

# Audrey Jane Gibson

October 5, 1924 – June 10, 2008

Professor Audrey Jane Gibson was born in Paris, France on October 5, 1924, and grew up in Devon, England, and Switzerland. She attended the Maynard School in Exeter, England and was then a scholar at Newnham College, University of Cambridge, England, from which she graduated in 1946 with a first class honors degree in Biochemistry. She obtained her Ph.D. degree in 1949 at the Lister Institute, University of London, England, under the supervision of Dr. D. Herbert, where she was the first to discover a specific role for selenium in bacterial growth, revealing that it was required in *E. coli*, along with molybdenum, for the formation of formate dehydrogenase.

Jane was awarded a Commonwealth Fund Fellowship to study with C.B. Van Niel at the Marine Biological Laboratory, Pacific Grove, California, where she became interested in photosynthetic organisms. After two years in California, Jane returned to England to Sidney Elsdon's laboratory at the University of Sheffield where she isolated and characterized c-type cytochromes from green sulfur photosynthetic bacteria. In Sheffield, she met and married Quentin H. Gibson, and after the birth of their four children she worked part-time.

In 1963, Jane and Quentin Gibson moved to the University of Pennsylvania, where she was appointed an Assistant Professor of Microbiology and Physical Biochemistry. In 1966, Jane and Quentin moved to Cornell University, where they both remained until their retirement in 1996.

At Cornell, Jane was initially appointed in the Section of Microbiology, being promoted to Associate Professor in 1970, and serving as Acting Chairman from 1968-72. Upon dissolution of the Section of Microbiology in 1972, Jane was appointed in the Section of Biochemistry, Molecular and Cell Biology, and then promoted to full Professor in 1979.

Jane's scientific interests were centered on green photosynthetic bacteria, in particular the transport and utilization of ammonia and of small organic compounds. She was very proud of her isolation and description of *Chloroherpeton thalassium*, a flexing and gliding green sulfur bacterium isolated from marine sediments near Woods Hole, Massachusetts. Later in her career, Jane used the purple nonsulfur

phototroph *Rhodospseudomonas palustris* to investigate anaerobic benzene ring degradation, a process important for the breakdown of hydrocarbon pollutants. She also studied the growth physiology of cyanobacteria and was a co-author on a paper with Carl Woese showing that many common Gram-negative bacteria like *E. coli* are evolutionarily related to purple photosynthetic bacteria. As this short description implies, Jane was a master at the culture of these difficult organisms.

At Cornell, Jane's commitment to teaching was legendary. Starting in 1975, she played a central role in the teaching of cell biology. In addition to contributing initially to teaching an upper level cell biology lecture course, Jane taught a very popular Laboratory in Cell Biology every year from 1975-96, except during sabbatical leaves. The effort she put into this spring course was phenomenal—rather than using the same set of lab experiments year after year, she developed a large new component each year. Moreover, after selecting new experiments in the fall, she would test all of them herself before incorporating them into the course. During this period, one of us (AB) remembers her coming each fall seeking suggestions for new projects. One year we had just described a simple purification of a contractile protein from smooth muscle. The lab course the following spring revolved around purifying the protein, making antibodies to that protein, and then localizing it by immunofluorescence microscopy in smooth muscle cells—a wonderful exercise for the students and a remarkable achievement for any teacher! It is not surprising that Jane's faculty colleagues, students and staff came together to nominate her for the Edith Edgerton Career Teaching Award, which she received in 1994. Among the comments in letters in support of this award is a common thread—as one student wrote:

“No other professor that I have ever had has taken such great pains to make sure that his or her students actually *know* and *understand* the course material. There was always one thing that I was sure I wanted to do with my life: teach. Now, with my convictions even stronger to go into education, I find myself with a perfect model of how to teach. Dr. Gibson has served above and beyond the role of professor.”

As a consequence of her devotion to teaching, Jane happily chaired the department's curriculum committee for about ten years.

In addition to teaching at Cornell, Jane was an Instructor in the summer Microbial Ecology Course at Woods Hole from 1974-77, and again in 1980. Jane also served on the Editorial Board of The Journal of Bacteriology from 1983-91, and as Editor of Applied and Environmental Microbiology from 1989-95. Even in “retirement,” she continued as a Visiting Scientist in others' laboratories, especially in Carrie Harwood's

laboratory at Cornell, then at the Universities of Iowa and Washington, and most recently in Deborah Hogan's laboratory at Dartmouth. At the time of her death, she had a paper submitted to Applied and Environmental Microbiology that has subsequently been accepted for publication.

Jane was always very independent and full of energy, not only for her students and teaching, but also for almost any aspect of life. As examples, she was an avid gardener, she walked the two miles from the Gibson house on Dodge Road to her laboratory every day, rain, snow or shine, and she was adept at working on her car. Jane was devoted to her family. Her husband of 57 years, three children and six grandchildren survive her. To the many faculty, students and staff who were fortunate enough to know Jane, she was an inspiration.

*Anthony Bretscher, Chairperson; James Blankenship, Volker Vogt*

