

The Venus of Hohle Fels
 Its Entheomycological Significance in Relation
 to the Venus of Willendorf and Other, Anthropoid, Female Figurines
 (re-edited & formatted by author, December 2011)

In the May 14, 2009, issue of *Nature*, Prof. Nicholas J. Conard at The University of Tübingen reported having found a 40,000 year-old figurine of a “woman” in the deepest, Aurignacian strata of a cave in

Hohle Fels, Germany (Figure 1). I

use *woman* advisedly here and

throughout this article because

instead of a human head, this

woman has on her shoulders a

conspicuously, small knob with a

hole in it, and projecting out from

this woman’s massive shoulders are

two, very oddly placed,

extraordinarily large, and

abnormally rigid breasts, which

should have hung pendulously from this woman’s chest. In fact, these breasts are so large that the woman’s arms are far, too short to reach even partially around them or what at first glance appears to be the woman’s strangely striated and morbidly obese abdomen, which together would have prevented her from sleeping on her stomach or having intercourse from the front.

In addition to these bizarre features, this woman’s relatively short, unarticulated, and misshapen legs are remarkably spread, evidently to emphasize her pronounced vulva.



The Venus of Hohle Fels: Mammoth ivory, Germany, ca.

40,000 B.C.E. .

Accordingly, Conard suggested that the figurine is comparable to the Venus of Willendorf in that “their clearly depicted sexual attributes suggest that they are a direct or indirect expression of fertility.”

In agreement with Conard’s belief that the Venus of Hohle Fels is a grotesquely abstract rendering of a woman that a prehistoric German sculptor carved as pornograph or fertility symbol, Professor Paul Mellars of Cambridge University’s Department of Archaeology wrote in a commentary to Conard’s *Nature* article, “The figure is explicitly — and blatantly — that of a woman with an exaggeration of sexual characteristics, large, projecting breasts, a greatly enlarged and explicit vulva, and bloated belly and thighs, that by 21st-century standards could be seen as bordering on the pornographic.” Hence, Conard and Mellars, like many authors before them, were implying that the prehistoric concepts of female attractiveness, sexuality and fertility must have been so different from their modern counterparts that prehistoric men did not even care whether women had heads, hair, facial features or any of the other characteristics most men look for today in a sexual partner, pornograph or fertility symbol.

On the contrary, as I showed in a previous article (Berlant, 1999), many prehistoric anthropoid, female figurines, including the Venus of Willendorf, strikingly resemble the developmental stages of mushrooms because the figurines were evidently sculpted by prototypal mycologists to personify those stages as the mothers of the mushrooms they yielded. As strange and potentially disillusioning as this claim may seem to people who have heretofore believed that such figurines were unfinished or abstract renderings of real or idealized women, in this article I will show that the Venus of Hohle Fels is another incredibly brilliant and extremely interesting example of this practice. In addition, I will show that the symbolism inherent in this figurine had folkloric, mythological and linguistic correlates that reveal interesting and

important aspects of the cognitive structure of the prehistoric sculptor who carved it, and the sculptors who carved comparable figurines.

To fully understand why the incredible symbolism that exists in the Venus of Hohle Fels and many, other, so-called Venus figurines have gone all but unnoticed, it is first necessary to recognize that the 17th century, French philosopher Rene Descartes observed that preconceived notions could affect the way people approached conceptual problems. Accordingly, he argued that stripping oneself of such notions is often necessary to establish a firm basis for solving a problem, especially one that has chronically resisted elucidation to the extent that these prehistoric, female figurines evidently have.

By the same token, the 20th-century Polish physician and philosopher Ludwik Fleck (1979) recognized that preconceived notions often prevented researchers from solving problems. Consequently, Fleck argued that scientists could only make significant advances by identifying, examining, and overcoming these notions, which Fleck called “thought collectives.”

The necessity of ridding oneself of these thought collectives before attempting to interpret evidence is also especially important because, as the eminent philosopher of science Thomas Kuhn (1962: 52-53) pointed out, "philosophers of science have repeatedly demonstrated that more than one theoretical construction can always be placed upon a given collection of data." Further, Kuhn pointed out that significant discoveries typically commenced with the awareness of anomaly, and closed when the paradigm had been adjusted, which often required shifting the paradigm's underpinnings in a way that significantly changed it to the extent that its adherents could never have foreseen and often resisted.

According to Kuhn, one of the reasons for this resistance was that professional education had led students to view things the same way their professors had viewed them, and getting

either group to view those things differently was extremely difficult. Another reason was the failure to recognize that the age of a theory and the number of authorities supporting a theory did not make it true, and a third reason was that the theory's adherents had become psychologically, emotionally, professionally and, at times, religiously vested in it and an intimately related world-view.

So it was that the Catholic Church refused for centuries to officially recognize any evidence that opposed Geocentrism based on the seemingly obvious observation that the sun revolved around the earth and authoritative scriptural passages that seemingly supported that observation. Thus, when Galileo showed Church astronomers moons revolving around Jupiter, the astronomers either could not or simply refused to see those moons. For observing celestial bodies revolving around another planet apparently created a great deal of cognitive dissonance in the astronomers' minds by seriously undermining their deeply held, officially sanctioned, and then, generally accepted belief that all celestial bodies revolved around the earth.

Although virtually all scientists and most laymen now take Heliocentrism for granted, the human mind still has a tendency to accept and maintain any sense of closure it has already obtained based on seemingly obvious observations, rather than entertaining the possibility that those observations are misleading or entirely false. Consequently, a 1990's Gallup poll found that 16% of Germans, 18% of Americans and 19% of Britons still hold that the Sun revolves around the Earth, and a 2005 study found that one in five American adults still believe that. (Cited in Wikipedia's entry for "Geocentric Model"). Nor is this phenomenon limited to relatively uneducated people, for Dr. Gerardus Bouw, the head of the "Association for Biblical Astronomy," espouses a biblically based Geocentrism while holding a Ph.D. in Astronomy from Case Western Reserve University and a B.S. in astrophysics from the University of Rochester.

Just as Descartes, Fleck and Kuhn realized that preconceived notions could affect the way people approached conceptual problems, many psychiatrists, psychologists and art critics have recognized that people typically use such notions unconsciously or preconsciously to interpret art, often to the extent that people will filter out material that contradicts or calls these notions into question. Accordingly, artists have often used this filtering effect to conceal objects in their



The head in this figure is a rabbit or a duck depending on the perceptual filters a viewer uses, consciously or preconsciously, to observe it.

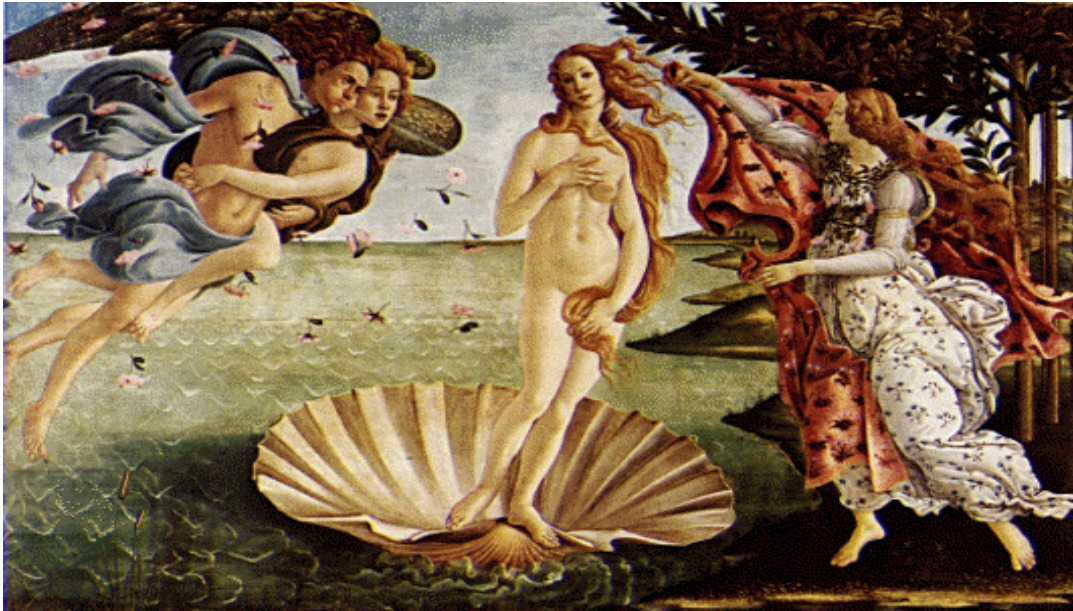
the viewer learns that the picture can be viewed in more than one way. Hence, the head in the figure above changes from a rabbit to a duck as a viewer's focus changes naturally or the viewer learns that the picture can be viewed in more than one way.

For the above and similar reasons, a picture having many levels of meaning can only be fully understood by someone who understands the picture's symbolism, which often requires viewing the picture from a cross-cultural, historical, mythological and interdisciplinary perspective. For instance, depicted below is the famous "Birth of Venus," by the 15th century, Italian painter Sandro Botticelli. To a child or very literal minded viewer, the painting simply

art, sometimes playfully and sometimes for political, religious or other reasons, so that some, but not other, people could recognize those objects. On the other hand, once a viewer has recognized the objects, it is very difficult, if not impossible, for him or her to look at the picture again without seeing the objects.

In addition to using this filtering effect to hide objects, artists have designed pictures whose features change when the viewer's focus changes or

shows a woman floating on a shell while two winged people blow on her, and a woman standing on the shore holds up a red cloth.



“The Birth of Venus” by Sandro Botticelli superficially depicts a woman on a shell while winged-people blow on her, and another woman holds up a cloth.

In contrast, a viewer who understands the painting's mythological history and underpinnings will recognize that the painting is a Renaissance rendition of Venus, the Roman goddess of love, whose Greek predecessor Aphrodite was, according to one version of the myth, born on the island of Paphos after Chronos cut off the genitals of her father, Uranus, and threw them into the sea. The winged people are her attendants, the Zephyros, blowing her to shore, as one of the goddesses known as the Hours prepares to clothe her.

Nevertheless, even if someone who understood the painting's mythological significance explained it to a group of viewers who believed that the painting merely depicted a woman on a shell, those viewers could simply deny that it represented anything more than that, particularly if the painting's significance called the viewers' world view into question. To support their view,

the viewers could, for instance, claim that the women are not born from shells, and they could then simply assure each other that their relatively simplistic interpretation of the painting was correct, as Plato pointed out in his famous cave allegory. (Plato, *The Republic*, Book VII)



Viewing the Hohle Fels Venus from the side clearly reveals that this “woman” is holding something striated in her arms.

With the foregoing discussion in mind, I believe that the true brilliance and significance of the Venus of Hohle Fels, the Venus of Willendorf and many, other so-called Venus figurines can only be appreciated by first divesting oneself of the notion that these figurines were unfinished or sculpted to depict real or idealized women abstractly, particularly as pornographs or fertility symbols. For only then can one recognize that the Venus of Hohle Fels was actually sculpted to personify the womb-like primordium and cup-like volva of a mushroom of the genus *Amanita* as a woman with a prominent vulva holding as or in her abdomen the young mushroom these structures yielded or are about to yield.

This theory may initially seem very strange and potentially disillusioning to people who have believed that the Venus of Hohle

Fels manifests bizarre features because it is an abstract or unfinished rendering of a real or idealized women that a prehistoric sculptor carved as a pornograph or fertility symbol. But readers who are willing and able to suspend these deeply-rooted and seemingly obvious beliefs, even temporarily, may go on to recognize that the symbolism this German sculptor was employing when he carved the Venus of Hohle Fels was a prehistoric example of the same symbolism that Wasson and Wasson (1957, Vol. I, pp. 71, 93, 96, 106-117) found embedded in many words that identified or associated mushrooms as or with

wombs, and Pliny was invoking when he explained that mushrooms came from wombs called *volvae* in the following passage of his *Historia Naturalis*: "the earth . . . produces first a 'womb' (*L. volva*) . . . and afterwards (the mushroom) itself inside the womb." (*Hist. Nat.*, XXII: 26, p. 428)

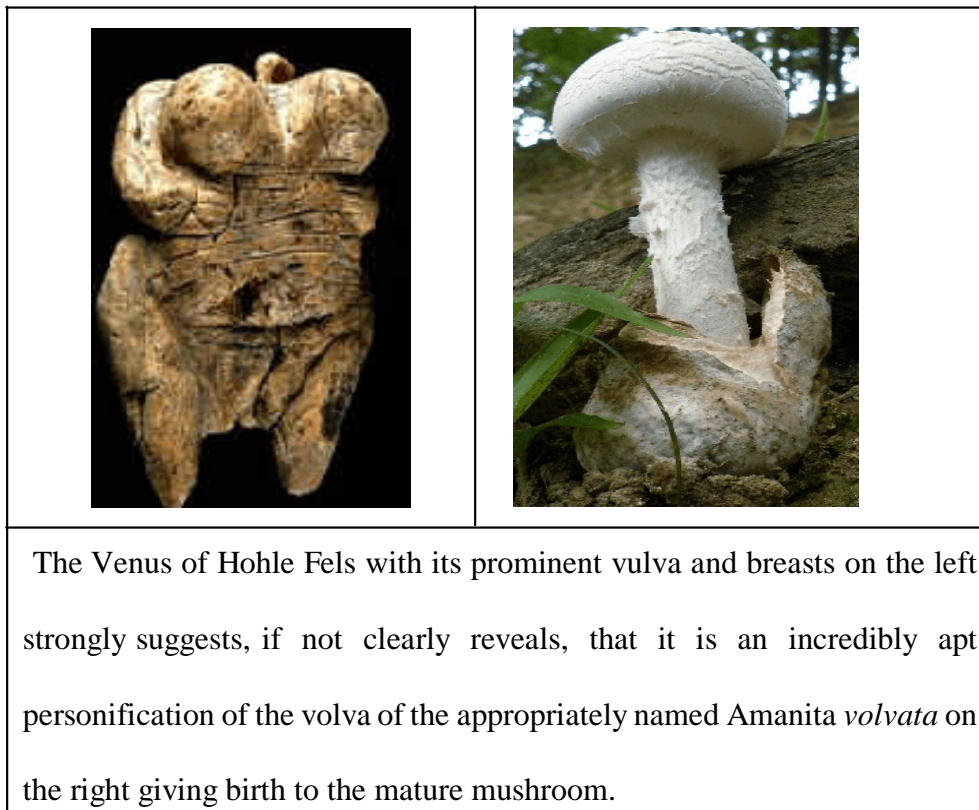
The once, highly reputed philologist and Semitist John Allegro also recognized that mushrooms were ubiquitously associated with wombs in antiquity when he wrote "if the *volva* is sliced open before it splits of its own accord, there will be found inside a fully formed mushroom waiting to expand, like a foetus in a womb, or a chick in an egg. It is small wonder, then, that the mushroom was spoken of as a "womb" and many of its folk-designations and imagery come from this concept. (*Sacred Mushroom*, p. 90) However, I mention Allegro only reticently here for fear that it will evoke in many readers the taboo that specialists and people in general implicitly placed on everything he wrote, in this case undeservedly.

In still other terms, the associations the sculptor who carved the Venus of Hohle Fels was employing when he personified a mushroom's *volva* as its mother was a prehistoric prototype of the same associations a Medieval author was using when he personified an oyster as the *mater perlarum* or "mother of the pearl" that it bears, and a modern cartoonist was employing when he personified a pearl talking about its mother in the adjacent cartoon.

Although I suspect that many people who have romanticized the Venus of Hohle Fels and similar figurines will believe that this theory demeans these figurines by reducing them to mushrooms, nothing could be further from the truth. On the contrary, the theory reveals that it was incredibly brilliant, extremely interesting,



and very appropriate for a prehistoric German sculptor to have personified an Amanita's volva as the mushroom's mother with a prominent vulva, since doing so graphically embodied and anticipated by tens of millennia the derivation of Eng. *vulva*, which now refers to the external genitals, from the Latin word *vulva* for a womb or covering, as well as the relatively modern, mycological practice of using *vulva*'s variant *volva* to classify Amanitae as volvate mushrooms. The Venus of Hohle Fels with its prominent vulva and breasts on the left in the figure below therefore strongly suggests, if not clearly reveals, it is an incredibly apt personification of the volva of the appropriately named Amanita *volvata* on the right giving birth to the mature mushroom.



It then also becomes apparent that the figurine's bowed, footless and unsegmented legs were carved to personify the sides of an Amanita's ruptured volva that evidently resembled the right side of this A. *volvata*'s volva, and that a Roman or proto-Roman wordsmith deducibly derived

the L word *valgus* for the bowed legs this figurine displays from the same root as *vulva* to associate these things.

Since a thorough discussion of this linguistic relationship and the multitude of other linguistic relationships that inhere in this figurine is beyond this essay's scope, suffice it to say that when the German sculptor who carved the Venus of Hohle Fels personified the Amanita's volva as the mushroom's mother with a prominent vulva, he was graphically portraying the development of Germanic words for wombs (e.g., MHG *muoterlip*, Danish *moder(s)liv* and Swedish *moderlif*) from Germanic words for mothers (e.g. Old Saxon *modar*, Dan. *moder*, Dutch *moeder*, and German *Mutter*) plus Gc words for lips (e.g., O.Fris. *lippa*, M.Du. *lippe* (Budge, 4.46-4.47), thereby graphically implying that a womb is essentially a mother with lips. The development of these Gc words for wombs therefore perfectly parallels the development of Eng *vulva* 'vagina' from L. *volva* 'womb', and the development of other Indo-European words for wombs (e.g., Serbo-Croatian *materica*, Russian *matka*, and Lettish *mates*) from the same root that yielded IE words for mothers.

Similarly, by morphing the Amanita's womb-like volva containing the young mushroom into the Venus of Hohle Fels pregnant belly, the sculptor was graphically portraying the development of the polysemous, Germanic words for wombs and bellies O.E. *wamb* and Gothic *wamba* from the same root that yielded O.E. *umbor* 'child' (On-line Etymological Dictionary's entry for womb), and by morphing the Amanita's womb into the Venus of Hohle Fels breasts, the sculptor was graphically portraying the develop-ment of IE words for uteri (e.g., Latin *uterus* and Skt. *udaram*) from the same root that yielded Germanic words for udders (e.g., O.E. *udder*, M.Du. *uder*, O.H.G. *utar*, Skt. *udhar*, Gk. *outhar*).

Although this theory may still be difficult for many readers to accept, it can also be supported by its ability to explain a number of other things about the Venus of Hohle Fels more logically and instructively than theories which have heretofore held that the figurine was unfinished or carved to depict a woman abstractly as a pornograph or fertility symbol. For instance, this theory can better explain why the sculptor intentionally shortened the woman's arms, and placed her hands alongside what superficially appears to be her strangely shaped abdomen, which the sculptor intentionally delineated from her pelvis and torso, rather than smoothly and naturally integrating these features into each other. He did so to emphasize that this "woman" is actually giving birth to the mushroom she is a part of, and, moreso, to suggest that this woman was raising the young mushroom's head onto her shoulders, where it would then become her own head.

By the same token, the sculptor was graphically embodying and anticipating by tens of millennia the mycological practice of likening mushroom caps, like the *T. robustus* and *B.*



For obvious reasons, the *T. robustus* cap on the left is typically characterized as mammiform, while the *B. fraternus* cap on the right is typically characterized as areolate, thereby likening them to breasts.

fraternus in the adjacent figure to breasts by describing them as mammiform and areolate, respectively, as well as the prehistoric practice of deriving words for breasts and heads, from roots that

originally referred to swellings. For instance, the L. word *testa* ‘head’ clearly reveals it is cognate with Lithuanian and Lettic *tešmuo* ‘breast and *tesminis*, respectively, and these words clearly reveal they are cognate with Lith word *tešia* ‘swells up’ and *tešla* ‘dough’. (Budge 2.27, 4.46, 4.47).

Although the hypothesis that prehistoric artists, wordsmiths and mythmakers associated breasts with heads may be especially difficult for very literal minded readers to accept, it can be amply supported by and, in turn, amply supports the wealth of evidence and arguments that Wasson (*Soma*, 1971) presented to support his theory that Vedic priests personified the cap of the entheogenic *Amanita muscaria* sometimes as Soma’s head and sometimes as Soma’s breasts in the following and other passages of the Rig Veda:

[approaching] the Soma as it were a breast?" (IV 23Iab);

. . . milk the breast which is milked of sweetness. [Soma]"(VII IOIIab);

Resting upon the barhis, noisy, with full breasts . . . they have made the red ones their flowing garment."(IX 681);

The priests milk this stem for you both [Varuna and Mitra, two gods], like the auroral milk cow, with the aid of stones they milk the Soma, with the aid of stones." (I 1373ab);

The first milk of the stem is the best.(II 13Icd)

Indra is farther than this seat when the milked stem, the Soma, fills him.(III 366cd);

The one with good hands [the priest] has milked the mountain- grown sap of the [Soma]; the breast has yielded the dazzling [sap].(V 434);

When the swollen stalks were milked like cows with full udders. (VIII 919ab);

. . .heaven's head, Soma, when pressed, is escorted by masterly men into the
vessels (IX 273);

For you are, O Soma juices, . . . the heads of heaven, carried erect, creators of
vital force (IX 698cd);

On Soma's head the cows with a full udder mix their best milk in streams (IX
714cd);

In the vessels the cows mix with their milk the head (IX 33abc);

... heaven's head, Soma, when pressed, is escorted by masterly men into the
vessels, he the all-knowing.(IX 273)

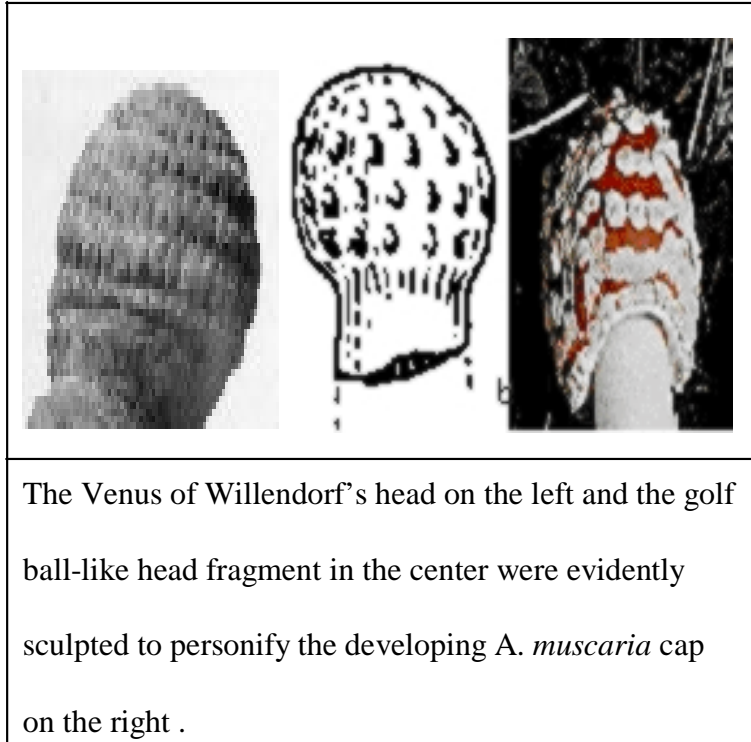
Hence, when our prehistoric German sculptor morphed the developing Amanita's cap into breasts, he was using the same figurative associations that Vedic priests were using when they called Soma's head its breasts.

We can now go on to explain why the object the Venus of Hohle Fels is holding in her arms on the left in the figure below also strikingly resembles the developing Amanita next to her, and this Amanita also strikingly resembles the Venus of Willendorf on the far right. As I showed in a previous paper (Berlant,1999), the Venus of Willendorf was deducibly sculpted to personify the volva of an *A. muscaria* as a steatopygous woman with a prominent vulva and pendulous breasts who had just given birth to the characteristically knotted *A. muscaria* cap she is wearing on her head.



Comparing the object the Venus of Hohle Fels on the left is holding in her arms to the young Amanita in the center and both to the Venus of Willendorf on the right reveals that (1) both figurines were carved to depict developing Amanitae, albeit slightly differently, (2) the umbo atop the Venus of Hohle Fels is a characteristic of the umbonate mushroom that can only be viewed from this angle, and (3) the striations on Venus of Hohle Fels therefore strikingly resemble those on the developing Amanita next to it.

The Venus of Willendorf therefore can and should be considered a personification of a more advanced stage of an Amanita's development than the Venus of Hohle Fels, insofar as the Venus of Hohle Fels's head has not yet been raised onto the developing mushroom's shoulders whereas the Venus of Willendorf's head has. It is deducibly for the same reason that the Venus of Willendorf's cap, which people have appropriately called a veil, reveals it was sculpted to personify the remnants of the ruptured veil the *A. muscaria*'s volva typically leaves on the mushroom's cap, and the Latin words for these things (*volva*, *vulva* and *veil*) clearly reveal they were derived from a prehistoric root that referred to wombs and other coverings.



The Venus of Willendorf's head therefore also strikingly resembles the developing *A. muscaria* cap on the right in the figure above, and both strikingly resemble the faceless, golf ball-like head fragment of a figurine from Gargarino, Italy, in the center. It is deducible for the same reason that the Venus of Willendorf's steatopygia clearly reveals it was designed to personify the Amanita's bulbous base, the figurine's strangely slender arms reveal that they were sculpted to personify the dentate ring the *A. muscaria*'s ruptured veil leaves on the mushroom's stem, and the red ochre that covered the figurine reveals that it was designed to color the figurine the most common color *A. muscaria* caps display.

Despite these striking and, I believe, tell-tale resemblances, specialists and non-specialists who insist on adhering to the belief that the Venus of Hohle Fels and comparable figurines were unfinished or abstract renderings of women will have to explain these resemblances away as coincidences. However, the difference between coincidences and pertinent evidence is that

coincidences cannot be logically united in a way that sheds light on them and other phenomena, whereas evidence can be, and I firmly believe that this theory sheds far more light on the bizarre features these figurines manifest than competing theories.

This theory can then also explain why the prehistoric German sculptor who carved the Venus of Hohle Fels put an umbo, rather than a human head, on it far better than either the pornograph or fertility theories, which have essentially ignored this anomaly by implying that the figurine was unfinished or an abstract rendering of a woman. On the contrary, as I explained in the Introduction, artists have often created objects with features that could only be viewed from a certain angle, and the sculptor who carved the Venus of Hohle Fels was evidently employing this technique when he personified the mushroom's umbo, which mycologists use to differentiate "umbonate" mushrooms from their "umbilicate" relatives. Hence, when a person who has recognized that the Venus of Hohle Fels is a personified mushroom views the figurine angularly from the front, as it is in one of the figures above, he or she can recognize that the figurine's umbo is an appropriate characteristic of the umbonate mushroom this woman is holding.

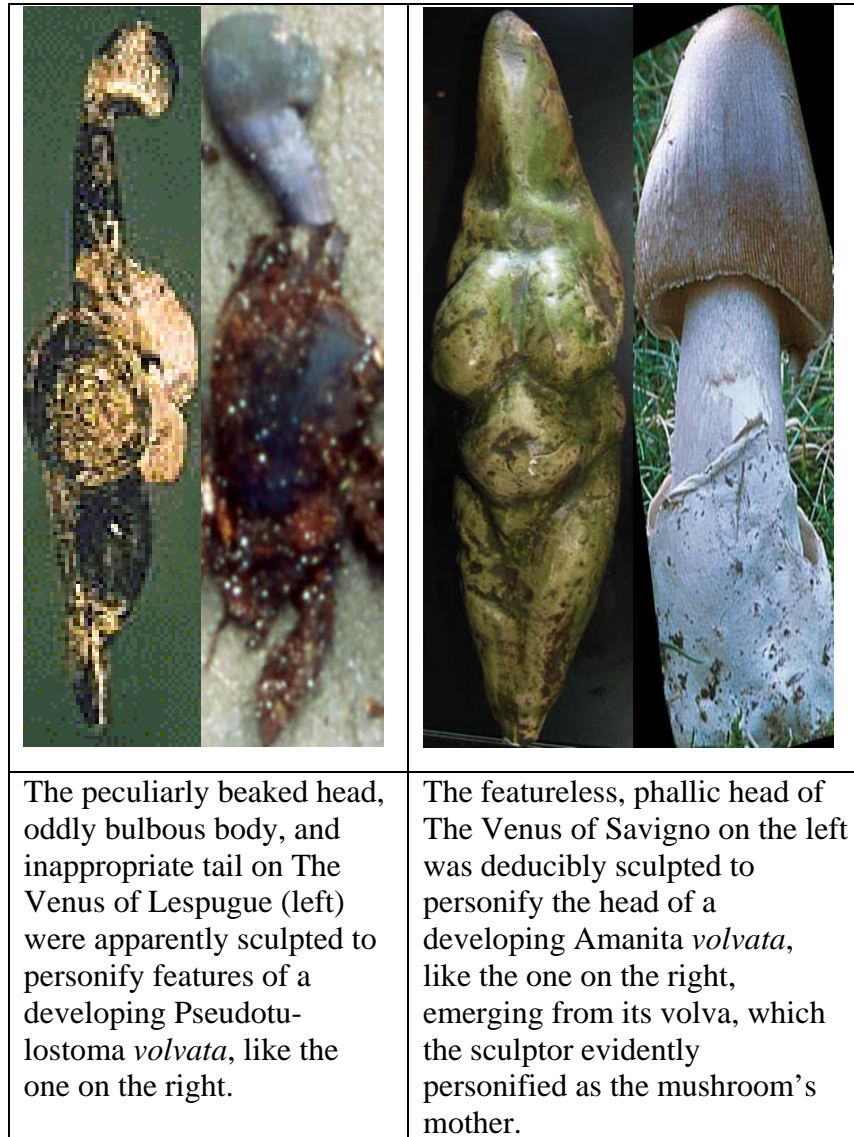
Since length restrictions prevent me from showing the multitude of other prehistoric, anthropoid figurines that were deducibly carved to depict developing mushrooms, the following four examples will have to suffice.



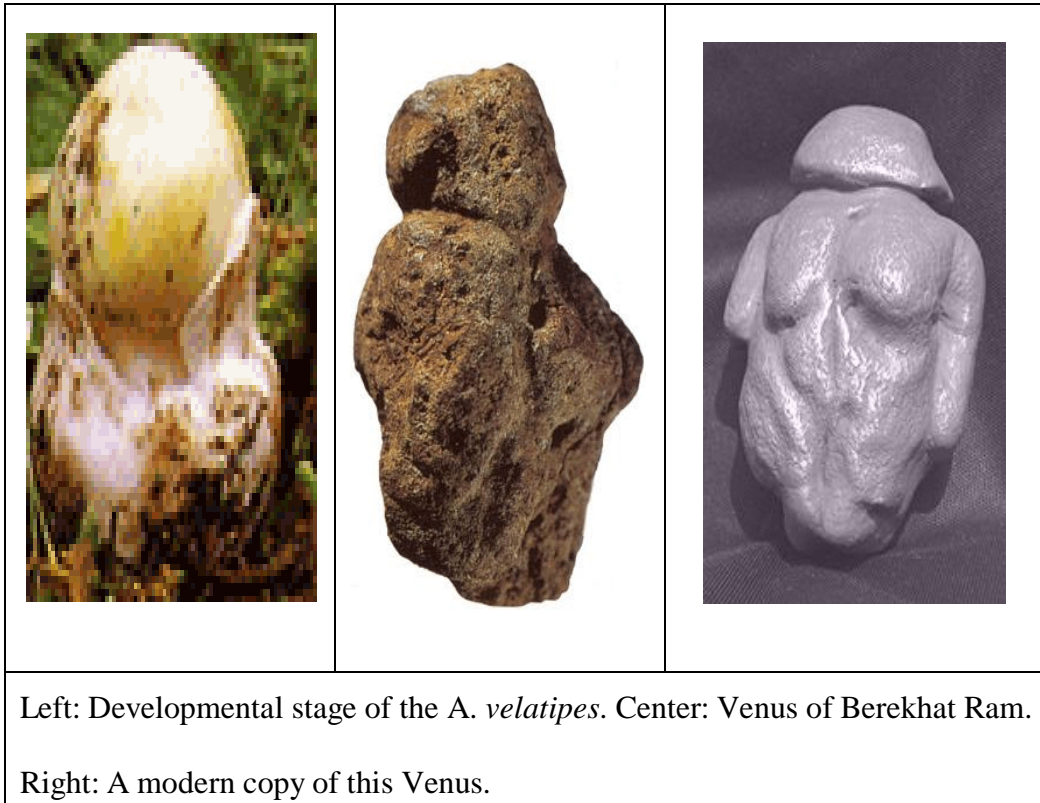
The anthropoid female figurine from Chiozza di Scandino, Italy on the right was demonstrably carved to depict the developing Horse Mushroom on the left as a seemingly faceless, armless and footless woman with prodigious breasts and an umbilicus that resembles a vulva.



The series of four so-called seated figurines beginning on the left were demonstrably carved from mammoth metacarpal bones to personify the developing *Quiletta mirabilis* mushroom on the right.



To understand how and why prehistoric sculptors personified developing mushrooms as women even better, it is only necessary to compare the developing *A. velatipes* on the far left in the figure below to the object known as the Venus of Berekhat Ram in the center, and both to the modern copy of this Venus on the far right.



Since the raw stone that was or subsequently became the Venus of Berekhat Ram evidently resembled the *A. velatipes* emerging from its bulbous volva on the left, it would have been very easy for a prehistoric sculptor to have seen in both these objects the head of a woman with breasts, and only slightly less easy for that sculptor to have made incisions in the stone that enhanced that resemblance. Although the archaeologists who found the stone and the specialists who later analyzed it concluded that the marks on it were man-made, other specialists have argued that the marks were natural.

In either case, the sculptor who created the modern copy of the Venus of Berekhat Ram on the far right could not have known any better than these specialists whether the resemblance the stone bore to a woman's bust was natural or man made. Nevertheless, he further personified the object's

rudimentary breasts and head based on his own belief that a prehistoric sculptor had indeed carved it to depict a woman abstractly. Consequently, most people who see this modern copy also conclude that the Venus of Berekhat Ram was unfinished or sculpted to depict a woman abstractly.

It was deducibly based on this deeply rooted human tendency to personify plants that ancient sculptors further personified the prehistoric figurines that they copied, based on the belief that those prototypes were unfinished or had been sculpted to depict women abstractly.

The significance of the Venus of Hohle Fels and comparable figurines can be clarified even more by considering them in light of a number of myths that attribute the birth of mushrooms to women. For instance, a Yoruban myth tells how a woman named Oran who wanted to have children took a medicine that caused her to give birth to mushrooms that subsequently became known as Oran's mushrooms. (Oso, B.A., 1977) Similarly, a Tadjik and Yaghnob tale describes how thunder arises when a sky-borne divinity known as Mama shakes mushrooms out of her bloomers, thereby implying that she gave birth to these mushrooms (Cited in Wasson, R.G. Kramish, S., Ruck, C.A.P. p. 88), while an ancient Northern European tale implies that witches dancing in circles give birth to the mushrooms known as fairy rings. In addition, the symbolic relationship between the human vulva and mushroom's volva that inheres in the Venus of Hohle Fels and comparable figurines also appears in a Haida myth telling how a fungus helped the creatrix Raven find her genitals, and in certain Northern legends that associate mushrooms with the so-called vagina dentata.

I have just presented evidence and arguments supporting the theory that the Venus of Hohle Fels, the Venus of Willendorf, and a number of other prehistoric, female figurines were carved to

personify the volvae and developmental stages of mushrooms as the mothers of the mushrooms they yielded. This theory therefore calls into question beliefs that have held for centuries that such figurines manifest some bizarre features and totally lack other features because the figurines were carved as pornographs or fertility symbols by sculptors who did not care whether these women had hair, facial features or even heads. On the contrary, the archaeological, linguistic and mythological evidence clearly reveal that these sculptors were using the same associations that modern mycologists use to characterize mushrooms as vulvate organisms with vulvate volvae and mammiform or areolate heads that sometimes bear umbos and veils.

Stephen R. Berlant, Ph.D.

Center for Advanced Studies

Philadelphia, PA

References

- Allegro, J., 1970. *The Sacred Mushroom and The Cross*. Garden City, N.Y.: Doubleday .
Association for Biblical Astronomy. <http://www.geocentricity.com/>
- Berlant, S.R., 1999. *The Prehistoric Practice of Personifying Mushrooms*. J. Pre. Religion. (XIII,,
- Buck, C.D., 1949, *A Dictionary of Selected Synonyms in The Principle European Languages*,
Chicago: Univ. of Chicago Press, 1949.
- Conard, N.J., 2009. *A female figurine from the basal Aurignacian of Hohle Fels Cave in southwestern Germany*. Nature 459, 248-252.

Ludwik, Fleck, 1979. *Genesis and development of a scientific fact*, Chicago : University of Chicago Press.

Kuhn, T.S., 1962. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.

Mellars, P., 2009. *The Origins of the female image*, Nature 459, 176-177.

Oso, B.A., 1977. *Mushrooms in yoruba mythology and medicinal practices*. Economic Botany 31:3, 367-371.

Plato, *The Republic*, Book VII, available on-line at <http://www.historyguide.org/intellect/allegory.html>

Pliny The Elder, 1949-1962. *Natural History*. Loeb classical library, Cambridge: Harvard University Press.

Wasson, R.G. and Wasson, V., 1957. *Mushrooms, Russia and History*. N.Y.: Pantheon Books.

Wasson, R. G., 1971. *Soma: divine mushroom of immortality*, New York: Harcourt Brace Jovanovich.

Wasson, R. G., Kramrisch, S., Carl A. P. Ruck, 1986. *Persephone's Quest: Entheogens and the Origins of Religion*. New Haven: Yale Univ. Press, p. 88.

Webster's New World College Dictionary, entry for "Mother or Pearl," accessed on-line at <Http://www.yourdictionary.com/mother-of-pearl>.

Westfahl, G., Slusser, G.E., and Eric S. Rabkin, 1996. *Foods of the gods: eating and the eaten in fantasy and science fiction* . Athens [Ga.]: University of Georgia Press.