

American Women in Plant Pathology

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Some highly motivated and talented women plant pathologists have had an impact on the scientific community in the twentieth century. No one could argue seriously that women in science during the first half of this century were equitably treated. Discrimination was widespread in all occupations, and documentation of this is a profound statement of the obvious. Jonathan Cole, in his recent article, "Women in Science" (*American Scientist* July/August 1981), summarizes some of the key factors contributing to the

low numbers of women in science. Cole concludes that women scientists in this century have struggled to overcome a complex of barriers he refers to as the triple penalty. First, there were cultural barriers against women entering fields not considered natural for women. Second, women scientists had to overcome the notion they were biologically incapable of creative work. Third, they faced discrimination in allocation of opportunities and rewards.

In order to pursue their careers, these pioneering women scientists paid a heavy social price. They often were forced to abdicate the role of wife and mother. An astoundingly low percentage (less than 15%) of female Ph.D.s prior to 1920 married. Married women were denied jobs and single women who married while working were often dismissed. In the 1930s, many states passed legislation restricting a married woman from working outside the home if her husband's income exceeded certain limits. This is but one of the social pressures faced by women scientists.

Space limitations prevent me from paying tribute to all the prominent women plant pathologists. I will concentrate on the Americans, although some important women plant pathologists were born, trained, or conducted their research in other countries. A number of the early American women scientists, including Annie Rathbun Gravatt, Charlotte Elliott, Flora Patterson, Ruth Allen, and Effie A. Southworth, found jobs in the Bureau of Plant Industry within the U.S. Department of Agriculture. Erwin F. Smith played a positive role in the promotion of women in phytopathology; Nelly Brown, Mary K. Bryan, Lillian Cash, Florence Hedges, Lucia McCulloch, and Agnes Quirk all obtained their degrees under his direction and helped pioneer studies of bacterial diseases of plants.

When the American Phytopathological Society was founded in 1908, 12 of the 132 charter members were women. Today we have two highly respected women plant pathologists serving on the APS Council, Frances Latterell and Anne Vidaver.

Of the women plant pathologists who gained prominence before 1970, the three who stand out in my mind are Ruth Allen, Helen Hart, and Cynthia Westcott. Ruth Allen was a USDA plant pathologist best known for her discovery of some of the important details of rust infection and for her drawings of the histology of rust infections. At the time she died in 1963, she was the most cited woman phytopathologist of the previous 30 years. APS has recognized and honored her contributions by establishing the Ruth Allen Award to honor individuals who have made outstanding innovative research contributions.

Helen Hart made many research contributions in the field of rust diseases of cereals. She is one of the two women APS Fellows and the only one to serve as president of APS. In

addition, she served as editor-in-chief of *Phytopathology* from 1944 to 1951. Included in the many honors she received is the Elvin Charles Stakman Award.

Cynthia Westcott received her training in plant pathology at Cornell University, then set up shop as a plant doctor in Glen Ridge, New Jersey. She diagnosed disease and insect problems in many home gardens in her area. She also carried on a chemical testing program to determine the best programs for ornamental disease control. During World War II she worked temporarily for the USDA on an azalea project in Alabama. When the men returned from the war, Dr. Westcott returned to her activities as a plant doctor and an author. She has received many honors for her seven books and recently received a Gold Medal from the Massachusetts Horticultural Society. Dr. Westcott was made a Fellow of APS in 1973.

In spite of the penalties, obstacles, and frustrations, these women became productive scientists, and we look back at them with respect and admiration. What about today, and what does the future hold for women in science, particularly in the field of plant pathology? From 1900 until 1970 the percentage of women receiving Ph.D.s in scientific fields remained at a constant 11%. Since 1970 the rate has jumped sharply to 23%. Why? The "triple penalty" costs have subsided. Science is becoming a culturally accepted career for women, and their capabilities in this area are more highly regarded. As of 1959 only five women were members of the National Academy of Sciences; 35 women were members in 1980. Women scientists are now leading more traditional life-styles; eg, their marriage rate has jumped from 17 to 50%, a rate approaching that of male scientists.

In the APS Council, concern about the role and standing of women in plant pathology prompted 1979-1980 APS President L. H. Purdy to select a group of women plant pathologists to determine if problems related to the status of women in plant pathology existed and what APS should do to solve them. Women members of the Society met in 1980 and recommended to Council that an ad hoc Committee on the Status of Women in Plant Pathology be established. The committee conducted a survey to identify the women members of the Society and determine their educational and career status. We reported these results at the 1981 national APS meetings and further explored the role of the committee. The APS Council has now granted the committee Special Committee status. The committee will serve as a means of addressing the special concerns of women in plant pathology and monitor the progress of women in APS.

Much progress has been made for women scientists, and the future is certainly brighter now than ever before. However, let me leave you with two thoughts: Although women scientists have made great strides within the formal structure of the scientific community, they still lack full citizenship. In his *American Scientist* article, Jonathan Cole points out that women continue to be excluded from full association in the informal activities and social networks by which scientists grow intellectually, the relationships coined by one sociologist as the "strength of weak ties." The sources of resistance to full participation are complex and elusive but are likely related to ingrained perceptions of traditional male/female roles. Such exclusion, though subtle, makes it less likely that women scientists will receive the benefits of apprentice or sponsor relationships with senior scientists. Second, my perspective has been to look backward at those women who have succeeded in the field of plant pathology, the survivors. What about the many bright, talented women who never even gave science a try? Women still represent fewer than 10% of all plant pathologists. We need to be concerned not only with the women already in our discipline but also with the barriers that kept women from getting there in the first place.