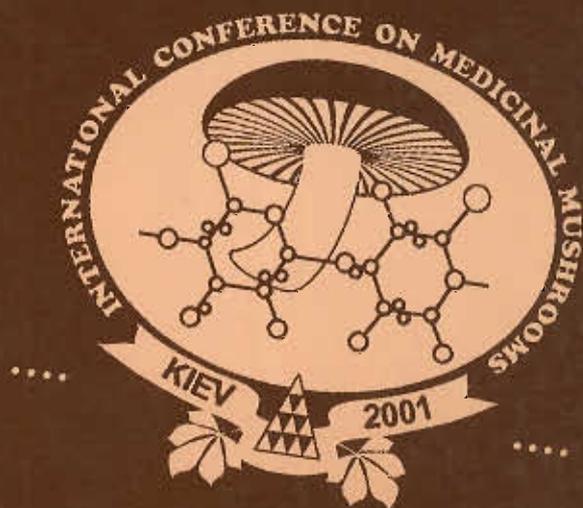


International Journal of  
**MEDICINAL  
MUSHROOMS**

VOLUME 3, NUMBER 2-3

2001

**Solomon P. Wasser**  
Editor-in-Chief



**b** begell house, inc.  
new york • wallingford, U.K.

# New Data from the Ethnomycology of Psychoactive Mushrooms

Giorgio Samorini

Museo Civico di Rovereto, Largo S. Caterina 43, 38068 Rovereto (TN), Italy

**ABSTRACT:** The author presents his research on ethnology of psychoactive mushrooms developed during the last 20 years. In the core of the Sahara Desert, on a group of rock paintings, dating back to 9000–7000 B.P., mushroom effigies are represented repeatedly. The polychromic scenes of harvest, adoration, and the offering of mushrooms lead to suppose we are dealing with an ancient hallucinogenic mushroom cult. Another significant documentation refers to an old mushroom religious cult located in the Kerala State, India. It belongs to a megalithic, pre-Indoeuropean culture dating back to the 1st millennium B.C. The so-called *kuda-kallu* (“umbrella stone”) may resemble a large mushroom. In Europe, an effigy of a mushroom, very likely fly agaric, inserted in a scene with shamanistic connotations, is carved on a rock engraving of Mount Bego, France, dating back to 1800 B.C. Further important archaeo-ethnomycological documentation is to be found in the Greek culture. In particular, in a 5th century B.C. bas relief from Pharsalus, the two goddesses of the Eleusinian Mysteries, Demeter and Persephone, are represented, showing each other objects, two of which have a mushroomlike shape. This bas relief takes us to the very heart of the controversial issue of the Eleusinian ethnobotany. Finally, various examples of the so-called “mushroom trees” to be found in early and medieval Christian artwork from a number of churches are discussed. These works of art are considered from the point of view of the possible esoteric intention of the artists in their inclusion of the mushroom motif. The typological differentiation among the “mushroom trees” would appear due to a natural variation among psychoactive mushrooms.

**KEY WORDS:** Ethnomycology, archaeology, psychoactive or hallucinogenic mushrooms.

My contribution is focused on the research carried out on psychoactive mushrooms over the past 20 years following the pioneering work of Robert Gordon Wasson, who is considered the father of modern ethnomycology (Wasson and Wasson, 1957; Wasson 1968, 1980). The new information can be found in the Old World, Africa and Europe in particular, because these geographic areas have been looked into in any depth only since the 1980s.

The information presented in this article refers primarily to the use of psychoactive mushrooms in the past, that is, information from research carried out in the field of archaeo-ethnomycology.

The most up-to-date maps of the distribution of psychoactive mushrooms show the presence of these mycetes—psilocybins in particular—roughly throughout the world, and numbering more than 200 species.

## AFRICAN ETHNOMYCOLOGY

The African continent, where the use of psychoactive mushrooms was previously unknown, reveals now what appears to be the oldest proof of the knowledge and use of this kind of vegetable; the findings are located primarily in the Sahara desert, an area where mushrooms are currently extremely rare.

Before turning into a desert, the Sahara region was cut across by rivers and lakes and was covered by a lush plant life and populated by human tribes. These peoples left behind a rich variety of rock paintings that have been preserved by the desertification and consequential dehydration of the area.

The ethnomycological documentation I have identified, also following two research trips during the 1980s, belongs to the characteristic “Round Head” period (Samorini, 1989, 1992).

The absolute chronology of this pictorial epoch is still uncertain, although it is generally estimated to have been between 9000 and 8000 and 7500 and 6500 years ago. The highest concentration of rock paintings is found in Tassili (Algeria); these skillful findings can also be found in Tadrart Acacus (Libya), Ennedi (Chad), and more sporadically in Djebel Ouenat (Egypt) (Sansoni, 1994).

One of the most significant and comprehensive scenes is in a shelter in Tin Tazarift (South Tassili); it portrays a series of masked individuals lined up and in hieratic/dancing position, encircled by long and waving geometrical design festoons of various kinds, which quite likely have a very specific meaning now lost to us (Fig. 1).

Each dancer is holding a mushroom-shaped object in his right hand: surprisingly, two dotted parallel lines are depicted starting from the point of contact between the hand and the mushroomlike object that reach the central point above the head. Two horns then originate from this point. The double line could denote an indirect connection or an immaterial fluid passing between the object held in the hand (or the act of holding it in one's hand) and the human mind. This association fits in well with a mycological interpretation if one keeps in mind the universal mental value (often mystical-spiritual in nature) of experiences involving psychotropic mushrooms.

In a shelter in Tin-Abouteka, again in Tassili,

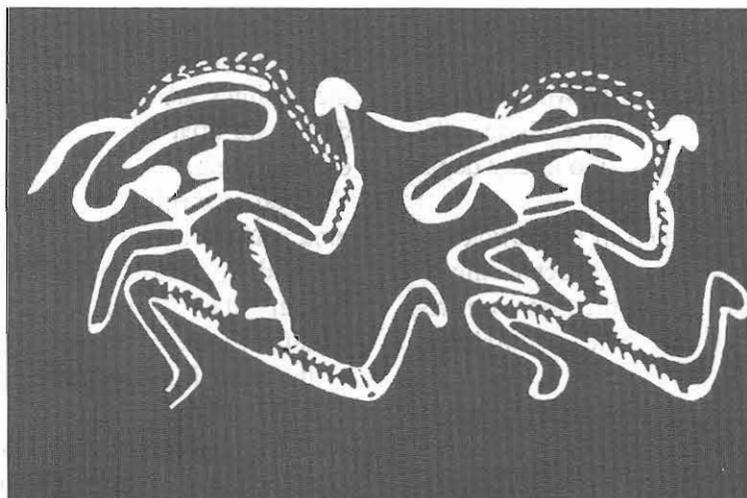
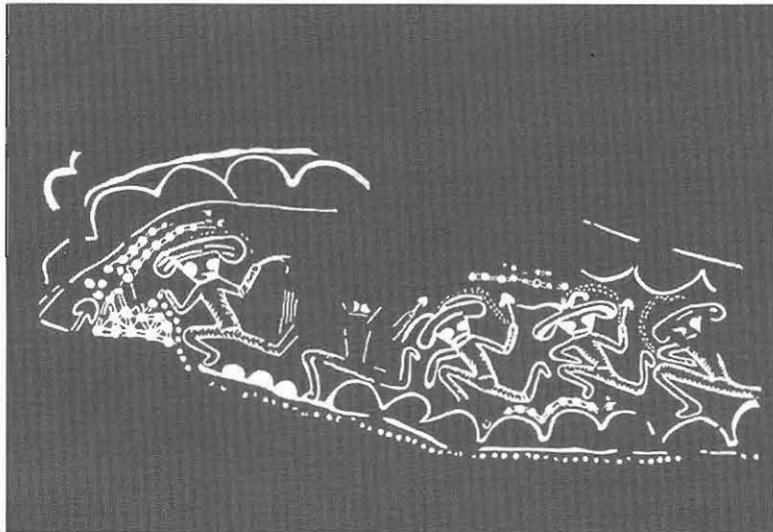


FIGURE 1. (a) Design from a prehistoric rock painting, Tin Tazarift, Tassili, Algeria; (b) detail.



**FIGURE 2.** Rock painting from Tin Abouteka, Tassili, Algeria.

a pattern appears at least twice connecting mushrooms with fish, a unique symbolic association among the ethnomycological type cults (Fig. 2). Two mushrooms are portrayed across from each other, and perpendicular to the fish drawings, at about the height of the caudal region. Further up, other fish can be seen, with similar features and

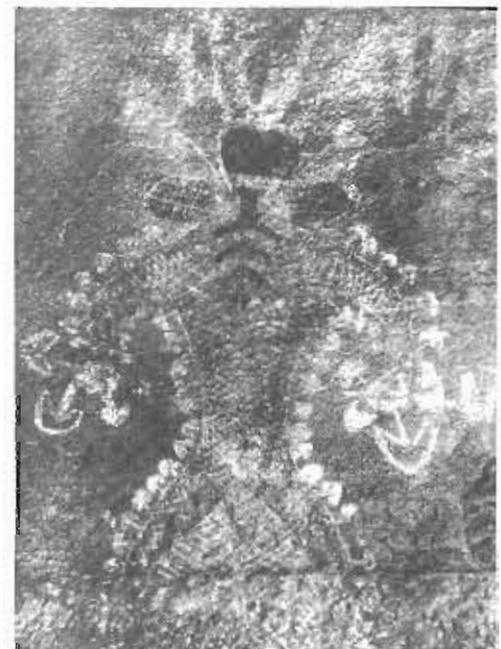
size as the others, but without the two mushrooms at the sides.

This ethnomycological-type cult shows a certain richness in the repetition of the figures so as to suggest a definite associated conceptual structure. Two southern Tassili characters (from the Aouanrhat and Matalem-Amazar areas; Figs. 3 and 4) are such examples, both about 80 cm in height with the mask and stance typical of the period (bent legs and arms folded downwards). Another common characteristic that largely helps to identify them consists of the presence of lance-type objects that come out of the forearms and thighs, while others are grasped in the hands. In the Matalem-Amazar figure, these objects are dotted all around the outline of the body.

In these cases, too, the lancelike elements represent the same symbol as was found in various scenes from the Round Head period, and are interpreted here as mushrooms. Said elements have been read by many authors as the tips of arrows, rowing boats (Mori, 1975), vegetables, even flowers (Lhote, 1973, pp. 210 and 251), or as unidentifiable enigmatic symbols. The shape that more closely matches that of the cult object in question is the mushroom, more than likely of the psychotropic kind, whose socio-sacred use is



**FIGURE 3.** Rock painting from Aouanrhat, Tassili, Algeria.



**FIGURE 4.** Rock painting from Matalem-Amazar, Tassili, Algeria.

marked in the scenes showing its harvest and offering, as well as in the expressive dance rituals, in the phosphene geometric work and also in the visionary productions from Tassili.

The fungiform symbolism seems to be represented in two different ways: as a realistic object held in the hands of the figures (usually masked or with special headdresses), or as an element “coming out” of the body. There are even cases where the figure’s head is in the shape of a large mushroom.

The Round Head artwork is strewn with figures, of various degrees of anthropomorphism, with a fungiform head. Some have a pointed “cap head” or with a papilla, others hold a leaf or branch in their hand. In many cases, archaeologists themselves labeled the figures as having “fungiform heads” (*tête-champignon*), without actually attaching any ethnomycological symbolic value to it, that is, without making a direct reference to mushrooms. This is the case, for example, of the paintings found in the Algerian region of Immidir, north of the Hoggar mountain range. These paintings may very well belong to the Round Head period (Muzzolini et al., 1991).

Several data suggest the existence of an ancient psychoactive cult, with a complex variety of botanical species, accompanied by associated mythological representations. It is not easy to devise a hypothesis about the mushroom species that are portrayed—their biochemical characteristics are partly at the root of the kind of mental experience they provide—as they belong to a flora that is no longer present in today’s barren Sahara basin. The paintings let one infer the presence of at least two species, one of small size, often with papilla on the very top and with similar characteristics to most of the currently known *Psilocybe* hallucinogens, while the other is of larger size (such as *Boletus* or *Amanita*).

The pollenimetric analyses carried out on Tassili highlighted the kind of mountain vegetation that would have been found there during the Round Head period, consisting of various conifers and oak (AA.VV., 1986: 97); it can be assumed that the depicted mushrooms were part of this belt of forest and that, at least the larger sized ones, relied heavily on some of these tree species (symbiotic mushrooms).

In the less than specific debate on this Sa-

harian documentation mentioned in popular psychedelic literature, these paintings are wrongly considered to belong to a Neolithic civilization, that is, a civilization of breeders. They belong in fact to a Palaeolithic, or epi-Palaeolithic civilization, existing toward the end of the Stone Age. Herein lies the most important consequence of this Saharan age: for the first time we come across evidence of the use of psychoactive mushrooms in the Stone Age. Thus the hypothesis by Wasson et al. (1986) that the knowledge of sacred mushrooms originated in the Stone Age appears to have been confirmed.

In equatorial Africa, other ethnomycological details are being uncovered. One of the most interesting findings refers to an ethnic group from the Ivory Coast.

The following narration is taken from a recent French book, written by herbal therapist Yves Soubrillard (1992). The author met Souleymane, a traditional healer belonging to the Mao ethnic group from the Ivory Coast, at an African congress. Souleymane sold the herbal therapist, at a very high price, some of his secrets about magic plants. He invited the therapist to spend some time in his village and there he revealed to him his knowledge concerning various mind-altering plants, among which were two psychoactive mushrooms. Soubrillard had a chance to try out the effects of both mushrooms.

The first of these is called *tamu*, which means “knowledge mushroom;” it was identified by the herbal therapist as belonging to a *Conocybe* species (fam. Bolbitiaceae). The second is called “action mushroom,” and is identified with a *Stropharia* species (fam. Strophariaceae).

It is more than likely that there was some truth behind the account (which may have been rendered intentionally confused and contradictory) made by Soubrillard of his experience, and it does deserve more serious and competent investigation.

By observing other cases of intentional use of psychoactive mushrooms in Africa, I remember that Frantz Thille (1990), who spent some time with the Babinga Pigmies from the Central African Republic, learned that this nomadic tribe is aware of the hallucinogenic nature of certain forest mushrooms; the fungi, however, were reserved only for use by the witch doctors (the

*n'gagna*) for their trances. Robert Graves (1994 [1957]: 91) also reported about psychoactive mushrooms based on information provided to him by a Dr. Sinclair Loutit. Dr. Loutit lived for many years in western Africa and, according to him, the Ibo people of Nigeria also reserved mushrooms exclusively for the witch doctors' rituals, in which human flesh was also eaten. In Madagascar there are mushrooms that bring about a kind of merry intoxication; among them is the Tanala's *tsigegy*, which grows on the rotting trunks of fallen trees. It is not, however, known what species it belongs to (Heim, 1978: 37).

In 1983, Adrian Morgan (1995: 169) told the story of a friend who went to Zimbabwe to teach English in the Harare region. One day two students offered to take him to the forest to look for, and eat, mushrooms and roots that would lead to him becoming intoxicated. The professor didn't accept the offer.

If all these African ethnographic details were confirmed (for a full review cf. Samorini, 2001), we would find ourselves facing the most extensive and differentiated "complex" concerning the use of psychoactive mushrooms in the world. This would portray Africa as the continent where the uses, beliefs, and mythologies about hallucinogenic mushrooms, probably from very ancient times, are best preserved.

## THE "UMBRELLA STONES" FROM KERALA

Let us move on to Asia now, and notably to south India and to the state of Kerala. A rather mysterious megalithic prehistoric culture characterizes this land, particularly regarding its origins. This civilization from the south Indian Iron Age shows dolmen, menhir, and other stone monuments, remarkably similar to the megalithic monuments from northern Europe, although very distant both geographically and chronologically.

Typical megalithic monuments from Kerala are the *kuda-kalla* (Fig. 5), which means "umbrella stones" in the Malayalam language; archaeologists have classified them as dating from between 1000 B.C. and 100 A.D. The most important concentration of these monuments is found in the interior of the Trichur and Palghat regions

north of Cochin, in central Kerala (Krishna, 1967).

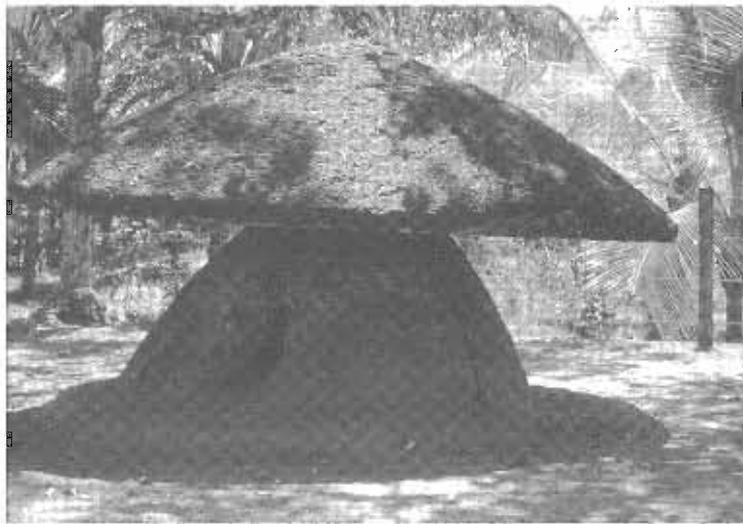
On average, the *kuda-kallu* measure 1.5–2 m in height and 1.5–2 m in width. They are made up of four stones cut into half segments, joining at the bottom and holding up a fifth stone that is flat on the side on which it is resting and convex and even in shape on the other side. The entire complex would seem to resemble an umbrella, or, even better, a huge mushroom. These monuments are not graves. It was suggested that they were archaic prototypes of the Buddhist stupa (Longhurst, 1979). Culturally, the *kuda-kallu* is strongly associated with the umbrella, an archaic symbol of power and authority and sacredness that was widespread in ancient Egypt among the Assyrian and the eastern civilizations.

Although the connection between these stone monuments and the umbrella is plausible, I have put forward the hypothesis whereby they were supposed to portray mushrooms, as they are very similar in shape (Samorini, 1995b).

The name *kuda-kallu* was clearly given at a later time, no doubt after the time when the monument was erected. There is no reliable evidence that it has the same meaning as the name given to it by those who built it. Besides, as Longhurst confirms, it is more than likely that during the Asoka period, some centuries after the erection of the *kuda-kallu*, the royal umbrella was associated with the stupa, for which the *kuda-kallu* are seen as the forerunners, both from an architectural and a symbolic point of view.

In his book *Soma*, Wasson (1968: 66) makes a brief reference to the Kerala "mushroom stone," although he did not actually see them. I believe that if he had had the opportunity to go to the Arryanor sites and had found himself before the seven *kuda-kallu*, he would have been very impressed.

Near the *kuda-kallu* are other megalithic monuments: menhir, dolmen, stone circles, and "hood stones." These "hood stones" are very interesting because of something I noticed on some of them. They are made up of a single stone that covers over an underground grave. I saw numerous round cavities on some of them, dispersed over the entire upper surface of the stone (Fig. 6). The point of these cavities is incontestable: they served a clear decorative purpose and also high-



a



b

**FIGURE 5.** (a,b) Megalithic “umbrella stones” (*kuda-kallu*) from Arryanor, Kerala, Southern India (1st millennium B.C.).



**FIGURE 6.** “Hood stone” (*topikal*) from the megalithic site of Chera-mangad, Kerala, Southern India.

lighted a distinctive characteristic of the object that the “hood stones” were meant to represent (Fig. 7). One must take into consideration that the most practical way of representing the fly agaric or the panther-cap’s white spots on stone was by scooping out round holes in the surface. At this point, the hypothesis that the “hood stones” and the *kuda-kallu* were meant to specifically represent either one or both of these mushroom species becomes much more convincing.

*Amanita muscaria* and *A. pantherina* are present in south India, in the coniferous forests of the Kodaikanal region (in Tamil Nadu), about 80 km from the megalithic sites. In this same region, different species of psilocybian mushrooms can be found: *Psilocybe cubensis*, *P. zapotecorum* var. *aztecorum* and var. *bonetii*, *Copelandia cyanescens*, and so forth (Natarjan and Raman, 1983). The Kodaikanal region is a place noted for the so-called “psychedelic tourism,” in which the psilocybian mushrooms are particularly involved today.

If the *kuda-kallu* really represented mushrooms, they therefore represented psychoactive mushrooms, that is, mushrooms that allowed visions of the “other side,” of life after death; as such, they were far more suitable than others (than edible mushrooms, for instance) to being associated with funeral cults.

The hypothesis by Wasson (1968) that identified the sacred drink and the divinity *soma* in the *RgVeda*—the most ancient Indian holy text—with the fly agaric is well known. If the *kuda-*

*kallu* were trying to portray psychoactive mushrooms, then this poses the question already raised by Wasson: what relationship is there between the megalithic *kuda-kallu* cult and the *soma Veda* cult? There doesn’t seem to be any direct connection, in the sense that the *kuda-kallu* is not a symbol of the cult originating or influenced by the *soma* cult. These monuments were erected by pre-Indo-European Dravidian populations. The cult associated with the *kuda-kallu* developed in a period preceding the Ari’s contact with south India: the Ari had already left behind the knowledge of the original *soma* and instead worshipped using substitutes.

The megalithic cultures of south India and Europe share a number of common features, even though there is a chronological difference between them of at least a thousand years: a distance that appears to be a serious obstacle to those theories that would have the former civilization originating directly from the latter. Nevertheless, the similarities in some of the characteristics of the two cultures are surprising and involve the shape of the *kuda-kallu* itself. The shape of some British and northern French dolmens brings the *kuda-kallu* dolmen to mind. Also, the whole range of European megalithic works should be subject by accurate ethnomycological research.

To corroborate this, one only has to take a look at the rock engravings on two of the monoliths in the most famous north European megalithic ceremonial site of Stonehenge (monoliths which have been classified by archaeologists with

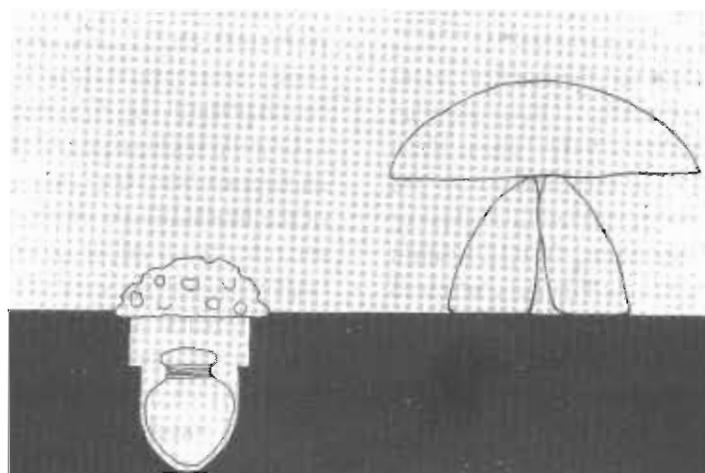
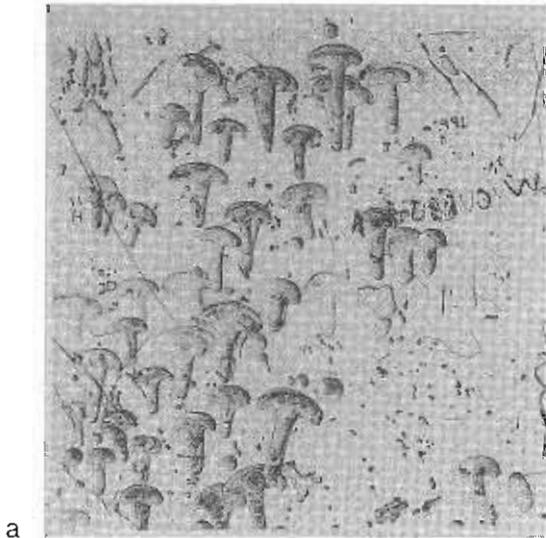


FIGURE 7. Design of a *topikal* and a *kuda-kallu*.



a



b

**FIGURE 8.** Design of rock art engraved on monoliths no. 4 (a) and no. 53 (b) from the megalithic site of Stonehenge (England).

the numbers 4 and 53). The engraved images (Fig. 8) are part of the same figurative motif, interpreted by archaeologists as the symbol representing a sacrificial axe—an object that has actually been found in megalithic burial sites. Nevertheless, the variations in the shapes of the engraved axes seem to be unusual with respect to axes shown on other monuments from the same megalithic culture. The unique characteristics of the Stonehenge axes are peculiar to this archaeological site and are such as so justify an ethnomycological hypothesis (Samorini, 1995b). As I recently maintained in my ethnomycological analysis of Greek culture, “All too often researchers base their arguments on largely ac-

cepted opinions when interpreting unknown and repeated symbols found in archaeological documents. Maybe this is to avoid hurting the feelings of the author who—sometimes over a hundred years before—first gave his interpretation, or maybe it is simply due to interpretative indolence” (Samorini et al., 1995: 321).

The same evaluation holds both for the Stonehenge engravings and for the Kerala *kudakallu*. The *mushroom stones* of Guatemala were interpreted in the same way—for a long time they were stubbornly read as phallic symbols or pestles for mortars (Lowy, 1981).

The documentation about Stonehenge and Kerala suggests that the knowledge of the fly agaric was not unique to Indo-European civilizations; it will not surprise me therefore if, one day, the discovery that an archaic cult which made use of this mushroom will be made known, perhaps in southern Africa, that is, totally cut off from any Indo-European influence.

## THE MOUNT BEGO ROCK-ENGRAVING

An interesting representation of mushrooms is seen in the rock art of the Maritime Alps of southern France. This document, noted by myself in the mid-1980s, was recently brought to the fore by a Frenchman named Patrick Duvivier and myself (Duvivier, 1998; Samorini, 1998b).

A mountain called Mt. Bego, located in the highest area of the Maritime Alps, has always been considered to be sacred since ancient times. On this mountain, and in the nearby Valley of Marvels, are thousands of rock engravings. Different stages and styles can be identified which span a period beginning in 2500 B.C. and running until the first decades of our own age.

In the highest part of the Valley of Marvels is an engraved boulder that is considered to be one of the most significant finds in the entire region’s rock art; the boulder is commonly known as the “Altar Rock,” and on its face is a scene of the so-called “Tribal Chief.” The rock itself is red-ochre in color and rises above a smooth, wide, rocky surface covered by hundreds of engravings. The rock stands like an altar on a history-seeped surface, in a position that dominates the valley, and so appears to be the central element of the



**FIGURE 9.** The “Altar Rock” prehistoric engraving from Valley of Marvels (Mount Bego), Southern France (1800 B.C.).



**FIGURE 10.** Detail of the mushroom effigy in the “Altar Rock.”

cult associated with rock art (Fig. 9). It has been dated back to the first part of the Bronze Age, around 1800 B.C. (Lumley et al., 1990: 45).

On the rocky “altar” surfaces some daggers, a stairlike design, a little figure in a praying position, and a larger anthropomorphic figure that was wrongly named the “Tribal Chief”—it is most probably a shaman—are engraved. Let us now consider the fungiform image in the scene (Fig. 10): it is on the right of the large anthropomorphic figure, next to the “dagger” or “bolt of lightning” hitting him on the head. This object has been interpreted in turn as an abstract design, a stylized bovine skull, and more frequently as a dagger or other ritual weapon. It is nevertheless difficult to see any kind of weapon in them. There are two details that may escape the attention of an archaeologist, although not the careful eye of a mycologist, which lead rather firmly to the interpretation of the object as a mushroom of the *A. muscaria* species. The first element regards the thickening seen in the upper part of the “stem,”

which would seem to portray the ring that runs around *Amanita* mushroom stems. The second detail concerns a collection of pointed engravings found on the top part of the “cap.”

Let me remind you that the presence of “little dots”—either painted or engraved—on the image of the surface of a mushroom cap in a religious scene denotes almost without fail the *A. muscaria*, or the related and equally psychoactive *A. pantherina*. Finding mushrooms in a religious context leads one to identify it as a hallucinogenic-type mushroom, that is, as a kind of vegetable whose ingestion induces mental experiences generally interpreted in terms of enlightenment and mystic-religious visions. Hallucinogenic mushrooms with “little dots” on the cap are typically either *A. muscaria* or *A. pantherina*. Going back to the “Altar Rock” scene at Mount Bego, the entire setting would seem to have shamanic connotations owing to the images of mushroom and stairlike drawings (perhaps a real stairway)—key elements of basic shamanism.

## THE PHARSALUS BAS RELIEF

Let us move on now to Greek culture. In this section, I will confine my description to the so-called “Pharsalus Bas Relief” (Fig. 11). Dating from the second half of the 5th century B.C., it is currently preserved in the Louvre Museum in Paris (no. 701, titled “The Exaltation of the Flower” in the museum catalog). Various scholars have wanted to see represented in this exhibit the two goddesses of the Eleusinian Mysteries—Demeter and Persephone—in the act of showing or exchanging certain objects, interpreted more or less as flowers (Baumann, 1993).

In actual fact, the object held in the hand of the figure on the right-hand side of the scene (likely, a younger looking Persephone) evokes more easily the shape of a mushroom rather than of a flower. Also the way in which the object is held in the hand, squeezing the inferior part of its “stalk” between the two fingers, is reminiscent of the way one holds a mushroom in one’s fingers to show it. Robert Graves first proposed a mycological interpretation for this work of art in his book *Food for Centaurs* of 1956, in which he did not include a picture (according to the Spanish version of 1994). From his observation of the exhibit he concluded that the “fly-agaric is at the origin of the prophetic inspiration of the Eleusinian Mysteries” (Graves, 1994[1956]: 92). A curious fact is that he brought it to R. G. Wasson’s attention



**FIGURE 11.** Pharsalus bas relief, from Thessaly, Greece (5th century B.C.) (Louvre Museum).

already in the distant 1956, which is tantamount to saying that Wasson was familiar with this document some 20 years before he and his colleagues proposed the ergot as the Eleusinianentheogen (Wasson et al., 1978). But he did not discuss it in his writings.

In a preliminary way I have presented and discussed this document in other places (Samorini et al., 1995; Samorini, 1998a). In the bas relief three hands are distinguishable, each holding an object. The first object, the highest one in the bas relief, held by Persephone, is mushroom-shaped, like a *Psilocybe* or, even better, a *Panaeolus*. The second object, held by Demeter, is the same object, the same mushroom, but it is held at a slant and is broken. Therefore, it is possible to hypothesize that Demeter and Persephone are both holding a mushroom, attributable as a psilocybinic type.

But the true enigma of this scene is the third object held by Demeter in her left hand. Previously (Samorini, 1998a) I had observed that, if the first two objects represented psychoactive mushrooms, or rather they had psychopharmacological connotations, it is possible to imagine that also the third object had psychopharmacological connotations, immediately recognizable by the initiates as much as the first two objects. Therefore, we would be before two psychopharmacological keys: a fact that becomes evident when one observes the structure and the evolution of the Eleusinian Mysteries.

As far as the enigmatic third object held by Demeter, to this day I have not found a satisfactory answer. Beyond the rose or a more generic “flower,” certain scholars have forward various possibilities: a phallus, a bag of seeds, or even a sheep’s astragalus. A phallus is unlikely; Greek artists have never depicted the phallus in this way (Greek artists were masters of the representation of the phallus). Robert Graves has interpreted this object as a leather bag, “like the ones that were used to keep prophetic die” (Graves, 1994[1956]: 92), but the use of prophetic die or other divine practices is unknown in the Eleusinian Mysteries. Ruck and Staples (1999) see it as the symbol of the “old religion,” previous to the reforms that the Eleusinian cult was certainly subject to. More recently, they hypothesized that we are dealing with a leather saddle bag (*pera* in ancient Greek)

similar in type to the one that Perseus used to hide Medusa's head (who should be none other than a fungal mythological metaphor, cf. Heinrich et al., 1999). Therefore in the bas relief the two goddesses would have brought the two mushrooms out of the saddle bag. But Ruck does not even abandon the hypothesis held in their period by Graves and Wasson that from that *pera* saw a snake coming out (ibid.). I am convinced, after my first-hand observation of the exhibit, that there is no representation of a snake and that it is not possible to come to any interpretative hypothesis on the Pharsalus bas relief through studying only photographs of the exhibit. In my opinion, that third object represents an important element for the identification of the original Eleusinian psychoactive brew.

To further complicate the matter, a new piece of data has been added. With a first-hand observation of the bas relief I have been able to confirm that originally Persephone's forearm and left hand were also represented, along the lower part of the bas relief, that here seems splintered. This hand held another object—the fourth of the whole scene—of which only the upper part is visible. Following a careful observation, I would say that we are looking at a flower from above, with a little circular center surrounded by large petals. The presence of a fourth object, probably floreal, complicates further the ethnobotanical interpretation of the scene, which is open to various solutions.

## THE "MUSHROOM TREES" IN CHRISTIAN ART

The research that follows was described as "surprising" and "enigmatic" by many of those to which I have presented it. I must confess that the results and conclusions of this research are still uncertain, even to myself. Since the mid-1990s I have been following a "trail" within Christianity with the intention of following serious ethnomycological tracks and trails wherever they may take me (Samorini, 1998c).

This may bring John Allegro's hypothesis to the reader's mind—which saw both the Old and New Testaments as sprinkled with metaphors alluding to a cult based on the fly agaric—and one

may even think that I too might plan to go over the same ground and validate the said hypothesis. Not at all. I believe that my research goes where the documentation takes it, while in Allegro's work the documentation was used to take the author where he wanted to go, a hypothesis that I consider strained and methodologically flawed.

My research is based on the study of a particular iconographic outline popular in ancient Christian art—the so-called "mushroom trees."

According to the historian of Christian art, Erwin Panofsky (cf. Wasson, 1968: 179–180) this type of tree—which resembles a mushroom and which, for this reason, is termed *Pilzbaum* ("mushroom tree") in German—is widespread above all, in Romanesque and early Gothic Christian art. It has been considered the schematic representation of a conifer (the "umbrella pine") and there are hundreds of examples illustrating the gradual transformation from the naturalistic forms of the pine to the more schematic "umbrella tree," hence to the various forms of the mushroom tree.

The first of these mushroom trees that I would like to bring to the reader's attention—and which was previously discussed by other authors—is in the famous frescos of the Romanesque chapel of Plaincourault in the province of Indre in central France (Samorini, 1997). During a visit in May 1997, I was able to examine the frescos of the chapel (Fig. 12). Here, we find the scene of the Temptation with its mushroom tree—painted by the Knights of the Order of Malta on their return from the Crusades. Toward the beginning of the 20th century, a French mycologist put forward the hypothesis that the Plaincourault mushroom tree was a representation of *Amanita muscaria*, the well-known psychoactive mushroom with its white-spotted red cap. If this is the case, the esoteric content of the Temptation would appear evident, that is, identification between the Tree of Knowledge of Good and Evil and a mushroom capable of producing visionary states and "illumination."

After a hurried visit to the chapel in Plaincourault and, above all, after consulting the art historian Panofsky, R. G. Wasson categorically denied the validity of the interpretation offered by the French mycologist and supported and propagated by his followers. And yet, Wasson had al-



**FIGURE 12.** Romanesque fresco from the Plaincourault chapel, Central France (12th century).

ready been confronted with at least one case of monodisciplinary blindness and interpretative slothfulness of professional researchers—that of the *mushroom stones* in Central America, interpreted for decades as phallic emblems by archaeologists. It is therefore quite strange that the father of ethnomycology stopped before the lapidary appraisal of an art historian and did not, instead, follow the tracks of the other “mushroom tree” representations in Roman and Christian art as he should have done. The fact is that his conclusion appears rather superficial: “Mycologists should have consulted art historians” (Wason and Wasson, 1958 :179). In fact Wasson, besides considering Panofsky’s complete lack of knowledge of the history of psychoactive use, should have looked around him during his visit at Plaincourault, and tried to understand in which territory he was. If he could have the opportunity of seeing what can be found at just 9 km from Plaincourault, at the famous Saint-Savin-sur-Gartempe Abbey, he would not surely have been cowed by the statements of an art historian.

With the premise that the problem of interpretation of the evidence consists in establishing the intention of these artists to represent the mushroom symbol as part of the esoteric content of their work, we may now consider a detailed description of the evidence.

In the Plaincourault mushroom tree form, we may note the following details: (1) The semi-

spherical foliage or fronds is similar to the cap of a mushroom and is studded with spots (in this case, whitish on an ochre background); (2) two of lateral ramifications join the frond cap from below and symmetrically in relation to the main trunk of the tree. These two ramifications may be intended as a means of representing the three dimensions of the tree with a serpent coiled around its trunk. From the mycological angle, however, these ramifications might represent the membrane enveloping mushrooms of the family of the Amanitaceae at the early stages of development. This membrane then breaks when the cap broadens out and separates from the stalk; (3) the roundish fruit of the tree is, here, held in the mouth of the serpent as it offers it to Eve; and (4) along and around the base of the main trunk we have ramifications that are also very similar to mushrooms in form surmounted by “caps” upon which once more we may note whitish spots.

I have also studied a number of other mushroom trees characterized by the same four iconographic features found at Plaincourault. Two examples are to be found in 4th and 5th century A.C. Tunisian mosaics. In Tunisia during the centuries of Roman domination (1st–4th centuries A.C.) there was a flourishing tradition of well-crafted mosaic work of considerable artistic value. This tradition was continued in the mosaic floors of the first Christian churches (Fantar, 1995).

The mosaic in Fig. 13 decorates the baptistry of the *henchir* Messaouda in the Tunisian region of Sfax. It probably dates back to the 5th century A.C., and here we have an iconographic scheme that was fairly widespread and of very ancient origin: two animals symmetrically placed beside the Tree of Life.

The first representations of this arrangement date back to Sumerian art of the 3rd millennium B.C. The two animals are generally of the same species; they are horned wild animals or quadrupeds (above all, Cervidae) or birds. The object placed between them is the Tree of Life. A typical example is the two wild animals beside the sacred tree Hom (Haoma) of Persian art. Similar representations exist, such as a Plant of Life, a recipient containing the Water of Life, a Tree of Life from the foot of which rivers of the Water of Life spring forth (usually, four rivers are represented), or even a column (as in the famous “Door of

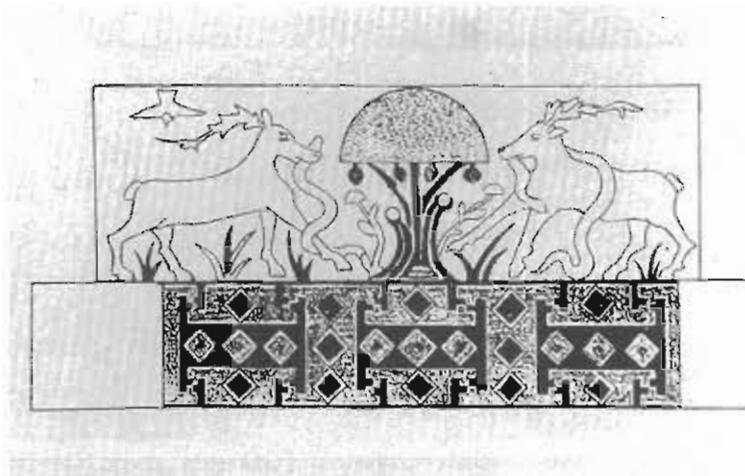


FIGURE 13. Design by a paleo-Christian mosaic from Messaouda, Tunisia (5th century).

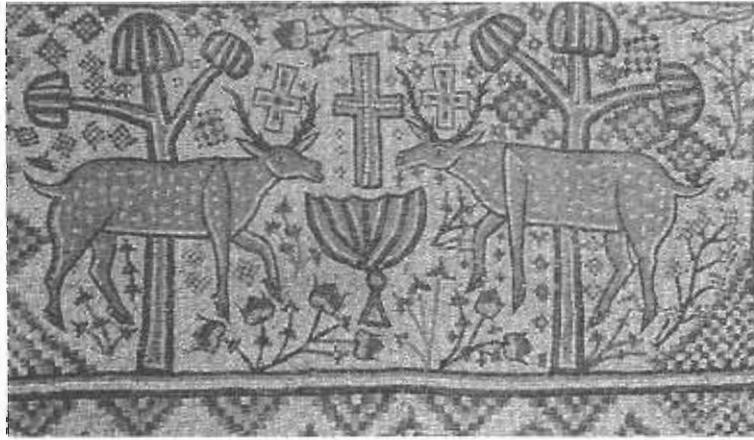
Lions” at Mycene surmounted by two lions rampant upon a column). Sometimes the two animals feed on the Tree of Life or drink from the Chalice or the springs of the Water of Life. This variant is probably closest to the original iconographic scheme. This artistic scheme originates in the Middle East and spread to much of the Old World including North Africa as it underwent local stylistic modifications. According to Fantar (1995: 107), the Phoenicians brought it to Africa, where it passed into the hands of the Romans.

The Tree of Life is the element most subject to stylistic variation, from the most realistic to the most imaginative. The palm tree is one of the most widespread types. It may be more or less realistic, or represented by a single palm leaf the size of a tree. A further common type in the Mediterranean basin is the conifer tree, sometimes represented quite simply by a pine cone. The mushroom tree, which appears to derive from the conifer tree, seems to be less widespread than the other two types mentioned here. Christianity was one of the last and most important means by which the artistic scheme of the two animals and the Tree of Life spread. The two most frequently adopted animals were two lambs or two fishes. The *cantharos* (chalice) of the Water of Life or the Cross gradually took the place of Tree of Life. The esoteric meaning of the scene also changed, as Charbonneau-Lassay (1997: 54) has pointed out: “When, in the iconography of the first centuries of Christianity, two fish or animals sur-

round an emblem, this always directly represents Jesus Christ; and the animals which accompany Christ are the symbolic representation of the Christian faithful.” With the transformation of the Tree of Life into a Cross we therefore have an identification between the Tree and Christ. The Water of Life, placed in the *cantharos*, and which flows from the Tree of Life, becomes more and more closely identified with Christ’s blood.

On further examination of the Messaouda mosaic, we may note that the two animals are deer, both of which are savaging a serpent. The deer savaging a serpent is also an iconographic scheme of pre-Christian origin. This motif is associated with the belief, recorded by writers in antiquity, that deer were fierce foes and persecutors of serpents (cf. Charbonneau-Lassay, 1994; see “Deer,” 1:XXX; Puech, 1949). The tree placed between the two animals is a mushroom tree of the same kind as that found at Plaincourault and it is endowed with the same four characteristics mentioned previously: (1) the cap-shaped fronds, with many spots; (2) the two lateral ramifications of the main trunk joining the frond; (3) the round fruits (here, hanging from the frond); and (4) the fungoid protruberances at the foot of the tree. In the upper right corner of this scene we may note a dove, a widespread feature of Christian art with a great variety of meanings.

We also find another kind of mushroom tree in Tunisia. This is from the *henchir* Ounaïssia (6th–7th century), at the moment housed in the



**FIGURE 14.** Paleo-Christian mosaic from Ounaïssia, Tunisia (6th–7th century).

Museum of Sbeitla (Fig. 14, cf. Fantar, 1995 :229). We might consider this scene a transition stage in an iconographic scheme that is only slightly different from that of the two animals symmetrically placed beside the Tree of Life; it might be considered a variant of a scheme that also originates in the Middle East and dates back to remotest antiquity. Here we have the two animals and *three* Trees or Plants of Life that are usually the same as each other, one between the two animals and the other two behind them.

During the last stage of absorption of this artistic scheme in Christian art (i.e., its full transformation into a “truly” Christian symbol) we may note the recurring image of the two animals combined with one or more crosses. As we have already indicated, the Trees of Life become the symbol of the Cross; once Christianized, and the three parts constituting many examples of a certain type of Tree of Life become the three upper components of the Cross, and the various stages of the “crucifixion” of the Tree of Life become evident in paleo-Christian art. The Ounaïssia mosaic represents a stage in the transition of this iconographic scheme: the two animals are symmetrically placed and are once more two (ochre-colored and white-spotted) Cervidae; the tree placed between the animals has already completed its transformation into a “cross,” and, below it, there is a *Cantharos* containing the Water of Life (at this stage, perhaps already considered the blood of Christ). We may also note that the other two Trees of Life, placed behind the ani-

mals, have not yet been fully “crucified.” These two trees are mushroom trees of a different kind than the Plaincourault one. Both feature the three caplike fronds and, upon these, vertical lines have been traced that we may consider “striatures.”

We find mushroom trees that are similar to the Ounaïssia examples in a fresco dating back more or less to the same period as the Plaincourault mushroom trees, and from the same area (central France). This fresco is in the Abbey of Saint-Savin-sur-Gartempe in the province of Vienne, about 40 km from Poitiers and only 9 km from Plaincourault. The Abbey’s frescos are among the most highly admired works of French Romanesque art. They are dated ca. 1100, about 80 years before the Plaincourault frescos and, like these, they belong to the Haute-Poitou Romanesque Style (Oursel, 1994).

On the ceiling above the central nave of the church at a height of about 16 m, there are some scenes from the Old Testament. Figure 15a presents the scene of the fourth day of Creation with God placing the Sun in the firmament in the presence of two trees that could hardly be considered mere ornament. One of these is a mushroom tree. In the same figure we see part of the preceding scene (which has somewhat deteriorated) depicting the third day of Creation—the day of the creation of vegetation. Here, we see two trees of two types (one, a mushroom tree) that are also like the ones on the right. A third tree of the same kind is depicted elsewhere among the nave frescos next to the scene of Moses in the presence of the Pha-



**FIGURE 15.** (a) Romanesque fresco from Saint-Savin-sur-Gartempe's abbey, Central France (12th century); (b) detail of the "mushroom tree."

raoh (Riou, 1992: 35). The mushroom trees are all the same. They have a large trunk encroaching downwards on the lower scenes of the same wall, as we may note in the detail provided (Fig. 15b). These trees are also similar to the Ounaïssia mushroom trees. Here too, they present three mushrooms with striated "caps." Scholars have termed this kind of vegetation "mushroom tree," or even "tree with medusa-shaped frond" (Riou, 1992). Alternatively, it has been defined "mushroom-shaped flowers" (Thoumieu, 1997: 134).

The striatures hanging over the "frond" are very similar to the fringes on the caps of various species of *Panaeolus*. These striatures are more a feature of mushrooms than of trees; very many mushrooms, some of which are psychoactive, present these striatures. In fact, the mushroom striatures are caused by the juncture between the gills and the cap. The four cirrous adornments under each cap terminate with a small round object that might symbolize the fruit of the mushroom tree.

As Panofsky notes (in Wasson, 1968: 179), there are many mushroom trees in Romanesque art (more than I present here). Apart from the types described previously, there are others the

styles of which are derived from local variants and individual imagination.

One example is the mushroom tree in the magnificent frescos in the small church in Vic, once more in central France, in the Berry region, some 80 km from Plaincourault. These 12th century frescos are the work of an anonymous artist, as are most of the works I present here. They therefore follow the Saint-Savin works, which are themselves only slightly earlier than the Plaincourault frescos. Although these frescos do not represent the Haut-Poitou Romanesque Style they are nevertheless considered part of the same artistic tradition (Grabar and Nordenfalk, 1958).

As Manuel and Dona Torres pointed out to me, the scene of Jesus entering Jerusalem is presented in the upper part of the right wall of the choir (Fig. 16). Christ is riding a donkey. Some people welcome Christ by laying their cloaks on the ground while others pluck flowers and leaves from the trees and offer them to him. The trees are stylized as palms in the manner of a familiar and fairly widespread typology. However, the upper part of one of the trees is quite unusual. It terminates with five umbrellas and may be defined a mushroom tree. The mushroomlike appearance is further confirmed by the concave "caps," as



**FIGURE 16.** (a) Romanesque fresco from the Vic church, Central France (12th century); (b) detail of the “mushroom tree.”

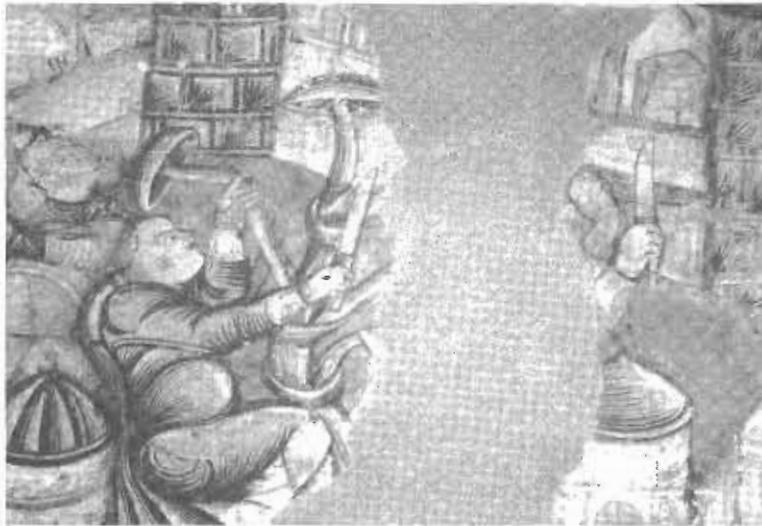
depicted. Here, we might say, we have a “mushroom palm.”

In the course of a second visit to the little church in Vic with Mr. and Mrs. Torres, in May 2000, they pointed out to me the existence of a second mushroom tree. The scene at the entrance of Christ coming into Jerusalem continues over the other part of the choir with the representation of Jerusalem’s fortification. Despite the picture having been damaged along its length, one can still see a mushroom tree inside the city walls (altogether similar to the previous one); a couple of men are seen climbing the tree and are caught in the act of cutting off the mushrooms with knives (Fig. 17). We see only the hands of the second man; in one hand he is holding the knife. Thus, the point of the mushroom-esoteric message becomes even more believable.

Another mushroom, similar to the one at Vic and identified by J. M. Alarem from Barcelona, can be found in the 11th century fresco from Sant Sadurní d’Osormort, a Catalan church; now kept

at the Episcopal Museum in the Catalan city of Vic (not to be confused with the little church in the central French town of Vic mentioned earlier). In this case, too, we see the theme of temptation. The Tree of Knowledge of Good and Evil, with the snake coiled around it, is shown with a normal treelike shape and is seen in the scene to the left of Eve (Fig. 18). A second tree—presumably the Tree of Life—is painted between Eve and Adam and is actually a mushroom tree, with six ochre-colored mushroom caps on the tips; highlighted in white on it are one to four lines that bring the streaking effect of mushrooms to mind. From a stylistic point of view this fresco, belonging to the “Osormort Maestro” series, was linked with the frescos from the Saint-Savin crypt, even though there is a chronological hiatus of at least a century between them (Ainaud de Lasarte, 1989: 50-1).

Bennett et al. presented the surprising image (Fig. 19) taken from a 14th century alchemical manuscript from the *Bodleian Library* in Oxford (England). They comment as follows: “The al-



**FIGURE 17.** Fresco from the Vic church, with detail of the second “mushroom tree.”

chemical painting show a man intoxicated on *Amanita muscaria* mushrooms. He clutches one mushroom in his [left] hand as he dances about holding his other hand to his forehead as if the revelation is too intense. Behind him a tree grows with a spotted mushroom for a top” (Bennett et al., 1995: 240).

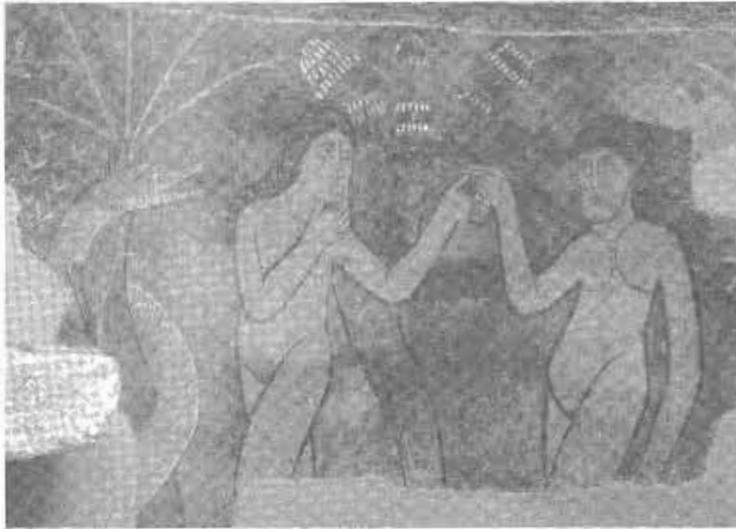
The tree in question is a mushroom tree of the Plaincourault variety. It presents the four particularities described in the preceding. The impression is that the man may be dancing; however, he may be swaying as a result of the overpowering effect of the mushroom. This latter impression is confirmed by the fact that his hand is on his forehead in the typical manner of a person in a state of mental confusion, inebriation, or dizziness. These signs are characteristic of the onset of the effects of fly agaric. If we follow this line of interpretation, and accept Bennett’s hypothesis that the object in the man’s left hand is also a mushroom, we are justified in thinking that the author of this manuscript intended to draw the tree with the semblance of a mushroom, and not just any mushroom; it is *A. muscaria*. This very picture, which we might consider an alchemical puzzle, parts of which we are trying to uncover, includes other interesting symbols. Beside the Amanita-tree we see one salamander, and another one above a fire. Here we find the first confirmation of something I personally have suspected for some time now, and that is that the salamander in certain circles

engaged in alchemical studies during the Middle Ages may have been a secret symbol for fly agaric (due perhaps partly to the fact that the cap of the mushroom and the skin of the salamander are both maculate).

I have recently identified another mushroom tree on a capital in the famous Romanesque basilica at Vézelay, this too in central France. This basilica’s hundred capitals dating back to ca. 1135 are well known and are probably the work of one sculptor.

In Fig. 20 we see capital no. 50 with scenes from the biblical account of the struggle between David and Goliath (*I Samuel*, 17). The anterior face shows David decapitating the Philistine giant with his sword; on the right side, instead, we have the next scene in which David carries the head of the giant on his shoulders as a trophy he will display to King Saul in Jerusalem. The artist sculpted a mushroom tree by David’s side in this scene and, if we look carefully, we may note that David, carrying Goliath’s head, is walking on some leaves, one of which belongs to the mushroom tree.

This mushroom tree might be considered of the “Saint-Savin” type, given the evident striatures on the caps of the mushrooms, but here we have only two, and we are tempted to search for the third mushroom. Consider Goliath’s helmet in the preceding scene. The shape and striatures (grooves, or fluting) of the helmet are quite simi-



**FIGURE 18.** Romanesque fresco from the Catalan Sant Sadurni d'Oso's church, Spain (12th century).

lar to those of the two mushroom caps of the mushroom trees. If we examine one side of the capital and bear in mind that it is located well above the viewer, the “illusion” created—if we may call it that—is of a mushroom tree with three caps. For reasons of space, artists often had to eliminate details from scenes and would not hesitate to superimpose motifs and sequences other-

wise represented in chronological order and therefore separately.

Considering this Vézelay capital, one might also be tempted to interpret the object that can only just be seen under David's foot on the anterior face as the “third mushroom.” Thoumieu (1997: 149) comments: “David is so small compared to the giant that he has to climb up a sort of



**FIGURE 19.** Painting from a 14th century alchemical manuscript (Bodleian Library, Oxford).

plant in order to decapitate him.” This plant might be taken for one of the many decorative leaf motifs that are a feature of the Vézelay stonework. But it has a stalk and can hardly be thought of as a branch or petiole, and therefore might be a mushroom. If this is the case, the esoteric message is unfolded before our eyes: to gain enough strength to decapitate Goliath (allegory of the struggle between good and evil), David must “ascend” by means of something that will “imbue” him with courage and strength.

Mushrooms, the form of which is the same as that of the mushroom tree in capital no. 50, appear in the foliage of other capitals in the same basilica. The wealth of allegorical and esoteric material in each scene is evident and, indeed, has been



**FIGURE 20.** Romanesque capital from the basilica of Vézelay, Central France (12th century).

fully acknowledged by all scholars active in this field.

In some cases we find ourselves before images of veritable mushrooms, rather than mushroom trees, as is the case with some of the above mentioned Vézelay capitals, or in the paleo-Christian mosaics in Aquileia.

I wish to refer to the observations made by Franco Fabbro (1999) on one of the mosaics of the paleo-Christian basilica of Aquileia in northern Italy (the Friuli-Venezia Giulia region). The mosaic forms part of the oldest paleo-Christian part of the basilica, known as the “*Cripta degli Scavi*,” dating to 314 A.D. (Marini, 1994). Among the various subjects—animals, crosses, geometric symbols—we may note a basket containing mushrooms (Fig. 21). Here, we have no mushroom tree but mushrooms themselves, represented as such by the artist.

Fabbro appears to have no doubts as to the species of mushroom presented: fly agaric. Indeed, he is perhaps too self-assured and hasty in his conclusion that this Aquileia “find” provides corroborative evidence that the early Christians used fly agaric.

As Francesco Festi of the *Museo Civico* in Rovereto and I concluded (cit. in Samorini, 1998c), the mushrooms represented in the Aquileia mosaic were probably *Amanita caesarea*, also known as *ovulo buono* (royal agaric), an edible mushroom considered a delicacy by the ancient Romans and often included in the figurative



**FIGURE 21.** Mosaic from the paleo-Christian church of Aquileia, Northern Italy (4th century).

works of the Roman imperial period. We based our view on the fact that the mushroom stalks are yellow and not white, this being one of the distinguishing marks between these two species. However, after paying a visit to the basilica I did note that the part of the mosaic corresponding to the inside of the caps, the gills, is white, as are the gills of the fly agaric, and not yellow (as in the royal agaric). Furthermore, while the gills of the royal agaric are always yellow, in some cases the gills and stalk of fly agaric present gradations of yellow (Arietti and Tomasi, 1975: 106). It was also noted that the artist had circumscribed the various areas of the mosaic to be filled in with different colors with dark-colored fragments, which means that the wrong color of fragment would not be able to make its way into another circumscribed zone of another color. Therefore we may conclude that the artist wished to portray these mushrooms specifically with white gills, and that there is good reason to doubt that these mushrooms are in fact *A. caesarea*. Another feature of this mosaic is that two of the eight mushrooms have stalks that are not entirely yellow but also white.

The Aquileia mushrooms would therefore appear not to be explicitly represented as belonging either to the fly or the royal agaric species. Representation of the royal agaric would not call for subterfuge, but fly agaric would. However, this may be yet another species of mushroom or quite

simply a generic “mushroom.” It has been hypothesized that the mosaic represents the food (including mushrooms) the faithful consumed during agapes (mysterious ritual feasts held by early Christians) (Brusin and Zovatto, 1957, cit. in Fabbro, 1999).

It is hard to reach a definite conclusion regarding the enigmatic presence of such mushroom symbols—in some cases clearly hallucinogens—in Christian art.

Although I try to be open to further potential interpretations, I have the tendency to consider these documents in a far broader context that goes beyond Christian culture. I see a religious, philosophical, and esoteric “mycological tradition” that holds in itself the knowledge and use of hallucinogenic mushrooms, with different cultural pathways and mushroom species. This knowledge originated in the most ancient times and was carried on throughout the centuries. In one century it will have been brought forward by Mitra disciples, in another we would see it in certain Gnostic sects; in yet another it would have been the Celtic druids or the Etruscan priests, or even the Dionisos followers or followers of some Jewish alchemist scholar. In some cases, disciples of the mycological tradition will have been persecuted and forced to worship in secret, like certain European medieval sorcerers or some Christian sects considered to be heretical by the central ecclesiastical powers. Before Christ and

after, both within and without Christianity, the tradition has been preserved, taking more than one direction in the tangle of Eurasian cultures, a tradition that was tenacious and unwilling to die out. The Mexican case is a perfect example: in it, the enteogenic mushroom cult, which was believed to have disappeared centuries before, wiped out by the colonial Inquisition, actually survived and made it to modern times.

It is in such a context that one can try to explain the references to the knowledge of psychoactive mushrooms within the vast Christian culture. The latter should not be seen as an inviolable cultural monolith, but rather as a “cultural pattern” that was repeatedly merged, both locally and marginally, with traditional cults or arts such as alchemy, in which Christians encountered the sacrament of “mycological tradition,” expressing it in esoteric form in church frescos or alchemic books.

By following a transcultural path, the tradition has been perpetuated over centuries and millenniums; the required faith has been continually revived by the direct experience of revelation and enlightenment provided by the sacrament. Many cults, religions, beliefs, and rituals of all ages, but one sacrament: the holy mushrooms.

## REFERENCES

- AA. VV. 1986.** *Arte Preistorica del Sahara*. De Luca and Mondadori, Roma and Milano.
- Ainaud De Lasarte J. 1989.** *La Pintura Catalana*. La Fascinació del Romànie, Carroggio, Barcelona.
- Arietti N., and Tomasi R. 1975.** *I Funghi Velenosi*. Edagricole, Bologna.
- Baumann H. 1993.** *Greek Wild Flowers and Plant Lore in Ancient Greece*. Herbert, London.
- Bennett C., Osburn L., and Osburn J. 1995.** *Green Gold the Tree of Life. Marijuana in Magic and Religion*. Frazier Park, CA, Access Unlimited.
- Charbonneau-Lassay L. 1994.** *Il Bestiario del Cristo*. 2 vol. Arkeios, Roma.
- Charbonneau-Lassay L. 1997.** *Le Pietre Misteriose del Cristo*. Arkeios, Roma.
- Duvivier P. 1998.** *Ananita muscaria* ancient history. *Entheogen. Rev.*, 7, 34–35.
- Fabbro F. 1999.** Funghi e chioeciole nei rituali religiosi dei primi Cristiani di Aquileia. *Eleusis*, n.s., 3, 69–81.
- Fantar M. H. (ed.) 1995.** *I Mosaici Romani di Tunisia*. Milano, Jaca Book.
- Festi F. 1985.** *Funghi Allucinogeni. Aspetti Psicofisiologici e Storici*. Rovereto, Musei Civici.
- Gartz J. 1996.** *Magic Mushrooms Around the World*. Los Angeles, CA, LIS.
- Grabar A., and Nordenfalk C. 1958.** *Romanesque Painting. XI–XIII Centuries*. Lausanne (Suiza), Skira.
- Graves R. 1994 (1957).** *La Comida de los Centauros y Otros Ensayos*. Madrid, Alianza.
- Guzmán G., Allen J. W., and Gartz J. 2000.** A worldwide geographical distribution of the neurotropic fungi. An analysis and discussion. *Ann Mus Civ Rovereto*, 14, 189–280.
- Heim R. 1978.** *Les Champignons Toxiques et Hallucinogènes*. Boubée, Paris.
- Heinrich C., Ruck C. P., and Staples B. D. 1999.** Perseus, the mushroom picker. *Eleusis*, 2, 25–56.
- Huys-Clavel V. 1996.** *La Madeleine de Vézelay*. Cohérence du décor sculpté de la nef, Comp’Act, Chambéry.
- Krishna I. L. A. 1967.** *Kerala Megalithic and Their Builders*. Madras, University of Madras.
- Lhote H. 1988.** *A la Découverte des Fresques du Tassili*. Arthaud, Paris.
- Longhurst A. H. 1979.** *The Story of the Stupa*. New Delhi, Asian Educational Services.
- Lowy B. 1981.** Were mushroom stones potter’s molds? *Rev Interamer*, 11, 231–237.
- Lumley H. de et al. 1990.** La stèle gravé dite du “Chef de Tribu,” dans la région du Mont Bego, Vallées des Merveilles, Alpes Maritimes. *L’Anthropologie*, 94, 3–62.
- Marini G. (cur.) 1994.** *La Basilica Patriarcale di Aquileia*. SO.Co.B.A., Aquileia.
- Morgan A. 1995.** *Toads and Toadstools*. Celestial Arts, Berkeley, CA.
- Mori F. 1975.** Contributo al pensiero magico-religioso attraverso l’esame di alcune raffigurazioni rupestri preistoriche del Sahara. *Valcamonica Symp.*, 72, 344–366.
- Mnzolini A. et al. 1991.** Essai de classification de peintures de l’Immidir (Algérie). *Sahara*, 4, 135–140.
- Natarajan K., and Raman N. 1983.** *South Indian Agaricales*, Vaduz, Cramer.
- Oursel R. 1984.** *Haut-Poitou Roman*. Ab. S.Marie de la Pierre-qui-Vire, Zodiaque.
- Puech H.-C. 1949.** Le cerf et le serpent. *Cah Archéol*, 4, 17–60.
- Riou Y.-J. 1992.** *L’abbaye de Saint-Savin-sur-Gartempe*. L’Inventaire, Ministère de l’Education et Culture.
- Ruck C. P., and Staples D. 1999.** Vischio, Centauri e Datura. *Eleusis*, n.s., 2, 3–23.
- Samorini G. 1989.** Etnomielología nell’arte rupestre Sahariana (Periodo delle “Teste Rotonde”). *Boll Camuno Notiz*, 6, 18–22.
- Samorini G. 1992.** The oldest representations of hallucinogenic mushrooms in the world (Sahara Desert, 9000–7000 B.P.). *Integration*, 2–3, 69–78.
- Samorini G. 1995a.** *Gli Allucinogeni nel Mito*. Raceonti sulle origini delle piante psicoattive, Torino, Nautilus.

- Samorini G. 1995b.** Umbrella-stones or mushroom-stones? (Kerala, southern India). *Integration*, 6, 33–40.
- Samorini G. 1995c.** Traditional use of psychoactive mushrooms in Ivory Coast?, *Eleusis*, 1, 22–27.
- Samorini G. 1997.** The mushroom tree of Plaineourault. *Eleusis*, 8, 29–37.
- Samorini G. 1998a.** The Pharsalus bas-relief and the Eleusian Mysteries. *Entheogen. Rev.*, 7, 60–63.
- Samorini G. 1998b.** Further considerations on the mushroom effigy of Mount Bego. *Entheogen Rev* 7, 35–36.
- Samorini G. 1998c.** The mushroom trees in Christian art. *Eleusis*, n.s., 1, 87–108.
- Samorini G. 2001.** *Funghi Allucinogeni. Studi Etnomicologici*. Telesterion, Vicenza.
- Samorini G. et al. 1995.** Rappresentazioni fungine nell'arte greca. *Ann Mus Civ Rovereto*, 10, 307–326.
- Sanson U. 1994.** *Le più Antiche Pitture del Sahara. L'Arte delle Teste Rotonde*. Jaca Book, Milano.
- Soubriillard Y. 1992.** *Souleymane le Guérisseur ou le Pouvoir des Plantes*. Paris. L'Harmattan.
- Thille F. 1990.** *Au Coeur de la Forêt Vierge*. Albin Michel, Paris.
- Thoumieu M. 1997.** *Dizionario d'Iconografia Romanica*. Jaca Book, Milano.
- Wasson R. G. 1968.** *Soma. Divine Mushroom of Immortality*. New York, HBJ.
- Wasson R. G. 1980.** *The Wondrous Mushroom. Mycolatry in Mesoamerica*. New York, McGraw-Hill.
- Wasson V. P., and Wasson R. G. 1957.** *Mushroom, Russia and History*, 2 vols. New York, Pantheon.
- Wasson R. G., Hofmann A., and Ruck C. P. 1978.** *The Road to Eleusis. Unveiling the Secret of the Mysteries*. New York, HBJ.
- Wasson R. G. et al. 1986.** *Persephone's Quest. Entheogens and the Origins of Religion*. New Haven & London, Yale University.