Resolution of Respect

Ruth Patrick
1907–2013

Ruth Myrtle Patrick Hodge Van Dusen
Born 26 November 1907, Topeka, Kansas. Died 23 September 2013, Lafayette Hill, Pennsylvania.
B.S., 1929, Coker College, Hartsville, South Carolina; M.S., 1931 and Ph.D., 1934, University of Virginia, Charlottesville, Virginia. Major Professor Ivy Lewis.

After working at the Academy of Natural Sciences (ANSP) while a graduate student and as volunteer Curator of the Microscopy Department (beginning in 1933), she became an employee in 1945. In 1947, Ruth Patrick founded the Limnology Department and began her development into a scientist who merited first national and then international attention.

Ruth Patrick was a member of the Ecological Society of America and was named a fellow in 2012; however, her primary contribution was outside the Society, where she tirelessly persuaded individuals in other professions that "you can't live a day without diatoms," i.e., humans depend on nature.

Ruth Patrick's primary contribution to science and society was the discovery that living organisms responded to the aggregate of all pollutants in natural systems. She also provided evidence that communities of organisms were more reliable indicators of pollution than single species.

Other writings on Ruth cover her lifelong interest in nature, which started with her father's love of the natural world. From this beginning, she forged a place for herself and other women in the world of scientific research, a mostly male-dominated field during her lifetime. Ruth married Charles Hodge IV, father of her only son Charles, and then Lewis H. Dusen, Jr. Both husbands predeceased her. She rose from an unpaid researcher at the Academy of Natural Sciences through various curator and chairperson positions, and eventually a center (The Patrick Center for Environmental Research) at ANSP was named in her honor. In the context of her long and distinguished career, her most outstanding achievement (in my opinion) was forging the place of women in a man's world of science, and pioneering methods for assessing pollutants beyond the use of individual species. During her career, Ruth was a member of numerous professional societies and served on many boards, in addition to receiving many awards and honorary degrees.

The transition from "lone wolf" specialist to leader of interdisciplinary teams

In 1945, Ruth gave a presentation at the American Association for the Advancement of Science on the sensitivity of aquatic organisms to pollutants. In the audience was W. B. Hart, a pharmacologist at Atlantic Refining Company, Philadelphia, Pennsylvania. Hart was also head of the Pennsylvania State Chamber of Commerce, which ultimately supplied the funds for Ruth's research teams to study the effect of pollutants on the aquatic biota of the Conestoga and Brandywine Creeks in the summer of 1948. I served as protozoologist on one of the teams, so I observed this pioneering study first hand. This study appears to be the first time a team of scientists was used to solve a scientific problem in water. Over the many years since 1948, Ruth and I often rejoiced about the spirit of everyone involved. Team members were inspired because the research was interesting and because it benefited the common good of all species, including humans.

Multiple, simultaneous, essential transitions

Since Ruth was leading the way in establishing team approach studies, she faced many mandatory transitions that occurred simultaneously. While still sitting in a museum classifying diatoms, she had to select one or two drainage basins with a variety of pollutional stressors on aquatic communities, plus some controls that were comparatively unstressed aquatic communities. Ruth knew she had to make accurate estimates of the time required to sample organisms, from bacteria to fish, and carry out chemical water quality analyses. In addition, specimen identification times had to be estimated for systems with widely differing biodiversity. The new frame of reference also had to include industrial and municipal waste discharges. From a single group of organisms (diatoms), Ruth had to expand her perspective to entire communities. Also unfamiliar to her was her mandatory interaction with waste treatment engineers (at that time called sanitary engineers) in this ground-breaking teamwork. Consequently, Ruth had to develop the skill of communicating the benefits of assessing the effects of pollution upon living systems to individuals in a wide variety of professions, as well as laypersons. She began to attract much more attention from the news media than she did as a curator in a museum, so new communication skills were essential. Her time was also needed for the numerous invitations she received to give talks at waste treatment and pollution conferences; each required determining how that particular group framed its worldview. For Ruth, involvement in political policy discussions required much preparatory time. All these changes resulted in major alterations of her previous lifestyle, including huge demands upon her time.

Management of a team

From the outset, many people were interested in how a woman orchestrated a team of mostly male scientists in different specialties than her own. At this time, women were rare in science, and almost absent in the field of pollution assessment. Long after the summer of 1948, I realized how huge the rapid transition must have been for Ruth. I remember two incidents that add a human touch to this changeover.

One weekday night, a few team members had a bit too much alcohol and showed up about three hours past our usual sampling time. Ruth reprimanded them quietly but forcefully, cancelled the day's work, and "grounded" them for a week. No more delays occurred and the team spirit persisted. For those of us working with perishable samples, the down time was a blessing because we could get caught up on the paperwork.

The second incident occurred on the Guadalupe River Survey near Victoria, Texas, and also near the Gulf. Photographers and reporters were present when a seine was being used to catch some fish. The seine also contained a blue crab, which bit Ruth's finger, but her facial expression did not change; she continued on with her presentation. One team member, Tom Dolan, commented on this incident in an obituary written when Ruth died in 2013.

Personal comments

I worked for Ruth from 1948 to 1966 and met with her 2–4 times every year until I resigned in 1993 from the Environmental Advisory Committee, Savannah River Site, that Ruth chaired. In the living room of my residence in the Showalter Assisted Living Facility, I have framed pictures of the two women who graced and shaped my adult life, my spouse Jean at a microscope, and my mentor Ruth in waders and holding a plankton net. These pictures are visible from my writing table, and I frequently rejoice that I had the good fortune to spend many years with each of them!

Acknowledgments

I am indebted to my editorial assistant Darla Donald, who prepared this contribution for publication, and to Karen Cairns for comments on the first draft.

A list of Ruth Patrick's many honors and awards and scientific and professional activities can be found online at: https://www.ansp.org/research/environmental-research/people/patrick/positions-activities/

Research publications are listed online at: https://www.ansp.org/research/environmental-research/people/patrick/publications/

Photo of Ruth Patrick courtesy of The Academy of Natural Sciences of Drexel University, from *A Glorious Enterprise: The Academy of Natural Sciences of Philadelphia and the Making of American Science* by R. M. Peck and P. T. Stroud (University of Pennsylvania Press, 2012).

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