The Oldest Representations of Hallucinogenic Mushrooms in the World

(Sahara Desert, 9000-7000 B.P.)

by

Giorgio Samorini

original source: http://www.samorini.it/doc1/sam/sam-1992-sahara.pdf
backup source: http://www.psilosophy.info/resources/sam-1992-sahara.pdf

Abstract -The idea that the use of hallucinogens should be a source of inspiration for some forms of prehistoric rack art is not a new one. After a brief examination of instances of such art, this article intends to focus its attention on a group of rock paintings in the Sahara Desert, the works of pre-neolithic Early Gatherers, in which mushrooms effigies are represented repeatedly. The polychromic scenes of harvest, adoration and the offering of mushrooms, and large masked "gods" covered with mushrooms, not to mention other significant details, lead us to suppose we are dealing with an ancient hallucinogenic mushroom cult. What is remarkable about these ethnomycologicol works, produced 7,000-9,000 years ago, is that they could indeed reflect the most ancient human culture as yet documented in which the ritual use of hallucinogenic mushrooms is explicitly represented. (As the fathers of modern ethno-mycology and in particular R. Gordon Wasson) imagined, this Saharian testimony shows that the use of hallucinogens goes back to the Paleolithic Period and that their use always takes place within contexts and rituals of a mystico-religious nature.

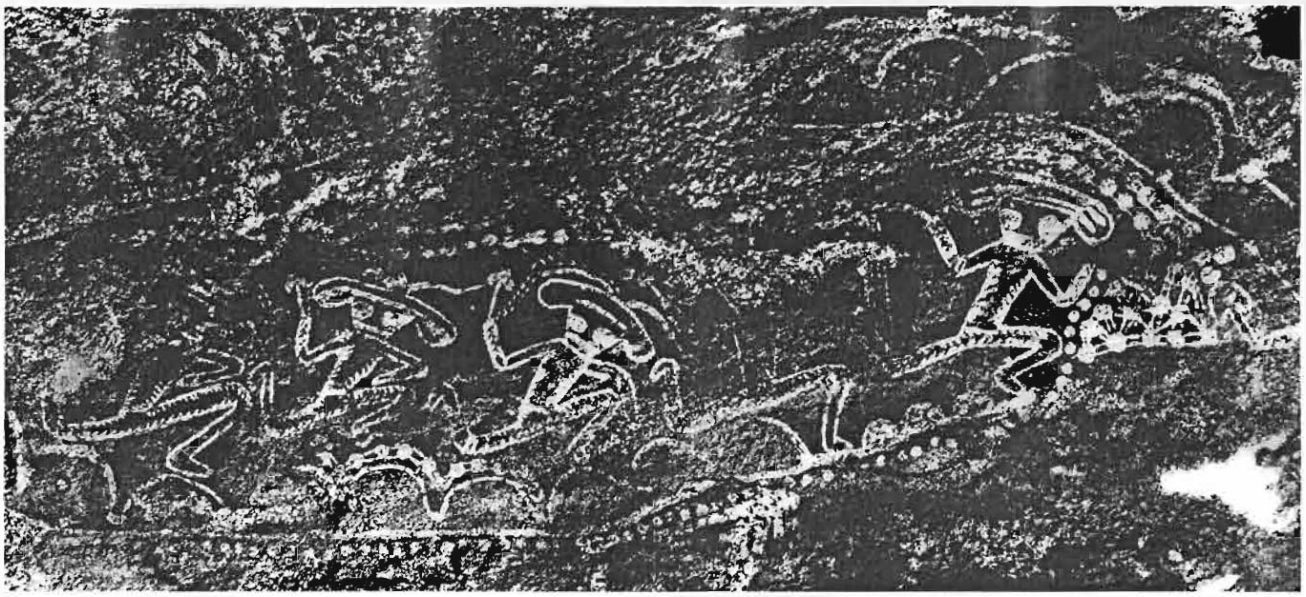
Rock paintings and incisions of the prehistoric periods are to be found all over the world, and serve as a testimony to the pre-literate history of human cultures. Rock art, the first permanent form of visual communication known to man, the some art which led to the invention of writing, goes back almost to the origins of mankind. In fact, in Tanzania, as in Australia, there are rock paintings which it would appear go back 40,000 years and more (Anati, 1989).

Since most of the works of rock art were, or were related to, initiation rites, or were part of religious practice and its context, the idea that these works should be associated with the use of hallucinogenic vegetals (as has already been put forward for some specific cases on the basis of ethnographic and ethnobotanical data) comes as no surprise. This use, where it arises, is historically associated with controlled rituals involving social groups of varying dimensions. It is perhaps not a chance occurrence that the areas where examples of rock art are to be found - areas in which it is most often asserted that the use of hallucinogens might have taken place, on the basis of the scenes represented or on the basis of the consideration that this practice might have served as a source of inspiration - are also the areas where the most famous examples are to be found in terms of imagination, mythological significance and polychromy.

We might consider, for example, the works of archeological (or rather "archeo-ethno-botanical") interest in the easternmost areas of Siberia, within the Arctic Circle, on the bonks of the Pegtymel River. An extensive petroglyphic area was found there dating back to the local neolithic period. Among these works, we find mushroom gatherers (Dikov, 1971). In some cases we find females wearing long and ornate "ear-rings" and an enormous mushroom on their heads, figures with the stance of people trying to keep their balance. The stocky form and the decoration on the mushroom lead one to suppose these mushrooms are *Amanita muscaria* (Fly-Agaric), the hallucinogenic mushroom most often associated with shaman practices in Euro-Asia and N. America (Wasson, 1979). Mushroom motifs have also been found in the petroglyphs of the prehistoric settlements of the Kamciatka peninsula on the banks of Lake Ushokovo (Dikov, 1979). The paleolithic culture of Ushokovo (protoeskimoleuts) belongs to the group of peoples who gave birth to the various paleo-eskimo cultures of N. America (2nd Millenium B. C.). It is to be imagined that these protoeskimoleuts belong to the peoples who contained within their culture, in embryo form, "protoshaman" religious practices.

In California, the rock art of the regions inhabited by the Chumash and Yokut, a polychromic manner of painting - particularly evident during the stylistic phase known as the "Santa Barbara Painted Style" - has been associated with the "toloache" cult centered around "Jimsonweed" (a hallucinogenic plant of the *Datura* genus) known to hove been used by a number of Californian and Mexican Indian tribes (Campbell, 1965:63-64; Wellmann, 1978 and 1981). Apparently, the first examples of Chumash rock art date back to 5,000 years ago (Hyder & Oliver, 1983).

The impressive Pecos River paintings in Texas have also been associated with the "mescal" cult (*Sophora secundiflora*, hallucinogenic beans of which were used during rites of initiation on the part of the Indian tribes of the region) (Howard, 1957). Furst (1986) affirms that the mescal cult goes back 10,000 years, which is to say back to the Paleo-Indian Hunters Period at the end of the Pleistocene period. Archeological excavations carried out in the areas where paintings are to be found reveal mescal seeds which go back to 8,000 B. C., when Carbon-14 dated. Peyote (*Lophophora williamsii*) has also been found during some of these excavations (Campbell, 1958).

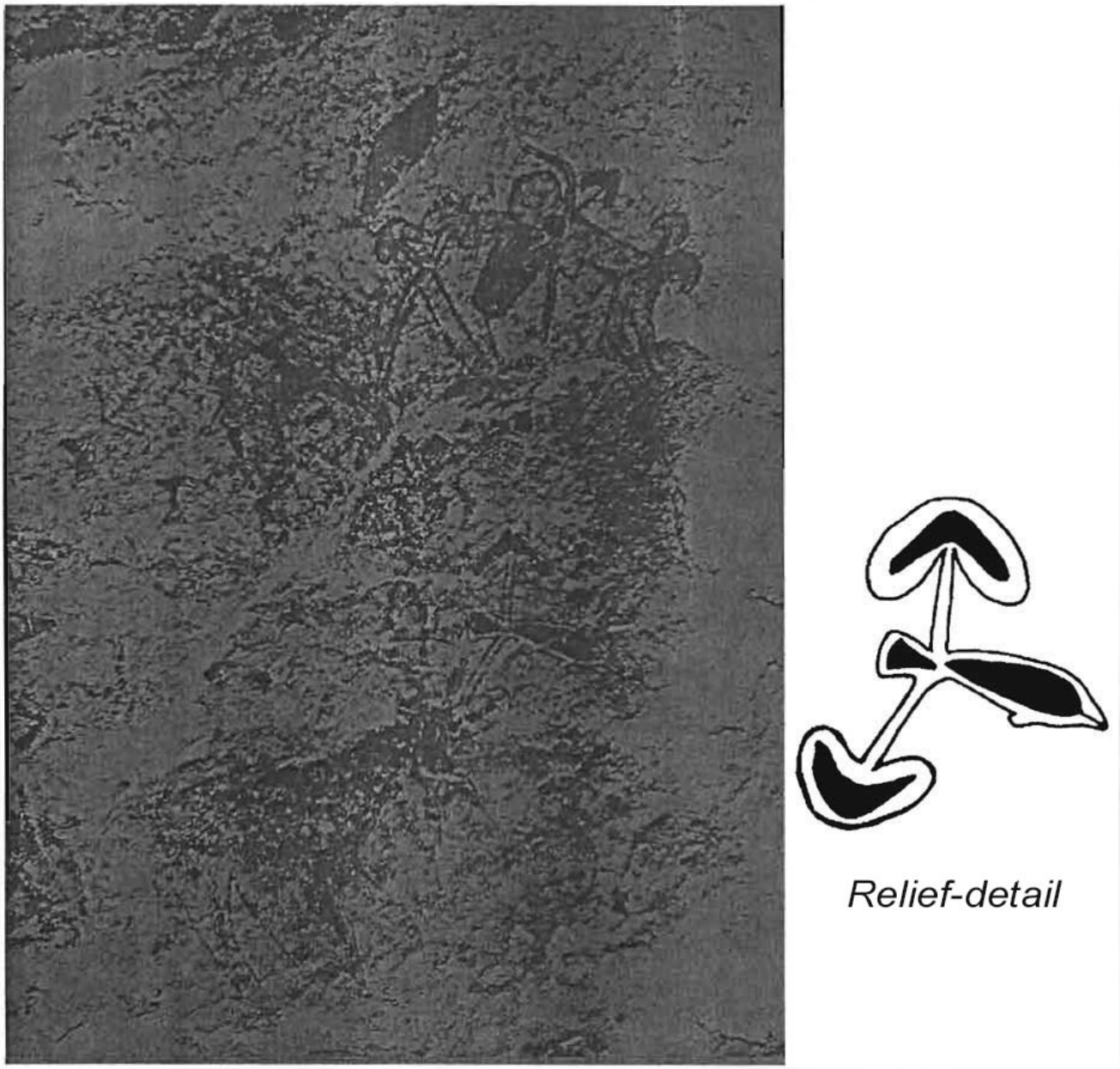


Tin-Tazarift (Tassili, Algeria) - Dancing masked anthropomorphs holding mushrooms (by Laioux, 1964).

An interesting and quite explicit use of "cohoba", a hallucinogenic snuff taken from the *Anadenanthera peregrina* tree has been documented among the peoples of the Borbon Caves art in the Dominican Republic (Pagan Perdomo, 1978). This art is probably an example of the Late Antillian Culture of the Tainos and goes back to a period shortly before the arrival of the Spaniards. In this painting, the subject of inhalation of cohoba - by means of cane pipes - is repeatedly represented (Franch, 1982).

The use of hallucinogens as a significant source of inspiration has also been associated with Peruvian rock art. The rock art in this case is based on incisions on rocks, as can be seen in the Rio Chinchipe works in the north of Peru, probably influenced by the use of *ayahuasca* (*Banisteriopsis* spp. & allies) (Andritzky, 1989: 55-57). That this is an ancient practice is confirmed by archeological findings (Naranjo, 1986). Also in the rock art of

Samanga, the mountainous region of the province of Ayabaca (Piura), among the petroglyphs, we will find figures which have been interpreted as images of *San Pedro* (*Trichocereus pachanoi*), the hallucinogenic cactus still used today in the north of Peru and in Ecuador during shaman healing rites (Polia, 1987 and 1988).



Tin-Abouteka (Tassili, Algeria) -"Round Heads " pictorial phase (Note, in the right-central part of the photo the image of the fish with mushroom-like symbols).

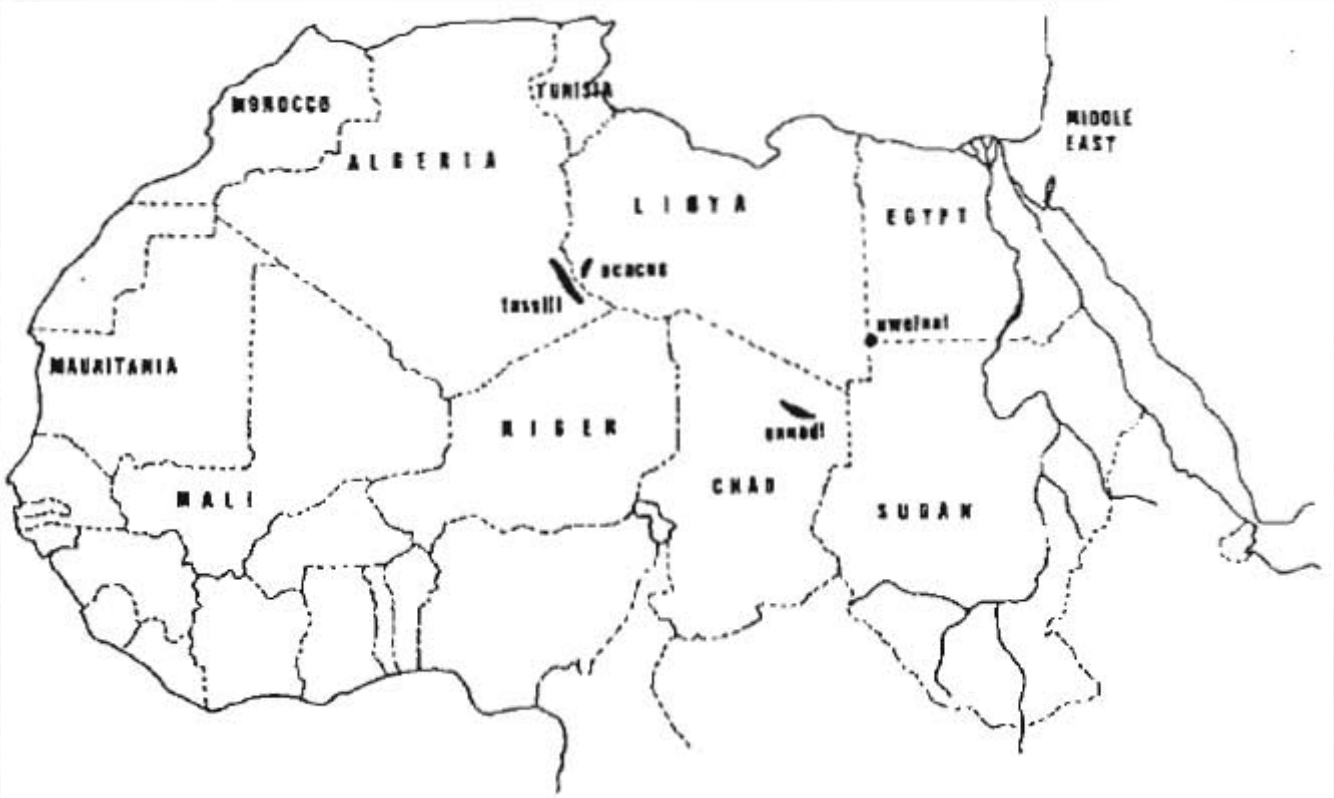
Indeed, archeological indications as to the use of hallucinogens are to be found within many Precolumbian cultures (Dobkin de Rios, 1974; Furst, 1974).

Recently it has even been put forward that even the more ancient paleolithic art of the Franco-Canthabric cave-sanctuaries were influenced by altered states of consciousness procured by various methods, among which the use of hallucinogens (Lewis-Williams & Dowson, 1988). The "psychograms" of the paleolithic period, a series of aniconic graphemes (points, vertical lines, circles, zig-zags, lozenges etc.) which, together with zoomorphic images, cover the walls of the European paleolithic caves, could be considered as the fruit of entoptic, phosphenic or hallucinatory states, typical sensorial phenomena pertaining to the field of altered states of consciousness, as might be gathered from Reichel-Dolmatoff's well-known research into the Tukano of the Amazon (1978: 43-47). Furthermore, natural changes in consciousness due to prolonged sensorial isolation have already been noted. These conditions can be determined in the deep paleolithic caves. Even though the "neuropsychological model" put forward by Lewis-Williams & Dowson is not sufficient on its own to interpret that complex phenomenon which is paleolithic art, this model at least paves the way to supposing

that mind-altering factors may have contributed to a prehistoric will-to-art.

At this point, we should remember Kaplan's (1975) theory that mushrooms are represented in the Swedish cave art of the long Scandinavian Bronze Age.

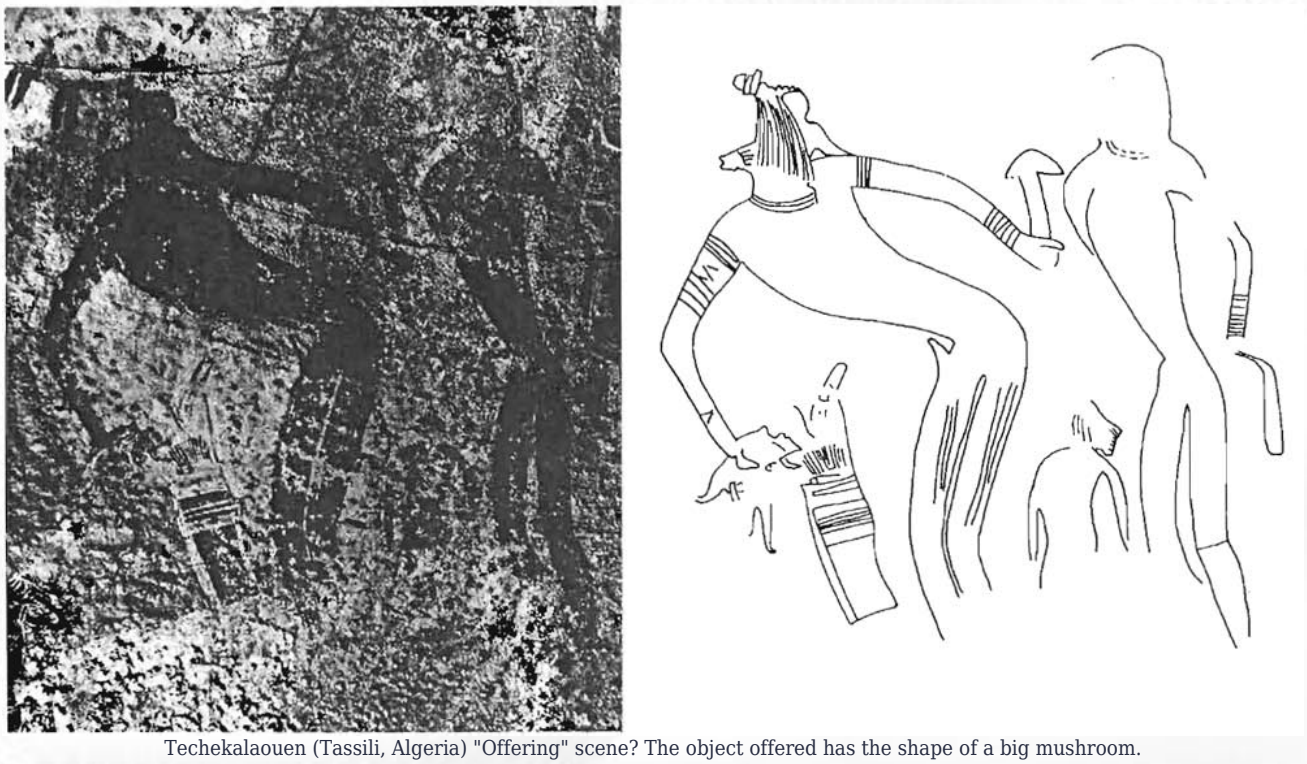
It should also be pointed out that the explicit representation of psychotropic vegetals, as sacred objects (and therefore subject to taboo), is rare and the few cases of explicit representation make up but a small part of prehistoric art, as sacred art, associated with the use of hallucinogens. We must consider that, generally speaking, sacred cult objects will not be represented and that it is more than likely that these will be hidden behind symbolic devices, also of a graphic nature, whose meaning is indeed beyond us.



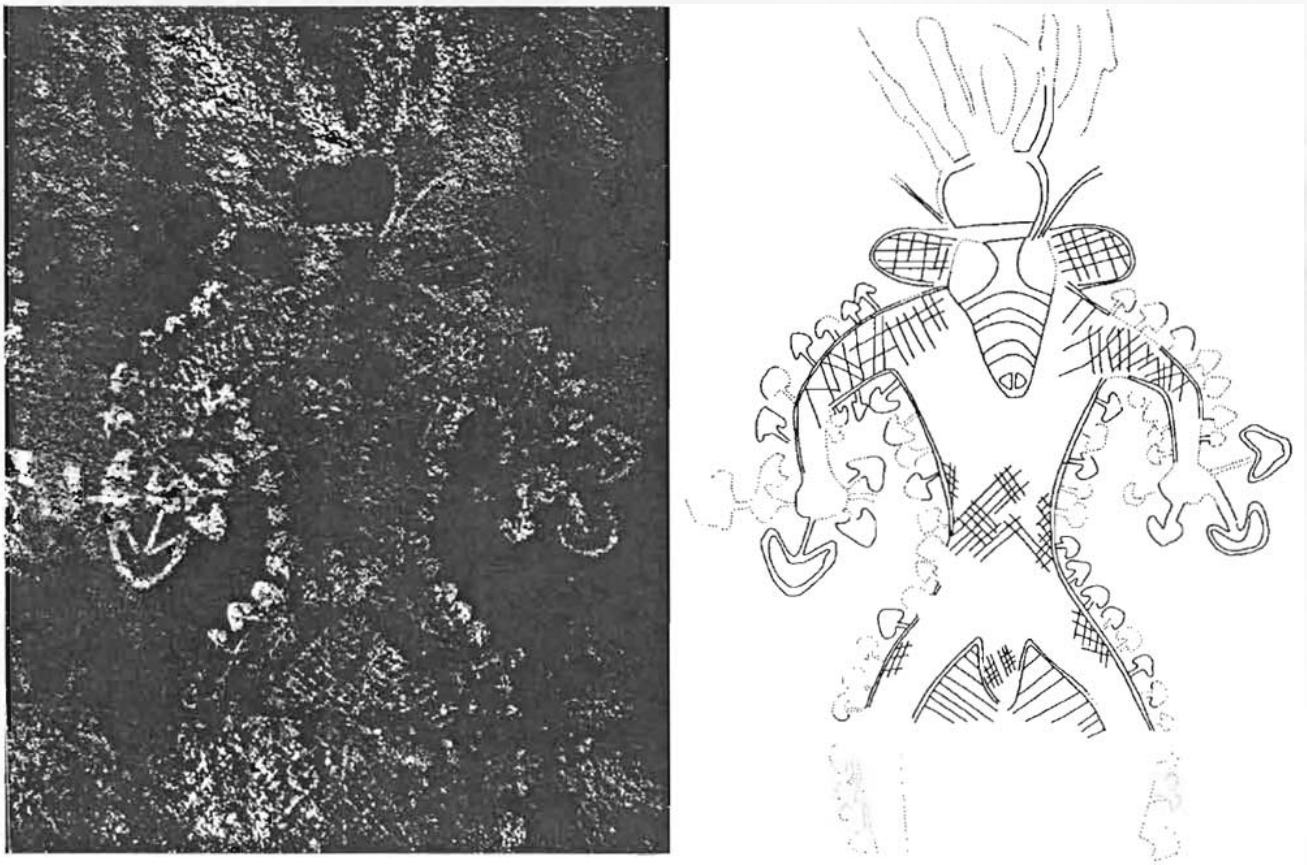
Geographical distribution of the "Round Heads " Painting Style in the Sahara.

Further evidence in support of the idea that the relationship between Man and hallucinogens - in this case mushrooms is indeed an ancient one comes from the ancient populations of the Sahara desert who inhabited this vast area when it was still covered with an extensive layer of vegetation (Samorini, 1989). The archeological findings consist in prehistoric paintings which the author personally had the opportunity to observe during two visits to Tassilli in Algeria. This could be the most ancient ethno-mycological finding up to the present day, which goes back to the so-called "Round Heads" Period (i.e. 9.000 - 7.000 years ago). The centre of this style is Tassili, but examples are also to be found at Tadrart Acacus (Libya), Ennedi (Chad) and, to a lesser extent, at Jebel Uweinat (Egypt) (Muzzolini, 1986:173-175).

Central Saharan rock art, apart from extensive concentrations of incisions, near the sites of ancient rivers, and rock-shelter paintings among the large promontories or high plateau which reach an altitude of some 2,000 metres, cover a period of 12,000 years, generally divided in *5* periods: the "*Bubalus antiquus*" Period, the works of which were produced by the Early Hunters at the end of the Pleistocene period (10.000 - 7.000 years B. C.) - characterized by representations of large wild animals (Mori, 1974); the "Round Heads" Period, in turn divided into various phases and styles, associated with the epipaleolithic populations of the Early Gatherers (7.000 - 5.000 years B. C.), whose works of fantasy have quite rightly become world famous; the "Bovidian" or "Pastoral" Period (starting 5.000 years B. C.), a population of animal herders and breeders whose art is predominantly concentrated on these activities and, after these, the "Horse" Period and, lastly, the "Camel" Period, the art works of which are stereotyped and of a lower quality.



Techekalaouen (Tassili, Algeria) "Offering" scene? The object offered has the shape of a big mushroom.



Matalem-Amazar (tassili, Algeria) - Masked anthropomorph with the body-line entirely covered by mushroom effigies (by Lajoux, 1964)

Some rock art experts have already produced evidence supporting the idea that the art of the Round Head Period could be influenced by ecstatic or hallucinogenic states. According to Anati (1989: 187), this art is produced by the Early Gatherers during the end of Pleistocene and the beginning of Holecene periods. Analogous works dating back nearly to the same period are to be found in various sites around the world (Sahara Desert, Tanzania, Texas, Mexico etc.). These areas were later to become arid or semi-arid when the lakes and rivers dried up. From the many works of art these peoples have left us we learn what were gatherers of wild vegetal foods: "people who lived in a sort of garden of Eden and who used mind-altering substances".

Sansoni too (1980) is of the opinion that "it might be that (the works of art of the Round Heads Period) are the works of normal consciousness or the results of particular ecstatic states associated with dance or the use of hallucinogenic substances. The context, or rather the "motivations" behind Round Heads art, just as with all the other periods of Sahara rock art, are generally of a religious and, perhaps, initiatory nature. Fabrizio Mori, discussing Acacus, stressed "the close relationship which there must have been between the painter and that figure so typical in all prehistoric societies whose main role is that of mediator between earth and sky: the wizard-priest" (Mori, 1975). According to Henri Lhote, the discoverer of the Tassili frescoes, "it seems evident that these painted cavities were secret sanctuaries" (Lhote, 1968).

Images of enormous mythological beings of human or animal form, side by side with a host of small horned and feathered beings in dancing stance cover the rock shelters of which there are very many on the high plateau of the Sahara which in some areas are so interconnected as to form true "citadels" with streets, squares and terraces.

One of the most important scenes is to be found in the Tin-Tazarift rock art site, at Tassili, in which we find a series of masked figures in line and hieratically dressed or dressed as dancers surrounded by long and lively festoons of geometrical designs of different kinds. Each dancer holds a mushroom-like object in the right hand and, even more surprising, two parallel lines come out of this object to reach the central part of the head of the dancer, the area of the roots of the two horns. This double line could signify an indirect association or non-material fluid passing from the object held in the right hand and the mind. This interpretation would coincide with the mushroom interpretation if we bear in mind the universal mental value induced by hallucinogenic mushrooms and vegetals, which is often of a mystical and spiritual nature (Dobkin de Rios, 1984:194). It would seem that these lines - in themselves an ideogram which represents something non-material in ancient art - represent the *effect* that the mushroom has on the human mind.

The whole scene is steeped in deep symbolic meanings and is a representation of a cultural event which actually happened and which was periodically repeated. Perhaps we are witnessing one of the most important moments in the social, religious and emotional lives of these peoples. The constant nature of the physical nature of the dancers and their stances reveals a coordinated will towards scenic representation for collective contexts. The dance represented here has all the indications of a ritual dance and perhaps, at a certain stage, this rite became ecstatic.

In the various scenes presented, a series of figurative constants lead us to imagine an accompanying conceptual structure associated with the ethno-mycological cult described here.

Evident examples of such constants are the two remarkable southern Tassili figures (sites: Aouanrhat and Matalem-Amazar). Both are approximately 0.8 metres tall, they wear the typical mask of this pictorial phase and a typical gait (legs bent inwards and arms bent downwards). Another common feature is the presence of mushroom symbols starting from the fore-arms and thighs; others are hand held. In the case of the Matalem-Amazar figure, these objects are scattered over the entire area surrounding the body.

This mushroom symbol was first interpreted by researchers as an arrowhead, an oar (Mori 1975), a vegetal, probably a flower (Lhote, 1973: 210 and 251), or as an undefined enigmatic symbol. The form which most closely corresponds to this cult-abject is that of a mushroom, most probably of a psychotropic kind the sacramental and socialized use of which is represented in gathering and offering scenes and in the expressive ritual dances, in phosphenic geometrical patterns and in Tassili visionary works.

Thus, these two figures could be interpreted as images of the "spirit of the mushroom", known to exist in other cultures characterized by the use of a mushroom or other psychotropic vegetals.

In a shelter in Tin-Abouteka, in Tassili, there is a motif appearing at least twice which associates mushrooms and fish; a unique association of symbols among ethno-mycological cultures. Two mushrooms are depicted opposite each other, in a perpendicular position with regard to the fish motif and near the tail. Not far from here, above, we find other fish which are similar to the aforementioned but without the side-mushrooms.

In the same Tin-Abouteka scene, yet another remarkable image could be explained in the light of ethno-mycological enquiry. In the middle we find an anthropomorphous figure traced only by an outline. The image is not complete and the body is bending; it probably also has a bow. Behind this figure, we find two mushrooms

which seem to be positioned as though they were coming out from behind the anthropomorphs.

If the mushrooms in question are those which grow in dung, the association between these mushrooms and the rear of the figure may not be purely casual. It is known that many psychotropic mushrooms (above all, *Psilocybe* and *Panaeolus* genera) live in dung of certain quadrupeds and in particular bovines, cervides and equines. This specific ecological phenomenon cannot but have been taken into account with regard to the sacramental use of psychotropic mushrooms, leading to the creation of mystico-religious relations between the mushroom and the animal which produces its natural habitat. Furthermore, the dung left by herds of quadrupeds were important clues for prehistoric hunters on the lookout for game, and the deepening of such scatological knowledge probably goes back to the paleolithic period (the long period of the hunter of large game). Thus we have a further argument in favour of the version of events that would have it that there have been mythical associations, with religious interpretations, on different occasions, between the (sacred) animal and the hallucinogenic mushroom. The sacred deer in the Mesoamerican cultures and the cow in Indian Hindu culture (the dung of which provides a habitat for *Psilocybe cubensis*, a powerful hallucinogen still used today) could be interpreted in this zoo-scatological manner (Wasson, 1986:44; Furst, 1974; Samorini, 1988).

In-Aouanrhat (Tassili, Algeria) - Masked anthropomorph (detail).

In a painting at Jabbaren - one of the most richly endowed Tassili sites - there are at least 5 people portrayed in a row kneeling with their arms held up before them in front of three figures two of which are clearly anthropomorphous. It could be a scene of adoration in which the three figures would represent divinities or mythological figures. The two anthropomorphous figures have large horns while the upper portion of the third figure, behind them, is shaped like a large mushroom. If the scene is indeed a scene of adoration, it is an important testimonial as to Round Heads mystico-religious beliefs. This scene would thus be the representation of a "Holy Trinity" illustrated by a precise iconography. It is worth bearing in mind the fact that the upper part of one of the "trinity" figures in the adoration scene is mushroom-shaped. It could be related to the iconographic figure at Aouanrhat and Matalem-Amazar described above.

In-Aouanrhat, (Tassili, Algeria) Masked Anthropomorphic figure (divinity?) with mushroom-like symbols on the legs and the arms and inside the mask.

But the more or less anthropomorphous figures with mushroom-shaped heads are to be found repeatedly in Round Head art, some with "hat-heads" of umboned or papillate form which on two occasions are of a bluish colour while others carry a leaf or a small branch.

The occurrence of various data suggests the presence of a very ancient hallucinogenic mushroom cult with a complex differentiation between botanical species and related mythological representations. Indeed it would be remarkable to find out that, as part of the culture of the Late Stone Age which 7.000 to 9.000 years ago produced Round Heads rock art, we were in the presence of the oldest human culture yet discovered in which explicit representations of the ritual use of psychotropic mushrooms are to be found. Therefore, as the founders of modern ethno-mycology had already put forward - and this is especially true of Wasson (1986) - this Saharan testimony would demonstrate that the use of hallucinogens originates in the Paleolithic period and is invariably include within mystico-religious contexts and rituals.

It is not easy to identify the mushrooms represented in Round Heads art. The biochemical characteristics of these mushrooms determine the action on the human mind and it either belongs to a flora which has disappeared or, retreated to the Saharan basin which later became desert. From the paintings it would seem there are at least two species one of which is small and topped with a "papilla" (a characteristic it would share with most known hallucinogenic *Psilocybe*) and the other of which is larger (like *Boletus* or *Amanita*). The colours used are white and probably the result of oxidation of the original colour).

The Sahara Desert area has undergone periodic and significant climatic variations. At least three long humid periods have been identified since 20.000 BC, interrupted by three periods of drought, and it appears that the drought we know today is less severe than the two which preceded it. The semi-quantitative graph drawn up by Muzzolini (1982) presents the "Great Humid Holocemic Period" characterized by the presence of enormous lakes all over the Saharan basin (10.000 BC - 5.500 BC). The generally accepted chronology of Round Heads art fits comfortably into this period. Pollen examination carried out at Tassili reveals that, during the Round Heads period, this area was vegetated by highland flora (2.000 m height) with the presence of coniferous trees and oaks (AA.VV., 1986: 97). It can be presumed that some of the mushrooms represented (the large ones) were indigenous to this wooded area in that they are intimately associated with these species of tree.

Mushrooms are not the only vegetals to be found in Round Heads art. We often find figures in typical costume and in hieratic positions, dancing, and holding in their hands small branches or leaves (and in one instance roots). At least two species occur fairly frequently in the images found at Tassili and nearby Acacus. In fact, the interest which surrounds the hallucinogens is always represented within a context of general interest in vegetals and it is most likely that it is within these contexts, related to religious activity and initiation, that we find the origins of individual specializations within the communities of these people concerning the magical, therapeutic and culinary aspects of vegetals.

This new piece in the ethno-mycological puzzle is even more significant if we consider it from the point of view of research into the use of hallucinogens in the immense African continent. Some progress has been made over the last few years as regards the study of this problem (see the work of e.g., Emboden, 1989; Hargreaves, 1986; Lehman & Mihalyi, 1982; Monfouga-Brousta, 1976; Wagner, 1991; Winkelman & Dobkin de Rios, 1989). Africa - both because of an ignorance of the facts which has continued up to the present day and because of the wealth and extreme old age of the indigenous "animist" religions - has still much to tell us concerning the human use of hallucinogens and the origins of such practice.

Only at the end of the drawing up of this paper I received news that also Terence McKenna (1988) proposed separately the Saharian ethnomycological hypothesis, through the indication of the ethnomycologist Jeff Gaines and the observation of the clear photographs of the Tassili paintings published by D. Lajoux (1964).

Tin-Teferiest (Tassili, Algeria) - One of the numerous anthropomorphic figures with mushroom-shaped head.

Jabbaren (Tassili, Algeria) - Big mushroom-shaped motives.

References

1. M.W. 1986 - Arte preistorica del Sahara, Roma & Milano: De Luca & Mondadori.
2. Anati E. 1989 - Origini dell'arte e della concellualità, Milano: Jaca Book.
3. Andritzky W. 1989 - Schamanismus und rituelles Heilen im Alten Peru. Band 1: Die Menschen des Jaguar, Berlin: Clemens Zerling.
4. Campbell G. 1958 - Origin of the mescal bean cult, American Anthropology, vol. 60: 156-160.
5. Campbell G. 1965 - The Rock Paintings of the Chumash, Berkeley: University of California.
6. Dikov N. N. 1971 - Naskalnuie Sagadki Drevniei Ciukotki (Pietroglifui Pegtimelia), Moscow: Nauka.
7. Dikov N. N. 1979 - Origini della cultura paleoeschimese, Boll.Camuno St. Preist., vol. 17:89-98.
8. Dobkin de Rios M. 1974 - The Influence of Psychotropic Flora and Fauna on Maya Religion. Current Anthropology, vol. 15: 147-164.
9. Emboden W. 1989 - The Sacred Journey in Dynastic Egypt: Shamanistic Trance in the Context of the Narcotic Water Lily and the Mandrake, J. Psychoact. Drugs, vol. 21:61-75.
10. Franch J. A. 1982 - Religiosidad, alucinogenos y patrone artisticos Tainos, Bol. Mus. Hombre Dominicano, vol. X/17:103-117.
11. Furst P. 1974 - Hallucinogens in Precolumbian Art, in M. E. King & I. R. Traylor (Eds.), Art and Enviroment in Native America, Lubbock, Texas: Texas Tech., :55-101.
12. Furst P. 1986 - Shamanism, The Ecstatic Experience, and Lower Pecos Art, in H. J. Shafer & J. Zintgraff, Ancient Texas. Rock Art and lifeways Along the Lower Pecos, San Antonio: Texas Monthly, :210-225.
13. Hargreaves B. J. 1986 - Plant Induced "Spirit Possession" in Malawi, Soc. Malawi J., vol. 39(1):26-35.
14. Howard J. H. 1957 - The Mescal Bean Cult of the Central and Southern Plains: An Ancestor of the Peyote Cult?, Amer. Anthrapol., vol. 59:75-87.
15. Hyder D. & Oliver M. 1983 - Style and chronology in Chumash Rock Art, American Indian Rock Art, vol. 10:86-101.
16. Kaplan R. W. 1975 - The sacred mushroom in Scandinavia, Man, vol 10(1):72-79.
17. Lajoux J. D. 1964 - Le meraviglie del Tassili, Bergamo (Instituta Arti Grafiche).
18. Lehmann A C. & L. J. Mihalyi 1982 - Aggression, Bravery, Endurance, and Drugs: A Radical Re-evaluation and Analysis of the Masai Warrior Complex, Ethnology, vol. 21 (4):335-347.
19. Lewis-Williams J.D. & T.A. Dowsan 1988 - The Signs of All Times. Entoptic Phenomena in Upper Palaeolithic Art, Current Anthropology, vol. 29(2):201-245.
20. Lhote H. 1968 - Données récentes sur les gravures et les peintures rupestres du Sahara, in E. Ripall Perellà (Ed.), Simposio de Arte Rupestre, Barcelona:273:290.
21. Lhote H. 1973 - A la découverte des fresques du Tassili, Paris: Arthaud.
22. Mckenna T. 1988 - Hallucinogenic Mushrooms and Evolution, *Re Vision*, vol. 10:51-57.
23. Manfouga-Broustra J. 1976 - Phenoméne de possession et plante hallucinogéne, Psychopat. Afric., vol. 12 (3):317-348.

24. Mori F. 1965 - Tadrart Acacus. Arte rupestre del Sahara preistorico, Torino: Einaudi.
25. Mori F. 1974 - The earliest Saharian rock-engravings, Antiquity, Vol. 48:87-92.
26. Mori F. 1975 - Contributo al pensiero magico-religioso attraverso I'esame di alcune raffigurazioni rupestri preistoriche del Sahara, Valcamonica Symposium '72, :344-366.
27. Muzzolini A. 1982 - Les climats sahariens durant l'Olocene et la fin du Pleistocene, Travaux du L.A.P.M.O., Aix-En-Provence :1-38
28. Muzzolini A. 1986 - L'art rupestre préhistorique des massifs centraux sahariens, Oxford: BAR.
29. Naranjo P. 1986 - El ayahuasca en la arqueologia Ecuatoriana, America Indigena, vol. 46:117-127
30. Pagan Perdomo D. 1978 - Nuevas pictografias en la isla de Santo Domingo. Las Cuevas de Borbon, Santo Domingo: Museo del Hombre Dominicano.
31. Polia M. 1987 - Los petroglifos de Samanga, Ayabaca, Piura, Rev. Mus. Nac. Lima, vol. 48:119-137.
32. Polia M. 1988 - Los lagunos de los encantas. Medicina tradicional andina del Peru septentrional, Piura, Peru: Cepeser.
33. Reichel-Dolmatoff G. 1978 - Beyond the Milky Way. Hallucinatory Imagery of the Tukano Indians, Los Angeles: Univ. Calif.
34. Samorini G. 1988 - Sulla presenza di piante e funghi allucinogeni in Valcamonica, Boll. Camuna St. Preist., vol. 24:132-136.
35. Samorini G. 1989 - Etnomicolagia nell'arte rupestre Sahariana (Perioda delle "Teste Rotonde"), Boll. Camuno Notizie, vol. 6(2):18-22.
36. Samarini G. 1990 - Sciamanisma, funghi psicotropi e stati alterati di coscienza: un rapporto da chiarire, Boll. Camuno St. Preist., vol. 25/26:147-150.
37. Sansoni U. 1980 - Quando il deserto era verde. Ricerche sull'arte rupestre del Sahara, L'Umana Avventura, N. 11:65-85.
38. Wagner J. 1991 - Das "dawa" der mamiwata. Ein möglicherweise pharmakologischer Aspekt des westafrikanischen Glaubens an Wassergeister, Integration, vol. 1:61-63.
39. Wasson R.G. 1979 - Fly agaric and man, in Efron D. H. (Ed.), Ethnopharmocologic Search for Psychoactive Drugs, New York: Raven Press, :405-414.
40. Wasson R.G. et al. 1986 - Persephone's Quest. Entheogens and the Origins of Religion, New Haven & London: Yale University.
41. Wellmann K.F. 1978 - North American Indian Rock Art and Hallucinogenic Drugs, J. Amer. Med. Ass., vol. 239:1524-1527.
42. Wellmann K.F. 1981 - Rock art, shamans, phosphenes and hallucinogens in North America, Boll. Camuno St. Preist., vol. 18:89-103.
43. Winkelman M. & Dobkin de Rios M. 1989 - Psychoactive Properties of !Kung Bushman Medicine Plants, J. Psychoact. Drugs, vol. 21:51-59.