

Discussion Question Answer Key

Outcasts and Opportunities: The Effects of World War II on the Careers of Female Physicists

Katharine Way

1. When was the scientist born?

She was born on February 20, 1903 in Pennsylvania.

2. What was their education?

She earned a B.S. from Columbia University in 1932 and a Ph.D. in nuclear theory from the University of North Carolina in 1938

3. What did they do before the war?

She taught briefly at Bryn Mawr College, then at the University of Tennessee.

4. What did they work on during the war, and where?

She worked on nuclear reactor design and evaluation and the organization/evaluation of nuclear data. She helped develop the Way-Wigner formula for fission-product decay. She worked in Washington, D.C., Chicago's Metallurgical Laboratory, and Oak Ridge, Tennessee.

5. How did their career progress after the war?

In 1947 she began working at the National Bureau of Standards. In 1953 she initiated the Nuclear Data Project (to organize and share nuclear data) and remained in charge until she retired in 1968. From 1968 to 1988, she was an adjunct professor of physics at Duke University.

Mina Rees

1. When was the scientist born?

She was born on August 2, 1902 in Cleveland, Ohio.

2. What was their education?

She received an A.B. from Hunter College in 1923, an A.M. from Columbia University in 1925, and a Ph.D. in mathematics from the University of Chicago in 1931.

3. What did they do before the war?

After earning her Ph.D., she returned to serve as an adjunct and associate professor at Hunter College.

4. What did they work on during the war, and where?

She worked with the Applied Mathematics Panel in the Office of Scientific Research and Development (OSRD) as a technical aid and executive assistant in Washington, D.C..

5. How did their career progress after the war?

She was invited by the Navy to lead the mathematics branch of the newly created Office of Naval Research, which she directed until 1953. During this time, she also worked with the National Bureau of Standards. Then, she returned to Hunter College to serve as Dean of faculty, but remained the chairman of the National Bureau of Standard's Advisory Committee on Mathematics. She became the first female president of the American Association for the Advancement of Science (AAAS) in 1971.

Elda Anderson

1. When was the scientist born?

1899, in Wisconsin.

2. What was their education?

She was an undergraduate at Ripon College in Wisconsin, and earned M.S. and Ph.D. degrees in physics from the University of Wisconsin in 1924 and 1941, respectively.

3. What did they do before the war?

She worked as a professor and the head of the Physics Department at Milwaukee Downer College until 1942.

4. What did they work on during the war, and where?

She briefly worked with OSRD at Princeton, NJ, but was soon transferred to the Los Alamos Laboratory to work on cyclotrons for the Manhattan Project. She also helped create the first sample of uranium-235 there.

5. How did their career progress after the war?

She returned to Wisconsin and was jointly appointed as professor of physics at Milwaukee Downer and the University of Wisconsin in 1946. In 1949 she moved to Oak Ridge, Tennessee to lead the Education and Training section of the Health Physics Division. While here, she also helped establish training procedures for university, government, and military entities in health physics. She eventually became chairman of the Board of Health Physics, and secretary and president of the Health Physics Society.

Florence van Straten

1. When was the scientist born?

1914 in Darien, Connecticut.

2. What was their education?

She studied chemistry at New York University, where she earned her bachelor's, master's, and doctorate degrees.

3. What did they do before the war?

She taught chemistry at NYU from 1933 to 1942.

4. What did they work on during the war, and where?

She was one of 25 women with advanced degrees selected to be trained in meteorology at the Massachusetts Institute of Technology (MIT) during the war's early years. In 1943 she had completed training as an "aerologist" (weather officer/meteorologist today) and was researching wind gusts at the Daniel Guggenheim Airship Institute in Ohio. She then began working for the Navy's Bureau for Aeronautics' Aerology section as an analyst in the area of Washington, D.C..

5. How did their career progress after the war?

She managed to retain some status after the war, shifting to inactive reserve status and achieving the rank of commander. She also continued to work at the Naval Weather Service as an atmospheric physicist and head of the technical requirements section. She also refined atmospheric sensors and equipment, as well as the Navy's meteorological computing department.

Julia Anna Gardner

1. When was the scientist born?

January 26, 1882 in South Dakota.

2. What was their education?

She received her A.B. and master's degree from Bryn Mawr in 1905 and 1907, respectively. She earned a Ph.D. in Paleontology from Johns Hopkins in 1911.

3. What did they do before the war?

She worked at the U.S. National Museum in Washington, D.C., starting in 1915, under contract with the U.S. Geological Survey (USGS). She worked with the Red Cross during world War I, then in 1920 became a paleontologist for the USGS.

4. What did they work on during the war, and where?

During World War II, she stopped her paleontology and began working for the Military Geology Unit of the USGS in America. She created strategic studies and maps for the armed forces to use when planning operations.

5. How did their career progress after the war?

From 1946 to 1947, she toured the western Pacific, working with the National Resources Section, Headquarters of the Supreme Commander for the Allied Powers in Tokyo. She worked with Japanese biologists and geologists, rebuilding scientific relations. She extended her field work to Mexico after the war, as well.

Mary Sears

1. When was the scientist born?

July 18, 1905 in Massachusetts.

2. What was their education?

She attended Radcliffe College, where she earned her bachelor's degree in 1927, her master's degree in 1929, and her Ph.D. in zoology in 1933.

3. What did they do before the war?

She worked at Harvard and nascent Woods Hole Oceanographic Institute (WHOI) beginning in 1932, and became a full-time planktonologist in 1940. She also served as a research assistant at Harvard and Radcliffe, and taught at Wellesley College from 1938-1943.

4. What did they work on during the war, and where?

She served as a Navy WAVE (Women's Reserve, Women Accepted for Volunteer Emergency Service) and provided intelligence reports about areas of the ocean where submarines could possibly avoid detection. She was sent to Washington, D.C. to work in the Hydrographic Office, where she established the oceanographic unit (which eventually expanded into its own division).

5. How did their career progress after the war?

She continued to work as a planktonologist after the war at WHOI and became a Senior Scientist in the Biology department, eventually being named Scientist Emeritus. She also edited several journals and organized and managed WHOI's institutional data and history. In 1959, she chaired the First International Congress on Oceanography, and also became a Fellow of the AAAS.