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RICHARD EVANS SCHULTES
1915–2001

A Biographical Memoir by

LUIS SEQUEIRA

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Richard Evans Schultes

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January 12, 1915–April 10, 2001

BY LUIS SEQUEIRA

THE SPEAKER JUST DID not look the part. He was tall, thin, clean-shaven with closely cropped hair, and wore a tweed coat and a Harvard tie. He spoke softly, with a clipped Boston accent, and peered at the students behind wire-rimmed glasses while he explained in a bemused tone the advantages of the use of snuff as a means to clear a stuffy nose. A highly conservative, proper Bostonian no doubt and about to deliver what we expected would be a scholarly, probably dull lecture on the taxonomy of some plant family. Yet, as he spoke, all the students in a course on economic botany at Harvard in the spring of 1949 became gradually transfixed when he began to describe some of his experiences while exploring the upper reaches of the Amazon River in Colombia. He seemed the most unlikely person to have survived alone for several years in one of the most remote areas of the world, where he faced incredibly harrowing, perilous conditions.

He had gone to the jungle in Colombia to trace the origin of curare in 1941, but remained there for the next eight years to collect wild specimens of the *Hevea* rubber tree as part of a mission for the U.S. government. What he told us was the stuff of fiction. There he was, accompanied

only by a native guide, paddling in some strange tributary of the Amazon when he hit some rapids and, oops, the canoe overturned. He managed to scramble back into the canoe, but had lost his guide as well as all the equipment. Weakened by malaria and beriberi, he had to paddle for another 10 days before he could get help at some remote outpost.

There were numerous other stories concerning his life among the native people of the Amazon, partaking with them in their religious ceremonies and learning about the use of plants for their medicinal as well as hallucinogenic properties. He managed to collect more than 20,000 plant specimens, many new to science and many that would eventually bear his name when they were described. That he had done this alone and for so many years seemed incredible. Yet, he remained a quiet, reserved, modest man, apparently unaware at that time of the significance of his contributions to science. That was the Richard E. Schultes I met for the first time.

He had been invited to give a lecture in the course on one of his rare visits to Harvard after years of uninterrupted exploration of the upper Amazon in Colombia. I am certain that most of the students in that course had a hankering for plant exploration and admired the accounts of Humboldt, Spruce, Dampier, and other nineteenth-century explorers. However, few of us would have been willing to face the hardships associated with exploration of the immense Amazon Valley. As the inheritor of a grand tradition, however, Richard Schultes seemed the epitome of the plant explorer of the Victorian era. Most of the students realized on that day in 1949 that they were in the presence of an unusually brilliant, brave individual, who someday would become one of the most distinguished botanists of his generation. That, indeed, was a safe prediction.

I saw Richard again two years later, when I happened to be at the Inter-American Institute of Agricultural Sciences (today's CATIE) in Turrialba, Costa Rica, on a temporary assignment to do research for my Ph.D. thesis. Richard had come to inspect the rubber trees that had been planted there from seeds that he had collected in the Amazon. I accompanied him on several trips. Many of the trees were magnificent specimens, but those that were high yielding were not highly resistant to the South American leaf blight fungus (*Dothidella ulei*) as he had hoped. Grafting was being used as a means to combine the good qualities of different wild accessions, but Richard shared with me his deep concern that the U.S. Department of Agriculture was about to remove support for the work on *Hevea* rubber. The reason was that in the United States synthetic rubber had taken over the automobile tire industry and use of natural rubber seemed to be on the way out. In retrospect, the loss of that important activity in Turrialba was a tragedy, not only because it negated the important outcome of Richard's hard work of many years but also because it slowed progress of the potential development of a natural rubber industry in Latin America, which is only now being promoted again.

Richard contributed to the science of botany far more than the immense collection of plants, many of them new to science, that he managed to bring back to this country after a dozen years of exploration in the Amazon. He was the first to point out the close dependency on and intimate knowledge of plants by the native inhabitants of the tropical forests. For his own survival in the Amazon he depended on his ability to communicate with tribes that had never seen a white man before and he was able to obtain valuable knowledge of their use of native plants for food, medicine, and religious rites. Thus, he became the father of a new

branch of science called "ethnobotany," the field that explores the relationship between indigenous people and their use of plants. Many of today's leading ethnobotanists obtained their Ph.D. degrees at Harvard under Richard's guidance. In addition, he was one of the first to decry government development programs that resulted in unrelenting loss of Amazon forests. He pointed out that the disappearance of native tribes, and their knowledge of plants in the forest was a more catastrophic consequence to the world than the loss of the trees to the ax of the developer. His compassion and deep respect for native cultures, their languages, habits, medicinal knowledge, beliefs, and their religious ceremonies became his trademark.

An unintended consequence of Richard's interest in the active principles of the hallucinogenic higher plants and mushrooms used by native tribes was the increased attention to his work by some of his colleagues who promoted the use of these drugs. In the 1960s Richard's name became associated with those of Timothy Leary, William Burroughs, Aldous Huxley, and others who were participants in the drug culture. Richard had nothing but disdain, however, for those who would use these drugs solely for entertainment and complained that they could not even spell the Latin names of the plants that produced the drugs. In fact, in his 1979 book with A. Hoffman, *Plants of the Gods*, the title page contains a caution: "This book is not intended as a guide to the use of hallucinogenic plants." In a review of the book, Lee Dembart of the *Los Angeles Times* concluded that "at a time of public hysteria over the use of drugs it takes guts to bring out this book, caution or no."

Richard Evans Schultes was born in Boston on January 12, 1915. His parents were working-class German immigrants; his father was a plumber who worked for a local brewery

and his mother was a homemaker. They soon realized that their son was a gifted individual and exposed him to literature and scientific books from a very early age. When he was six years old, illness forced him to lie in bed for several months. During this period, his parents read to him from *Notes of a Botanist on the Amazon and the Andes*, a travel diary kept by the English naturalist, Richard Spruce, and published in 1908. The adventures described in this book made a strong impression on young Richard and years later he confided that they strongly influenced his decision to pursue a career in plant exploration.

Richard attended East Boston High School, where he was a distinguished student and earned a scholarship to Harvard University. He had originally intended to pursue a career in medicine, but soon changed his mind and returned to his earlier interest in botany. For his undergraduate honors dissertation he chose a study of the peyote, a hallucinogenic cactus used by Indian tribes in the western United States during ceremonies intended to commune with their ancestors. Young Richard spent a month with the Kiowa Indians of Oklahoma and gained new knowledge about the importance of peyote in their culture. When asked if he partook in the use of peyote during ceremonies, he replied, "It would have been unpardonable rudeness to refuse." Taking peyote with the Kiowa and listening to their stories during nightlong ceremonies, he came to understand the role of peyote in their lives.

That experience was the initial step in the route he would follow for the rest of his life: to investigate the role of plants in native cultures. It is not surprising that over the centuries, man selected many plants because they provided stimulation and a surreal sense of well-being to many who could not otherwise escape the harsh reality of day-to-day life. It has been so from the time man first inhabited this

planet. We still consume huge amounts of caffeine, nicotine, and ethanol, as well as illegal drugs like *Cannabis*, coca, and many other narcotics in an effort to receive stimulation and/or escape reality. Richard believed that the use of peyote was a relatively harmless activity and, indeed, the U.S. government still allows its use by Western tribes for ceremonial purposes.

Richard went to graduate school at Harvard and came under the influence of Oakes Ames, a distinguished orchidologist and director of the Harvard Botanical Museum. Richard became an expert on orchid taxonomy, but for his dissertation he chose to search the botanical sources of *teonanacatl* and *ololiuqui*, hallucinogenic plants that were revered by the Aztecs. He traveled to Oaxaca in Mexico and together with local botanist Blas Pablo Reko visited a tribe of Mazatec Indians who used *teonanacatl* in their religious ceremonies. He discovered that the hallucinogenic plant was a mushroom, now known as *Panaeolus sphinctrinus*, described by native healers as "the little holy ones." A year later he was able to identify the morning glory, *Turbina corymbosa*, as the source of the even more potent hallucinogen. It was found to contain chemicals very close to LSD. Those reports marked the birth of the psychedelic era in the United States and the widespread use of "magic mushrooms," LSD, and the like, by Timothy Leary and his followers.

Soon after obtaining his Ph.D. degree in 1941 Richard accepted a fellowship to study the plant sources of curare and other arrow poisons used by native tribes in the Amazon Valley. On his first day after arriving in Bogota, Colombia, he discovered a new species of orchid that he proceeded to press and send on to Oakes Ames, who later names it *Pachyphyllum schultesi*. It was the fist of numerous plants named after their discoverer. Richard proceeded

to the Colombian Amazon and soon established a simple modus operandi: a pith helmet, an aluminum canoe, a minimum of food and medical supplies, plant-pressing materials, and one change of clothes. He relied on the hospitality of local Indians and never carried a firearm. He did not believe that there were hostile Indians; "all that is required to bring out their gentlemanliness," he said, "is reciprocal gentlemanliness." After months of intensive, exhausting journeys in the Amazon forest, traveling alone or with native guides, he discovered that more than 70 species of plants produced arrow poisons. Indeed, curare sometimes was a mixture of 15 different ingredients. These were important findings, for curare has been used by hospitals in the United States and Europe as a muscle relaxant, and to this day it is frequently used during anesthesia and for the treatment of tetanus.

World War II broke out while Richard was in the Amazon in Colombia, and he promptly attempted to enlist in the U.S. Army at the American embassy in Bogota. The government had other plans for him, however. "You are not going back to the States; you are going right down into the Amazon and try to get the Indians to tap wild rubber." These were the orders given to young, intrepid Richard; he answered his government's call and soon he was promoting the tapping of the *Hevea* rubber trees in the wild. He ended up staying in the Amazon for the next 12 years. In the 1920s the natural rubber industry had moved to Malaysia and other countries in Southeast Asia when it became clear that *Hevea* could not be grown in extensive plantations because of a devastating fungus, the agent of South American leaf blight, *Dothidella ulei*. In the forest individual rubber trees grow at widely separate locations and the fungal parasite does not build up to epidemic proportions. No so when there are almost unlimited hosts in a homogenous

plantation. The fungus does not exist in Asia. Thus, the industry moved there when the demand for natural rubber for automobile, tractor, and airplane tires surpassed the ability of native tappers in South America to provide it. World War II changed all that, however. By 1941 the Japanese had invaded Malaysia, and other Asian sources of rubber were gone. Thus, the need to promote again the exploitation of rubber trees in the wild.

Richard's responsibilities were not limited to encouraging the tapping of rubber trees in the wild. Far more important was the search for sources of *Hevea* that were resistant to the fungus and thus could be grown in plantations somewhere in Central or South America. He made a grueling series of journeys along the thousand miles of the Apaporis River, spotting all the rubber trees within a thousand yards of the riverbank. It was Richard's job to collect seeds from natural variants of *Hevea* and to ship them to the U.S. Department of Agriculture station at Turrialba, Costa Rica, where a team of scientists would test for disease resistance and rubber yield. It was there that I met Richard in 1951, when he came to review the work on the accessions he had provided, as I described previously.

Back at Harvard in 1953 he began the intensive work of identifying the multitude of plants he had collected in Colombia, published extensively about hallucinogenic plants, wrote several books about his experiences with native tribes in the Amazon, and taught a course in economic botany. Although not a charismatic teacher, he nonetheless became popular for his endless tales of exploration and his wickedly dry humor. (He professed to be a strong supporter of monarchy for the United States, and voted for the Queen of England at all presidential elections.) He frequently entertained students by demonstrating his prowess with a six-foot blowgun. Yet, he imbued his students with a deep sense

of the fragility of the tropical forests and respect for the knowledge and traditions of their native inhabitants.

He eventually became professor of biology and director of the university's botanical museum. His laboratory became the center of ethnobotany in the United States, and he attracted numerous students who followed in his footsteps, among them Tim Plowman, who died in 1989, and Mark J. Plotkin and Wade Davis, well-known authors of best-selling books on the use of hallucinogenic plants by native people in the tropical forests. He became editor of the *Journal of Economic Botany* and continued to be an ardent critic of development programs for the Amazon basin.

Although he was a leader in conservation activities worldwide, he had a deep interest in the utilization of forest plants for commercial purposes. From time to time over the years I would participate with Richard in meetings designed to convince industry to invest in plantations of new sources of useful medicines, drugs, oils, insecticides, wood, rubber, food, and other products from tropical forests. He provided the basis for modern conservation programs that are supported today by large drug companies that obtain the rights to search for medicinal plants.

During his long and extraordinary career, Richard received numerous honors and awards. Perhaps no honor was as significant to him as the naming of a large section of the Colombian Amazon as the Schultes Preserve in recognition of his work on conservation. He received the Order of the Cross of Boyaca (the highest honor given by the Republic of Colombia). He became a member of the National Academy of Sciences (elected in 1971), the American Academy of Arts and Sciences, and the Linnean Society of London (recipient of its Gold Medal in 1992). Similar honors were bestowed by the academies of sciences of Colombia, Ecuador, and Argentina. He received the Gold Medal of

the World Wildlife Fund, and the Society for Economic Botany provided an annual research award in his honor. Harvard named him the Edward C. Jeffrey Professor of Biology in 1980. He was the recipient of the Tyler Prize for Environmental Achievement in 1987.

In 1959 Richard married Dorothy Crawford McNeil, an opera soprano who performed in Europe and the United States. They had three children: Richard Evans Schultes II, a corporate executive; Alexandra Ames Schultes, a physician; and Neil Park Schultes, a molecular geneticist.

Richard Schultes retired from Harvard in 1985. A caring head of a distinguished family and a renowned plant scientist, Richard seemed oblivious of his many accomplishments throughout his life. He often described himself as "just a jungle botanist." His death in 2001 was a serious loss to the field of economic botany and the cause of preservation of tropical forests. It certainly deserved a much earlier account in the biographical memoirs of the National Academy of Sciences.

SOURCES OF INFORMATION used to summarize the distinguished career of Richard E. Schultes included obituaries published at the time of his death in *The Washington Post, The New York Times, The Guardian* (Manchester)*, Los Angeles Times, The Daily Telegraph, The Economist*, and *Erowid.*

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