

# THE HALLUCINOGENIC MUSHROOMS

By Valentina P. Wasson and R. Gordon Wasson

WE ARE SOMETIMES ASKED how it happened that we "discovered" the hallucinogenic mushrooms of Mexico. We didn't discover them, of course. The Indians discovered them, thousands of years ago. The Indians of southern Mexico, who are mycophiles, possess an extraordinary empirical knowledge of the properties of mushrooms. As for the hallucinogenic species, their use, we believe, has been distinctive of the upland peoples of Meso-America as far back as archaeology can enlighten us, and doubtless much further back than that.

In fact, it is a question whether the use of the mushroom is an autochthonous trait of Meso-America or whether it is a common heritage of the peoples of the Pacific basin. We know that such mushrooms are still used by the Kuma people of New Guinea, by hill tribes of Borneo, and by the natives of the Siberian coast between Kamchatka and the Bering Straits. There are tantalizing suggestions that the secret was possessed by the Polynesians, the Chinese, and the peoples of India.

No, we did not discover the hallucinogenic mushrooms. We did not even discover their *use* by the Indians of Mexico. After the first flush of the Conquest, when the Spaniards, alive to the drama of the shock of the two civilizations, were recording all that they saw and heard in New Spain, they reported the adoration of vision-producing mushrooms by the natives. We have assembled a score of early writers who speak of them. But their descriptions hardly help us to identify the kinds of mushrooms that were so used. The ethnographer Bernardino de Sahagún speaks of them as black little mushrooms that grow beneath the grass in field or moor; and again he says that they "are round, have a long stem that is thin and round. . . They taste bad, hurt the throat, and inebriate." For another author they are woodland mushrooms. According to a third, so bad is the taste that the Indians follow

them up with a drink or with honey. Francisco Hernández, a botanist, speaks of three kinds: the first is reddish, acrid, "of a not displeasing smell," and provokes uncontrollable laughter; the second makes the eater see all kinds of visions; and the third kind, tawny and somewhat acrid, is sought after by the principal people. Juan de Córdoba in his Zapotec lexicon (1571) defines *nocuana peneche* as an inebriating mushroom that grows in trees. Finally, Jacinto de la Serna in the early seventeenth century says that they are red, and again that they are small and golden and grow in the mountains.<sup>1</sup>

What are we to make of this testimony? We find a consensus that the mushrooms are bitter, and clearly there are several species. That is all. In the sixteenth century the science of mycology had not been born, and Dioscorides, the first century Greek, was still the chief authority. We look in vain for illustrations to help us. Hernández speaks of his drawings, but they were apparently lost in a fire. We possess only two illustrations, and they are of more interest anthropologically than mycologically.

There followed a silence of centuries. The hallucinogenic mushrooms are forgotten of everyone, save the Indians. Prescott ignores them deliberately, deftly excising them from his source as he tells us of the festivities that attended the beginning of Montezuma's reign.<sup>2</sup> Only a handful of scholars knew they had ever existed, and a few of them mentioned the mushrooms in the books that they wrote for other scholars to read.<sup>3</sup>

Then a strange thing happened. In May 1915 an American ethno-botanist of established reputation, William E. Safford, read a paper before the Botanical Society of Washington declaring that the old writers had made a mistake, and that there were never any hallucinogenic mushrooms. Patronizingly, he speaks of the Spanish "padres" who had mistaken the "mescal buttons"

of peyote for mushrooms. This was a half-hearted effort on Safford's part no tentative surmise aimed at eliciting comment. When his paper was published in the "Journal of Heredity" in July of that year, it was seen to be a major effort, supported by quotations from the old authors, by photographs, and by the negative results of his own inquiries in the Southwest of the United States and northern Mexico. He was categorical, leaving himself no loophole for escape. We find no indication that Safford ever learned of his mistake. He died in January 1926, and in late 1921 he had stood on his previous position.<sup>4</sup>

How did Safford go so wrong? He looked for the mushrooms in the wrong place, misled by an ambiguous passage in Sahagún that he had misread. Sahagún says that the Indians of the north had their peyote, just as we [in the south, where Sahagún was] have our mushrooms. Naturally Safford, putting a wrong construction on the Spanish text and looking for the mushrooms in the north, found none. Furthermore, he was not familiar with the wealth of source material that has come to light since then. He quotes from only three of the old authors, whereas we have assembled twenty who speak of them. Even so, he might have surmised that both Spaniards and Indians could tell a mushroom when they saw one, and that the Indians were using a Nahuatl word, *teo-nanácatl*, meaning "mushroom." Few in Safford's audience had ever heard of the divine mushrooms of Mexico, and now they heard of them only to be apprized that they had never existed. It was an easy victory for him.

Safford's contribution to ethno-mycology apparently drew no fire, not even in Mexico. But in 1919 a Mexican physician, Dr. Blas Pablo Reko, born in Austria of Slavic blood, got wind for the first time that mushrooms were still being used in medico-religious ceremonies. He asserted his faith in the old writers in a Spanish rendering of *teo-nanácatl* that he included in a list of

Nahuatl botanical terms published in that year. In 1923 he took direct issue with Safford in a private letter that still survives. He said that the mushrooms were black and grew in animal manure.<sup>5</sup> But Reko failed to enlist the attention of the learned world.

In 1936 there appeared in Stuttgart a little book, *Magische Gifte*, by one who styled himself "Prof. Victor A. Reko, Member of the Academy of Sciences, Mexico." This Reko, a journalist and anything but a scientist, was first cousin to Blas Pablo. He asserted the existence of the divine mushrooms and was so bold as to give them, sight unseen, a hypothetical name, *Amanita muscaria*, var. *mexicana*. Victor Reko's book attracted attention and went through several editions, the third appearing in 1949. German scientific circles accepted the author at face value, and we have seen in sober German scientific journals confident references to his ghost species! Yet in the very year of publication Victor's guess proved wrong. The distinguished anthropologist, Robert J. Weitlaner, of Austrian birth also, while visiting the Mazatec town of Huautla de Jiménez, in the northern corner of the state of Oaxaca, came upon some of the mushrooms—the first white man in modern times to handle them. He sent them to Blas Pablo Reko, and Reko sent them to Harvard University.<sup>6</sup> They arrived in bad condition, and all the mycologists could do was to identify them as belonging to the genus *Panaeolus*. They were definitely not an amanita. In 1937

and 1938 we find a botanist at Harvard, Richard Evans Schultes, and an anthropologist at Yale, Weston La Barre, publishing papers in which, at long last, they took direct issue with Safford.<sup>7</sup> It was Reko's insistence that led Schultes to review the classic Spanish authors.

In July 1938 Schultes with Blas Pablo Reko visited Huautla on a field trip. In the course of their collecting, they obtained mushrooms that were described to them as the divinatory species, and later Dr. David Linder at Harvard confirmed Schultes' identification: *Panaeolus campanulatus* Linn. var. *sphinctrinus* (Fries) Bresadola. There can be no question as to this identification: in 1956 a specimen, being still in existence, was sent to Paris, where Professor Roger Heim confirmed the earlier findings. Unfortunately, Schultes did not see the specimens consumed by a *curandero* performing his office, and because of the paucity of the mycological material collected, neither Schultes nor Reko ate the mushrooms while still in Huautla. Schultes states expressly that "in my two visits to the Mazatec country narcotic mushrooms other than *Panaeolus campanulatus* var. *sphinctrinus* were not found in use in divination," but from natives' reports, he was confident that other species and even genera were current.<sup>8</sup>

Some time later Dr. Rolf Singer, going over Schultes' collections, recognized among them a specimen of *Stropharia cubensis* Earle, which he chose to call a *Psilocybe*, and on the strength of Schultes' field notes, Singer in 1951

included a single sentence in his comprehensive work on the Agarical reading as follows: "At least one species [of *Psilocybe*] is used as a drug in Mexico (causing a temporary narcotic state of hilarity) but is poisonous when used in excess."<sup>9</sup> How near Singer came to a major discovery! Unfortunately he failed to identify the species nor did he link its use to particular ethnic groups in Mexico's heterogeneous population, nor did he dwell on the religious role played by the mushroom and its application in the daily life of the Indians. The mushroom is a thing but a narcotic, and there is yet no proof that it can have deleterious effects. Singer left his readers in the dark as to whether his provocative sentence was based on his personal observations. The fact is that he failed to follow up his hearsay information until after Roger Heim and we had published our findings, whereupon in a matter of weeks he hurried from Tucumán, Oaxaca, and there in the field we had the pleasure of encountering him in July 1957.

In Huautla Schultes and Reko ran another field party. The promising young anthropologist Jean Bassett Johnson was there, accompanied by Bernard van Irmgard Weitlaner (daughter of Robert J. Weitlaner), and Louise Johnson. Johnson's party succeeded, on the night of July 16, in attending the mushroom ceremony, which Johnson described in an anthropological paper published in Sweden.<sup>10</sup> There was singing and apparently no member of Johnson's party was invited to share eating the mushrooms. The divinatory rite was the one in which grains of maize are cast and interpreted. In 1951 I witnessed the same rite, this time with Weitlaner, and we are in a position to confirm Johnson's account.

The secret of the divine mushroom seemed about to be discovered when World War II supervened. Johnson was destined to lose his life in it. Schultes was diverted for many years to the upper Amazon to work on the native rubber of that region. Since the war, apart from our expeditions, there has been little to report. In 1945

The adoration of the mushroom. Maria Ina, curandera of the Mazatec village of Huautla de Jiménez, worshipping the mushroom before she eats it in the course of the mushroom rite.

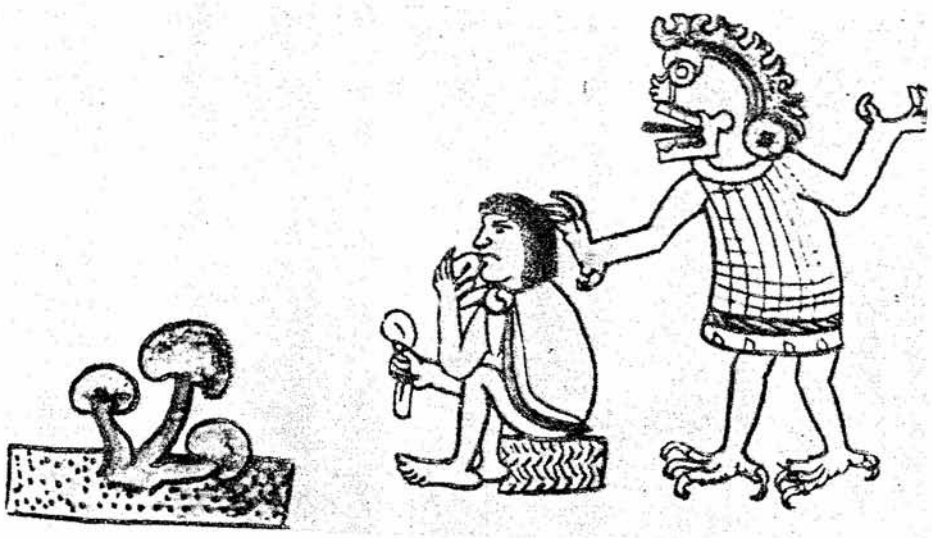


Pablo Reko published his *Mitobotánica Zapoteca* in which he reiterated his belief in the mushrooms, recorded their use among the Indians of the Mazatec, Chinantec, and Zapotec tribes, and made bold to guess at their identity. Dr. Reko died in 1953, an honest, diligent, enthusiastic worker in the fields of anthropology and ethno-botany, whose contributions never carried conviction because of his fantastic theories and bad philology. His cousin Victor had died some years earlier. In 1954 there appeared in Mexico City a small volume, *Las Plantas Fantásticas de México*, by F. Guerra and H. Olivera, an uncritical and incomplete compilation of earlier authors, in which Schultes's mushrooms occupied first place.

All these details of ethno-mycological history, when spelled out as we have done it, sound more impressive than they are. The essential documents about the hallucinogenic mushrooms can be read in an hour: the quotations from the old writers, Johnson's report, and Schultes's papers.

We had been pursuing our inquiries into the role of mushrooms in the cultural history of the Old World for many years. We had found indications in the etymology of the names of mushrooms and in folklore, as well as in contemporary attitudes toward "toadstools," that at one time mushrooms had played a part in our ancestors' religious beliefs. At this point, in September, 1952, in almost the same mail, we received two communications, one from Robert Graves in Majorca and the other from Hans Mardersteig in Verona, alerting us to the peculiar place of mushrooms in the Meso-American cultures. We had known nothing before then of the indigenous cultures of that region. Quickly we got in touch with Gordon Ekholm of the American Museum of Natural History and Richard Evans Schultes of the Botanical Museum at Harvard. Schultes told us to communicate with Blas Pablo Reko, who passed us on to Miss Eunice V. Pike of the Summer School of Linguistics, and then died. Miss Pike, a student of the Mazatec language, had lived in the Mazatec country off and on for many years, and she proved of invaluable help in guiding our footsteps. Meanwhile we assembled what little had been written on the subject.

To make a long story short, we have

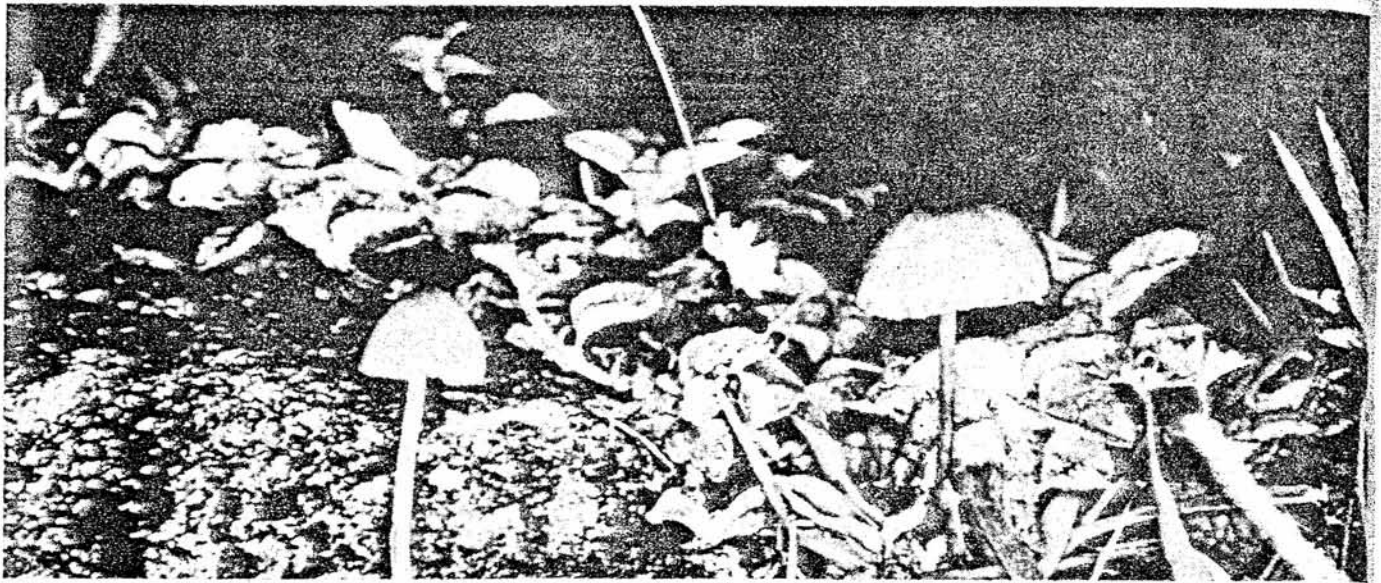


Top. The "idolatry" of the mushroom, through the eyes of the sixteenth century Spanish illuminator. From Florentine Codex of Sahagún.

Center. An Indian's conception of the mushroom. The God of the Underworld speaks through an Aztec who is eating the mushrooms. From Magliobecchiano ms.

Right. "Mushroom stones." Two examples of earliest type of Highland Maya stones. Left, a frog or toad associated with "toadstool;" right, a jaguar with geometrical design. These stones date from B.C. 500 to B.C. 1500.





This mushroom, *Psilocybe mexicana* Heim, and the mushrooms on page 5, are used for divination in Huautla.

visited the Indian country of Mexico every year since 1953, especially the hill country of Oaxaca and the Valley of Mexico. By now we have attended many sessions conducted by shamans in which mushrooms have been used. We were able to confirm Johnson's observations of 1938. We were the first to attend a *sung* performance, lasting most of the night. We were the first to eat the mushrooms, which we have now done on numerous occasions, in the course of the rite and by ourselves. We were the first to report in detail our experiences, including an account of the hallucinations that the mushrooms cause.<sup>11</sup> Thanks to the brilliant work of our photographer, Allan B. Richardson, we were able to get a complete photographic record of the rite, and were first to record the event on tape, which is now available commercially.<sup>12</sup> Most important of all, we were able to enlist the cooperation of Professor Roger Heim, dean of French mycologists, who came to Mexico with us in 1956 and fixed the identity for the first time of seven kinds of mushrooms that are used for divination, belonging to three genera. Four of them are species new to science, two of them are new varieties of a species already known, and the seventh is a species first described by Earle in 1906, from specimens found in Cuba. Professor Heim has duly announced his discoveries in *Comptes rendus* submitted to the *Académie des Sciences* and published also in the *Revue de Mycologie*.<sup>13</sup>

Unlike Schultes and Weitlaner, we

failed to find a *Panaeolus* in use for divination, and three *curanderos*—two in Huautla and one in Yaitépec, Distrito de Juquila — rejected the var. *sphinctrinus* when we submitted it to them. They sniffed at it, tasted it, and said no. But let us not jump to conclusions. The psychogenic effects of certain species, of *Panaeolus*, until now not firmly identified, though distinct from the effects of our species, are well supported in mycological records. Furthermore, in the indigenous cultures of Mexico, where the cultural heritage is preserved solely in the oral tradition and the use of the mushrooms is surrounded by secrecy and steeped in *mana*, there appear to be different traditions in every tribe, and within the tribe in every village, and even family traditions within the village handed on from parent to child in the *curandero's* family, with different names for the mushrooms, different tabus, and different practices (in some respects) in the ritual. Not all the mushrooms that we found in use among the *curanderos* of Huautla, for example, were known to all the *curanderos* in that town. While it is possible that Schultes's purveyors may have deceived him, either intentionally or unintentionally, it would not be safe to assert that this happened. *Panaeolus campanulatus* var. *sphinctrinus* superficially resembles *Psilocybe mexicana*, from which, however, it can be easily distinguished by smell and taste.

In the progress of knowledge, a certain interest always attaches to the reasons why a discovery is made at a

particular time and place and by particular persons. Why was it that we, a pediatrician and a banker in New York, made an ethno-mycological discovery of some importance in Meso-America? Seemingly, nothing could have been further from our course. Why hadn't the mushrooms been previously identified and their hallucinogenic effects described, and why were they finally run to earth by us, of all people?

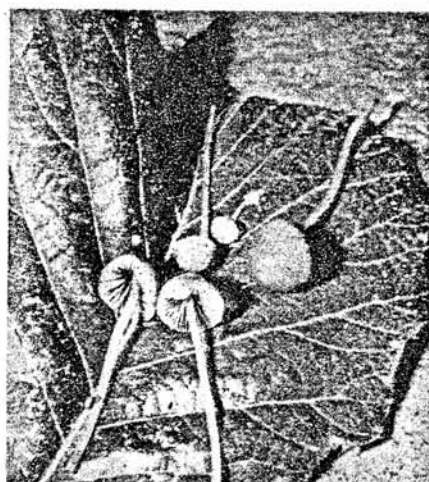
Mushrooms are the stepchild of science. They have never attracted their share of scientific talent. Thus it comes to pass that in Mexico where, for example, medicine has attracted many brilliant workers, until now there have been no native mycologists. Furthermore, the mushroom cult is an anthropological phenomenon, and one must be both anthropologist and mycologist to enter into the spirit of this thing. The foreign mycologists, who have made forays into Mexico, have not been equally interested in the anthropological aspects of their science. Not all of them are eager to eat the divine mushroom in a midnight communion. Yet for the study of the religious beliefs of Meso-America a willingness to participate in their secret ceremonies is essential. Spaniards and Englishmen by cultural inheritance are mycophobes and the tabu that hangs over mushrooms is enough to make many mycologists of those nations retch at the thought of eating a detestable *Psilocybe*. The tabu is a living tabu and is much a part of their unconscious nature.

that it seems natural for them to have a stomach upset on consuming a mushroom, in the same way that an orthodox Moslem retches at the thought of eating pork. Yet, even so, Schultes and Reko were on the brink of the sensational discovery when the war interrupted their activities: one more field trip in the rainy season might have been enough.

We had been pursuing as an avocation our ethnomycological studies for more than twenty years, when we first learned of the religious role of mushrooms in Meso-America. We had made three field trips before we succeeded in breaking through the native reserve of the Indians and attended a sung service of the *curandera* María Sabina. At an early date we enlisted the interest of Roger Heim in our work. Professor Heim is the director of the *Laboratoire de Cryptogamie* of the *Muséum National d'Histoire Naturelle*, and he has concentrated his attention on the tropical fungi. He is also alive to the value of the humanities, writing with the grace of a man of letters. The scientist who is at home in humane letters is possibly more common in the Old World than the New. Moreover, Professor Heim is a mycologist and a mycophagist: in the field his collections for the *Muséum National* are rivalled by his collections for the skillet. (We shall never forget an omelette of *laqués* [*Laccaria laccata* (Scopoli ex Fries) Berkeley and Broome] that he prepared, on August 1, 1956, after a day's hard collecting, in the neighborhood of Yaitépec, near Juquila in the Chatino

country.) From the beginning, he entered into our pursuit of the divine mushroom of Mexico with passionate interest. When we were ready for him, he joined us in the field. We hold that our meeting with Professor Heim was our greatest stroke of good fortune. He more than fulfilled the promise of our discoveries.

We have taken the first big step forward, but it is only a first step. As we advance, the horizons on all sides keep receding. The chemists must isolate the active agent, define its properties, give us the molecular structure,



*Conocybe siligineoides* Heim

and synthesize it. The medical investigators will study ways to utilize it, presumably as a tool in psychiatric research. The anthropologists of Meso-America will, ultimately, vouchsafe to tell us how widespread is the use of the mushroom, and pin down for each re-



*Psilocybe caeruleascens* Murrill var. *mazatecorum* Heim — the "landslide mushroom."

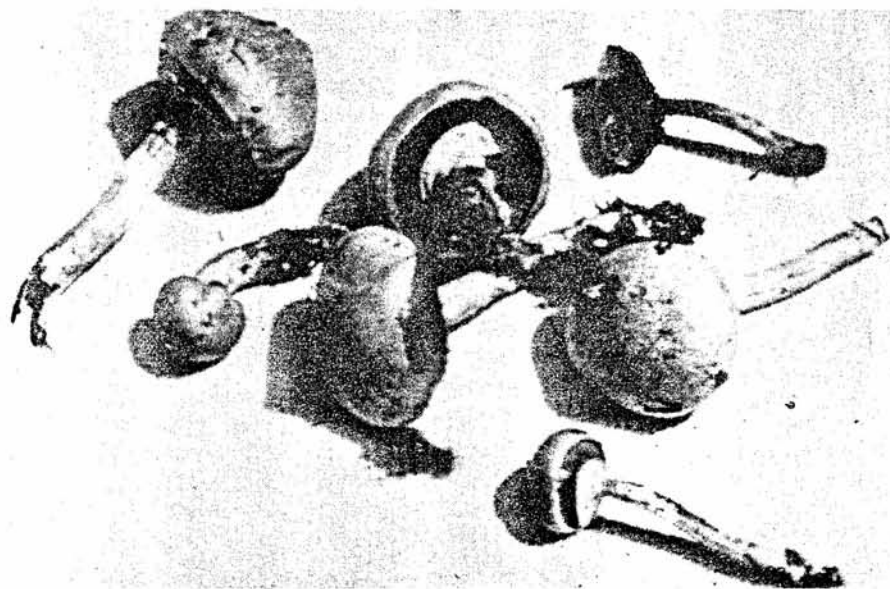
gion the emotions and beliefs associated with it. Helped by the archeologists, they will say how deep into the past the cultural trait can be discerned. The mycologists have their hands full to classify yet other species that the Indians in Mexico may employ. Beyond all this, there remains the great question: how widespread was the diffusion among the world's primitive peoples of the hallucinogenic mushrooms, and what was their role in the origins of the religious idea? For we suspect that in the hallucinogenic mushroom we have hit upon one of archaic man's divine Mediators.

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2. Prescott, W. H.: *Conquest of Mexico*, bk. ii, chap. 6.
3. See e.g. the following: Bancroft, Hubert Howe: *The Native Races*, 1874-6, vol. ii, p. 360; Bourke, John Gregory: *Scatologic Rites of All Nations*, 1891, pp. 89-91; Flores, Francisco: *Historia de la Medicina de México*, 1886-1888, vol. i, p. 55; on p. 258 the divine mushroom is listed as one of many aphrodisiacs. Orozco y Berra, Manuel: *Historia Antigua y de la Conquista de México*, 1880, vol. iii, p. 437. Siméon Rémi: *Dictionnaire de la Langue Nahuatl*, 1885, under the entries *nanacatl* and *teonanacatl*.
4. See "Peyote, the Narcotic Mescal Button of the Indians," *Journal of the American Medical Association*, Oct. 15, 1921.
5. Reko, Blas Pablo: *Mitobotánica Zapoteca*, 1945, published by himself, pp. 14, 44, 53, 95; *El México Antiguo*, Dec. 1919, vol. 1, No. 5. "De los Nombres Botánicos Aztecos," pp. 113-157, entry under *nanacatl*. We have not seen the letter but it is quoted in Schultes, Richard Evans: "The identification of *teonanacatl*, a narcotic basidiomycete of the Az-

(Continued on inside back cover)

*Stropharia cubensis* Earle



**MUSHROOMS (from page 5)**

- tees," Botanical Museum Leaflet, Harvard University, vol. 7, no. 3, Feb. 21, 1939. See fnt. 2, p. 47. Letter was from Reko to J. N. Rose, U.S. National Museum, July 18, 1923, herbarium sheet no. 1745713, U.S. National Herbarium, Washington, D. C.
6. Reko says he shipped the mushrooms to The New York Botanical Garden as well as Harvard University; *Mitobotánica Zapoteca*, p. 53. There is no record of them in the Garden. If they were received, they were probably in such bad condition that they were not preserved and no record was kept.
7. Shultes, Richard Evans: "Peyote and Plants Used in the Peyote Ceremony," Botanical Museum Leaflet, Harvard University, vol. 4, no. 8, April 12, 1937, pp. 136-7; "Peyote (*Lophophora Williamsi*) and Plants Confused with It," Botanical Museum Leaflet, Harvard University, vol. 3, no. 5, Nov. 19, 1937, pp. 69-73.  
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8. Shultes, Richard Evans: Botanical Museum Leaflet, Harvard University, vol. 7, no. 3, Feb. 21, 1939, "The Identification of *Teonanacatl*," also *American Anthropologist*, n.s. vol. 42, 1940, "Teonanacatl, the Narcotic Mushroom of the Aztecs," pp. 429-443, and Johnson's comments thereon, pp. 449-450.
9. "The Agaricales (Mushrooms) in Modern Taxonomy," *Lilloa*, Tomo xxii, University of Tucumán, Argentina, 1949, issued in June, 1951; p. 506.
10. Johnson, Jean Bassett: "The Elements of Mazatec Witchcraft," *Ethnological Studies*, 9, 1939, Gothenburg Ethnographical Museum, Sweden.
11. Wasson, V. P., and Wasson, G.: *Mushrooms Russia and History*, Pantheon Books, N. Y., 1957. Also *Life*, May 13, 1957, (International Edition, July 10, 1957; *Life en Español*, June 3, 1957). Also *This Week*, June 19, 1957.
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13. Heim, Roger: *Comptes rendus, Académie des Sciences*, tome 242, pp. 965-968, session of Feb. 20, 1956; pp. 1389-1395, session of March 12, 1956; tome 244, pp. 695-700, session of Feb. 4, 1957; in collaboration with Roger Cailleux, pp. 3109-3114, session of June 24, 1957; tome 245, pp. 597-603, session of Aug. 5, 1957; Also, *Revue de Mycologie*, "Notes préliminaires sur les Agarics hallucinogènes du Mexique," tome xxii, fasc. 1, May 15, 1957, pp. 58-79; fasc. 2, Sept. 15, 1957, pp. 183-207. These two contributions are available in a separate publication of the *Laboratoire de Cryptogamie, Muséum National d'Histoire Naturelle*. As we went to press, a further *Comptes rendus* concerning our mushrooms was scheduled for presentation to the Académie des Sciences by Professor Heim on Nov. 13, 1957.