

**MEMORIAL RESOLUTION OF THE FACULTY OF THE
UNIVERSITY OF WISCONSIN-MADISON**

ON THE DEATH OF PROFESSOR EMERITA MABEL R. HOKIN-NEAVERSON

“In matters of observation chance favors only the prepared mind”- Louis Pasteur.

Mabel Ruth Hokin was born Mabel Neaverson in Sheffield, England in 1924 and died in Madison, Wisconsin on August 17, 2003. When the World War II began she was 15 years old, yet she participated vigorously in the war effort, first as a liaison to Eastern European war refugees; later in the Land Army where her assignments ranged from supervising an agricultural work crew -- composed of mentally ill workers -- to a stint at nursing school and work as a steel industry technician. When the war ended, she began her scientific career as a technician in Sir Hans Krebs' laboratory. With his encouragement she enrolled in the University of Sheffield where she completed a bachelor of science degree in physiology and biochemistry in 1949 and a Ph.D. in biochemistry under Quentin H. Gibson in 1952. In 1952 she went to McGill University for a post-doctoral fellowship followed by a research position in the McGill Department of Pharmacology where she and her husband, Lowell E. Hokin began a series of experiments that led to what they have described as a “serendipitous” discovery of the “Phosphoinositide Effect” which is one of the means by which information is relayed in the brain. The serendipity part was due to the unintended contamination by P³² of some samples of pancreatic RNA that the Hokins had carried with them from Sheffield, which pointed them to the importance of phospholipids in cell signaling. This insight was followed by years of careful experimentation.

The discoveries that Dr. Hokin-Neaverson made along with her husband were reported in a classic paper in 1953 and have been characterized as a “slow fuse that finally ignited an explosion of work that made inositol phospholipids into star players in transmembrane signaling and other cell regulatory processes”¹. At the time, little was known about how neurotransmitters or drugs acting like neurotransmitters were able to affect activity inside cells. It was known that a membrane-bound receptor must convey the chemical signal, which would eventually cause some major change within the cell (in the case of neurons, for example, stimulation of the receptor causing the neuron to become activated via electrical events). But at the time the intermediary biochemical processes were completely unknown. The Hokins together described how phospholipids acted as the “second messengers” in pancreatic cells, transducing an extracellular receptor signal to intracellular events controlling many cellular actions. While the Hokins' discovery was initially carried out on pancreatic cells, this mechanism and others similar to it were found to be common and critical for multiple types of cells. For cells of the nervous system, many types of neurochemical communication were found to rely on this (the phosphatidyl inositol system) or several other second messenger systems (i.e., cyclic AMP and calcium). This discovery has had major implications for nearly all aspects of basic and clinical neuroscience. For example, many psychiatric disorders, including addiction and depression, are thought to be associated with disruptions of signal transduction systems. For this groundbreaking work, the Hokins received the University of Wisconsin Hildale Award and international recognition, but not as much as was their due.

Professor Hokin-Neaverson's career at the University of Wisconsin began as a research associate in the Department of Physiological Chemistry. In 1968 she accepted a faculty position in the Department of Psychiatry in what was described by the chair, Milton H. Miller, as a “stroke of good fortune”, with the potential to bring basic neuroscience to what was essentially a psychoanalytically-oriented clinical department. This was a propitious development for this was a time when links between neurobiology and mental illness were beginning to be identified. Until the time of her retirement in 1995, Mabel played a

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¹ Mitchell, B. Obituary: Mabel R. Hokin (1924-2003). The Biochemist, December 2003, 62-63. The Biochemical Society.

major role in educating a new generation of psychiatrists through her seminar in Biological Psychiatry. She also taught in Biomolecular Chemistry and was known for her kind attention to the students in her lab. She also continued her research in neurotransmitters and during this part of her career, her research contributed to the understanding of how certain psychotherapeutic drugs such as lithium and antidepressants work to alleviate conditions such as bipolar disorder. These efforts dovetailed with her long-held emphasis on the biological basis of mental illness and her strongly-held objections to the 'blame the mother' ethos that had been prominent in the mental health field.

In addition to breaking new ground in neuroscience, Dr. Hokin-Neaverson broke new ground in academic science. She was one of a very few women of her generation to forge a career in science, against many odds. It was difficult enough being a woman in the 50's and 60's, but being a woman with children in academia was rare in that era. A colleague fondly recalls conversations with Mabel about some of the difficulties she faced; for example when she arrived at Wisconsin she was not given a parking permit because "her husband already had one"! She is remembered for her brilliant mind, persistence, and high standards for her scientific work, and her contributions to biochemistry will endure.

In addition to science, Mabel was avidly interested in the theater and the arts. She enjoyed her lovely lakeside home on Lake Mendota. She established a scholarship fund in memory of her deceased daughter, Catherine. She is survived by her husband, Bernard Biales, daughter Linda, son Samuel, three grandchildren, and her ex-husband and colleague Lowell Hokin.

MEMORIAL COMMITTEE
Marjorie Klein, Chair
Ned Kalin
Ann Kelley

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