

PROBLEMS AND POSSIBILITIES OF THE PREHISTORIC
ROCK ART OF NORTHERN AFRICA

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Introduction

The present paper is intended both as a review and as a critique of the present status of research into the prehistoric rock art of northern Africa. It should be stated at the beginning that no short account such as this one could hope to deal adequately with this immense subject as far as a description of its development through time or its geographical distribution is concerned. I am more concerned with outlining what seems to me to be the documentary significance of this rock art for anthropology and for culture history, to discuss some of the problems which need to be investigated, and to offer some suggestions for new or better concepts and techniques of analysis. It may appear somewhat inappropriate that in a colloquium devoted to historical studies I have chosen to discuss prehistoric materials.¹ There are several explanations. The first is that I am not sufficiently acquainted with the historical records of northern Africa to deal properly with the later rock inscriptions, and my principal interests are in the prehistoric range. The second is that prehistory is a relative term, the line between history and prehistory in Africa is often difficult to establish, and the materials I am discussing often have a very direct relevance to the problems of the historic or protohistoric periods. The paper is offered with all the modesty required of one who is neither an authority in art (prehistoric or otherwise) nor, strictly speaking, an Africanist but a prehistorian whose own field research on excavated sites and rock art in northeastern Africa has made him acutely aware of the possibilities of these documents and of some of the limitations and failings of past and present studies in the prehistoric rock art of this part of the continent.²

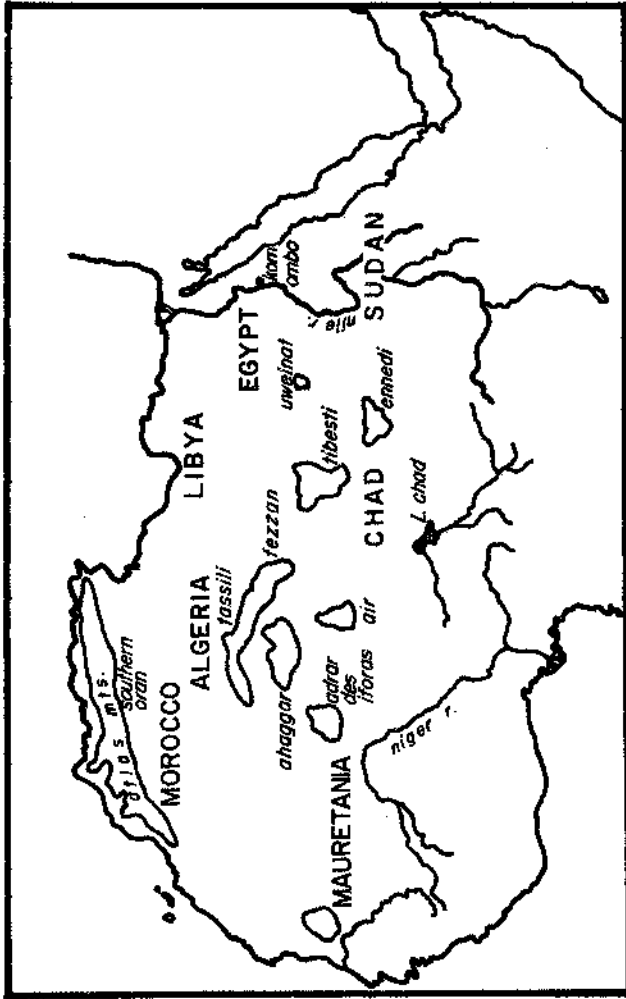
1. This paper was presented at the Colloquium on African History at Boston University, February 11, 1967.
2. In this paper I am not directly concerned with defining art per se nor in the methodology of definition and analysis of art in general. This important topic has to be left aside, as well as the whole problem of esthetic values and other aspects of culture or how art exhibits the patterns of a culture. All these lie outside the limited aims of this paper.

It is probably true that, for a number of reasons, the rock art of northern Africa offers, to a greater degree than that of any other region of the world, an extremely powerful instrument for interpreting and supplementing the culture history of half a continent in the time range involved. Its geographical distribution is very wide, from the Atlantic to the Red Sea and from the Anti-Atlas Mountains of the Maghreb to the Niger River and Sudanic region. Within this area of about ten million square kilometers nearly 30,000 individual engravings of all periods and about the same number of paintings are known.³ Most of the paintings and engravings are well preserved, and it is unlikely that many have been destroyed or badly defaced by natural action;⁴ so they can be fairly easily deciphered, and they can be accepted as reasonably representative of all periods in the past when rock art was being done. They offer unusually great detail as far as content is concerned and cover a very wide range of topics or motifs. Finally, this art is found in fairly close proximity to a distinctive and well documented advanced civilization in the Nile Valley which often provides valuable clues in its own art, artifacts, and texts concerning the significance and age of some of the art of the eastern and western deserts.

Writing as an anthropology-oriented prehistorian, I should like to discuss the importance of these documents, to assess the value of the information they have yielded in the past, and to suggest how we can extract even more information from them than is currently being done. No claim at all is made, of course, that only anthropologists and prehistorians can use these documents with profit; their value to historians, geographers, zoologists, climatologists, and many others needs hardly to be mentioned. Nevertheless, it is true that for those anthropologists who are especially interested in the events and processes of culture history -- and prehistoric archaeologists by definition fall into this group -- such remains of the past possess an unusual importance.

It may be useful at this point to recall the uses to which archaeologists try to put documents of this kind when they are fortunate enough to have them available in such quantities and detail. First of all they often present data concerning the subsistence practices of the groups responsible, the weapons and tools used, the game hunted, and the status of domesticated animals (but rarely of plants). From certain of these data additional inferences can often be made about climatic conditions and the natural environment at the time the art was done. At times extremely valuable information is available concerning human physical types which even detailed skeletal analysis might not reveal (for example, the Upper Palaeolithic paintings in France which indicate that light-skinned and fair-haired people were already present in western Europe in late

3. Henri Lhote, "L'évolution de la faune dans les gravures et les peintures rupestres du Sahara et ses relations avec l'évolution climatique," Miscelánea en Homenaje al abate Henri Breuil, 1877-1961, E. Ripoll Perelló, ed., 2 (Barcelona, 1965), 85-86.
4. Ibid., 92.



Locations of the main centers of prehistoric rock art in northern Africa

Pleistocene times). Relationships between groups or societies can sometimes be distinguished, as for example in the South African Bushman paintings which portray scenes of warfare or conflict with other peoples. Migrations and other forms of diffusion can sometimes be reconstructed through the distribution of motifs, specific elements, and portrayals of physical types. At times one can get some suggestive insights into such social aspects as the sexual division of labor and the degree of stratification within a society. Certain aspects of ideological behavior can at times be inferred, including some which can reasonably be interpreted as relating to religion, magic, or mythology. Occasionally we can attempt some estimates of the demography and population density of the societies repressed in the art. Finally, rock art allows us to say something about the degree of technical skill and esthetic interests of at least some of the members of the societies; indeed, in the text-free periods of the past, art constitutes an intellectual expression which reveals the beliefs, interests, and esthetic senses of the makers better than any other evidence which has survived.

The Geographical and Chronological Frameworks

The first discoveries of rock art in North Africa were made by officers of the French army in the Southern Oran Mountains of Algeria in 1847, when such unsuspected animals as elephants, rhinoceros, and lions were found drawn on the rocks. Since 1850, when Heinrich Barth made the first discovery of Saharan rock drawings in the Libyan Fezzan, similar finds have come to light in most of the areas where massifs or rock outcrops offer the opportunity for paintings or engravings. The names of Frobenius, Breuil, Monod, Huard, Reygasse, Dalloni, Capot-Rey, Graziosi, Winkler, Vaufray, Lhote, Mori, Dunbar, and Mauny are only the best known of the many individuals linked with the discoveries of the past century.

The richest zones are probably the Southern Oran range in Algeria, the Tassili-n-Ajjer in southeastern Algeria, and the Fezzan massif in western Libya. But many paintings and engravings are also found in southern Morocco and Rio de Oro and in the massifs of the Hoggar, Adrar des Iforas, Air, Tibesti, and Ennedi (see map). East of Ennedi they are known in Gebel Uweinat on the Libyan-Egyptian frontier, in the Darfur region of the Sudan, and discontinuously in the outcrops and oases leading to the Nile Valley. The prehistoric art in the Nile Valley itself, like that between the Nile and the Red Sea, is sometimes set apart by those discussing the art of the Sahara proper, though it is doubtful whether this distinction can be justified on any grounds but geographical convenience. Within this immense distribution there are not only considerable stylistic variations based on spatial and temporal factors but also clear indications of certain emphases or specializations based, apparently, on local traditions and accentuated by isolation and environmental factors. For instance, paintings are extremely rare in the Southern Oran area and in the Nile Valley and Eastern Desert, where nearly all the art is represented by engravings of various sorts. On the other hand paintings are very abundant in the massifs of the central

eastern Sahara, where they are usually accompanied by engravings as well. On what may be regarded as the same time horizon or "period" there can be considerable differences in expression in spite of very similar techniques; for example sexual themes are very common in the earliest pre-pastoral engravings of the Tassili but far less so in Southern Oran, whereas the reverse is true of scenes showing man-animal associations. The extent to which these and other variations are to be regarded as determined by different ethnic or cultural groupings, by differences in religious or magical practices, by environmental influences, and by diffusion or the lack of it has given rise to a great deal of debate in the past few decades.

It may be convenient here to sketch the broad outlines of the chronological framework in which North African rock art is placed today. It hardly needs to be pointed out that there is still a good deal of disagreement on details, on the position of individual figures or sites, and especially on the absolute (chronometric) dating of periods, styles, and figures. A full discussion of these fine points is beyond the scope of this paper. Nevertheless, it is worth emphasizing that, by and large, there is a fair amount of agreement on the general developmental scheme for North African rock art. The basis for this consensus will be discussed later along with some of the assumptions involved. At this point a generalized description may be more helpful in providing a framework which the reader can use in evaluating the later discussion.

Leaving aside for the moment the question of the origins and absolute age of the earliest art in northern Africa, it is generally agreed today that the earliest art figured on large rock surfaces (art rupestre) seems to be represented by engravings only. This is the so-called Bubalus period or style or phase,⁵ which is found especially in Southern Oran and the Tassili-Fezzan area and is characterized by large naturalistic engravings of such animals as rams, cattle, rhinoceros, hippopotamus, equids, and, particularly, by the large extinct buffalo with wide sweeping horns, Bubalus antiquus.⁶ Humans are also shown, often in hunting or coitus scenes or with zoomorphic heads. The animals, especially rams, are sometimes drawn with "discs" between the horns, with collars, pendants, and festooned lines representing perhaps lassos leading to the heads. The deep grooves are sometimes polished, and the interiors of some figures may be polished or pecked as well. These engravings are today considered to be, in large part if not totally, the work of hunting groups. In the central Sahara there may also have been a "Hunter Period" style of engravings in which the Bubalus never appeared.

5. Also known as the Large Wild Fauna period (Mori). But Huard rejects both these expressions and prefers simply Hunter Period. P. Huard and J. M. Massip, "Gravures rupestres de Ye Lulu Loga (confins nigéro-tchadiens)," *Bulletin de la Société Préhistoire Française*, c.r., 8 (1964), 192-197.
6. The exact zoological terminology seems to be in dispute and I have kept the traditional expression.

These types are followed, at least in Tassili, Fezzan, and Ennedi, by a peculiar style of paintings to which Breuil⁷ gave the name Round-Heads. A number of techniques and sub-styles is known, but the characteristic form shows the famous "white Martians" -- humans, often gigantic, with round and usually featureless heads, and sometimes horned and masked. Animals such as elephants, rhinoceros, giraffes, ostriches, and *Bubalus* represent a largely Ethiopian-type fauna. I shall come back later to the alleged racial and religious characteristics of the humans and their activities; for the moment we can say that some evidence suggests the beginning of the Round-Head style may be older than 6000 B.C.

Immediately after the Round-Head period, or perhaps overlapping it somewhat, is the principal and best known grouping of art in the Sahara, the Bovidian Pastoral style. The dominant theme here concerns cattle, by now unquestionably domesticated, and a great many polychrome scenes showing herding, milking, etc. have been found, as well as scenes of social life. Engravings are also present but are less well developed than the paintings and do not represent identical subjects or themes; there may be some continuity in style with the *Bubalus* engravings at the beginning. Cattle are the animals most frequently shown, often in huge herds, but apart from the absence of *Bubalus* there are few important changes in the wild fauna from the earlier period. An Ethiopian-type fauna and, for the most part, a very favorable environment, continue to be reflected; this grouping can very probably be related to a "Neolithic Wet Period" or to a climatic optimum documented in other parts of the Old World about this time. Nevertheless, hunting scenes are rare. Extremely important for our purposes is the fact that the human figure including the face is frequently shown with absolute realism. Pottery was used in the dwelling sites.

The Bovidian Pastoral phase lasted from at least 5500 B.C., judging from Mori's recent research in the Acacus,⁸ until at least the third millennium B.C. By the terminal phases the style had become simplified ("decadent" to some writers), and human figures are rather schematic. There is reason to believe that between 2500 and 1200 B.C. there were marked climatic and faunal changes in the Sahara leading to an impoverishment of the area and centrifugal movements to the peripheries. The C-Group movement into Nubia may reflect one such migration from the desert to the more hospitable regions about 2300 B.C. By about 1500 B.C. the art can be classed as belonging to the Horse Period, with the appearance of paintings and engravings showing at first horse-drawn

7. Henri Breuil, "Les roches peintes du Tassili-n-Ajjer," *Actes du Congrès Panafricain de Préhistoire*, II session, Alger, 1952 (Paris, 1955), 65-219.
8. Fabrizio Mori, "Contributions to the Study of the Prehistoric Pastoral Peoples of the Sahara. Chronological Data from the Excavations in the Acacus," *Miscelánea en Homenaje al abate Henry Breuil, 1877-1961*, E. Ripoll Perelló, ed., 2 (Barcelona, 1965), 172-179.

carts or chariots and later cavalry. Some of the Ethiopian fauna (elephant, giraffe, rhinoceros) are still shown in hunting scenes, but mouflon and ostrich have apparently become the principal game. The final phase of the Horse Period, a few centuries B.C., sees the appearance of the Libyco-Berber script in some drawings and of warriors shown in a bitriangular style. Probably about 300 A.D. the Camel Period begins and continues into historic times as environmental conditions deteriorated even further, aided in part, at least according to some writers, by man and his domesticated animals.

This very simplified outline cannot pretend to do justice to the intricacies of the actual developments and sequence. It glides over some very basic problems and no doubt incorporates certain assumptions and errors which will themselves be the targets for criticism later on in this paper. Nevertheless, all our information at the present time indicates that it is, broadly speaking, representative of the actual sequences in the central parts of the Sahara, if somewhat less so in the peripheral zones. With this scheme in mind we can proceed to consider some of the basic problems and contributions of the data so far collected.

The Age and Origins of the Rock Art

These two subjects cannot easily be considered separately, for the question of the antiquity of the art as a whole and of that of each period has a very direct bearing on the interpretations which are likely or possible concerning origins.

In the question of the antiquity and chronology of North African art we have not yet reached the extreme point attained in the controversy over the age of the art of the Spanish Levant, which in Pericot's recent words "has assumed the proportion of an international polemic."⁹ But nearly identical difficulties are met in establishing absolute, and to a lesser degree relative, chronologies in the two regions, even though the disputes concerning the age of the older forms of art in North Africa are somewhat more muted. If such uncertainty can exist in an area such as eastern Spain, which has been methodically explored and studied for over half a century and where the purely archaeological sequence is fairly well known, we need hardly wonder that in North Africa we are still very far from certainty, particularly in the Sahara, where intensive study of the art is a recent feature and where archaeological investigations oriented to rock art problems have only recently advanced beyond the surface collecting stage.

9. L. Pericot Garcia, "Sobre algunos problemas del arte rupestre del Levante español," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), 157.

This is not the place to present a history of the various points of view expressed in the past century about the age of the earlier forms of rock art in North Africa.¹⁰ After the initial interpretations of the art as Phoenecian or as the work of "idolaters" of recent times from the south, a feeling slowly developed that they were in part prehistoric. This was apparently first suggested by Bonnet in 1889, while in the 1890's Pomel, because of the fauna represented, suggested that some of the art was Palaeolithic.¹¹ At any rate, from the end of the last century, but especially from the 1920's on, there was a continuing controversy over the age of the oldest group of rock drawings, a controversy which is still not settled. In brief there are three main viewpoints. One group favors a beginning for the art *rupestre* in the Palaeolithic and includes, or has included, Dalloni, Frobenius, Pomel, Bosch-Gimpera, Solignac, Kuhn, and A. J. Arkell. Obermaier originally shared this opinion but in 1931 abandoned it in favor of a post-Pleistocene age, a position which was also adopted by Vaufrey, Graziosi, Huzayyin, Almagro, Lhote, Reygasse, Balout, Monod, and a number of other writers.¹² Finally, there is a third group of prehistorians who are either undecided or who decline to commit themselves in the present state of knowledge. These include Alimen, Breuil, McBurney, and Mori.

Until the present time there is only a limited number of ways of assigning absolute or relative ages to prehistoric rock art. In rare but fortunate cases scenes depicted on walls may be covered by later archaeological deposits, fragments fallen from roofs or walls may be found in the datable archaeological levels, or, in the case of caves, the entrance may be blocked by demonstrably later deposits. All these situations provide *ante quem* datings for the wall art. On the other hand *post quem* dating may be obtained if a fallen slab with designs is found buried over an archaeological level which can itself be dated by radio-carbon or other methods. If the fallen piece is sandwiched between two datable levels, then the age may be narrowed down even further. Occasionally a more precise dating can be inferred if some object clearly related in style to the wall art (e.g., a sketch or rough draft of a feature shown on the wall) is found in good association with a datable archaeological level. Unfortunately, such associations of wall art with buried or stratified archaeological deposits are very rare in

10. A review is given in J. Forde-Johnson, Neolithic Cultures of North Africa (Liverpool, 1959).

11. The fact that similar claims were being made about the same time for the age of cave art in France and Spain is probably relevant to this subject, but the influence of European events in prehistoric research on North African archaeology is not a suitable topic for this paper.

12. This neat division is complicated by the fact that some writers believed the earliest drawings were Capsian at a time when this culture was believed to be late Pleistocene in age, while some other writers such as Flamand, though calling the art "Neolithic," actually favored a considerable antiquity since they thought the North African Neolithic developed in the late Pleistocene.

northern Africa, and in most cases other means have had to be used to provide datings. Superpositions of engravings or paintings give an idea of the relative ages and sequences of different styles or motifs. Degrees of patination can sometimes yield similar information. Objects whose age is known from other sources (e.g., weapons, certain animals, clothing, and ornaments) may give useful clues when depicted in the art. Artifacts whose age is known within broad limits may be found as occupation debris in the neighborhood of the sites, and, although the possible errors in this reasoning are obvious, it can be useful if the associations are consistent in a large number of cases.¹³ The geographical distribution of archaeological cultures may be compared with the distribution of rock art, and relationships of one with the other may be inferred as has been done in southern Africa, where the distribution of engravings on boulders seems to coincide closely with the extent of the Smithfield A industries in the Later Stone Age. Technical criteria may also be used, for example, the use of a pecking, grooving, or polishing technique which is thought to be time-restricted. Finally, the dating may be inferred on purely stylistic grounds, based either on parallels with styles whose age is known in other regions or on some stylistic sequence or scheme which assumes a development from, say, naturalism to stylization or schematism. Needless to say, the latter method is sometimes based on a priori reasoning which does not resist close examination and can often lead to circular arguments.

The case for the post-Pleistocene age of the earliest North African rock art was presented by Obermaier in a classic paper.¹⁴ His argument was that, since (a) no extinct Pleistocene fauna is shown, (b) domesticated animals are represented, (c) most or all of the animals were known in the area in classical times, and (d) the wild animals shown are executed in the same style as the domesticated ones, a Pleistocene age cannot be supported, and he suggested a "Neolithic" age instead for the earliest forms. Writers such as Reygasse proposed the same arguments, and in 1939 Vaufrey, as a result of a long and methodical examination of the art and prehistoric archaeology in the Southern Oran region of Algeria, proposed in his comprehensive memoir that in this region and probably in the whole Sahara "aucune gravure naturaliste de cette grande région n'est plus ancienne que le Néolithique de tradition capsienne," i.e., no older than the fifth millennium B.C.¹⁵ However, other writers have suggested a

13. This method has been used in eastern Spain to suggest post-Pleistocene ages for the controversial Levant rock-shelter art, and Vaufrey was able to demonstrate in Algeria that in 32 out of 36 cases archaeological remains which he classified as Neolithic of Capsian tradition were found in close proximity to the engravings of the Bubalus type. R. Vaufrey, L'art rupestre nord-africain (Paris, 1939).
14. H. Obermaier, "L'âge de l'art rupestre nord-africain," L'Anthropologie, 41 (1931), 65-74.
15. Vaufrey, L'art rupestre.

somewhat earlier beginning in the Upper of even Typical Capsian¹⁶ or perhaps between an evolved Capsian and the Neolithic (Flamand, Lhote), that is, in Holocene times since about 9000 B.C. but in a pre-Neolithic context or at the most in a very early non-ceramic Neolithic. In particular Lhote has criticized Vaufrey's use of such elements as horses and rams to prove a recent dating. He has argued¹⁷ that true wild horses (*Equus caballus*) were present in North Africa in the Neolithic long before their introduction into Egypt by the Hyksos about 1600 B.C., and, therefore, their presence in at least six drawings in the Maghreb contemporary with *Bubalus* engravings cannot be used as evidence of a very recent age for these engravings.¹⁸ Another element in the art of the Maghreb to which Lhote has apparently succeeded in assigning an earlier age than that allowed by earlier writers¹⁹ is the engraved ram with the disc or spheroid which has usually been regarded as domesticated and a reflection of influences from the Ammon cult of the Egyptian New Empire. Indeed Lhote²⁰ now claims that these engravings are the same age as the *Bubalus* group and that the spheroid is no evidence of domestication (though he has suggested taming of individual animals for ritual purposes in a religious cult). It must be admitted that, since similar discs are now known between the horns of the extinct *Bubalus* in Southern Oran,²¹ and since Huard²² shows that collars, head ornaments, and neck ornaments are also found on such large and unquestionably wild animals as giraffes, rhinoceros, elephants, and hippopotamus in at least thirty instances in the Sahara, we can no longer rely on these criteria alone to establish the status of such potential domesticates as cattle, goats, or sheep. Whether these ornaments and paraphernalia reflect a special interest in wild animals which might be interpreted as a stage of manipulation or incipient domestication is something we cannot answer at present, though I suspect this argument would be advanced if similar evidence were present in the early Holocene or final Pleistocene horizons of southwestern Asia.

A single example of stratigraphic archaeological evidence is available to support an age at least as old as the Neolithic of Capsian tradition for some of the engravings in the Maghreb. At the cave of El Arouia in Algeria a deeply

16. Lionel Balout, "La préhistoire," *Revue Africaine*, 100 (1956), 446-449, 74.
17. Henri Lhote, "Faits nouveaux concernant la chronologie relative et absolue des gravures et peintures pariétales du Sud Oranais et du Sahara," *Prehistoric Art of the Western Mediterranean and the Sahara*, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), 191-214.
18. The palaeontologist Arambourg agrees *Equus* is represented but suggests *E. conga* rather than *E. caballus*.
19. Allegedly "for psychological rather than archaeological reasons" on the part of Vaufrey, Breuil, and Obermaier. Lhote, "Faits nouveaux," 196.
20. *Ibid.*, 196.
21. See Vaufrey, *L'art rupestre*, fig. 23.
22. Huard and Massip, "Gravures rupestres," 192-197.

engraved equid (a true horse, according to Lhote), said to be done in the same style as the earliest or Bubalus engravings, was found by Vaufray covered by deposits of Neolithic of Capsian tradition.²³ A group of traits capsians (simple grooves) and pit-marks carved at the entrance of a nearby cave might give a further clue. The presence in 32 out of 36 cases of microlithic industries (but no pottery) said to belong to the Neolithic of Capsian tradition in the immediate environs of the engravings studied by Vaufray is generally taken to suggest a probability that they date the art. But it is no more than a probability, as Lhote emphasizes in pointing out that in other cases in North Africa Aterian and even Acheulian-type artifacts are found near the engravings although this does not indicate a Palaeolithic age for the art.²⁴

So far there is no direct archaeological evidence to provide more precise dates for these earliest engravings, either in the Maghreb or in the Sahara. Indirect evidence from the Acacus region of the Fezzan in Libya suggests that they may have been under way well before 6000 B.C. since they seem to precede the Round-Head style paintings, which in turn precede the first Bovidian Pastoral style paintings believed to be dated by radiocarbon at ca. 5500 B.C. at one of Mori's Acacus sites. The earliest engraved rock art thus still hangs in mid-air. Until some lucky find allows us to pin down the age and duration of this group more securely, we shall have to be content with cautious speculation concerning its beginnings and origins. Several writers have commented on the fact that it seems to appear fully formed and without obvious local antecedents. Monod remarks:

It is astonishing that the oldest rock art chronologically is also the most "beautiful." Such consistent workmanship obviously implies attempts, gropings, an apprenticeship. Why have these left no traces on the rocks? Were there not other media even more favorable to "scrawls" (ostrich eggs, wood, plates of schist, skin, bone, etc.)?²⁵

This problem might be answered in several ways. In the first place we are perhaps not justified theoretically in assuming that, if a purely local origin is demanded, there need have been such an "apprenticeship" stage; in archaeology it is notoriously difficult to establish the beginning stages of traditions or industries, and Spaulding²⁶ has suggested some very cogent reasons based on the principle of quantum advance why there is usually a clustering in time of

23. Vaufray, L'art rupestre, pl. 11.

24. Lhote, "L'évolution de la faune," 90.

25. Th. Monod, "The Late Tertiary and Pleistocene in the Sahara," African Ecology and Human Evolution, F. C. Howell and F. Bourliere, eds. (London, 1963), 208.

26. A. C. Spaulding, "The Dimensions of Archaeology," Essays in the Science of Culture in Honor of Leslie A. White, G. E. Dole and R. L. Carneiro, eds. (New York, 1960), 437-456.

events at the beginning of a period rather than a spreading out to reveal archaeologically discernible developmental stages. Second, there is evidence of quite early art in North Africa, in the Epipalaeolithic or even in the Palaeolithic. It is rare, and it cannot yet be linked directly with the rock art we are discussing here, but nevertheless it must be kept in mind. In the last few years Roche has described his discoveries at the stratified occupation site of Taforalt in Morocco of a small quartzite nodule worked to resemble simultaneously male and female sexual organs in a level of the Iberomaurusian (= Oranian) culture dated by radiocarbon to 10,120 B.C., i.e., presumably final Pleistocene times. In succeeding levels at the same site dated to about 8800 B.C. were found a pebble with a rough engraving of an elephant, an ostrich egg shell disc with rough incised lines, and a grinding stone with engravings which are difficult to interpret but which may represent mouflon horns or an anthropomorphic figure.²⁷ In an Upper Capsian site in Algeria, Khanguet el-Mouhaad, there is a plaque with an engraving of a horn recalling those of *Bubalus* in Maghrebian wall art.²⁸ At El Mekta site in Tunisia, in the Typical Capsian, sculptures as well as engravings on portable objects and on walls are reported;²⁹ the absolute age is uncertain but is probably at least as early as the sixth millennium B.C. Finally, we might mention the geometric engravings at Abka in the Nile Valley of the northern Sudan, some of which are claimed to date between 7500 and 7000 B.C.³⁰ The evidence is meager, but at least it indicates that art as a phenomenon was already present in this part of the African continent by the beginning of Holocene times or even in the final stage of the Pleistocene. There are, in other words, seeds from which the later art might have grown.

The problem of diffusion of art from southwestern Europe during the Upper Palaeolithic to North Africa is a time-honored one. But a European origin for the earliest North African art does not depend on a Pleistocene dating for the latter, for the diffusion may have taken place during the European Mesolithic. Boule, Frobenius, Breuil, and a number of others have in the past expressed belief in a basic unity of European Palaeolithic art and the engravings of North

27. J. Roche, *L'Épipaléolithique marocain*, 2 vols. (Lisbon, 1963); J. Roche, "Représentation humaine bisexuée trouvée à la Grotte de Taforalt (Maroc)," *Miscelanea en Homenaje al abate Henri Breuil, 1877-1961*, E. Ripoll Perelló, ed., 2 (Barcelona, 1965), 307-308.
28. Lionel Balout, *Préhistoire de l'Afrique du Nord, essai de chronologie* (Paris, 1955), 442, 478.
29. E. G. Gobert, "El Mekta, station princeps du Capsien," *Karthago*, 3 (1952), 3-79.
30. O. H. Myers, "Abka Again," *Kush*, 8 (1960), 174-181.

Africa, and this viewpoint is still apparently shared by Bosch-Gimpera,³¹ who advocates transmission from north to south. In more recent years this viewpoint has had fewer defenders, and although several authors, such as Pericot and Bandi, still believe in at least some stylistic relations between North Africa and the Spanish Levant art in Holocene times, this opinion does not seem to be generally shared today.³² Even Breuil had apparently abandoned this viewpoint shortly before his death, although as recently as 1957 he expressed a belief in contacts between North Africa on the one hand and the Spanish Levant and Sicilian art on the other. Today opinion concerning these linkages appear to be diluted to the force of assumed "unities of mentality" between the two traditions³³ or to the existence of a general "Mediterranean province" of post-Palaeolithic art which shared a number of stylistic elements such as the shapes of animal horns or hooves, especially as shown at Addaura and Levanzo in Sicily, at Ebbou in southern France, and at the Fezzan in northern Africa.³⁴ These shared stylistic elements described by Graziosi are difficult to interpret just now; they are certainly suggestive and merit further examination, but it is hard to say whether they are not too generalized to be significant in establishing an artistic tradition over so wide an area. In the last analysis, however, an answer to this question must await settlement of the old problem of whether there were direct trans-Mediterranean cultural contacts sufficiently early to have given rise to the similarities.

Another problem still to be satisfactorily resolved is the relation of the North African art to prehistoric African art in general. Seen in a broad context, the art of northern Africa presents many of the same problems and opportunities

31. P. Bosch-Gimpera, "Le problème de la chronologie de l'art rupestre de l'Est de l'Espagne et de l'Afrique," Actes du Congrès Panafricain de Préhistoire, II session, Alger 1952 (Paris, 1955), 695-699; P. Bosch-Gimpera, "The Chronology of the Rock Paintings of the Spanish Levant," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), 125-129.
32. E. Ripoll Perelló, "Proceedings of the Wartenstein Symposium on Rock Art of Western Mediterranean and Sahara," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), x.
33. H. Breuil, quoted by Ripoll Perelló, "Proceedings," x.
34. P. Graziosi, Palaeolithic Art (London, 1960); P. Graziosi, "L'art paléolithique de la 'province méditerranéenne' et ses influences dans les temps postpaléolithiques," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), 35-46.

as does the art of the rest of the continent. Much of it is undoubtedly recent and offers at least the possibility of being linked with the direct ancestors of modern peoples. The emphasis at times on human figuration north and south of the Sahara is striking. And we are faced with very similar problems in establishing the ages, the sequences, and the relationships between different period and spatial styles.

To what extent can we regard prehistoric African art as a whole *sui generis*, at least in the earlier periods? This is a difficult problem which the author of this paper is not qualified to answer one way or the other. It can only be decided, perhaps, by investigators with a profound knowledge of the art of northern and sub-Saharan Africa and after the research methods of recent years have been carried considerably farther. Breuil, who was probably more familiar with the whole of ancient African art than anyone of his generation, claimed that Saharan rock art could not be separated from or treated apart from the rest of prehistoric African art.³⁵ Like a number of others (Boule, Graziosi, Gautier, Joleaud, Kohl-Larsen) Breuil was inclined to favor connections between the prehistoric art of northern and southern Africa, though he admitted that the area he considered a "contact area" (Tanganyika) offered no links with such zones as Tassili and that it was possible that both groups of art had developed, with few contacts, from a very distant common base.³⁶ Other authorities today are dubious about such linkages, and Lhote insists that art was developed independently *in situ* in each region and that each region developed its own character in art.³⁷ In any case, it is unlikely that this problem can be answered with a simple yes or no. It must be investigated separately on each time horizon, with the environmental and cultural features encouraging or inhibiting diffusion in mind, just as is the case with more orthodox aspects of archaeology. Considering what is now known of the pastoral groups in the Sahara and immediately south in prehistoric times, for instance, it would be quite normal to expect at least some diffusion of Saharan art into the sub-Saharan zone during the postulated centrifugal movements as environmental conditions in the Sahara became less favorable for cattle herders about the third millennium B.C. Perhaps Monod's concept of the Sahara as a device for sorting and filtering elements can be usefully applied to this problem of art diffusion.³⁸

Certainly, before seriously tackling this problem, we must have more reliable chronological frameworks than now exist for the art sequences in both northern and sub-Saharan Africa. The dating of the earliest form of art in sub-

35. Ripoll Perelló, "Proceedings," x.

36. Breuil, "Les roches peintes," 150.

37. Henri Lhote, "Sur les rapports entre les centres d'art préhistorique d'Europe (province franco-canabrique et Levant espagnol et celui du Sahara)," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot and E. Ripoll Perelló, eds. (New York, 1964), 215-224.

38. Monod, "The Late Tertiary," 122.

Saharan Africa is notoriously difficult to establish, and estimates have ranged from the Magosian of the Second Intermediate, perhaps between 14,000 and 8000 B.C.,³⁹ to considerably later. This question is too detailed to go into here and it is enough to say that at the present moment there seems to be no art in sub-Saharan Africa known to be as old as the earliest dated examples from northern Africa. The radiocarbon date of 4360±250 B.C. for the painted engravings at Chifubwe Cave in Zambia seems to be no longer acceptable, and, even if the new dates of ca. 3400 B.C. and >5000 B.C. from the Matjes River shelter in South Africa⁴⁰ are accepted as reliable for several examples of art found there, they are younger than some dates now known from the Sahara and Mediterranean hinterland and possibly from Nubia as well. Certainly none of the naturalistic paintings which have survived in southern Africa can be considered as ancient as the oldest ones from the Sahara on the basis of existing knowledge. The fact that in both areas engravings seem to appear earlier than paintings in the rock art may not demonstrate a general chronological synchronism between them. At the moment, therefore, it does not seem likely that the roots of the earliest African art are to be found south of the Sahara. Perhaps in the realm of art sub-Saharan Africa occupied much the same kind of role it apparently did in the case of animal and plant domestication: it was an area of secondary rather than primary discovery and development.

When we speak of the diffusion of art into northern Africa from other continents, there is perhaps an unspoken assumption that art could not have developed indigenously in Africa but required outside stimulation, or even that all art springs from a single source in western Europe about 30,000 B.C. when it is observable archaeologically for the first time. I should say now, before proceeding farther, that I am by no means convinced that this is the case. Whatever may be the justification for employing concepts involving psychic or spiritual unity in evaluating prehistoric art, it seems fair to say that, from what we now know of the abilities of hominids after 30,000 B.C. or so, there are no good reasons to deny any of them the intellectual qualities necessary to produce expressions we can classify as art; particularly when the idea of art is one of those expressions of culture which are probably ecologically free, though the form of expression may at times be ecologically bound.

In the past much -- probably too much -- has been written about the possible European origins of African art, especially via Spain and Italy. I feel that, if diffusion is to be called in, southwestern Asia has been neglected in this respect in spite of the fact that the purely archaeological evidence for diffusion from that region to northern Africa during the late Pleistocene and Holocene is incomparably better than the evidence for movements between Europe and North Africa.

39. J. Desmond Clark, The Prehistory of Southern Africa (Penguin, 1959), 265.

40. C. Gabel, "African Prehistory," Biennial Review of Anthropology, B. J. Siegel, ed. (Stanford, 1965), 64.

True, there is still no incontrovertible evidence for the existence of rock art in southwestern Asia during Palaeolithic times, though there have been some claims for a Palaeolithic age for some engravings in Turkey.⁴¹ But art is certainly present in the Lower Natufian of the Palestinian region in the form of sculptures and, just possible, rock engravings on outcrops around 9000 B.C., and in the Pre-Pottery Neolithic B of Jericho in the seventh millennium B.C. Furthermore, the recent surprising findings of very elaborate paintings on house walls in the early Neolithic levels of Charal Huyuk, in the late seventh or sixth millennia, indicate how rapidly new discoveries can change our viewpoints. However, it must be admitted that we can still see no stylistic resemblances between the art of southwestern Asia and northern Africa on these early horizons. Such hypotheses as Rhotert's⁴² that naturalistic art crossed from southern Arabia to Eritrea and then moved up and down the Nile Valley and into the Sahara are still unsubstantiated.

Egypt and the Sahara

The whole question of the influence of Egyptian culture on the cultures of the rest of Africa is a complex one, and a vast literature has been devoted to it. In earlier days, when the art of the regions west of the Nile was coming to light, it was often assumed that Dynastic Egypt was in some way responsible for part of it. Much of this assumption was based on analogies such as the occurrence of zoomorphic humans in the art of both regions. With the increasing knowledge of the Predynastic phases in Egypt and of the "Neolithic" in the Sahara and Maghreb in the present century, various writers attempted to see archaeological links beginning on this horizon. The subject of Saharan and other North African art was inevitably drawn into these discussions. Vaufrey strongly supported the hypothesis that the art and material culture of the Neolithic of Capsian tradition had been influenced by Predynastic and Dynastic currents from Egypt, using such evidence as solar discs on animals, including horses after 2000 B.C., to support this position.⁴³

In recent years there has been a considerable amount of criticism from Saharan art specialists, especially Lhote, of the views proposed by Vaufrey. Indeed, more and more there seems to be a trend to see the influences as going in the other direction, from west to east. Breuil stated some years ago that he thought it possible that the Bovidian Pastoral style art of the Sahara might have given rise to the primitive naturalistic art of Egypt and Crete at the end of the

41. E. Y. Bostanci, "Researches on the Mediterranean Coast of Anatolia. A New Palaeolithic Site at Beldibi near Antalya," *Anatolia*, 4 (1959), 129-178.

42. H. Rhotert, *Libysche Felsbilder* (Darmstadt, 1952).

43. Vaufrey, *L'art rupestre*.

Neolithic.⁴⁴ Lhote, as already mentioned, has rejected rams with discs and horses as effective criteria of Egyptian influence and, while not denying all Egyptian contributions, emphasizes that the Sahara is at least as rich in Neolithic cultures as is Egypt and that the high antiquity now demonstrated for Bubalus art and Bovidian Pastoral art in the Sahara suggests west-to-east movements as much as anything else.⁴⁵ A. C. Blanc, using the concept of the desert as a great pump which attracted groups in moist periods and squeezed them out in arid periods, even suggests that Saharan art and culture were the basis for Dynastic Egyptian art and culture rather than the reverse.⁴⁶ Mori, after some initial hesitations on this subject,⁴⁷ has concluded, as a result of his more recent discoveries in the Acacus and his establishment of a firmer chronology, that there is little evidence for Predynastic Egyptian influences on the pre-Pastoral and Bovidian Pastoral art of the Sahara, because the latter are already so well developed at such an early date, before anything similar can be recognized in Egypt.⁴⁸ He now favors the idea of Saharan groups influencing the developments in the Nile Valley, probably by the mechanism of non-Negro pastoral peoples migrating to the Nile Valley ca. 3500 B.C., during Predynastic times, and having some effects on the birth of classic Egyptian art in the Protodynastic period about 3200 B.C. (This would apparently explain the absence of the Round-Head style in Egypt or, as far as is now known, anywhere east of the Ennedi: it had disappeared much earlier. The relative rareness of paintings in the Nile Valley in prehistoric rock art might be explained by the scarcity or absence of large sandstone rock-shelters with great smooth surfaces which are found in the Saharan massifs.) Mori's hypothesis does not, of course, rule out Dynastic Egyptian feedback influences on Saharan art, and he mentions several cases in the Acacus where he believes this is evident,⁴⁹ while Lhote also considers that such elements found in the Saharan art as boats, a figure resembling the god Ra, and some cases of cattle with discs or attributes between the horns can be

44. Breuil, "Les roches peintes," 149.

45. Lhote, "Faits nouveaux," 198-199.

46. A. C. Blanc, "Sur le facteur fondamental des mouvements des cultures pre-et protohistoriques en Afrique du Nord: la fuite du desert," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), 179-184.

47. Fabrizio Mori, "Some Aspects of the Rock-Art of the Acacus (Fezzan Sahara) and Data Regarding It," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), 230.

48. Fabrizio Mori, "Appendix to the Conclusion," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), 244.

49. Mori, "Rock-Art of the Acacus," 230.

regarded as reflecting Dynastic Egyptian influences, particularly in the Libyan desert.⁵⁰ Huard has also discussed some of these indications of contacts.⁵¹

From Lhote's comments⁵² one judges that few Egyptologists are yet prepared to accept this hypothesis of Saharan art being responsible for the birth of the art of Protodynastic and early Dynastic Egypt. The Egyptologist Donadoni has expressed a cautious viewpoint concerning Egypt-Fezzan relations and he appears to be puzzled that so many "Egyptian" elements should be found so early in the Sahara.⁵³ Yayotte, another Egyptologist, suggests that the resemblances between the two areas are not due to influences of one on the other but to common ancestral stocks with similar religious rites and cultures which led in one case to the Saharan Bovidian Pastoralists and in the other to the Egyptians.⁵⁴ Somewhat similar views concerning the relations between Egyptian and African culture have recently been expressed by Fairman,⁵⁵ though he does not discuss Egyptian art or influences from the Saharan region, and by the prehistorian Huard.⁵⁶

This is hardly the place to summarize the attitude or attitudes Egyptologists are taking to this problem, and such a survey would have to be done by an Egyptologist. To a prehistorian the views of Lhote, Mori, and others seem reasonable, even if still not fully demonstrated; on the other hand one might argue that such vague explanatory phrases as "common archaic substratum" which may suffice for very general discussions in the earlier stages of research, have themselves still to be satisfactorily confirmed by archaeological and other materials. Two things are now necessary in order to remove some of the difficulties. One is more excavation in the Nile Valley of Egypt on horizons in and before the fourth millennium B.C. Some new information in this respect has been gained in the last few years as a result of salvage archaeology in Egyptian and Sudanese Nubia, but it is really astonishing how little we know about "Neolithic" or immediately pre-Neolithic developments in Upper and Lower Egypt in spite of so many years of research. The second need is for an intensive

50. Lhote, "Faits nouveaux," 210.

51. P. Huard, "Etat des recherches sur les rapports entre cultures anciennes du Sahara tchadien, de Nubie et du Soudan," Bibliotheca Orientalis, 21 (1964), 282-289.

52. Lhote, "Faits nouveaux," 209.

53. S. Donadoni, "Remarks about Egyptian Connections of the Sahara Rock Shelter Art," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot García and E. Ripoll Perelló, eds. (New York, 1964), 185-188.

54. Lhote, "Faits nouveaux," 210.

55. H. W. Fairman, "Ancient Egypt and Africa," African Affairs (Special issue, Spring 1965), 69-75.

56. P. Huard, "Art rupestre," Missions Berliet; Tenere-Tchad, H. J. Hugot, ed. (Paris, 1962), 143.

study of Predynastic and Protodynastic Egyptian art, especially paintings, tackled less from the viewpoint of its supposed ancestral position to Dynastic art and more from the viewpoint of its role and position in societies ranging from simple food-producing villages to fairly complex towns in an environment which was not typically African. These data should come from pottery and other occupation-site contexts as well as from rock art; in many cases they would have the advantage of being rather closely dated. Such a project would have the purpose of providing a corpus of materials against which the Saharan art could be compared in a precise rather than a general way. Fortunately, Mori is now engaged in just such a program and, when its results are made known, we should be in a far better position to judge the Sahara-Egypt diffusion problem properly.⁵⁷

One final and more personal note might be added on this subject in order to emphasize that the situation is not a simple one and that there is a number of confusing threads to be raveled out. Most specialists of Saharan art base themselves, when comparing Egyptian art with that of the rest of northern Africa, on the fairly well known examples of Dynastic and Predynastic sculptures, engravings, and pottery designs of the Nile Valley, supplemented by the studies of Winkler on the rock engravings and paintings from the valley and deserts of Upper Egypt which presumably go back to the Badarian.⁵⁸ Using this corpus, it is true that it is difficult to see in Egypt very close resemblances to the earlier art of the Sahara and Maghreb, or the roots of Protodynastic and Dynastic art. But this temporary state of affairs could be changed by new discoveries. For instance, near Kom Ombo in Upper Egypt in 1962 we discovered a large series of rock engravings on the sandstone cliffs several kilometers east of the present Nile which show antelopes, gazelles, hippopotamus, a few schematic humans, and especially great numbers of cattle executed in a naturalistic style which seems unique so far in Egypt, although reminiscent in some ways of Saharan art.⁵⁹ For whatever it is worth, there are also some stylistic resemblances with a recently discovered group of engravings on a cave wall in the coastal zone of Cyrenaican Libya, which unfortunately cannot be directly dated but might be contemporary with the Capsian; these Libyan drawings, it is suggested, belong to the general "Mediterranean art province" of Graziosi.⁶⁰ The problem of establishing the age or ages of the Kom Ombo engravings, which are not yet fully published, is a complicated one, and, without going into details here, it can be said

57. Fabrizio Mori, "Sulla analogie e possibilità de contatti fra le culture sahariane connessee all'arte rupestre e quelle pre- e protodinastiche egiziane," *Quaternaria*, 7 (1965), 301-302.
58. H. A. Winkler, *Rock Drawings of Southern Upper Egypt*, 2 vols. (London, 1938-1939).
59. This research was carried out by the Canadian Prehistoric Expedition funded by the Canadian government through the National Museum of Canada during the recent international salvage program in Nubia.
60. U. Paradisi, "Prehistoric Art in the Gebel el-Akhdar (Cyrenaica)," *Antiquity*, 39 (1965), 154, 95-101.

that there is some internal evidence that the oldest ones are the work of hunters or possibly of groups in a very incipient phase of cattle domestication. There is no clear-cut evidence of animal domestication or of sedentary life, and Mori, in correspondence, has expressed the opinion that they are earlier than the beginning of the Pastoral period in the Sahara, that is before the sixth millennium B.C. and among the earliest art of North Africa. Unfortunately, they are mainly found high on the cliffs at Gebel Silsila, and, although the only archaeological sites found in the immediate vicinity date to the final Pleistocene, there seems no opportunity at present to relate the engravings directly to the archaeological materials. If they really are as old as the internal evidence suggests, then it means we must not dismiss too readily the possibility that even at this early stage the Nile Valley was an important locus for the development or transmission of techniques, styles, and themes of art in northern Africa. Only more field work will resolve this problem.

Social Life and Ethnography

I have already suggested that the greatest contribution of the North African art is in the information it yields for the culture history of the region and, particularly, for the details of the lives of the peoples portrayed. The presence of art in any prehistoric period is indicative of something about the intellectual interests of those concerned, of course; but we have only to compare the late Palaeolithic art of the Ukraine -- nearly all schematic or geometric -- with that of western Europe to appreciate the differences in form. One tells us, especially in the cave paintings, a great deal about the fauna and something about the humans of the time, and from this and the spatial positions a great deal can be inferred about the motivations behind the art; whereas the Ukrainian art with its great emphasis on non-naturalistic engravings gives us little information which can be directly related to the lives or ideologies of the people.

When we compare North African prehistoric rock art (and indeed, African prehistoric art in general) with that from nearly all other areas of the Old World, one fact stands out: the important place given in Africa to human representations and human activities. This is particularly true if we compare it with, say, the Upper Palaeolithic art of Europe, but it is also true, I think, though less so, if compared with the Holocene art of northern Europe, Australia, and southwestern Asia. In this respect African art approaches in treatment the art of Mediterranean Spain as a great many writers have pointed out. There is no need here to interpret this distinctiveness in terms of any African weltanschauung, and I mention it only because it underlines one of my principal points: that in rock art in Africa the prehistorian has often an unusually sensitive tool for recovering palaeoethnological data to supplement those gathered by more orthodox excavating and collecting methods.

The earlier phases of art in northern Africa are not particularly rich in this kind of information, but with the Round-Head style and especially with the Bovidian Pastoral paintings an immense amount becomes available for interpretation. In the Tassili Lhote has described paintings showing scenes of conflict, hunting, traveling, camping, herding, and milking, and Mori has revealed the same in the Fezzan. Round huts, beds, and pottery containers are shown in some scenes. Clothing and body ornaments are often represented in some detail. There are good presentations of weapons and arms such as bows of several types, boomerangs or throwing sticks, shields, and lances. Scenes of dancing and coitus are frequent. The cattle are shown in great detail, with dappled or spotted hides, prominent udders, deformed horns, lyre-shaped horns, and without horns. Goats, sheep, and dogs are also identified. Breuil⁶¹ believed that in the Tassili paintings copied by Colonel Brenans he could distinguish scenes of courtship, marriage, supplication, accusation, visiting, circumcision, commerce, and even women-exchange in rather complex situations between Negroes and whites.⁶² Another striking characteristic of these paintings, according to Breuil, and one he considered unique in prehistoric art is the deliberate expression of humor -- not the ridicule of individuals by means of caricature but rather a gentle fun-poking by juxtapositions, by gestures and attitudes, and by repetition of a sequence of movements of a single act reminiscent of movie stills. That some of these scenes as described by Breuil and others might be interpreted in other ways goes without saying. Ethnographic art is notorious for revealing at times as much about its observers as about its makers. One can also wonder with Monod⁶³ whether the data from the Tassili justify such precise reconstructions of social life and organization -- strong tradition of family life with important position of women and matriarchy -- as has been given by Tschudi.⁶⁴ Nevertheless, the very fact that such intimate inferences can be made is an index of the great detail shown in this art. Regardless of the interpretations of certain scenes, there is a hard core of precise information on such matters as clothing, ornaments, certain implements and tasks, and even on group interactions, which are unlikely to be preserved in any other way.

An excellent example of the use of rock art to attempt a reconstruction of tribal and ethnic migrations has recently been furnished by Cooke in a study of rock paintings in Rhodesia.⁶⁵ By tracing the distribution of such elements as

61. Breuil, "Les roches peintes," 65-219.

62. See especially *ibid.*, fig. 101. This scene, which seems to show a young female being led off by a "stranger" while watched by four other women, he calls with a certain whimsy, "Josephine vendue par ses soeurs."

63. Monod, "The Late Tertiary," 186.

64. J. Tschudi, "Die Felsmalereien im Edjeri, Assakao, Meddak (Tassili-n-Ajjer)," *Actes du Congrès Panafricain de Préhistoire*, II session, Alger, 1952 (Paris, 1955), 761-767.

65. C. K. Cooke, "Evidence of Human Migrations from the Rock Art of Southern Rhodesia," *Africa*, 35 (1965), 263-285.

steatopygia, domesticated sheep, clothing, and headdresses, and by placing them in a context of geography, rainfall, linguistics, and place names, he has been able to suggest a southwestern movement from the Abyssinian region of sheep-herders who en route to the Cape picked up various genes which transformed them into Hottentots. Such a detailed approach is not yet possible in northern Africa and probably never will be on the purely prehistoric horizons for obvious reasons. Nevertheless, various attempts have been made to document migrations and other forms of diffusion in and out of the Sahara, and in the past this has been one of the favorite games of some culture historians, sometimes using criteria which do not stand up well under closer examination. Very obviously an accurate chronology is necessary before we can be justified in making such statements about the extension of styles, elements, and people through space, and I have already mentioned the more acceptable hypotheses of Mori and Lhote, based on such finer chronologies, in connection with the possible migrations of cattle herders to the Nile Valley in the fourth millennium B.C. Such postulated migrations must also be put in a context of local ecologies, and some advances are now being made in this direction as well with the collaboration of various natural scientists.

A very clear-cut instance of the value of rock art in documenting population movements into northern Africa is provided by the paintings and engravings of horse-drawn chariots which appear on rock surfaces across the Sahara from the Gulf of Sirte in Libya to the Niger. These are distributed along regular routes, and they have been used to show that by at least 1200 B.C., long before the camel was introduced, there were important trans-Saharan penetrations along this axis. This has required abandonment of older ideas that it was the camel which permitted the Mediterranean populations to penetrate the Sahara as far as the bend of the Niger. Yet without these rock drawings we should be hard put to document such movements. The references by such classical writers as Herodotus to charioteers and cavalry in the desert are vague, and apparently horse bones have so far been found at only one site on the surface at Jabbaren in the Tassili.⁶⁶ How important was this route in the transmission of Iron Age technology from the Mediterranean zone across the Sahara in the first millennium B.C.?

The matter of continuity of cultural tradition or of certain cultural elements within northern Africa from prehistoric times down to historic and even modern times, that is diffusion through time, has been considered by a number of writers. Mori has found in the Acacus district of the Fezzan paintings of the Pastoral period at Uan Amil I showing humans with non-negroid features wearing the "Phrygian cap" kind of headdress which is surprisingly like that worn today by the women of the Peuls in Guinea, who are also nomadic cattle pastoralists and considered by some anthropologists to be not fully negroid racially.⁶⁷ This

66. Lhote, "L'evolution de la faune," 109.

67. Fabrizio Mori, *Arte preistorica del Sahara Libico* (Rome, 1960), 49.

has been taken to imply a continuity of tradition within a subsistence type and perhaps even a continuity of physical type associated with that tradition. Mori has suggested that in connection with the question of the disappearance of the Bovidian Pastoralists in the Sahara perhaps during the second millennium B.C. it might be interesting to examine the possibilities of a linkage with such cattle-raising nomads of Central Africa as the Bantu-speaking Tutsi people of Ruanda-Urundi.⁶⁸ Again, the presence of deformed horns of various kinds in the domesticated cattle in prehistoric art all across northern Africa indicates that this custom, still surviving in historic and modern times, is deeply rooted in a very long tradition.

There have been occasional attempts to estimate the sizes of local groups and of regional populations by calculating from the numbers of individuals shown in various kinds of scenes in prehistoric rock art. Pericot has attempted thus to obtain a figure for the population of Spain in Epipalaeolithic times and suggests about 100 individuals per horde.⁶⁹ I am not aware of any such estimates based on North African art, and very obviously any such figures would have to be supported and checked by other kinds of information.

Racial and Physical Types

Very closely related to the previous topic is the subject of identification of physical and racial types in the prehistoric art of northern Africa. A good many authors have speculated on the racial types represented. Gautier suggested that Bushmen had once occupied the Maghreb, basing this on his study of the Tassili art.⁷⁰ Joleaud apparently considered the Tassili art had been done by Bushmen and Negrillos.⁷¹ Frobenius also believed in an ancient Khoisan-speaking population in this part of Africa. More recently, Coon as well has suggested the presence of "Capoids" or ancestral Bushmen in northern Africa, though this suggestion is not based on the art.⁷² But such writers as Monod and Lhote are skeptical of these claims.⁷³

Far more prevalent are claims of recognizing Negro or negroid types or whites ("Mediterraneans," "Europoids") in the art. Lhote has suggested that there are no traces of negroids in the earlier engravings from Southern Oran

68. Mori, "Contributions," 177.

69. L. Pericot Garcia, "The Social Life of Spanish Paleolithic Hunters as Shown by Levantine Art," Social Life of Early Man, S. L. Washburn, ed. (New York, 1961), 194-213.

70. E. F. Gautier, Le passé de l'Afrique du Nord (Paris, 1937).

71. L. Joleaud, "La faune des vertébrés et le peuplement humain de la côte occidentale de l'Afrique aux temps de l'Antiquité classique," Bulletin du Comité d'Etudes historiques et scientifiques de l'A.O.F., 19 (1936), 96-112.

72. C. S. Coon, The Origin of Races (New York, 1962), 601.

73. Lhote, "Rapports," 221.

or Tassili and insists that certain of them are clearly "Euxoid."⁷⁴ My own feeling is that it requires the eye of faith to see any clear indications of race in such simplified human profiles, and Mori⁷⁵ is of the same opinion.⁷⁶ Mori also disagrees with Lhote's categorical statement that the Round-Head style of paintings at Tassili refers to a negroid population. Lhote bases this belief on three criteria: the general structure of the humans which is said to recall the modern Negro body build; body scarifications like those found among some West African Negro groups today; and "Negro" masks found in some drawings. Mori denies that there are any negroid characteristics present in these paintings and points out that the existence of masks, costumes, and ornaments in the art cannot properly be used to infer the racial affiliations of the makers since these elements may have diffused to Negro groups later.⁷⁷ Fagg has also expressed doubt about the value of such elements as masks in this argument; he claims to have discerned a Baluba mask in a Roman wall painting from St. Albans in Britain.⁷⁸

The situation in later paintings is both better documented and more ambiguous. There seems no doubt that during the succeeding Pastoral phases one can identify facial profiles which are certainly not typical of most modern Negroes and recall Caucasian types; and in some of his Acacus paintings Mori has been able to recognize individuals with straight blond hair, light pinkish skins, straight or aquiline noses, and a Peul-type headdress. This picture of course agrees well with Egyptian records of blond Libyans and with the results of Sergi's earlier studies of skeletons from a pre-Islamic necropolis in the Fezzan, and it probably justifies Mori in postulating a very widespread distribution of Mediterraneans in the early Pastoral period with this type present as a majority in the central Saharan massifs.⁷⁹

Nevertheless, although Mori fails to see much good evidence for the presence of negroids in the art of the Acacus, he does not deny that they may well have been present. Indeed, his own discovery of a wrapped and dessicated "mummy" of a child at Uan Muhuggiag, dating to about 3500 B.C. and described as negroid, is evidence for this. His hypothesis is that, while Mediterraneans

74. Lhote, "Faits nouveaux," 205.

75. Mori, "Rock-Art of the Acacus," 226.

76. However, it should be remarked that the evidence from the skeletal materials, especially for the Capsian, is probably consistent with the presence of a "Mediterranean" physical type in the Maghreb in pre-Neolithic times.

77. Fabrizio Mori, "Comments on H. Haselberger 'On the Method of Studying Ethnological Art,'" *Current Anthropology*, 4 (1963), 212-213.

78. W. Fagg, "Comment on H. Haselberger 'Method of Studying Ethnological Art,'" *Current Anthropology*, 2 (1961), 366.

79. Mori, "Rock-Art of the Acacus," 225-234; Mori, "Appendix," 235-246; Mori, "Contributions," 172-179.

may have constituted a majority in the earlier Pastoral phases, in the later phases racial mixture was taking place with Negroes and the mummy is one record of this. He also suggests that the last of the herdsmen, at the end of the Pastoral period, were negroids, judging from the long limbs portrayed in the simple linear drawings of that time and the hints of facial prognathism in some cases. Breuil has described a number of scenes copied by Brenans at Tassili which purport to show relations between whites and Negroes. One such is said to show a mixed group of whites and Negroes paying homage to a seated white.⁸⁰ In actual fact it is often very difficult to accept these racial determinations, at least on the basis of the drawings as published, and more studies should certainly be made on the originals before such judgments are accepted fully. When such studies are combined with the increasing evidence from burials, we shall certainly be in a far better position to make precise statements concerning the racial composition of North Africa in late prehistoric times. In his 1960-1961 season of research Mori discovered many collective burials in the Acacus dating to about 5000 B.C.⁸¹ It is barely possible, too, that physical anthropological research might enable us to confirm an assumption which is usually taken as axiomatic in studies of North African art, that is, that the societies shown in the art were those of the artists themselves. We have only to remember the cases in southern Africa of paintings made by Bushmen observers of non-Bushman peoples to recognize that we cannot take for granted an absolute identity between artists and subjects.

The Interpretations of Art

At each level of interpretation of art (technical, typological, chronological, ecological, ethnographic, esthetic, meaning) there arise certain methodological problems. Some of these have been touched or skirted in the discussion already presented in this paper. Others, as indicated in the introduction, will not be handled at all. Nevertheless, there is a group of problems very intimately related to any anthropological interpretations of prehistoric art whose methodological treatment must at least be mentioned.

(a) Chronology. In attempting to understand any prehistoric art which has a considerable time range and is not static, we are faced with the same necessity as in ordinary archaeology; very little can be accomplished beyond a superficial level without an accurate and detailed chronology. It goes without saying that some of the attempts at correlating the art of different sites and different regions of northern Africa have been made by using methods which are somewhat intuitive

80. Breuil, "Les roches peintes," figs. 85-86.

81. Mori, "Appendix," 235-246. The fact that these bodies were mummified, bound with cords and wrapped in vegetable fibers is in itself interesting in placing the familiar Egyptian practice in a broader North African context.

and erratic. This is not to say that most of the chronological reconstructions have been of this kind or that the majority of writers have been uncritical of their own assumptions and theories. Nevertheless, there is always a temptation in evaluating this kind of data to choose individual elements or themes and to trace their distribution through time and space in order to demonstrate that the flow was in a certain direction. A recent example is provided by Bosch-Gimpera when, to demonstrate the Palaeolithic age of certain African art, he used stylistic parallels or analogies which occur in Spain and Tanganyika to document his argument for relationships.⁸² But Lhote has given a very useful illustration of how deceptive simple parallels of form in art can be when divorced from historical context by comparing skirts worn by women in Saharan art with those worn in the art of the Spanish Levant (at Cogul);⁸³ in spite of the stylistic similarities they are not contemporary since the former belong to the Horse Period about 1200 B.C. while the latter are very much earlier.

The index-fossil concept is a particularly popular one in analyzing pre-historic art on a chronological basis and is often used even when not explicitly recognized as such. An example in northern Africa is the use of the extinct buffalo, *Bubalus antiquus*, which Lhote explicitly describes as the fossile-directeur for the earlier engravings, at least in Southern Oran, Tassili, and Fezzan.⁸⁴ The method, taken alone, leaves a good deal to be desired. If an animal or some other single element is to be used as a time marker, then just as in geology or archaeology certain conditions must be established including a good knowledge of its typological variations, its geographical distribution, and its temporal range. If these can be established by purely archaeological means, so much the better; but comparative studies can also be effective in confirming or rejecting the usefulness of such markers as Lhote himself has attempted in rejecting the presence of discs or other head-elements on animals as indicators of domestication. It may be that *Bubalus* should be reexamined now that archaeological excavations have revealed that this animal lasted into the fourth millennium B. C. at Hassi Meniet in the Ahagggar massif, where its bones are found in a Neolithic site; further evidence from the southern Sahara suggests that it is found in engravings which can be no older than the second millennium B.C., and there is even some possibility, judging from a drawing on a Tunisian mausoleum, of its survival into the Roman period.⁸⁵ A similar problem, this time using a stylistic device rather than extinct fauna, was created in the Upper Palaeolithic art of western Europe by Breuil's use of perspective tordue -- the horns of bovids facing the viewer rather than in profile -- as a time marker indicating an earlier, less accomplished stage of naturalistic art. This concept bedeviled the chronology of Palaeolithic art studies for decades, until the realization that

82. Bosch-Gimpera, "Chronology of the Rock Paintings," 128.

83. Lhote, "Rapports," 219-220.

84. Lhote, "L'évolution de la faune," 93.

85. Huard and Massip, "Gravures rupestres," 192-197.

this artistic convention existed in the later stages of Franco-Cantabrian art removed a source of error. In ordinary archaeological comparisons of excavated materials most archaeologists have long recognized the weaknesses of the index-fossil method, that is the identification of archaeological cultures solely by a few specific types of artifacts and of drawing wide conclusions concerning origins, diffusion, and other problems by spotting individual artifacts or attributes through space. This is not to deny that individual artifacts or elements can diffuse, or that it is unnecessary to trace the similarities in widely dispersed elements. But, just as archaeologists today have come to think of assemblages of artifacts as functioning wholes designed to accomplish certain purposes and capable of traversing space or time while sustaining greater or lesser changes, so we ought whenever possible to consider art groupings as wholes which are to be considered as particular kinds of assemblages. It is true, of course, that the problem of deciding just what the group is in prehistoric art, or even whether it exists, is a particularly troubling one, particularly in the European Palaeolithic; but this problem is often less difficult in northern Africa. I shall come back to this topic later.

Fortunately there is today considerable awareness among the foremost investigators of the art of northern Africa of the necessity of establishing both period styles (similarities among groups of elements from the same time period) and local styles (similarities or resemblances among elements from adjacent regions). Huard and Massip have suggested that in the case of the "Hunter Period" art, regional classifications are the necessary conditions for new progress in understanding.⁸⁶ We are, after all, dealing with a very large region, and even in the central part there is not merely one Sahara but many Saharas, as Monod has emphasized.⁸⁷ It seems a principle as relevant to prehistoric art as to prehistoric archaeology that the spatial dimension is one of the essential variables to consider in evaluating the variations in artifact form. With this in mind we can appreciate that differences between two regions need not be solely a factor of time but that motifs, styles, and techniques might be retained in some regions after they had been dropped or modified in others. There seems to be an instance of this in Tanganyika, where the naturalistic tradition of art lasted longer than it did in Zambia and Mozambique, where schematic and geometric art took over;⁸⁸ and the same thing may well have occurred at times in North Africa.

(b) Ecology. From the nineteenth century on prehistorians and others have made use of information in prehistoric art to draw conclusions concerning past climate and the fauna and flora of the area. The faunal remains excavated

86. Huard and Massip, "Gravures rupestres," 192-197.

87. Monod, "The Late Tertiary," 117-229.

88. J. Desmond Clark, "The Rock Paintings of Northern Rhodesia and Nyasaland," Prehistoric Rock Art of the Federation of Rhodesia and Nyasaland, R. Summers, ed. (Salisbury, 1959), 216.

from Palaeolithic sites had demonstrated this in the Pleistocene range, but the "Neolithic" art, especially the great herds of domesticated cattle painted in regions of the Sahara where no cattle can survive today, was a most dramatic proof of the very different environment and very drastic changes even within Holocene times. As the archaeology became better known and the art styles arranged in something approximating their proper sequences, attempts were made to use the art as a more precise index of ecology and environmental changes and even to reconstruct specific vegetation patterns, precipitation isohyets, and wild faunal ranges through time as evidence for schemes of Holocene climatic shifts involving sub-pluvial and arid phases.⁸⁹ This assumes, of course, that the art really does reflect the presence in the past of those particular animals in the same zones where the engravings and paintings are found today. There have been many claims in the past that this was not the case but that the pictures, especially those of Ethiopian-type fauna, were done from memory of those seen in far-off regions to the south or in circuses in Mediterranean cities, or were copied as animals were brought across the Sahara en route to the Roman games. Today few such claims are seriously advanced, and most prehistorians are prepared to share the opinion voiced by Lhote⁹⁰ and others that the art does reflect fairly faithfully the evolution of the past fauna through the vicissitudes of Saharan climatic changes from prehistoric to modern times.

Nevertheless, there are too many cases known in ethnographic or prehistoric art in other parts of the world of fauna from distant regions being shown in the local art for us to ignore this possibility when we are dealing with small numbers of pictures. The cases of fish depicted on the local Mimbres pottery in prehistoric New Mexico, although no fish occur naturally in the region, and of wall paintings of marine fish in the interior of southern Africa come to mind. Presumably these may have been actual imports through trade, and one would not expect pachyderms to be exchanged in this way. Nevertheless the memory factor must be kept in mind, and this is particularly true when no osteological remains of a particular animal are found in palaeontological or archaeological sites in the region. For instance, there seems good stylistic and palaeontological reason to believe that the only rhinoceros so far found depicted in the rock art of the Nile Valley of Upper Egypt is such a caricature, done from memory.⁹¹

Two other sources of error are possible. Schulz, a zoologist, has pointed out the dangers in too easy conclusions about climate and environment based on prehistoric fauna shown in prehistoric art since most large mammals

89. K. W. Butzer, Studien zum vor- und frühgeschichtlichen Landschaft-wandel der Sahara und Levante seit dem klassischen Altertum. II. Das ökologische Problem der Neolithischen Felsbilder der östlichen Sahara, I (Mainz, 1958), 20-49.

90. Lhote, "L'évolution de la faune," 83-118.

91. W. Gowers, "The Classical Rhinoceros," Antiquity, 24 (1950), 61-71.

can live under very varied climatic conditions and, provided they can obtain suitable food at all seasons, can often adapt to widely different sustenance.⁹² Finally we must recall, especially when dealing with animals believed to be domesticated, that the artists may have been careless or inconsistent, and precise details of iconography on which the specialist depends may not be altogether reliable. W. S. Smith points this out for Dynastic Egyptian art, where too exacting conclusions should not be drawn from the fauna shown in the wall paintings and reliefs, because the artists did not have a scientific interest in the modern sense.⁹³ This should be kept in mind for prehistoric art as well.

(c) Meaning and Purpose. The problem of meaning in the interpretation of prehistoric art is probably the most formidable, for, in discussing the function or purpose, we are in many cases touching on the ideology of the people responsible for the art. An idea of the discrepancy possible in interpreting even the art of a modern group of primitives who had been intensively investigated by ethnographers is given by the dispute between Ascher⁹⁴ and Seligman⁹⁵ over the alleged functional relationships between subsistence patterns and motifs in Vedda paintings from Ceylon. On the prehistoric levels we can hardly expect less uncertainty or ambiguity. Some attempts have been made, nevertheless, to reconstruct something of the purpose and ideology of Saharan and other North African art. Mori suggests that the Round-Head style reveals a complex world of rites and beliefs that are more religious than magical and that revolve around a semi-divine or divine anthropomorphic being.⁹⁶ Lhote considers differences in religious beliefs in the earliest (Bubalus) engravings of Southern Oran and the Tassili because of the differences in frequency of presentation of certain symbols, animals, or associations: in the Round-Head art he sees an "essentially African and Negro" style marked by distinctive symbolism (rounded heads) and animism (horned and masked figures); while the Bovidian Pastoral art, he thinks, was no longer exclusively inspired by magical and religious feeling but was also concerned with "art for art's sake," for pleasure, and for purposes of narration and description.⁹⁷

It is extremely difficult to criticize statements of this kind, for they are presented with a good deal of tentativeness by students well aware of the risks involved and with a very intimate first-hand knowledge of, and empathy for, the

92. H. Schulz, "On the Zoomorphic Representations," *Prehistoric Art of the Western Mediterranean and the Sahara*, L. Pericot García and E. Ripoll Perelló, eds. (New York, 1964), 253.

93. W. S. Smith, *The Art and Architecture of Ancient Egypt* (Penguin, 1961), 138.

94. R. Ascher, "Function and Prehistoric Art," *Man*, 61 (1961), 84.

95. B. Z. Seligman, "Function and Prehistoric Art," *Man*, 61 (1961), 136.

96. Mori, "Contributions," 173.

97. Lhote, "Rapports," 215-224; Lhote, "L'évolution de la faune," 83-118.

art in question. The possible sources of error are so manifest that one is underlining the obvious in pointing them out. Argument based on the rarity or absence of a motif or theme, for instance, must be tempered by the reminder that it is possible for major cultural interests to be expressed only rarely in the art of a group -- the absence of the human figure in official Islamic art comes to mind immediately, and we also have Suggs's documentation of the fact that sexuality, though an explicit and integral part of aboriginal Marquesan religion and a major cultural interest, was not often expressed in their graphic art.⁹⁸

Perhaps the greatest difficulty in getting at the meaning of prehistoric art is that we do not know the symbolic conceptions which were involved even in naturalistic representations. Are these to be taken literally, that is as signs? Or are they loaded symbols, part of a code to be broken? According to the Soviet anthropologist Okladnikov modern Siberian primitives consider the moose a symbol for a female deity of fertility and abundance;⁹⁹ without knowing this "code" we would have no obvious clue to its meaning to the artists, and would be forced in most cases to proceed on the superficial level of analysis. The matter of "breaking" such "codes" where and if they are suspected to exist is a very troublesome one today especially to students of European Upper Palaeolithic art, and here I can only make a brief mention of one such attempt -- which has by no means escaped sharp criticism -- by Leroi-Gourhan in France. This writer has proposed a solution by attempting to establish the combinations or associations of one motif with others, and of their positions inside the caves, and by postulating a binary division based on sex whereby two principles, maleness and femaleness, account for certain species of animals and certain kinds of signs (e.g., horses and arrows are male, bovids and triangles are female).¹⁰⁰ Whatever the merits of this scheme, there has been to my knowledge no effort as yet to interpret the art of northern Africa in this way, but something along these lines may well be attempted in the future.

(d) Stylistic analysis. One fairly common assumption in studies of North African art is that a style can emerge as the result of fusion between two or more other styles or cultures. Thus, it has been suggested by Rhotert,¹⁰¹ followed by Butzer¹⁰² and Huard,¹⁰³ that the engravings of the Bovidian Pastoral period wall art in the Sahara were born as a consequence of contacts between the indigenous hunters-engravers and immigrant "Hamitic" pastoralists from the

98. R. C. Suggs, Marquesan Sexual Behavior (New York, 1966).

99. A. P. Okladnikov, "The Temperate Zone of Continental Asia," Courses toward Urban Life, R. J. Braidwood and G. R. Willey, eds. (New York, 1962), p. 277.

100. André Leroi-Gourhan, Préhistoire de l'art occidental (Paris, 1965).

101. H. Rhotert, Libysche Felsbilder (Darmstadt, 1952).

102. Butzer, Studien, 20-49.

103. Huard, "Art rupestre," 122-147.

east. Without attempting to deny that in theory this kind of intercourse might produce new styles, it remains true nevertheless that a safe distance between speculation and statements of what happened in history is not always preserved in writings of this kind. Although there may have been some overlap in time between the early engravers and the Pastoral ones in some places in the Sahara -- indeed it would be curious if there were not -- Lhote seems justified in denying the existence of any good evidence to support this hypothesis of contact-hybridization in spite of certain resemblances between the two groups of engravings.¹⁰⁴ In any case it is the Round-Head style, not the Bovidian Pastoral, that follows immediately the Bubalus art in the central Sahara. Nor are there any reliable data at this time that pastoralism was introduced from the east. The same criticisms can be made of suggestions that the paintings of the Pastoral period derive their inspiration from the Spanish Levant; there are certain analogies, certainly, but they are not convincing enough at the moment to support a belief in contacts between the two regions.

Another fairly common assumption in judging the dating and subsistence background of prehistoric art is that the cultural status of the groups concerned can be deduced from the technique and style of the art itself. Thus McBurney¹⁰⁵ proposes that certain naturalistic figurations can be ascribed to hunters (and so dated early), because hunters' art is naturalistic and involves a keen observation of the details of the fauna on which they depend, in contrast to the art of peasant communities.¹⁰⁶ On the other hand Vaufrey seems in part to have based his belief in a Neolithic age for Southern Oran art on the alleged absence of a style naturaliste which would be expected in a hunting people.¹⁰⁷ I suspect that, though in general this may often be true -- and Australian art shows many exceptions -- there are a good many other variables to be taken into account before we can use technique or style alone to denote cultural status. Breuil has made an interesting attempt to link naturalistic art with subsistence patterns and environment to show that hunters of large animals tend to emphasize naturalistic and large figures, but adds that in forested regions, where easy observation during hunting is not possible, this will not hold true, and great naturalistic art will be limited to open or steppe-type country.¹⁰⁸ This is a reminder of the necessity of taking the former geographical and environmental factors into account in drawing conclusions; undoubtedly there are many more factors as well.

104. Lhote, "L'évolution de la faune," 102.

105. C. B. M. McBurney, The Stone Age of Northern Africa (Penguin, 1960), 267-268.

106. A rather similar judgment is expressed in McBurney's appraisal of rock drawings from Egypt, which are "suggestive of an impoverished marginal tradition far removed from the main centre of development." Ibid., 272. Here the spatial dimension alone is relied upon for interpretation and the possibility of their representing an early, archaic stage is dismissed.

107. Vaufrey, L'art rupestre.

108. Henri Breuil, "L'Occident, patrie du grand art rupestre," Mélanges Pittard (Brive, Corrèze, 1957), 101-113.

Several other essential points might be made in discussing the analysis of styles. One is that, whenever possible, like should be compared with like, that is engravings with engravings and paintings with paintings. It appears that the two techniques may not necessarily deal with identical themes and subjects even during the same cultural period in North Africa, e.g., in the Bovidian Pastoral phase. This is simply a confirmation of the principle recognized in art history that there may be cultures with two or more collective styles of art at the same moment.¹⁰⁹ There is no need here to go into the possible reasons for this -- male vs. female art, religious vs. profane art, and so on -- but a recognition of this fact may help avoid a number of errors in interpretation. The second point is that the interpretation of North African art cannot be done *en bloc* by treating it as a whole through time. Each period style, like each local style, must be interpreted as far as possible in terms of its own economic and subsistence background. Unlike, say, the Upper Palaeolithic art of western Europe which represents a very long and essentially homogeneous tradition based on hunting and gathering alone, the art of northern Africa, regardless of the amount of cultural, physical, and stylistic continuity carried from one phase to another, is not based on a single exploitative tradition but on several. Throughout the long period represented by the strictly prehistoric art (perhaps more than six millennia) several quite different forms of social and economic life prevailed, ranging from large-game hunters at the beginning through various grades of good-producing based on animal, and perhaps plant, domestication, culminating in historic times in most areas in camel nomadism. Attempts at interpretation of the art have to be tackled in the light of these different cultural statuses, and the pertinent analogies must be drawn from the art and behavior of peoples pursuing similar kinds of subsistence patterns today. The relationship between the art and the economy is not necessarily a direct one: "between the economic relationships and the styles of art intervenes the process of ideological construction, a complex imaginative transposition of class roles and needs, which affects the special field -- religion, mythology, or civil life -- that provides the chief themes of art";¹¹⁰ but it must always be borne in mind.

These criticisms of some of the methods which have been used in the interpretation and analysis of North African rock art might be carried still farther, but this cannot be done in the present brief paper. It will have become apparent by now that the personal feeling of the writer is that, while prehistoric art is always valuable as a supplementary interpretative device, it is a dangerous tool when used alone. Even in the highly detailed and specific scenes of human activities found in the Sahara many of the events are ambiguous and susceptible

109. M. Schapiro, "Style," *Anthropology Today*, A. L. Kroeber, ed. (Chicago, 1953), 294.

110. *Ibid.*, 311.

to several interpretations. No prehistorian will deny that prehistoric art should, whenever possible, be supplemented by investigations of more material remains against which the often suggestive figurations can be checked. This is particularly true in the economic and subsistence fields, but it pertains also to more diffuse aspects. In the last analysis we cannot consider the art as a phenomenon in its own right divorced from the lives of the groups responsible nor can we be content with regarding it as a mystical or spiritual manifestation. We must search for an understanding of the contexts which gave rise to the art -- whether it was locally invented or borrowed -- and which permitted or required it to develop as it did. We have only to think of the Upper Palaeolithic art of western Europe to recognize how greatly our interpretation and understanding of it is influenced by our knowledge of the data other than art which are available for the cultures of this period and of how greatly our picture of human activities and surroundings would be skewed if we had nothing but the art. Only archaeological excavation with its affiliated techniques will give us the required background to understand the prehistoric art of northern Africa.

If the excavations can be carried out in the immediate vicinity of the art, so much the better. In many cases, of course, this is not possible, as Bailloud found in the Ennedi where most art sites contained few or no traces of occupation debris.¹¹¹ But this kind of research is not the only kind required, for it is also important to have a representative sampling of all types of sites in a given region in order to establish the nature of the occupations and archaeological changes since at least the early Holocene.¹¹² As Caton-Thompson has remarked, "the first prerequisite for fruitful speculation on the age of rock pictures must lie with a knowledge of the prehistory of the area in which they occur."¹¹³ This remark is applicable to other aspects of rock art than the purely chronological one, of course.

In the past in northern Africa there has been a feeling of pessimism regarding the possibilities of relating the art to the dirt archaeology. Apart from a few investigations, such as Vaufrey's in Southern Oran in the 1930's, to identify the archaeological remains in the immediate vicinities of the art, most workers have contented themselves with the study and comparison of the art alone. Even as recently as 1952 Breuil could write that "en Tassili, où l'érosion très violente

111. Gerard Bailloud, "Les peintures rupestres archaïques de l'Ennedi (Tchad)," *L'Anthropologie*, 64 (1960), 211-234.

112. There is, for example, some reason to believe that the occupation sites of the hunting groups would not, like those of the Pastoralists, be found in the interior of the central Saharan massifs where their art is frequently located but on the outskirts near the hunting steppes.

113. G. Caton-Thompson, *Kharga Oasis in Prehistory* (London, 1952), vi.

a emporté depuis longtemps les dépôts archéologiques, leur attribution à une ou à plusieurs phases archéologiques est purement spéculative et ne saurait être inférée que par des comparaisons d'ordre artistique et ethnographique."¹¹⁴ Fortunately, this situation has changed greatly in the past decade, and new research programs have been instigated in several regions which are oriented towards a combined archaeology-art-environment approach to the problems. These have been carried out by Mori in the Acacus, Lhote in the Tassili, and Bailloud in the Ennedi, and some of the results of this research have now been made available. Simultaneously, such prehistorians as Hugot have continued research in the excavation of habitation sites of the Neolithic and other periods in the Sahara which promise, in conjunction with palynological and related studies, to provide a reliable archaeological and ecological background for the cultures believed responsible for the rock art or at least contemporary with it. Only a brief idea of these contributions can be given here: Mori's program of excavations in the vicinity of the rock art of the Acacus has brought to light stratified archaeological materials including pottery dated as early as 5500 B.C.; faunal materials including evidence of domesticated cattle in the sixth millennium B.C.; collective burials apparently associated with the earliest art; very valuable ecological data from pollen remains which will help provide a context for the nature of environmental and climatic changes during the lifetime of the art styles; and, finally, the several kinds of dating (*post quem*, *ante quem*) for a number of art styles shown on the walls by means of radiocarbon datings of levels which cover some of the wall art or which contain fallen fragments of the art. Thus, a minimum age of 4804 ± 290 B.C. is provided for the Round-Head style at Uan Telocat site by charcoal from an archaeological layer which covers the wall paintings, and this is pushed back even farther if, as Mori thinks, the date of 5500 B.C. relates to an early Bovidian Pastoral style. Similar evidence from several other Acacus sites indicates that the middle Pastoral phase dates somewhere between 5000 and 2700 B.C. In the Tassili Lhote has obtained a series of radiocarbon datings from several of his Bovidian Pastoral art phases, most of those published being in the fourth and third millennia B.C.; considerable information is also becoming available about the artifacts and industries, the climates, and the vegetational aspects of the prehistoric occupants of this massif, which was inhabited by at least the sixth millennium B.C. judging from a recently announced radiocarbon date of 5450 ± 300 B.C.¹¹⁵ Bailloud's results from the Ennedi have not yet been published in detail, but he was able to correlate his archaeological deposits with the art styles in broad outline and to demonstrate apparently that some of the Round-Head paintings could be related to the types of wavy-line pottery found by Arkell at Khartoum and Shaheinab in the Sudan, where, just as in the Round-Head art, there is no certain evidence of domesticated cattle.¹¹⁶

114. Breuil, "Les roches peintes," 147.

115. Radiocarbon, 8 (1966), 87.

116. Bailloud, "Les peintures rupestres archaïques."

All these new data suggest that the continuation of such research programs with multidisciplinary methods will before long enable us to review North African prehistoric art in a new light. Indeed, it should not be forgotten that one of the major contributions of this art, especially in the Sahara of Algeria and Libya, has been to focus attention on these regions as former centers of important prehistoric occupation and to stimulate archaeological excavations there. Without the art it is doubtful that the somewhat unspectacular nature of the occupation sites themselves would have overcome the physical obstacles to research in these difficult regions.

Problems and Suggestions

The problems which still await solution in the northern half of Africa in the field of prehistoric art are many. Some have already been discussed here; others can be mentioned very briefly. One of the most relevant is the question of indigenous cattle domestication in North Africa. Domesticated cattle are certainly present in the Bovidian Pastoral style art, probably from the beginning, but it does not seem possible at the moment to distinguish in the art itself a stage corresponding to an incipient domestication. Yet this possibility cannot be rejected. Certainly, the most recent findings in the central Sahara suggest a need to reexamine this problem, which has tended to be passed over in the last few decades in favor of postulated centers of domestication in southwestern Asia. Unfortunately even in the relatively well known Neolithic sequences of this latter region there is considerable uncertainty about the time and place of earliest domestication of cattle. But northern Africa has on several occasions been suggested as one of the centers of domestication,¹¹⁷ and Clark¹¹⁸ has mentioned the possibility of domestication from a wild form Bos opisthonomus which existed there. Bosch-Gimpera has suggested in his arguments for an early dating for pastoral scenes in the Sahara that domestication had perhaps already begun in the Epipalaeolithic.¹¹⁹ This whole problem has also been discussed by Monod.¹²⁰ Mori is now certain that domesticated cattle were present in the Acacus by ca. 5500 B.C., basing this claim in part on the discovery of part of a skull of the short-horned Bos brachyceros in the lower level of Uan Muhuggiag site, and, although he does not explicitly require that it involved indigenous

117. Ed. Dechambre, "Le Sahara, centre primitif de domestication," Séances de la Société de Biogéographie, c.r. (1951), 147-151.
118. J. Desmond Clark, "Africa South of the Sahara," Courses toward Urban Life, R. J. Braidwood and G. R. Willey, eds. (Chicago, 1962), 15.
119. P. Bosch-Gimpera, "The Chronology of the Rock Paintings of the Spanish Levant," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), 129.
120. Monod, "The Late Tertiary," 200.

domestication, he refers to "preparatory stages for true pastoralism."¹²¹ Clearly, this is one of the problems which have a direct bearing on the prehistoric art but which will probably have to be resolved by archaeological investigations; those now going on in the Sahara may be expected to shed considerable light on the matter.

A related problem is the matter of plant domestication since this question is raised by some of the scenes in the central Saharan art. Lhote has inferred the existence of agriculture in the Bovidian Pastoral period, because one scene shows a group of women said to be working in a field, and Clark seems tentatively to accept this suggestion.¹²² But as Monod points out quite properly,¹²³ it is difficult in such ambiguous presentations to distinguish between digging and gathering, and the same criticism can be made of suggestions that grinding stones in archaeological levels, or scenes showing food grinding or preparation, necessarily involve domesticated plants.

Certain other problems have already been touched on in this paper, but the need for further investigation needs to be underlined. Do the differences in art styles represent the work of different groups, as Breuil seems to suggest?¹²⁴ To what extent are there transitions or overlaps between one period style and another? Breuil thought there was evidence of such overlap between the Round-Heads and the Bovidian Pastoralists at Tassili,¹²⁵ and Huard concludes that the early Hunters art survived into the middle Pastoral period in the southwestern part of the Sahara.¹²⁶ What was the nature of the environment and climate in the Saharan area in the pre-Pastoral phases? As Mori points out,¹²⁷ very little is known of this matter before the Bovidian Pastoral period; yet this must be studied before we can talk intelligently about conditions for incipient domestication of plants and animals on the same level of competence as we can in southwestern Asia, where this problem is gradually being understood. The questions of the origins, dating, and duration of the Round-Head style still await documentation; it may well be "essentially African and Saharan" as Lhote claims, but much more information is necessary concerning the artifacts and physical anthropology before its implications can be properly grasped. The problem of what was happening in the Sahara between the middle of the third millennium B.C., when the Bovidian Pastoralists were apparently declining or dispersing, and the appearance of the horse-chariot in the area between ca. 1500 and 1200 B.C.

121. Mori, "Contributions," 175.

122. Clark, "Africa South of the Sahara," 16.

123. Monod, "The Late Tertiary," 186.

124. Breuil, "Les roches peintes," 150.

125. *Ibid.*, 150.

126. Huard, "Art rupestre," 140.

127. Mori, "Contributions," 175.

also requires further research. In the eastern part of North Africa to what extent was the Nile a significant boundary in separating the art and cultures of the Libyan zone of the Sahara from those of the Eastern Desert? There are certain shared traits -- e.g., the practice of "quartering" cattle bodies in the rock drawings -- but in general this problem has tended to be neglected by most authorities in North African art who deal with the Sahara and whose interests fall off as one goes east of Tibesti; very little field work has been done between the Nile and the Red Sea since Winkler's time apart from some recent investigations by W. Resch.¹²⁸

Indeed, the whole problem of establishing archaeological zones or provinces in the North African Neolithic and later periods still awaits proper treatment. Some attempts have been made -- e.g., that by McBurney and Hey¹²⁹ -- in distinguishing an eastern and a western province. The existence of a "Neolithic of Sudanic tradition" has been suggested by some writers as a kind of counterweight to the Neolithic of Capsian tradition. Certainly the majority of North African prehistorians today, including Balout, Hugot, and Gobert, no longer see events in the Maghreb as consisting solely of a monolithic Neolithic of Capsian tradition which expanded into the Sahara. Things are unlikely to have been so simple at this time when, in the earlier stages at least, most groups seem to have been sub-Neolithic with most of the subsistence emphasis apparently still on hunting, fishing, and collecting. A more precise definition of the culture areas or provinces on this horizon will in turn provide a more reliable background for discussing the prehistoric art found in the areas concerned.

It is of course always easier to offer suggestions for research than to apply them, and those offered in this paper are no exceptions. Very obviously we require further studies of the spatial distribution of art elements, fauna, and artifacts. Lhote's efforts in painstakingly listing the geographical distribution of all animal species shown in the rock art and their frequencies and associations, as well as in attempting to correlate them with local geographical features and with palaeobotanical data where the latter are available, is an admirable example of this; in many cases it has enabled him to offer environmental reasons for presences or absences of particular species in the art and thus to eliminate explanations based on other possibilities.¹³⁰ But it seems to me that there should be more exhaustive zoological studies of the animals depicted in the art, particularly of those thought to be domesticated. Although a number of zoologists have in the past given opinions on the fauna shown in North African art, it has generally been on the level of species identification. To my knowledge

128. W. F. E. Resch, "Neue Felsbilderfunde in der ägyptischen Ostwüste," *Zeitschrift für Ethnologie*, 88 (1963), 86-97.

129. C. B. M. McBurney and R. W. Hey, *Prehistory and Pleistocene Geology in Cyrenaican Libya* (Cambridge, 1955).

130. Lhote, "L'évolution de la faune," 83-118.

few or none of the palaeozoologists of various countries who have in the last few decades brought about such advances in our knowledge of the processes of pre-historic domestication of animals have been called on to examine the art of North Africa, especially the Sahara, in this light. Yet one would have thought that this would be extremely useful from their own points of view as well as from that of the archaeologist, for, especially in the highly naturalistic paintings of cattle herds, information on non-skeletal materials, such as sexual dimorphism, body profile, and coloration, are often available and should be invaluable to supplement the osteological remains from archaeological deposits. And one might mention in passing that in more than one instance in past studies of North African art the animals in question have been wrongly identified, usually by non-zoologists, so that antelopes have been interpreted as horses and phacoceros as hippopotamus.

Finally, I return to a topic which was mentioned briefly before and offer some comments which may be of use in evaluating the ever increasing quantities of rock art data now available. Prehistoric archaeologists, especially in the New World, have for some years been occupied with analyzing artifacts in terms of such features as attributes or modes as a way of organizing and studying their materials.¹³¹ Related studies have been carried out in Europe (see, for example, the attempt by Gardin to apply rather similar concepts to artifacts and iconography).¹³² Rock engravings and paintings are, after all, artifacts; two-dimensional ones, it is true, but nevertheless vestiges of cultural behavior, which should be susceptible to analysis like their three-dimensional kin. The methods suggested by the archaeologists mentioned above may be relevant to their analysis.

Rouse suggests that artifacts can be described usefully in terms of modes and attributes.¹³³ Modes in this sense are any standards, concepts, or customs governing the behavior of artisans which are passed from one generation to another, or from one community to another; attributes (e.g., raw materials used, shape, artifact decoration) are the manifestation of such modes in artifacts, the means by which the customs and concepts of manufacturing and using artifacts are expressed. Archaeologists can use the concept of modes in several ways: to refer to the behavior of the artisans in making and using the artifacts ("procedural modes") or to refer to ideas and standards the artisans have expressed by means of artifacts ("conceptual modes"). From then on there are several ways of treating the data to establish types, if one wishes to

131. E.g., see Spaulding, "Dimensions," 437-456, and I. Rouse, "The Classification of Artifacts in Archaeology," *American Antiquity*, 25 (1960).

132. J.-C. Gardin, "Four Codes for the Description of Artifacts: An Essay in Archaeological Technique and Theory," *American Anthropologist*, 60 (1958), 335-357.

133. Rouse, "Classification."

go beyond the level of modes; by noting the significant modes on punch cards or by some other means of data handling; by dividing the specimens on the basis of first one set of modes, e.g., raw materials, then by another set, e.g., shapes, until all artifacts of the same kind have been analyzed. The number of modes selected depends, of course, on the number present and expressed by the attributes; in "simple" artifacts they will be few and can all be used, whereas in "complex" artifacts fewer may be chosen.

This approach has not been altogether unknown in studies of North African rock art, of course; thus, Mori uses the combinations of the "four elements determining and characterizing" Saharan rock drawings -- patina, style, technique, and dimensions -- in his classifications for chronological and other purposes.¹³⁴ Other writers have also used units considerably more complex than the gross ones of, say, "engraved hippo," "painted cow"; for instance, the elaborate subdivisions of varieties of cattle horns proposed by Rhotert.¹³⁵ Nevertheless, a far more refined system than those hitherto applied is necessary if we are to extract the maximum of information from the data. Here the code devised by Gardin for the analysis of such artifacts as tools, ornaments, and iconography is particularly suggestive for describing the data in prehistoric rock art, whether on the level of technique of manufacture, of form of individual units or of large groups or "scenes."¹³⁶ This is not only a way of categorizing the data for descriptive purposes; with such methods associations which today are not discernible, or barely so, can be examined for their possible significance far more easily than can be done by traditional means of recording. The reader is referred to Gardin's paper for the details of his scheme and for his use of "distinctive features," which seem analogous in many ways to the "attributes" of other archaeologists. The application of such methods of analysis and description to North African rock art would admittedly be a long and costly one in practice, but it does not seem beyond the limits of techniques available today, certainly no more so than those currently being suggested for the analysis of artifacts collected from excavated sites. In the long run it will be by the adoption of methods such as these -- which, after all, are intended to aid and supplement, not to replace the judgment of the investigator -- in conjunction with the data from excavated sites that we shall come to appreciate fully the role that the art of this huge region can play in an understanding of the cultural events and cultural processes of prehistoric and protohistoric North Africa.

134. Fabrizio Mori, "Short Conclusions on the Discussion of the Chronological Problem of Saharan Rock-Art," Prehistoric Art of the Western Mediterranean and the Sahara, L. Pericot Garcia and E. Ripoll Perelló, eds. (New York, 1964), 248.

135. Rhotert, Libysche Felsbilder.

136. Gardin, "Four Codes," 335-357.