Nevertheless, She Persisted: Winifred Goldring

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Winifred Goldring (1888–1971). Photo courtesy of the New York State Museum.

Born the fourth daughter of nine children (eight daughters, one son) to Frederick Goldring and Mary Grey Goldring, Winifred Goldring (1888–1971) lived most of her life in her Albany, New York, family home. Winifred's father, trained as an orchid specialist at Kew Gardens, London, met her mother, a local schoolteacher and daughter of the Corning estate's head gardener, when he immigrated to the United States to manage Erastus Corning's orchid collection (Aldrich et al., 2005). In 1890, the family opened a successful floral business.

A good student, Winifred Goldring graduated as valedictorian of Milne High School in 1905 and then enrolled in Wellesley College. Although she had been exposed to botany throughout her life—and may have become enthralled with nature during childhood walks in the Slingerlands—Goldring originally intended to study classical languages. She pivoted to science as a career choice only *after* completing her two required science courses. In 1909, she graduated with honors with her A.B. in zoology and botany, though she also took geology classes under field geologist Elizabeth Florette Fisher (1873–1941). Drawn to geology, Goldring continued her studies at Wellesley and graduated with her M.A. in 1912. Harvard University's William Morris Davis (1850–1934), prominent geographer/geomorphologist and the Sturgis Hooper Professor of Geology, supervised her thesis research. In 1913, Goldring's education continued with a summer graduate course at Columbia University taught by Amadeus Grabau (1870–1946), paleontologist and stratigrapher. Although Goldring never completed a doctoral degree, she received honorary doctorates in 1937 and 1957 (Rossiter. 1982; Aldrich et al., 2005).

NEW YORK STATE MUSEUM AND PALEONTOLOGICAL RESEARCH

Winifred Goldring was first employed as an instructor, 1912–1914. She taught petrology and geology courses at Wellesley and geography courses at the Teachers' School of Science, but she disliked lecturing and never pursued an academic appointment (Siegel and Finley, 1985). In 1914, the New York State Museum director, John Mason Clarke (1857–1925), offered her summer employment as a "scientific expert." It was at the New York State Museum that Goldring found her niche, although she did not have a permanent position there until 1920, when she became associate paleontologist.

In 1916, Clarke assigned Goldring to a massive research project: the revision of New York's Devonian crinoids from James Hall's (1811–1898) earlier monograph and subsequent research and collections, including those of Charles White (1826–1910), Edwin Kirk (1884–1955), and Clarke himself. A monumental project, Goldring worked seven years before publishing her 670-page crinoid tome to professional accolades. Crinoids continued as her career-long interest, and Goldring continued to research, analyze, and publish on new crinoid finds.

However, Goldring also researched other fossil organisms. When the 1920 construction of a new reservoir threatened the fossil trees in Gilboa, New York, Clarke directed Goldring and Rudolf Ruedemann (1864–1956) to collect and research these Devonian plant fossils before the site was flooded. Later, in the 1930s, Goldring conducted an exhaustive study of stromatolites at the private Petrified Sea Gardens Park and Lester Park, the latter donated in 1914 to the New York State Museum. She affirmed the organic origin of these structures, identified the presence of cryptozooan species, and interpreted the ecological and environmental settings of three different reef environments. Goldring argued that the stromatolites were produced by plants (i.e., blue-green algae [now called cyanobacteria]).

GOLDRING AS INFORMAL EDUCATOR: PUBLIC DISSEMINATION OF PALEONTOLOGY

Even though she personally disliked lecturing, Winifred Goldring recognized the importance and impact of education. She authored handbooks on paleontology for amateurs (Goldring 1929, 1931), and her massive crinoid monograph contained introductory materials, intended for paleontology students, on crinoid morphology, evolutionary sequences, and stratigraphic occurrences (Aldrich et al., 2005; Goldring, 1923). She developed innovative museum displays, including "What is a Fossil?" and "What is a Geological Formation?" In 1925, Goldring interpreted the Gilboa plant fossils for museum visitors in a life-size diorama that showcased the fossil tree stumps in the foreground, displayed reconstructed tree models, and recreated the Devonian forest as a painted background.

The museum also worked with engineers at the dam site to set up a roadside display of the Gilboa fossils, the first scientific highway exhibit in New York (Aldrich et al., 2005).

PROFESSIONAL ACCOLADES AND CONTRIBUTIONS

Following the crinoid monograph, Goldring regularly conducted fieldwork in the summers. She worked on two quadrangles in the

Goldring's diorama, "Fossil Forests of Gilboa," at the New York State Museum. Photo courtesy of the New York State Museum.

Albany area, and then published a guide to John Boyd Thacher State Park in 1933. Her monograph and map of the Berne quadrangle, which includes Thacher State Park, appeared in 1935. In 1939, when Ruedemann retired, Goldring was appointed State Paleontologist of New York (1939–1954), the first woman to hold the title in the United States.

Goldring was elected a Fellow of the Geological Society of America in 1921 and served as the GSA vice president in 1950. She also served as the first woman president of the Paleontological Society (1949). Her legacy in the Paleontological Society endures with the Winifred Goldring award, established in 1998 to annually recognize an outstanding woman student pursuing a paleontology career. Beginning in 2016, two Goldring winners were named, and in 2020 the number of Goldring awards was expanded to three annually.

GENDER CHALLENGES

Goldring had a reputation as a perfectionist, with a research approach that included detailed data collection. As a woman, she was forced to circumvent gender barriers as a professional geologist that her male colleagues did not encounter. Men did not want to collaborate with her in field research, so Goldring developed a "bloomer outfit" for fieldwork and learned to shoot a pistol (Sichermann and Green, 1980). She wanted to apply for a position with the U.S. Geological Survey but was thwarted when she learned that they wanted a "he-man" paleontologist. Goldring's salary was not only substantially lower than her male counterparts, but also lower than clerks and stenographers at the New York State Museum (Aldrich, 1990).

Goldring never married; her life focus centered upon geology and especially paleontology. Goldring's overwork resulted in her mental breakdown in 1925, which led to a leave of absence from the museum; fortunately, she recovered in a year (Rossiter, 1982).

In 1929, Walter Bucher wrote to Goldring to ask her opinion on women's role in paleontology, geology, and museums. In her detailed response, Goldring listed the issues women faced with available work and low salaries, and she encouraged women to consider botany and zoology *instead of geology and geography*. Goldring wrote:

> A general training in science is good for anyone (man or woman), but I do not think the teachers in colleges and universities have any right to urge women to specialize in any field unless they are quite certain that they can place their students in positions. A woman so trained is not fitted to turn to other work, in the event that she cannot obtain a position in her field, and it may mean an unhappy discontented life for her. (New York State Archives)

Nevertheless, Winifred Goldring persisted. In the face of challenges, she trudged a path forward, earned the respect of other geologists, and left a lasting legacy. Petrified Sea Gardens, preserved as a National Historic Landmark because of efforts spearheaded by Joanne Kluessendorf (1949–2018), conserves the Cambrian stromatolites that Goldring investigated. The Gilboa road display also endures. Ironically, perhaps Goldring's greatest legacy is that she has become a role model for women pursuing careers in paleontology, in spite of her advice that they consider other scientific disciplines.

FURTHER READING

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