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Miriam Rothschild, High-Spirited Naturalist, Dies at 96

By DOUGLAS MARTIN

Miriam Rothschild, the heiress who discovered how fleas jump, brought Chaucerian wildflowers back to modern England and was acknowledged as one of the world's most distinguished naturalists, died Thursday at her home, Ashton Wold, in Northamptonshire. She was 96.

Her death was announced by her family.

Her extensive scientific and conservation achievements were matched by the might of her will and her delectably eccentric personality.

"Imagine Beatrix Potter on amphetamines," The Times of London once said of her.

Though she viewed herself as a naturalist, more of a describer than an experimenter, she was taken seriously as a scientist and often worked with distinguished colleagues. Her well-known work on butterflies making themselves toxic by means of their food choices was done with the chemist Tadeus Reichstein, a Nobel Prize winner. Her highly original observations helped confirm 19th-century theories of evolution that had awaited 20th-century chemistry.

Given the title of dame by the queen in 1999 for her scientific achievements, she was more than a scientist, not least because she never had to fill out a grant application.

Was it odd that a scion of the venerable Rothschild clan should become the world's leading expert on fleas? Hardly. Dame Miriam's father was the banker Nathaniel Charles Rothschild, who found more than 500 new species of fleas. His daughter's six-volume catalog of his collection of 30,000 specimens, which she completed in 20 years beginning in 1953, firmly established her as the flea authority other experts consulted.

Her uncle Lionel Walter Rothschild's collections were just as inspirational. He amassed 2.3 million butterflies, 300,000 bird skins, 144 giant tortoises and 300,000 birds' eggs, among other things.

From her earliest youth, Dame Miriam loved animals and plants. Her mind was free to roam, and she received no formal education until she was 17, when she demanded to go to school. She never earned any degree, but received an honorary doctorate from Oxford in 1968.

Ranging from marine biology to chemistry to pharmacology to neurophysiology to horticulture to zoology, she came up with novel, often startling conclusions.

Her research on insects eating substances that are poisonous to their predators was considered groundbreaking. After determining that butterflies' bright colors were warning signals of their toxicity, she found that other species evolved to mimic the danger-sign coloration. She found that odors emitted by toxic butterflies were mimicked by other species, vindicating 19th-century naturalists' speculations.

Her enthusiasm for wildflowers led to her advising Prince Charles on plantings for his estate and Lady Bird Johnson on her program to beautify American roadsides.

Her interests ranged far beyond science. During World War II she tenaciously pressed the British authorities to admit more Jews from Nazi Germany and at one point personally housed 49 Jewish children. She worked in the top-secret British effort at Bletchley Park to crack the Nazis' code.

She fought for cause upon cause, including better treatment for laboratory animals, rights for homosexuals and free milk for schoolchildren.

Her farm at the family estate of Ashton Wold, near Peterborough, was a passion and her main source of income. Her livestock and plants won awards.

She did it all with a zestfully personal sense of style, wearing the loose-fitting clothes she designed for herself 50 years ago as she walked the grounds with her half-dozen pet Shetland sheepdogs.

Miriam Louisa Rothschild was born on Aug. 5, 1908, at Ashton Wold, where she lived her entire life. Her mother, Rozika de Wertheimstein, was a top Hungarian sportswoman, and Dame Miriam herself played tennis, cricket and squash, the last in international competitions.

Her childhood, as described in a 1987 New Yorker profile by Kennedy Fraser, was "like a fairy tale: the palatial houses stuffed with mysteries and treasures; the grandfather who liked to shower gold half-sovereigns from his carriage; the brilliant dotty uncle with his cassowaries and his white top hat."

Her first love was nature. By the age of 4 she was collecting ladybugs and caterpillars and taking a tame quail to bed with her.

Her world darkened when she was 15 and her father committed suicide. She temporarily lost interest in his passion, the natural world. But a year or two later, her enthusiasm was rekindled when she helped her brother dissect a frog.

"I had never before seen fresh, internal organs, blood vessels and nerves," she wrote in an essay in Scientific American. Calling the experience "my road to Damascus," she wrote, "Their extreme beauty was a revelation."

After taking some courses at the University of London, she worked in Naples and England studying a kind of mollusk.

"During the first day of dissecting the bivalve," she wrote in Scientific American, "I found a specimen infested with larval trematodes," which are parasitic flatworms known as flukes. "It proved to be a hitherto undescribed species and a most extraordinary one from every point of view. My fate was sealed. I was completely hooked."

She worked 16-hour days studying trematodes until a German bomb destroyed all traces of seven years of her research.

With the war, she passed a test to be an air warden but was first assigned to work as a dairymaid. She was secretly summoned to work on the top-secret Enigma code-breaking project and labored 12 hours a day for several years with Alan Turing.

In 1943 she married George Lane, a handsome Hungarian-born British commando. They had four children and adopted two more before divorcing in 1957. She is survived by one of her sons and three of her daughters.

As she raised her children, her late-night attention turned to fleas. She began writing about them in clear,

engaging prose.

In "Fleas, Flukes & Cuckoos: A Study of Bird Parasites," which she wrote with Theresa Clay in 1952 (Philosophical Library), she argued that most people misunderstood fleas.

"It is difficult for them to realize that fleas breathe through holes in their sides, have a nerve cord below their stomachs and a heart in their backs; or that certain arthropods lay eggs through their heads and regularly practice virgin birth."

Using high-speed photography, she studied how fleas jump. She theorized that they descended from winged ancestors and employed modified flight structures. In a famous comparison, she said fleas jumped as high for fleas as the Empire State Building would be for humans.

Turning to plants as well as animals, she became one of the first practitioners of the new interdisciplinary approach to biological studies called ecology.

She began designing gardens to attract butterflies, writing extensively on the subject.

"You can really abandon any romantic idea of creating a home for these angelic creatures," she wrote in "The Butterfly Gardener," published in 1983. "The best you can do is provide them with a good pub." She owned a pub for humans, in Ashton, decorated with natural history exhibits.

In 1970 she began to collect, propagate and sell wildflower seeds.

"In the early 1980's, I went to a lecture given by a distinguished zoologist who said we should preserve our medieval hayfields, because it would take a thousand years to grow one from scratch," she said. "After the lecture I told him I had done a good imitation in 10. From that moment, I thought I should spread the gospel."

Spread it she did, to Mrs. Johnson and Prince Charles. As a result of the movement she led, British agriculture policies that favored replacing natural meadows with rye grass were reversed.

She remained as down to earth as the stone ruin her own house became as she deliberately let an immense tangle of ivy, wisteria, clematis and roses envelop it.