

# Sacred mushrooms inspire medical research

by

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It has been no secret during the last four centuries that the Mexican Indians, particularly the ancient Aztecs and Mayas, used mushrooms as narcotics and that they had hallucinations during their narcotic states. This fact was used by the priests to make it appear that the visions of the mushroom-eater were divine revelations, attributed to a number of the heathen gods of pre-Columbian Mexico. It is also known that this knowledge continues with the present-day tribes of Mexican Indians, particularly with the Mazatec, Zapotec, and other Indians of southern Mexico and even in regions quite close to Mexico City, although there the ceremonies are held secretly in the houses of the curanderos (healers) under the pretense that they will provide cures for a large number of diseases.

However, the nature of the mushrooms involved was a secret to be disclosed by mycologists, the mushroom specialists among botanists. For there was a school of thought, as late as in the thirties, assuming that what the Spanish conquistadores had reported as mushrooms were actually cacti - the same cacti that are still used for comparable hallucinatory effect, peyotl (*Lophophora williamsii*). Then an American botanist, Richard Evans Schultes, brought some specimens to Harvard University, proving that what the Aztecs called teonanácatl (the sacred mushroom) actually was a mushroom. One of the species brought to Harvard was later proved to be inactive, i.e., not producing hallucinations in the sense described. The other specimen, however, was identified as *Psilocybe cubensis* by the writer, then mycologist at Harvard University. This mushroom grows on dung throughout the warm zones of the world and is remarkable because it has a ring-like structure on its stem (like the commercial white mushroom) and turns blue where scratched (because of the presence of an enzyme causing the oxidation of a colorless substance whereby it forms a melanin-like pigment, related to the one responsible for the color of human hair). San Isidro, the Mexican name of this mushroom, establishes again the relation with religion (Roman Catholic). The Mazatec Indians of the state of Oaxaca, living far away from civilization, continue eating this mushroom, six or eight fruiting bodies at a session, in order to get "where God lives," i.e., in a state of euphoria and colorful visions.

Since then two mycologists have gone to Mexico to study these mushrooms on the spot and obtain pure test-tube cultures in order to grow them in mushroom houses or industrially at home. Both Roger Heim, Director of the Museum of Natural History, Paris, and the writer have found that the San Isidro mushroom is not the only one eaten. Actually several species are eaten in various parts of Mexico, but all belong to the same taxonomic group, a section of the genus *Psilocybe*. They turned out to be either of worldwide distribution, like San Isidro, or from a more restricted area in America, like the so-called landslide mushroom (*Psilocybe caerulescens*), which was in fact discovered years ago in Alabama and called "birdies" by the Indians because they made one sing happily, and like *Psilocybe mexicana*, which grows in Mexico and Guatemala. Others were found only in a single region and were new to science.



#### Sacred mushrooms

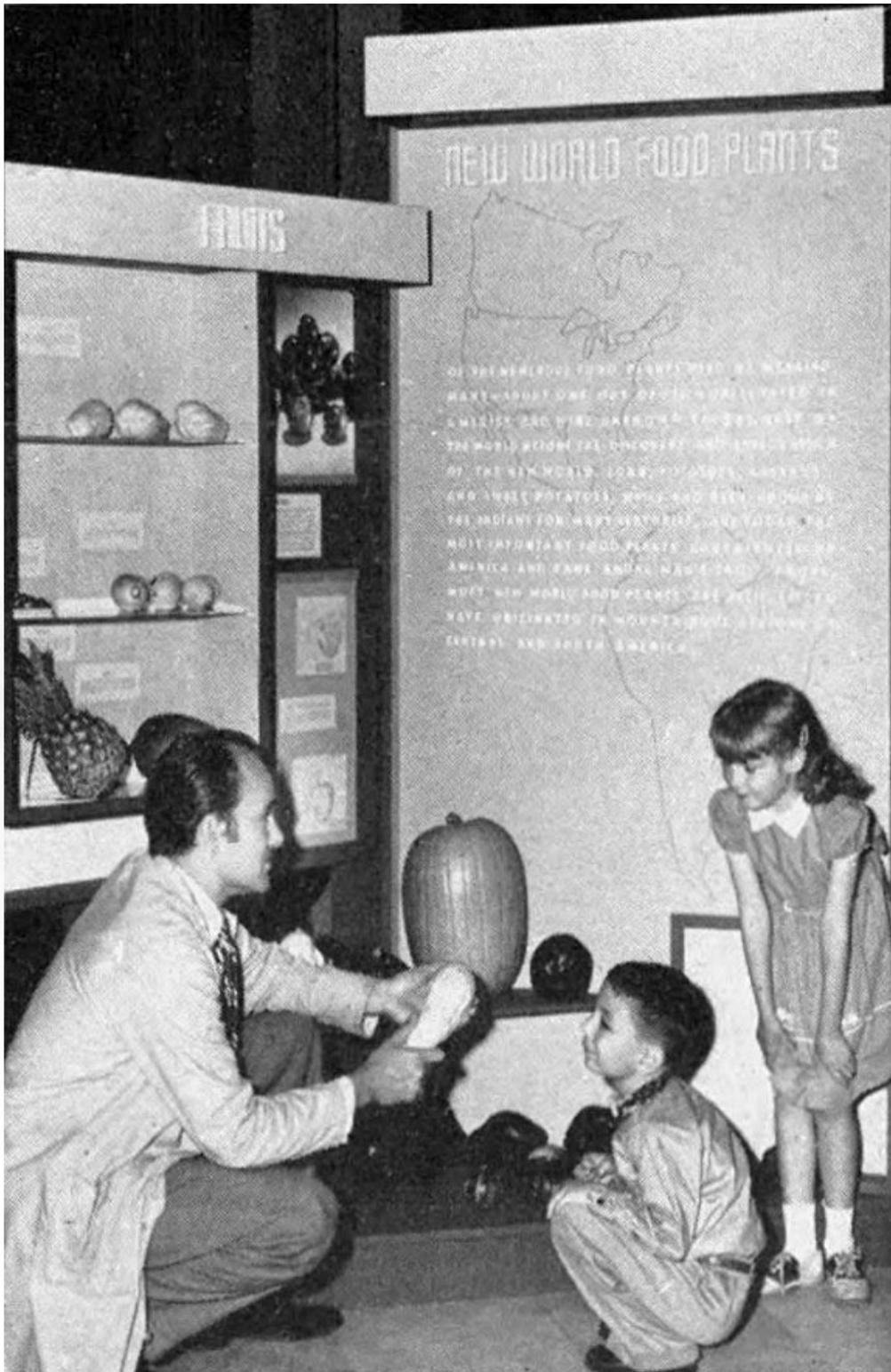
Representing one of several kinds of sacred mushrooms, specimens above (*Psilocybe aztecorum* Heim) were collected at Paso de Cortes, Mexico.

Why was there such a sudden outburst of activity in behalf of investigations into the subject of hallucinogenic mushrooms? There are several reasons. In the first place, as in so many cases, the time was ripe and our knowledge sufficiently widened during an intensive study of the anatomy and distribution of all fungi, especially of the mushroom-like "agarics" and "boletes," that it was now possible to tackle this difficult problem from the mycological side. Furthermore, a New York banker, Mr. R. Gordon Wasson, had become interested in the anthropological aspect and the folkloric role that these mushrooms have in Mexico and elsewhere in the world. He was so enthusiastic about his discoveries during several trips to Mexico that he published well-illustrated articles in several American and foreign magazines and, in addition, wrote a two-volume book on *Mushrooms, Russia, and History*. Finally, and this is perhaps the strongest incentive in our practical world that will not cease asking "what is all this *good* for?" - there is hope that the hallucinogenic principle in the mushrooms can be isolated and applied in medicine. We do not know precisely in which form this substance (or these substances) may be useful. Some believe that it may give us a better understanding of such mental disorders as schizophrenia, others think that it may become a new and better tranquilizer drug, and others believe that it might be directly applied to the mentally ill in a completely new approach to neuropsychiatric treatment.

Nothing is known thus far beyond the private observations of those who have eaten the mushrooms up in the mountains of Mexico in a weird surrounding and in a strange state of well-being and beauty in the midst of some of the oldest superstitions of this planet. Nevertheless, research is being driven far beyond the botanical aspect of the mushrooms, and while this is written several laboratories are busy with animal tests, chemical extractions, and analyses, and the scene is being made ready for the first tentative application in hospitals. A new wonder drug? Maybe, and maybe not, but most certainly one of the most intriguing and inspiring researches of our time, and well worth the curiosity demonstrated by scientists of all specialities.

A special exhibit in Chicago Natural History Museum's Stanley Field Hall from December 13 through January

19 will show models of the more common species used, as well as dried mushrooms and the test-tube cultures as obtained in a Mazatec Indian village in Oaxaca. Some kinds produce little mushrooms right inside the tube, others in order to fruit must be grown in a special mushroom house. The various species in dried condition are still useful and have not lost any of their hallucinogenic properties. They are soaked in water and eaten raw. Their taste is astringent and disagreeable.



**Special exhibit**

Samuel H. Grove, Jr., Artist-Preparator for the Department of Botany, discusses November special exhibit, "New World Food Plants," with two interested onlookers, Steve Kelemen and Esther Dycus, both of Griffith, Indiana.