
The Jeanne Manery Fisher Memorial Scholarship

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It is now 18 years since the establishment in 1987 of the Jeanne Manery Fisher Memorial Lectureship of the Canadian Biochemical Society (now the Canadian Society of Biochemistry, Molecular and



Jeanne Manery Fisher

Cellular Biology). On alternate years, this lecture is to be given by an eminent Canadian woman scientist who has been singled out for her outstanding career in either research, teaching, or social accomplishments associated with the fields of biochemistry, molecular or cellular biology.

Why is Jeanne Manery Fisher's memory honoured in this way? Those of us who were inspired by her as their teacher, mentor, colleague and friend know why, but we are reaching, or have reached, retirement age. Younger members of the Society who did not have the privilege of knowing Jeanne may not realize the size of the debt they owe her for blazing a trail for them. She was certainly a feminist, but often in a subtle way so that some of those she influenced were probably unaware of the effect she was having on their attitudes. At a time when very few women were in the professorial

ranks in the sciences at the University of Toronto, she showed the way to those who were to follow her, setting standards of excellence, yet warmth and tolerance, that deeply influenced all who knew her. Above all, she was a dedicated scientist and teacher who stimulated and encouraged both undergraduate and graduate students.

Jeanne died in 1986 after 46 years in the Department of Biochemistry at the University of Toronto, but the dry recital of her CV offers few hints about the effect that this remarkable woman had on several generations of scientists, both women and men, in Canada. Born in 1908, she grew up near the small town of Chesley, Ontario where her imagination was caught by a young teacher of biology who introduced her to the fascinating study of how living things work. After a year at Normal School (i.e. Teachers' College) and two years of teaching public school, she had saved enough money, supplemented by help from her family and an impressive list of scholarships, to earn her B.A. in Biological and Medical Sciences in 1932 at the University of Toronto. Supported by demonstratorships, she obtained her M.A. in 1933 and her Ph.D. in 1935 with Prof. Laurence Irving in the Department of Physiology at Toronto, and thus began her life-long interest in biomembranes. They saw "active transport" of electrolytes into fish embryos before the term was coined, and observed the protective hardening by calcium of the soft, external capsule of unfertilized fish eggs. Summers with Prof. Irving's group at the Marine Biological Laboratory at Woods Hole exposed her to bright young scientists who later became leaders in their fields. Jeanne's post-doctoral studies were with Dr. Wallace O. Fenn in the Physiology Department at the University of Rochester in New

York and with Dr. A. Baird Hastings at Harvard University in Boston, where she honed her skill with the van Slyke blood gas analyser and pursued her interest in pH control and electrolytes in living systems. During these post-doctoral studies, she was a Fellow of the U.S.A. National Research Council in the Biological Sciences, a position that she later noted “was not usually held by either foreigners or females”.

Jeanne then returned as a staff member to Rochester which at that time was one of only three places in the world with a cyclotron producing short-lived radio-isotopes of inorganic ions which she used in studies demonstrating their transport across the plasma membrane. Later, she wrote that “the years in Rochester were among the happiest of my life. They were most productive in terms of research, of developing self confidence, of acquiring a love of teaching and of making life-long friends.”

Jeanne’s marriage to Kenneth Fisher in 1938 brought her back to Toronto (although she commuted to Rochester for another year). Dr. Kenneth Fisher had been appointed as a staff member in the Zoology Department at the University of Toronto, but Jeanne’s way was blocked because of the university’s policy that there were to be no married women on staff. However, Prof. Wasteneys, the chairman of the Biochemistry Department, was able to appoint her as a junior demonstrator because “the position was so unimportant”. She remained at this rank until 1948, while trying to adjust to the prevailing attitude that “women in science were indeed second rate citizens”. The list of her accomplishments during these 8 years is astonishing. She carried a full undergraduate teaching load in the Biochemistry Department, including teaching double classes of medical students destined for war service; took over her husband’s lecture and laboratory teaching in the Department of Zoology when he was in the Operational Research Unit of Canada during World War II; carried out research on shock in collaboration with Prof. Donald Solandt; established her own research laboratory focused on electrolytes where, with the connivance

of Prof. Wasteneys, she was allowed to supervise graduate students; and gave birth to two children (in 1942 and 1945). But not until 1948 was she finally appointed as an Assistant Professor in the Department. She later wrote that at that time she began to sense that discrimination against women “in her immediate environment” was starting to lessen, but this was a slow process and she was not promoted to a full professorship until 1965, despite her active research program and heavy teaching loads.

In 1950 and 1951 she served as a Senior Scientist in the Defence Research Northern Laboratory at Fort Churchill, Manitoba, working on military problems as they were affected by life in the arctic. In 1965, she spent a short sabbatical leave in Cambridge, England.

With her graduate students and research assistants, Jeanne carried out investigations of the plasma membrane, beginning at a time when it was generally considered to be an inert wrapping to be discarded before studying the reactions of the inner contents of cells. Her research projects included the control of Na⁺ and K⁺ concentrations in cells, the effect of insulin on electrolytes in muscle, and the role of Ca²⁺ in the structure and function of membranes; her group was one of the first to recognize cation-dependent, nucleotide-converting ectoenzymes. In addition, she was given numerous departmental, faculty and university administrative responsibilities, including serving on the committee that organized a new medical curriculum that was introduced in 1970, serving on and chairing the Admissions Committee of the Faculty of Medicine, and chairing the Senate Committee on ‘The Role of the Faculty of Food Sciences in the University and in the Province’. Recognizing the need to “disseminate information in understandable terms to those around us”, Jeanne took an active role in the Royal Canadian Institute as a Councillor, Treasurer, Vice-President, and Honorary Secretary in the late 1970’s.

Although she became Professor Emeritus in 1976, she continued research and publishing until her death, 10 years later. She was honoured in 1977 by the award of the Queen’s Jubilee medal for her

contributions to science, and the University of Toronto Sesquicentennial Celebration Long Service Honour Award. In 1982, Memorial University of Newfoundland conferred on her the degree of Doctor of Science, honoris causa.

A charter member of the Canadian Biochemical Society, she was acutely aware of the lack of involvement of women scientists in its affairs. This problem came to a head as a result of the International Congress of Biochemistry which Canada hosted in Toronto in 1979 on behalf of the International Union of Biochemistry. The relative lack of women participants prompted the Chairman of the Equal Opportunities Committee of the American Biochemical Society to write a letter saying that he was "dismayed that the symposium speakers and chairpersons were so overwhelmingly male." Thus chastised, the Canadian Biochemical Society established an Equal Opportunities Committee in 1980 with Jeanne Manery Fisher as its first chairperson. Since that time, the participation and visibility of women in the Society has increased. Her achievements as a trail-blazer were recognized by the Canadian Association for Women in Science and the Equal Opportunities Committee of the Canadian Biochemical Society by sponsorship of a dinner in her honour in Montreal in 1981.

The Jeanne Manery Fisher Memorial Lectureship honours her for her scientific achievements, her dedication to teaching, her warm and encouraging relationships with students and colleagues, and her leadership toward the acceptance of women as equal partners in the field of science.

Jeanne Manery Fisher Memorial Lectureship Award Winners*

- 1988 Dorothy Crowfoot Hodgkin, Laboratory of Molecular Biophysics, Department of Zoology, University of Oxford, Oxford, U.K.
The X-ray analysis of the structure of insulin 1935-1972 to the present
- 1991 Rose M. Johnstone, Department of Biochemistry, McGill University
Reticulocyte maturation: circulating transferrin receptors and the development of assays for anemias

- 1994 Shirley Gillam, Department of Pathology, University of British Columbia
Molecular biology of rubella virus structural proteins
- 1996 Nicole Bégin-Heick, Department of Biochemistry, University of Ottawa
Mice and women: leptin, and the b3-adrenergic receptor and obesity
- 1998 Rhoda Blostein, Departments of Biochemistry and Medicine, McGill University
Structure-function studies of the sodium pump
- 2000 Amira Klip, Division of Cell Biology, Hospital for Sick Children, and Department of Biochemistry, University of Toronto
Insulin-regulated glut4 traffic in muscle cells: a concerted action of the cytoskeleton, selective fusion proteins and endosomal sorting mechanisms
- 2001 Carol E. Cass, Department of Oncology, Cross Cancer Institute and the University of Alberta, Edmonton
Nucleoside transporter proteins. From membrane biology to therapeutic applications
- 2002 Mona Nemer, Laboratory of Cardiac Growth and Differentiation, Institut de Recherches Cliniques de Montréal
GATA-4: An integrator of hormonal and growth factor signalling in the heart
- 2004 Morag Park, Departments of Medicine, Oncology and Biochemistry, McGill University, and the McGill University Health Centre
The Met receptor tyrosine kinase: from tubes to tumorigenesis

*In 1987, Rose Sheinin presented a lecture in memory of Jeanne Manery Fisher at the CBS Equal Opportunities Committee Luncheon during the CFBS Annual Meeting in Winnipeg. The title was ***Jeanne Manery Fisher: Scientist, feminist, a model of excellence.***