



The Amazonian Travels of Richard Evans Schultes

Introduction: Early Life and Explorations



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The following text is from the interactive map available at the link:

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Introduction

Richard Evans Schultes – ethnobotanist, taxonomist, writer and photographer – is regarded as one of the most important plant explorers of the 20th century. In December 1941, Schultes entered the Amazon rainforest on a mission to study how indigenous peoples used plants for medicinal, ritual and practical purposes. He went on to spend over a decade immersed in near-continuous fieldwork, becoming one of the most important plant explorers of the 20th century.

Schultes' area of focus was the northwest Amazon, an area that had remained largely unknown to the outside world, isolated by the Andes to the west and dense jungles and impassable rapids on all other sides. In this remote area, Schultes lived amongst little studied tribes, mapped uncharted rivers, and was the first scientist to explore some areas that have not been researched since. His notes and photographs are some of the only existing documentation of indigenous cultures in a region of the Amazon on the cusp of change.

In this interactive map journal, retrace Schultes' extraordinary adventures and experience the thrill of scientific exploration and discovery. Through a series of interactive maps, explore the magical landscapes and indigenous cultures of the Amazon Rainforest, presented through the lens of Schultes' vivid photography and ethnobotanical research.



Early Life in Boston

Richard Evans Schultes was born in Boston, Massachusetts on January 12, 1915. He was the grandson of working-class German and English immigrants: His father, Otto, was a plumber, and his mother Maude a homemaker.

[Caption] Schultes as a baby with his father, Otto

View Schultes' childhood home in East Boston

When Schultes was bedridden as a child with a severe stomach ailment, his father brought home *Notes of a Botanist on the Amazon and the Andes* from the public library. Written by 19th-century English botanist Richard Spruce, the book's tales of exploration, discovery, and unique indigenous cultures fascinated the ailing child. Spruce became a personal hero to Schultes.

[Caption] Minerology and gardening are his principal hobbies. He is deeply interested in his Studies, especially in chemistry. School: Unusual promise. He is earnest and ambitious and of complete integrity. He inherits from his German ancestry a fondness for detail and an ability for study with great thoroughness.

As a young man, Schultes excelled in school and received a full scholarship to Harvard where he enrolled in the fall of 1933, intending to study medicine. He took a job filing papers at Harvard's Botanical Museum, earning thirty-five cents an hour. The museum's vast collections further intrigued young Schultes, and inspired him to enroll in Biology 104, "Plants and Human Affairs".

This class was Schultes' first academic exposure to *ethnobotany*: the scientific study of the traditional knowledge and customs of a people concerning plants and their uses. Taught by Oakes Ames, a renowned orchid expert and director of the Museum, the course embraced subjects as diverse as the history of wine and the veneration of sacred plants such as mushrooms.

[Caption] Schultes as a young man

Ames announced that the students must write a term paper based on one of the books situated at the back of the classroom. Determined to capture the slimmest book, at the end of the class Schultes hurried to the shelf and selected *Mescal: The Divine Plant and Its Psychological Effects* by German psychiatrist Heinrich Klüver.

The 1928 publication was an early studies of peyote, a small cactus native to the Texas-Mexico border region, said to induce powerful visions. Intrigued, Schultes asked Ames if he could write his undergraduate thesis on this plant. Ames agreed, with the stipulation that Schultes study peyote in Oklahoma, where the Kiowa people used peyote in their ceremonies.



Peyote, the Magic Cactus

In 1936, Richard Evans Schultes embarked to Oklahoma on the greatest adventure of his young life. Schultes and anthropology graduate student Weston La Barre shared driving duties, making their way west in a broken-down 1928 Studebaker. The pair arrived in the Kiowa community of Anadarko on June 24.

[Caption] The Kiowa, 1898

The Kiowa were originally an indigenous tribe of hunter-gatherers who gradually migrated from western Montana to the Southern Plains in the early 19th century. They were expert horsemen and fearsome warriors, and enjoyed democratic forms of governance.

A treaty signed in 1867 forced the Kiowa tribes to settle on a reservation in southwestern Oklahoma, lands soon overrun by settlers (Vestal et al., 1939, p. 8). Conflicts over land led to the imprisonment of many indigenous leaders who resisted the invasions (Vestal et al., 1939, p. 8). The Kiowa were further weakened by the extermination of their main source of food: the American bison (Vestal et al., 1939, p. 8).

[Caption] Migrations of the Kiowa (after Mooney) (Vestal, 1939, p. 69)

View Map of the Historical Migrations of the Kiowa

At the end of the 19th century, the Kiowa planned to observe a sun-dance ritual but were not allowed to conduct the ceremony by the “Indian Agent” of the American government, at which point “the ritual of the sun-dance was supplanted by the introduction of peyote, which gradually became their most important sacrament” (Vestal et al., 1939, p. 8).

Schultes’ and LaBarre’s main local contacts in Anadarko were Charlie Apekaum (Charlie Charcoal), a local Kiowa leader, and his aunt Mary Buffalo, a Kiowa elder with extensive knowledge of local plants.

[Caption] Mary Buffalo, one of Schultes’ key informants with the Kiowa

Over the course of the summer, they visited 15 tribes, including the Kickapoo, Kiowa, Quapaw, Shawnee and Wichita. During these travels, Schultes and LaBarre typically ingested peyote two to three times a week.

[Caption] 21-year-old Richard Evans Schultes (left) and Weston La Barre (right) in Kiowa Territory, Oklahoma

Peyote (taxonomically *Lophophora williamsii*) is a small, grey-green, spineless cactus typically measuring under six inches in length (fifteen centimeters) with a diameter of about two inches (five centimeters). It grows in low clumps even with, or even under, the ground, with only its crowns showing. When these crowns are cut off and dried, they are known as “mescal buttons”.

[Caption] A Peyote Cactus (Schultes, 1938, p. 700)



Peyote is a rare and slow growing plant, found only in the Rio Grande region of the United States as well as in scattered locales in northern Mexico.

View map of the distribution range of the peyote cactus

The cactus is the focus of an elaborate religious ceremony practiced by more than thirty American indigenous groups, whose territories extend as far north as Canada. Peyote's use as a sacrament extends back in time for five thousand or more years.

Schultes described the peyote ceremonies he witnessed in his 1937 paper, *Peyote and Plants Used in the Peyote Ceremony*, as well as in his 1938 paper, *The Appeal of Peyote (Lophophora williamsii) as a Medicine*.

Read Schultes' description of the Peyote Ceremony

The ceremonies were led by a Roadman, the local term for a traditional healer, and took place within a large tipi. The Roadmen prepared a fire in the hearth, carefully selecting slow-burning species of wood. They adorned themselves with a sash of red or yellowish mescal beads hung over the left shoulder and across the chest (mescal beads come from *Sophora secundiflora*, an eye-catching shrub often found growing near the inconspicuous peyote). The older leaders painted their faces using a variety of berries, roots, and earth, each tribe and region having unique patterns and materials.

The ceremony begins with a prayer, for which each member rolls and smokes a cigarette. The tobacco is ... kept in a cotton bag which is passed around the circle of worshippers. The cigarettes are never rolled in paper; the use of corn shucks (*Zea Mays*) or the leaf of the black-jack oak (*Quercus nigra*) for this purpose is more in keeping with the old tradition which the peyote-cult strives to preserve....The cigarette is lighted from a glowing "smoke-stick" of Cottonwood (*Populus spp.*) or other soft wood removed from the altar-fire and handed around the circle.

Cedar incense (*Juniperus virginiana*) is next sprinkled on the fire by the leader; the participants reach out their hands and waft the fragrant smoke towards their bodies, rubbing the chest and face. The cedar is considered a purifying agent and is used at intervals during the all-night ceremony before or after prayer. The paraphernalia are thrust into the smoke occasionally during the ceremony.

The cotton or beaded-chamois bag containing the peyote supply is reverently passed around, each person taking four buttons without further ceremony. The "Father Peyote" is either an exceptionally large and beautiful plant or a button handed down from some great leader of the past; this is placed in the [center] of the crescent-shaped altar on a cross or rosette of sage leaves. Prayers are addressed to god through this Father Peyote.

Meanwhile, each participant is given or removes, from the hay serving as a cushion under the blankets, a sprig of sage (*Artemisia vulgaris*) ... Rolled between the palms, the sage is rubbed all over the body as a purifying agent. It is also used for this purpose in the sweat-house and in other rituals. Some may chew a few leaves before eating the peyote buttons.



Peyote and a cigarette may be called for at any time during the night unless some special rite, such as Midnight Water, is in progress. When the bag of mescal buttons has made its first circuit, the leader begins to sing, shaking for accompaniment with his right hand a gourd rattle (*Lagenaria spp.*); a companion beats time on a small kettle-drum made from an iron pot covered with buckskin. The drumstick is usually made of maple (*Acer spp.*), but the finest ones are of true South American mahogany (*Swietenia mahogani*).

Each male worshipper sings four songs and passes the instruments on to his neighbor. Together with the musical instruments are used a staff made of bois' de'arc or Osage orange-wood (*Maclura pomifera*) and a fan of eagle or pheasant feathers. The staff is held upright in front of the singer with the feathers of the fan hiding his face; a sprig of sage that was started on its round from the leader's place is usually held with the fan (Schultes, 1937, pp. 138-140).

In the ceremony, peyote is eaten dry, but occasionally fresh plants are consumed...They possess a very bitter taste, but in spite of these, they are chewed and swallowed in great number by [participants]. The smallest consumption by a single person is about four buttons at each meeting. It is impossible to estimate the largest, but I have seen an Indian eat more than thirty at one ceremony. Other investigators report doses as large as ninety buttons. An estimate of the average consumption, however, would probably be about twelve buttons by each person at a single meeting (Schultes, 1938, p. 702).

As the peyote began to take effect, Schultes described two broad phases of intoxication:

... a period of contentment and over-sensitivity, and a period of nervous calm and muscular sluggishness, often accompanied by hypocerebrality [significantly reduced activity of the frontal cortex], colored visual hallucinations, and abnormal synaesthesiae [mingling of the senses]. Alterations in tactile sensation, very slight muscular incoordination, disturbances in space and time perception, and auditory hallucinations may accompany severe peyote-intoxication. The most striking characteristic, however, is the occasionally induced peyote visions which is often fantastically colored. (Schultes, 1939, pp. 700-701)

Schultes also witnessed a Kiowa leader treating a young man for tuberculosis:

Leaving his place shortly after the ritual of the Midnight Water, the leader walked to the patient, lying out the side of the tipi. The fire-man handed the leader a cup of water, and the leader offered several prayers in which the words Jesus Christ were frequently used. He handed the patient fourteen mescal buttons that he himself had partly masticated before the treatment. While the patient was swallowing them, the leader waved the cup of water in cedar incense produced by throwing dried juniper needles (*Juniperus virginiana*) into the altar fire. He also wafted this incense to the patient's bared chest with an eagle feather fan. Following this, he chewed several more buttons, expectorated them into his cupped hands, and anointed the patient's head with the saliva while praying. Then he picked up a glowing ember from the altar fire and, placing it almost in his mouth, blew



its heat over the patient's chest. The ritual ended with a long prayer (Schultes, 1938, pp. 709-710).

He also documented the ceremonial conclusion:

The ceremonies typically lasted from 12 to 18 hours and "ends at about six o'clock in the morning, when a dawn feast is brought into the teepee by the wife or sister of the leader. This consists of bread, parched corn, meat, and sliced canned fruits; sometimes candy is added...With the end of the dawn feast, the ceremony comes to a close. The members lounge about until noon, when a second and much larger feast is prepared by the host. Meat is usually the most important food at the noon meal." (Schultes, 1937, p. 146)

According to Schultes, peyote is employed by natives in the treatment of tuberculosis, pneumonia, influenza, colds, gastrointestinal ailments, scarlet fever, diabetes, rheumatic pains, venereal diseases, and scorpion bites. Partly chewed mescal buttons are packed around sore teeth to ease the pain, and rubbed on the knees to enhance hiking ability. The women of several Great Plains tribes may consume several buttons three times during childbirth. Peyote tea is employed as an antiseptic wash for wounds and bruises and for soothing aching limbs, in addition to its frequent use in ceremonies.

There is also a strong emphasis on spiritual benefits of the plant, such as a belief that it can purify the soul (Schultes, 1938, pp. 705-706).

As evidence of the medicinal value of peyote, Schultes noted the common origin myths of peyote that focused on the consumption of peyote by a starving indigenous person to impart sustenance and strength in challenging circumstances. Notably, the Aztec word for peyote, *ichpatl*, is thought to have meant "wooly medicine" or "fleecy drug". Peyote is also perceived as a great medicine among the many different tribes outside of its original range that also adopted its use.

Though impressed by his kaleidoscopic peyote visions, Schultes quickly learned the cactus is viewed as a universal remedy by indigenous groups of the Plains and northern Mexico. A Kickapoo man told him that peyote was taken among natives "as a white man uses aspirin" (Schultes, 1938, p. 706). Other tribal contacts asserted that if peyote is used correctly, all other medicines are unnecessary.

Schultes believed that the medicinal properties of peyote were the true reason that the little cactus was so widely consumed.

Peyote is just one of the 1,300 species of the cactus family, all of which are native to the New World. After his experiences on the plains of Oklahoma, Schultes strongly encouraged additional scientific study of this family, which he believed could yield new medicines:

What should concern us, is the advisability of intensive chemical and pharmacological investigations of the cactus family, especially the genera related to peyote. There has never been a concerted screening of this family for potential medicinal properties (Kreig, 1966, p. 77).



Teonanácatl: Flesh of the Gods

While researching peyote, Schultes encountered numerous references to intoxicating mushrooms employed by the Aztecs for divinatory purposes, known as *teonanácatl* or “flesh of the gods” in the Aztec language. Schultes was intrigued by accounts of *teonanácatl* being served at the crowning of the Aztec emperors Ahuitzotl in 1486 and Moctezuma in 1502 (Schultes, 1940, p. 433).

[Caption] Codex Vindobonensis

Surviving pre-Columbian documents offer ample evidence of the cultural importance of *teonanácatl*. The 14th-century Mixtec document *Codex Vindobonensis Mexicanus* contains repeated references to mysterious mushrooms: on the top left of the 14th page (shown above), seven gods each grip pairs of mushrooms. On the right, a prince holding two mushrooms is seated in front of the deity Quetzalcoatl, who chants while beating a drum made from a human skull. Quetzalcoatl is also shown in a bird mask, carrying a woman on his back who is wearing a mask adorned with four mushrooms. The scene is believed to depict the first encounter between the gods and *teonanácatl*.

Map of the Extent of the Aztec Civilization in Mexico

The Spanish associated these rituals with devil worship and tried to identify the psychoactive mushroom so that they could eliminate these ceremonies. Despite their best efforts, they were never able to determine the source of the *teonanácatl*.

In spite of the historical evidence of psychoactive mushrooms being used in Mexico, the idea was discouraged by William Safford—a leading botanist with the U.S. Department of Agriculture—who insisted that *teonanácatl* referred to peyote (Schultes, 1940, pp. 439-440). He claimed that the Indians were trying to mislead the Catholic Church so they could consume their sacramental peyote in secret. Safford also cast doubt on the botanical knowledge of the Aztecs as well as the early Spanish chroniclers (Schultes, 1940, p. 40).

Schultes was skeptical of Safford’s assertion: early accounts had quite clearly described mushrooms (Schultes, 1940, p. 430). Furthermore, the Harvard ethnobotanist knew that peyote was a plant of the northern deserts rather than the wet tropical regions of southern Mexico.

While researching peyote, Schultes happened upon a letter addressed to Harvard University Herbarium director J.N. Rose from an Austrian-born national living in Mexico by the name of Blas Pablo Reko. Reko wrote that Safford was mistaken and that *teonanácatl* was indeed a magic mushroom still celebrated and consumed by the Mazatec Indians in the state of Oaxaca (Schultes, 1940, p. 434). In 1938, Schultes headed to Mexico to investigate.

[Caption] Blas Pablo Reko's note to J.N. Rose concerning the identity of peyote (Goeschner 1745713, US) [link](#)



Oaxaca is somewhat remote even today, but in the 1930s, it was all but off the map. Home to 16 different tribes of Indians, often separated by soaring mountain ranges that can reach 12,000 feet, Oaxaca remains the most ethnically diverse state in all of Mexico, home to the Mazatec, Chinantec, Zapotec, Mazateco, and Mixe cultures, among others.

Map of the Ethnic Groups of Oaxaca

Schultes met up with Blas Pablo Reko in Mexico City and traveled by train to the district of Teotitlán. Once there, they quickly found evidence of ceremonial mushroom usage, including local diviners who earned a livelihood locating stolen property, revealing secrets and offering advice through mushroom ceremonies (Schultes, 1940, p. 435). However, they were unable to find any live specimens suitable for herbarium collections; unlike other traditional medicines, the mushrooms were not sold in markets, owing to their semi-sacred status (Schultes, 1940, pp. 434-435).

[Caption] Blas Pablo Reko (right in photo) in Mexico City

Schultes and Reko disembarked from the train in Camino de Teotitlán, now called Teotitlán de Flores Magón, before climbing east over the Sierra de los Frailes in Sierra Mazatec, passing through high forests dominated by oaks and conifers. In early July 1938, they arrived in the city of San Antonio Eloxochitlán (now called Eloxochitlán de Flores Magón) before continuing east to the western end of the Nin-du-da-gé canyon, Nin-du-da-gé being Mazatec for “mountain of high water”. In the sheltered canyon, the warm and humid conditions produced a notable change in flora.

[Caption] Schultes with Mazatec Indians in Oaxaca, Mexico

In late July 1938, they arrived in Huautla de Jiménez, the capital of Mazatec country, in search of a local shopkeeper named Dorantes who was said to have firsthand knowledge of the mushroom cults (Davis, 1996, p. 103). One day, as Schultes was drying plants in town, a Mazatec man brought him a dozen fresh mushrooms, referring to them as *los niños santos* (“sacred children”) (Davis, 1996, p. 110). Schultes identified the mushrooms as *Panaeolus campanulatus* var. *sphinctrinus*; they were the first identifiable botanical collection of *teonanácatl* (Schultes, 1940, p. 434). Later, in the 1950s, the specimens would be correctly identified as a species of the genus *Psilocybe*.

Psilocybin mushrooms measure ten centimeters in height and one to two centimeters in diameter, with a slender, cylindrical dark brown stripe (Schultes, 1940, p. 438). The cap is light yellowish-brown and conical in shape, with a diameter of three centimeters (Schultes, 1940, p. 438). When dried, the mushroom turns a brownish-black color.

Schultes learned that the mushrooms flourished in boggy pastures, and were available only during the rainy season, from June to September (Schultes, 1940, p. 434). Local people would gather specimens during these months and dry them for use throughout the year (Schultes, 1940, p. 434). The Mazatec names for mushrooms were *t-ha-na-sa* (meaning unknown), *she-to* (pasture mushroom), and *to-shka* (intoxicating mushroom) (Schultes, 1940, p. 435).



Return to Oaxaca in 1939

Not content with these findings, Schultes traveled to Oaxaca in the spring and summer of 1939 to search for *teonanácatl* among the Chinantec Indians. Heading northeast from Oaxaca, Schultes learned of intoxicating mushroom consumption from two informants in San Juan Zautla, in the district off Cuicatlán (Schultes, 1940, p. 436).

To the southeast, Schultes found further evidence among the Chinantec and Zapotec Indians in Latani, near Santiago Choapam (Schultes, 1940, p. 437). However, he had arrived prior to the advent of the rainy season of June and July, and it was impossible to collect specimens (Schultes, 1940, p. 437). Farther north in Tepetotutla, he obtained five mushrooms in exchange for several quinine pills (Schultes, 1940, p. 436).

The Chinantec referred to the mushrooms as *nañ-tau-ga*, and used them for divination purposes (Schultes, 1940, p. 436). Schultes learned that small doses of from five to eight mushrooms were prescribed for several days to treat severe attacks of rheumatism (Schultes, 1940, p. 436).

The mushrooms were used to induce a semi-conscious state, accompanied by a mild delirium, which lasted for about three hours (Schultes, 1940, p. 435). Schultes described the effects:

Shortly after ingestion of the mushrooms, the subject experiences a general feeling of levity and well-being. This exhilaration is followed within an hour by hilarity, incoherent talking, uncontrolled emotional outbursts, and, in the later stages of intoxication by fantastic visions in brilliant colours, similar to the visions so often reported for the narcotic peyote (Schultes, 1940, p. 435).

A later analysis by Schultes' colleague Albert Hofmann—who later became famous as the creator of LSD—eventually extracted compounds from these mushrooms that helped lead to the creation of beta-blockers, important cardiac drugs.

In 1952, the renowned English poet and author Robert Graves sent Schultes' paper on *teonanácatl* to Gordon Wasson, an American banker and vice-president of J.P. Morgan & Co. in New York who had a deep and abiding interest in the role of mushrooms in European and Asian cultures. Intrigued, Wasson and his physician wife launched a series of expeditions in search of *teonanácatl*, ultimately locating and consuming the sacred mushrooms in 1955.

Two years later, Wasson published *Seeking the Magic Mushroom*, a photo essay about his experiences. The essay would become a cult hit, leading many spiritual seekers to travel to Mexico in the 1960s. John Lennon, Bob Dylan, Mick Jagger and Keith Richards are said to have followed in Schultes' footsteps in search of *los niños santos*.



Ololiuqui: Vine of the Serpent

While researching peyote and *teonanácatl*, Schultes had heard of another plant sacred to the Aztec: *coaxihuitl*, the “vine of the serpent,” more commonly known as *ololiuqui*. The seed was said to be taken orally and employed for divination. An Indian’s 1632 “confession,” recorded by a Spanish priest, affirms the cultural importance of the plant: “I have believed in dreams, in magic herbs, in peyote, and in ololiuqui, in the owl...” (Schultes, 1941, p. 33 [Alua, 1634]).

[Caption] Aztec mural representing ololiuqui

The chronicles of Spanish explorers who encountered the plant described *ololiuqui* as having a twining habit, with heart-shaped leaves, long white flowers, and seeds similar to lentils (Sagahun, pp. 264-265; Hernandez, 1651, p. 145). Based on this description, 19th-century botanists suggested that *ololiuqui* was a plant in the morning glory family, the *Convolvulaceae* (Schultes, 1941, p. 7). In 1897, a Mexican botanist, Manuel Urbina, defined the plant as *Ipomoea sidaefolia*, now known as the morning glory species *Turbina corymbosa*, and referred to as *Rivea corymbosa* by Schultes (Schultes, 1941, p. 8).

[Caption] Drawings of ololiuqui (Hernández, 1651, p. 145) and Franciscan friar Bernardino de (Sahagún, 1905, p. 26)

Safford once again disagreed, saying no member of the morning glory family had yet shown narcotic or toxic properties (Schultes, 1941, p. 12). Safford believed that the Indians were again trying to hide the true identity of a ritual plant: in this case, he believed *ololiuqui* was *Datura meteloides*, a well-known and highly toxic hallucinogen (Schultes, 1941, pp. 8-9). Here again, Schultes was skeptical of Safford’s conjecture, and returned to Oaxaca in April 1939 to conduct further research.

Schultes began in the town of Tuxtepec and climbed west up the eastern face of the Sierra Madre de Oaxaca, arriving in San José Chiltepec on April 10. From there, Schultes followed the Río Usila north towards the small town of San Felipe Usila. Moving south, Schultes then climbed the steep, forested slopes of Cerro Nariz, finding abundant species of orchids.

Throughout their travels, Schultes’ Chinantac guide informed him of a variety of useful plants.

Chinantac plant use

On the road to San José Chiltepec, Schultes learned of a species from the Astor family whose leaves were used to treat rheumatism, and a plant from the *Euphorbiaceae* family (*Acalypha diversifolia*), whose flowers were ground up into powder to treat sores on the arms and legs. (Schultes field notebook 1939, pp. 10)

On Cerro Nariz, Schultes studied a species of *Heliconia* whose leaves were used by the Chinantec as roofing material and as wrappers. He also learned of a complex mixture of plants used by locals



to treat fevers that combined *Iresine celosia* L. with species from the genera *Begonia* and *Achimenes*. The remedy had reportedly been used since the time of the Aztecs, when it was known as *tlatlancauya* (Schultes field notebook 1939, p. 85).

Near the town of Río Chiquíto, Schultes found an orchid growing on a tree trunk and learned the plant was used by locals to relieve headaches after grinding the flower and applying to the forehead with alcohol (Schultes field notebook 1939, pp. 117).

On the Monte Negro de Lalana Schultes found a variety of *Hibiscus* used to make a tea to treat colds and lung pain, and an herb from the *Besleria* genus whose flowers were also dried, ground up and applied to boils and to wash the eyes (Schultes field notebook 1939, pp. 127).

Returning to San José Chiltepec in late April 1939, Schultes traveled southwest, crossing over to the Llanos de Ozumazín before continuing south to the town of Río Chiquíto. From there, he climbed the Monte Negro de Lalana and descended its southern slopes, arriving in San Juan Lalana on May 9, 1939.

Schultes spent several days collecting around San Juan Lalana and on the high slopes of Cerro Lalana before climbing south over Cerro Caracól. Arriving in Teotalcingo, he found reports of locals using narcotic seeds from a vine, but he was unable to collect a specimen (Schultes, 1941, p. 30).

Continuing south towards the Rio San Juan, Schultes finally found what he was looking for:

In [May] 1939, in the Chinantec-Zapotec town of Santo Domingo Latani, District of Choapam, I encountered under cultivation an extremely large vine of *Rivea corymbosa*, the seeds of which were utilized as a narcotic among the Indians. A specimen from this plant is preserved in the Economic Herbarium of Oakes Ames (No. 6595) in the Botanical Museum of Harvard University.

In Latani, this appeared to be the only plant of *Rivea corymbosa*. It was heavily laden with fruit and must have supplied sufficient seeds for the needs of the local *curanderos*...In Latani, knowledge of the plant and its properties is common to all the townspeople...There was no hesitation in answering questions about the use of the seeds and the nature of the intoxication induced. Among the Zapotecs of this town, the plant is called *kwan-la-si*; among the Chinantecs, *a-mu-kia* ("medicine for divination") (Schultes, 1941, p. 29).

From Santo Domingo Latani, Schultes continued south, climbing to the summit of the mountains between Santa Maria Yabuwe and Santiago Yaveo. In the Zapotec settlement of Yaveo, he found more evidence of narcotic seeds, where they were called *kwan-do-a*, or "children's medicine". (Schultes, 1941, pp. 29-30)

[Caption] Botanical illustration of *Turbina corymbosa*

Schultes then turned west, climbing over the Sierra Madre de Oaxaca and ascending halfway to the summit of Cerro Zempoaltepetl on May 25, 1939 (Schultes, 1941, p. 183). From there, he traveled north to Oaxaca de Juárez to rest and resupply, before turning his attention to the district of Ixtlán in early June 1939 (Davis, 1996, p. 116). Schultes ascended the Cerro Malacate (Schultes, 1941, p. 130) before heading north, passing by Santa Mariá Jaltianguis (Schultes, 1941,



p. 175) and climbing both Cerro Causimulco (Schultes, 1941, p. 183) and Cerro Hueso (near San Pedro Yolox) (Schultes, 1941, p. 192), before arriving in San Juan Tepetotutla (now known as Santa Cruz Tepetotutla) (Schultes, 1941, p. 30).

While questioning native assistants in the western Chinantec town of San Juan Tepetotutla concerning medicines and narcotics, I learned that both teonanacatl and ololiuqui are used in divination by the *curanderos*. Twenty-three seeds of *Rivea corymbosa* were procured in Tepetotutla, although there is apparently no plant of this species under cultivation in the village. The supply of seeds is said to come from the neighboring Chinantec village of San Pedro Yolox. The inhabitants of Tepetotutla call the ololiuqui plant *hwan-mei* and use the seeds medicinally for rheumatism (Schultes, 1941, p. 30).

In recapitulation, we may say that at the present time ololiuqui is known to the Zapotecs of Mitla, Amatlán, Tehuantepec, the Sierra Juárez, and the District of Choapam; to the Mixtecs of the Mixteca Alta; to the Lazatecs of the District of Teotitlán; and to the Chinantecs of the Districts of Choapam, Ixtlán and Cuicatlán” (Schultes, 1941, p. 30).

In total, Schultes and his Chinantec guides surveyed a 100-square-kilometer region of the Oaxacan highlands, following a roughly clockwise trajectory through the rugged mountains. Their research helped solve the mystery of the botanical identity of the Aztec medicine and helped determine the range of use of the plant in both pre-Hispanic and modern Mexico.

[Caption] The Distribution of the use of *Rivea (Turbinia) corymbosa* as a narcotic in pre-hispanic and modern Mexico

Map of the Range of Use of *Turbina corymbosa* as a narcotic in pre-Hispanic and modern Mexico

Schultes also helped illuminate how *ololiuqui* was consumed in ceremonial contexts. He learned that natives in Latani and Teotalcingo typically consumed approximately 13 seeds, which were taken in water or alcoholic beverages including pulque, mescal, aguardiente or tepache (Schultes, 1941, p. 37). *Ololiuqui* was usually consumed at night, and typically administered to single individuals in a quiet place. The effects are said to last for about three hours, followed by a few unpleasant after-effects (Schultes, 1941, p. 38).

Schultes described the intoxication produced by *ololiuqui* in his 1941 paper *A Contribution to our Knowledge of Rivea Corymbosa*:

The intoxication begins shortly after the ingestion of ololiuqui. It rapidly proceeds to a stage where visual hallucinations appear. However, there is often an intervening stage of dizziness or giddiness followed by a feeling of general ease and well-being, lassitude and increasing drowsiness. Usually, the drowsiness develops into a stupor or a kind of somnambulistic narcosis. During this stupor, the patient is dimly aware of what is going on about him and is susceptible to suggestions.

The visions which occur during the somnambulistic stage of the intoxication are described by the natives as very similar to those which are said to be induced by *Lophophora williamsii* and by *Paneolus campanulatus* var. *sphinctrinus* [sic]. They are often grotesque visions which portray people or thoughts or happenings that have occupied the patient’s mind during the preceding hours. It is partly by means of these hallucinations and partly by means of the indistinct and delirious talking which accompanies the narcosis that the medicine man practices divination (Schultes, 1941, pp. 37-38).



Schultes later said, "I published that paper on *ololiuqui* in the Harvard Botanical Museum Leaflets in 1941. It was read by very few people until 1967. All of a sudden, they couldn't keep morning glory seeds on the shelf in Berkeley, California. People were buying them in droves. Of course, you must keep in mind that people in Berkeley, California can hallucinate on distilled water."



The Amazonian Travels of Richard Evans Schultes

Introduction: Early Life & Explorations

By Brian Hettler & Mark Plotkin

April 8th, 2019

The preceding text is from the interactive map available at the following link:

banrepcultural.org/schultes

This work is based on the writings, photographs and ethnobotanical records of Richard Evans Schultes. All photographs are property of the Schultes family unless otherwise indicated.

The Amazon Conservation Team would like to give a special thanks to Dr. Wade Davis, whose book *One River* was essential in reconstructing details of Schultes' travels for this map. For more information on Dr. Schultes, we highly recommend *One River* and *Lost Amazon: The Photographic Journey of Richard Evans Schultes* by Dr. Davis.



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