



COLLECTIVE
Biographies

Women Scientists and Inventors

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1944 for the discovery of fission, but Meitner was completely excluded.

In the physics community, at least, Meitner's extraordinary talents and contributions were understood. She had recognized and named nuclear fission and had calculated its energy release. In 1943 she and her nephew were invited to Los Alamos, New

"I will have nothing to do with a bomb!"⁶

—*Lise Meitner*

Mexico, to work on the atomic bomb. Frisch accepted, but Meitner was appalled at putting her physics to military use. She said, "I will have nothing to do with a bomb!"⁶ When she learned that the first atomic bomb had been dropped

on Hiroshima, Japan, in 1945, ending World War II, she was horrified and sickened. She walked alone in the woods for hours, trying to accept what had happened.

Acclaim and Sorrow

Even though she had nothing to do with developing the bomb, Meitner was credited in the West with having uncovered the secrets of atomic fission and making the atomic bomb possible. News reporters wrote stories about her. Former First Lady Eleanor Roosevelt interviewed her for American radio. In 1946 she made her first visit to the United States to see two sisters who had immigrated to New York and Washington and Frisch, who was still at Los Alamos. On her arrival she was hailed as a hero by the press and the public and dubbed the "Jewish mother of the bomb."⁷ The Women's National Press Club named her their Woman of the Year and feted her with a banquet during which she met President Harry Truman. She returned to Sweden as a celebrity but she felt like an exile with no country to call her own. She also worried about how nuclear fission would be used in the future.

Meitner never returned to Germany to live, although she visited several times. Her old feelings of closeness and trust with the scientists at the institute were irreparably damaged. Many German scientists, although not members of the Nazi Party, were nationalists. Meitner could not get over the apparent de-

Lise Meitner visited the United States in 1946. Although Meitner was credited with having uncovered the secrets of atomic fission, she worried about how that knowledge would be used in the future.



nial of responsibility and lack of remorse in the scientific community for the Nazism that had caused so much horror. Hahn complained, for instance, that Germany was being mistreated and that its people were being blamed for something in which they had not participated. He seemed to feel no guilt for never having resisted Nazi ideology and atrocities. Meitner knew how many scientists had silently gone along with Nazi beliefs of Aryan superiority and prejudice against all other races. She wrote in a letter to a friend, “If the best Germans do not understand now what has happened and what must never happen again, who should instruct young people that the path that was tried was tragic for Germany and the world?”⁸ Yet she continued to treat her former colleagues kindly and with friendship, even writing letters on their behalf after the war to attest that they were

world, and changed primatology (the study of primates) and scientific observation forever.

The Next Chapter

By 1975 Goodall no longer worked at Gombe full-time. She married Derek Bryceson, the head of the Tanzanian National Park, but he died of cancer in 1980. Goodall then embarked on a second career. She became a conservationist and activist, with the goal of educating humanity about the need to protect the environment, nurture the animals, save chimpanzees, and value all life on the planet. In 1977 Goodall founded the Jane Goodall Institute (JGI) to protect the chimps of Gombe from habitat loss and hunting and to protect all the chimpanzees of Africa from deforestation, poaching, and exploitation. She was also concerned about the African people living in poverty. She encouraged African governments to promote nature tourism that would protect animal habitats while providing jobs for local people.

Learning to Be a Mother

By the time her son was born, Jane Goodall had learned a lot about good mothering from watching chimpanzee behavior. She put some of her knowledge of chimp mother-child interaction to use in her own relationship with her baby. Goodall explains,

There are certain characteristics that define a good chimp mother. She is patient, she is protective but she is not over-protective—that is really important. She is tolerant but she can impose discipline. She is affectionate. She plays. And the most important of all: she is supportive. So that if her kid gets into a fight, even if it is with a higher-ranking individual, she will not hesitate to go in and help.

Goodall decided to be like a good chimp mother with her son, saying, “Do you pick up a crying baby or do you leave it to cry? Let’s just say I picked my baby up when he cried.”

Quoted in Robin McKie, “Chimps with Everything: Jane Goodall’s 50 Years in the Jungle,” *Guardian*, June 26, 2010. www.theguardian.com.

Jane Goodall observes a wild chimpanzee. Goodall's care and persistence helped her gain the chimpanzees' trust, allowing her to observe them in their natural habitat.



As time passed, Goodall became passionate about protecting chimps used for scientific research or vivisection and persuading scientists to treat these intelligent animals ethically and move them from laboratories to sanctuaries. She fought for a better life for captive chimpanzees throughout the world and still tries to stop the trade in chimps sold for pets or for entertainment or to zoos. In *Through a Window*, a book she wrote in 1990, she explains,

The more we learn of the true nature of nonhuman animals, especially those with complex brains and corresponding complex social behaviour, the more ethical concerns are raised regarding their use in the service of man—whether this be in entertainment, as “pets,” for food, in research laboratories or any of the other uses to which we subject them. This concern is sharpened when the usage in question leads to intense physical or mental suffering—as is so often true with regard to vivisection.³⁹

In 1991 Goodall established Roots & Shoots, a global youth program with thousands of members dedicated to helping the human community, the animal community, and the environment through local community projects. Both the JGI and Roots & Shoots remain successful programs that continue to inspire people worldwide and advocate for the environment and the lives of animals, especially chimpanzees. Her legacy also includes the research of the last fifty years that has been accomplished with animals as diverse as whales, baboons, and ants using her observational methods for studying animals in the wild. In 2003 Goodall was named a dame of the Order of the British Empire by Queen Elizabeth II, one of many honors she has been awarded over her lifetime.

An Abiding Love for Animals

Today, in her eighties, Goodall maintains a home in England and travels the world some three hundred days a year, actively lecturing about the importance of conservation and compassion for animals. She lobbies governments, negotiates with corporations and trade groups, and educates medical research executives about the importance of protecting habitats and animals. She is admired everywhere she goes, and she is still trying to change the world for the better. She has gone from being a quiet, isolated young woman living essentially alone with animals to being a celebrity and an advocate. She says, "It never ceases to amaze me that there's this person who travels around and does all these things. And it's me. It doesn't seem like me at all." Goodall is tireless in her work and knows what an important role she has to play, but she says, "The best days of my life were spent in Gombe's forests."⁴⁰

Jane Goodall learned and taught the world that chimpanzees are individuals, with intelligence and feelings, with social bonds and psychological needs, with dark flaws but also with compassion and sensitivity and, most of all, with value. She has known all her life that humans and chimpanzees are not so very different from one another. She strongly believes that the well-being of all of Earth's creatures is inextricably tied together. She says, "Only if we understand, can we care. Only if we care, we will help. Only if we help, we shall be saved."⁴¹

CHAPTER 5

Shirley Ann Jackson

When Shirley Ann Jackson was four years old, she told her mother that someday people would call her “Shirley the Great.”⁴² The very bright, exuberant little girl was born in Washington, DC, on August 5, 1946. Her father was a veteran of World War II and a postal worker and cab driver, and her mother was a social worker. Shirley Ann was the second of their four children, and she grew up in a home that valued education and hard work.

A Remarkably Talented Child

When she was quite young, Shirley Ann showed a talent for science, and her parents encouraged this interest. Her father told her to “aim for the stars so that you reach the treetops and at any rate you’ll get off the ground.”⁴³ His advice became her favorite saying. She took to heart the idea of aspiring to anything she chose. In the early 1950s, however, becoming great and aiming high was no easy task. Shirley Ann was an African American child growing up in a segregated area. Even though there was an elementary school close to her home, she had to be driven to the school for black children miles away. The school did not have

SOURCE NOTES

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3. Quoted in Ruth Lewin Sime, *Lise Meitner: A Life in Physics*. Berkeley and Los Angeles: University of California Press, 1996, p. 1.
4. Quoted in Sime, *Lise Meitner*, p. 45.
5. Quoted in Klaus Hoffman, *Otto Hahn: Achievement and Responsibility*, trans. J. Michael Cole. New York: Springer, 2001, p.123.
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FOR FURTHER RESEARCH

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