn from a photo by Camps; WARA W00160)

Constants and exceptions in prehistoric art

Sequences with certain constant features are widespread in the different continents. The five categories – Early Hunters, Early Gatherers, Evolved Hunters, Animal Breeders and Complex Economy groups – are present in the same chronological

order, but not all of them are necessarily present everywhere. So far, no Pastoralist-Animal Breeders' rock art has been noted in Australia. The Australian sequence is composed mainly of Early Hunters, Early Gatherers and, in a few areas in the north, Evolved Hunters. The Complex Economy category is represented in only a few very recent cases of post-contact art. Early Gatherers' art in Central Australia does not include scenes, while this type of syntax is present in the Kimberley in Early Gatherers' rock paintings.

In South Africa, the main figurative rock art zones comprise a sequence with little evidence of Early Hunters. Figurative paintings of Early Hunters appear further north, in Namibia, Zimbabwe and Tanzania, where Early Gatherers are also present. The greatest artistic activity of South Africa (probably the richest in rock art so far known in the world), emerges as the work of early Evolved Hunters from about 14,000 years ago, who maintained the same visual language with only minor modifications up until the present century. Previous graphic expressions are mostly non-figurative, and the work of Late Pastoralist-Animal Breeders and Complex Economy groups also appears. The rock art describes these patches of Pastoralist and early farming populations, but in most of the territory the Evolved Hunters' way of life predominated, both before and after farming, until quite recently (Lewis-Williams, 1983).

In Tanzania, during the period of the Early Hunters, there is a brief phase during which fruits, leaves and flowers are represented. Anthropomorphic figures include anthropomorphized plants and fruits, and stylized animals are considered to be totemic and mythic depictions rather than hunting prey. Such art appears to represent a culture whose economy was based on gathering. Analogous phenomena occur elsewhere. In central Sahara, a similar type of rock art seems to reflect a population whose lifestyle depended largely on gathering and who quite probably made extensive use of drugs. A similar trend is recognized in Baja California, Mexico, and at the Pecos River and Seminole Canyon in Texas. In different parts of the world this peculiar phenomenon is noticed: at a certain point carnivore hunters turned into vegetarian food collectors. Why? What happened? In a few places this change took place in conjunction with warming climatic changes. One hypothesis is that climatic change may have modified the animal and vegetal food resources; another suggests that certain diseases may have been caused by the use of meat. Yet another hypothesis claims that dietary taboo or other religious rules may have been introduced to stop the killing of prey.

In Near Eastern deserts the rock art shows sporadic examples related to a Complex Economy, that is to say of Food Producers and Agriculturalists. In the Negev desert there is even a depiction of a plough dating back about 2000 years. It reflects a brief period of agriculture and complex economy undertaken by an exotic population, probably an attempt at colonization by Roman or Byzantine soldiers, in a period in which rain was more abundant. The stratigraphy of overlapping and superposition shows that, both before and after this period, the artists were Pastoralists. In itself the existence of a few drawings indicating a Complex Economy does not always mean the beginning of a new era, but may reveal some minor historical event.

Conclusions

Art is a means of expression and of communication. It reflects the language of its maker. The presence of pairs of animals of different species associated in a similar way, taking a similar metaphorical approach, in Tanzania, Azerbaijan and western Europe represents a similar associative trend. But the animal species are not the same. In each area the metaphor used local animals. Obviously the giraffe occurs in Tanzania and not in Europe. It would be unlikely to find representations of llamas in Australia or of kangaroos in Argentina. But within the general framework we come upon animal subjects, associated in a similar way with the same kinds of values for different species, in different parts of the world. This example of similarities between the constant association of bison and horse in Palaeolithic Europe, of ox and horse in Azerbaijan, and giraffe and elephant in the art of Early Hunters in Tanzania, is an indicator of widespread patterns.

An essential piece of evidence lies in those ideograms which are found as constants the world over. Vulvar, phallic, cruciform, stick-like and egg-like ideograms, cup-marks, cup and ring marks, handprints, footprints and animal tracks are all to be found in the Palaeolithic art of Europe as well as in the context of Hunters' art in all continents. They are found also in the art of Complex Economy populations and are present in the early ideographic scripts.

The art of the Early Hunters and the Early Gatherers appears to have more universal characteristics than other groups, in terms of subject-matter, types of association and stylistic trends. That of the Evolved Hunters has local features. The real tower of Babel came into being at the end of the hunting and gathering era. Such events took place at different times in different parts of the world. The economy ceased to be that of the hunters, but the spirit of mankind did not nullify the hunters' tradition. Men remain 'hunters', in their behavioural habits and instincts, from business to politics, to courting, to social relations, even when the economy has turned to food production. Art, like most other aspects of culture, then became increasingly provincial and more conditioned by surrounding influences. However, on the whole, many common denominators persist. The most obvious is the very fact of producing rock art at all and then, as we have seen, there are analogous typologies, choices of subjects, types of associations. The rules of grammar and syntax are global.

A worldwide database is gradually becoming available and increasingly contributes to assembling a world-view of the patterns of art and their context. It allows us to assemble an archive of 50,000 years-worth of human intellectual adventures. Prehistoric art, and in particular rock art, appears to be a paramount source for reconstructing the intellectual history of *Homo sapiens*. The structure of the mind is reflected in the structure of art, and the analysis of rock art is providing a source for the study of both – the early history of mankind and the development of the human mind.

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