

# Macy & György

## Preface

Icie Gertrude Macy and Paul György were pioneers in research concerning human milk and lactation, scientists who understood the importance of breastfeeding to maternal and child health, humanitarians, and inspirations to subsequent generations of scientists in the field of human milk and lactation. It is only fitting that the Senior Investigator Award of the International Society for Research in Human Milk and Lactation should be named after these two outstanding historical figures. A brief history of each of those individuals can be found below.

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## Icie Gertrude Macy



**Icie Gertrude Macy**

Icie Gertrude Macy was born on July 23, 1892 on a farm five miles east of Gallatin, Missouri. She was the third child among four born to her parents. Her roots were traced to a Thomas Macy who emigrated to the United States from England in 1635 and his wife, Sarah Hopcott.

Icie Macy began her education in a one-room schoolhouse close to her home. In 1907, she entered Central College for Women in Lexington, Missouri where, at her father's insistence, she majored in music. After an intensive three-year effort, she became convinced that she did not have the talent for the work, but she was inspired by a creative woman biology teacher, Lily G. Egbert, to choose a career in science. Egbert introduced Macy into the panorama of science by assigning each of them to prepare papers on the realities of the plant world, ten great scientists, and astronomy.

After seven years in Central College for Women, following the wishes of her parents, she entered the Randolph-Macon Women's College in Virginia. There she studied chemistry under the guidance of a second splendid teacher, Mary Sherrill, who was the acting head of the Chemistry Department. After one year, Macy obtained a BA degree and transferred to the University of Chicago and studied chemistry under the guidance of the imminent chemist, Julius Stieglitz, the Nobel Prize Winner in Physics, Robert A. Milikan and A. A. Michelson. After graduation in 1916, she became the perhaps first woman Assistant Instructor in Freshman Chemistry at the University of Colorado at Boulder. As recounted in detail by Harold H. Williams in his extended essay on Icie Macy (American Institute of Nutrition. 1984), the year was tumultuous. She was derided by the students probably because of her gender and not given credit for research that she conducted with a senior faculty member.

She gladly accepted a Teaching Assistantship in Physiological Chemistry at the Medical School of the University of Colorado. There she came under the positive influence of the director of the Department, Robert C. Lewis, a recent graduate from Yale. He and Professor Lafayette B. Mendel from Yale, arranged for her to enter graduate studies at Yale. Armed with a Master's degree from Colorado, Macy left for Yale. During her two years at Yale, Macy found her niche and gained self-confidence in research. She stated:

“It was a magnificent experience to be guided by the master mind of Professor Mendel through the intricacies of choosing a research project, planning, selecting techniques to be used, and assembling equipment for the task. It was this close fellowship with the scholarly professor that taught me the real love of searching for scientific truth, independence of thought, and respect for the guidance to be found in the history of science. I grasped the practical approach to scientific problems and a deep concern for human welfare. I learned the importance of objective criticism, and that public service was a pleasant and fruitful obligation.”

After receiving her doctorate degree in physiological chemistry in 1920, she was offered many positions, but she accepted a position as an Assistant Biochemist in a Pittsburgh Hospital because

“...Dr. Mendel had given a provocative lecture on the dairy and milk industry in which he pointed out the dearth of information on human beings. The United States government was investing vast sums of money in research on domestic animals for commercial purposes in stark contrast to the amount spent on the health of mothers and infants. At the conclusion of his lecture, he threw on the lantern screen the picture of a malnourished infant whom he described as ‘all puffed out with water’. The illness was caused by the lack of the knowledge of the food best suited to infant for their normal growth and development.” Then he remarked, “This health field is so important to mankind and it is one to which women scientists have much to contribute.” He looked directly at me! I got his message and left the lecture hall inspired and determined that the health of mothers, infants, and children was to be my first priority in research in the future.

Although she suffered many indignities due to her gender and to the development of a nephritis she observed ‘That year laid the foundation for the practice of my professional career in the biological sciences and opened up new vistas for research and service to mothers and children.’

Because of the nephritis she was advised to recuperate by accepting a position with fewer responsibilities. In 1921, she was asked to present a paper on her research at Yale to the American Societies of Experimental Biology. Dr. Agnes Morgan, the head of the Department of Household Science at the University of California at Berkeley, attended Macy's presentation and learned about her medical problem. She suggested that she could come to Berkeley and teach a course in food chemistry. She accordingly did so. Her health improved. She assumed more responsibilities, one of which was an Inspector for the California State Educational System. Somehow she found time to conduct research into cottonseed flour as a diluent for wheat flour.

A decisive break occurred in 1923 when at the advice of Mendel and Elmer McCollum from Johns Hopkins; she was offered a position to head the Nutrition Research Project at the Merrill-Palmer School for Motherhood and Child Development in the Children's Hospital of Michigan at Detroit. In 1931, the laboratory became the Research Division of the Children's Fund of Michigan. Under her 31-year leadership, the laboratory conducted fundamental research into the metabolism of women during the reproduction cycle, evaluation on food purchasing and preparation, nutrition and infant growth and development, and the secretion and composition of human milk. In addition to the many publications in research journals, she and her colleagues published several key books including ‘The Composition of Milks’.

Her achievements lead to many assignments and recognitions. She was the first woman to chair a local section of the American Chemical Society. Macy was a Charter Member, Secretary, and President of the American Institute of Nutrition; Charter Member of the Food and Nutrition Board, National Academy of Sciences – National Research Council in 1940. She served on the Food and Nutrition Board for 14 years.

Her honors included the 1938 Norlin Award from the University of Colorado, the Frances P. Garvan Award from the American Chemical Society, The Borden Award from the American Home Economics Association, and the Mendel Award from the American Institute of Nutrition.

Footnote. For the purpose of this award, Macy's married last name (Hoobler) was not used.

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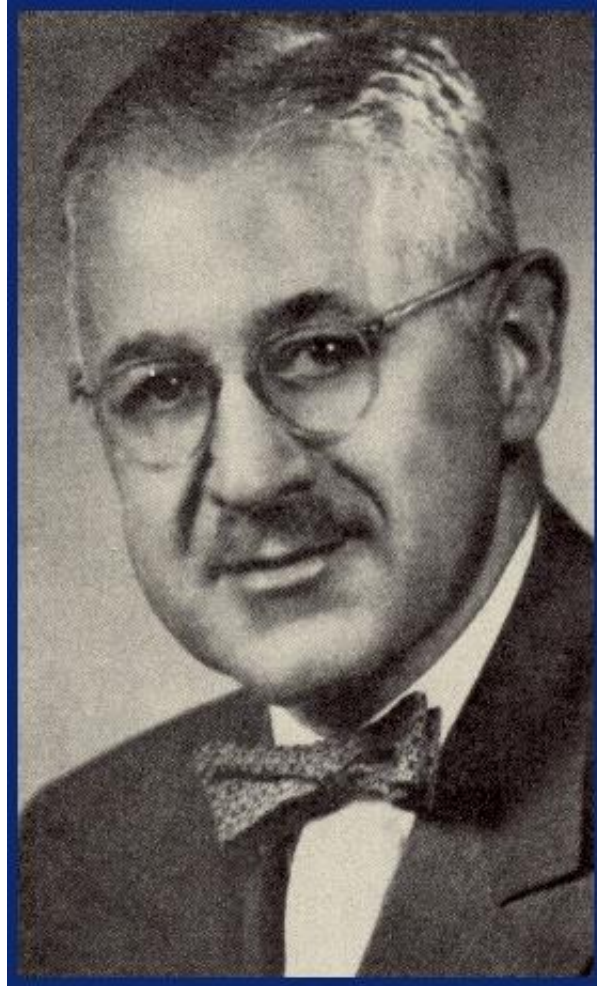
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## Paul György



**Paul György**

Paul György was born in Nagyvarad, Hungary on April 7, 1893. As a child, he was said to be full of curiosity and an avid reader and musician. His father was a respected general physician in that community for many years. Inspired by the medical problems that were dealt with by his father and encouraged by his parents, György selected a career in Medicine. He attended the University of Budapest Medical School and received a Doctor of Medicine degree from there in 1915.

Perhaps because of the advent of the First World War, it is unclear where he practiced medicine in the next five years. In 1920, he was appointed as assistant to Professor Ernest Moro at the University of Heidelberg. Moro, who had been a student of the pioneering microbiologist, Theodor Escherich (the discoverer of *Escherichia coli*) was one of the founders of scientific pediatrics in Germany and one of the first to recognize the predominance of Bifidobacilli in the large intestinal tract of breastfed infants. The experience undoubtedly influenced György's later studies on human milk. He rapidly progressed in his research and by 1927 (age 34 years) was appointed to the position of Professor. From 1927-1933 György worked with Professor Richard Kuhn (later a Nobel laureate in Chemistry), and with Dr. Th. Wagner-Jauregy to isolate riboflavin.

Because of the beginning political unrest in Germany, in 1933 he went to the Nutrition Laboratory of Cambridge University in England where during the next two years he discovered vitamin B6, later found to be a group of pyridoxines. In 1935, he was offered an opportunity to be a Visiting Assistant Professor of Pediatrics at the Western Reserve University in Cleveland. In 1937, he was appointed to the post of Associate Professor at that medical school. During his time at Western Reserve University, he determined the structure of pyridoxine and studied the micronutrients pantothenic acid and choline.

In 1944, he became an Associate Research Professor of Pediatrics at the University of Pennsylvania School of Medicine. He was promoted to Professor in 1946. He also was the Chief of Pediatrics at the Hospital of the University of Pennsylvania from 1950-1957 and the Chief of Pediatrics at Philadelphia General Hospital from 1957-63. He became an Emeritus Professor in 1963 and continued to be active for the next 13 years until his death on March 1, 1976.

His initial research achievements included the identification of riboflavin, pyridoxine, and biotin and inquiries into the pathways of pyridoxine metabolism. While in Pennsylvania, György with his associates discovered the Bifidus growth factor activity, the interesting anti-staphylococcal properties and the high content of polyamines in human milk. He was active in field studies to improve nutrition in developing countries and was an organizer of the Protein Advisory Group of the World Health Organization/UNICEF. He was the President of that organization from 1960-1964.

Paul György authored or co-authored 13 books and more than 450 peer-reviewed scientific articles. His continuous scientific drive was to unravel the secrets of nature, particularly as it pertained to the betterment of mankind. He was by nature an organizer and an activist and strongly opinionated, but kind. He was a firm believer in teleology. In that respect, he imagined how biology was designed and often he was correct. This belief undergirded his studies of the unique biological properties of human milk. He was convinced that human milk was a unique food that contained what we now designate as bioactive compounds. In that respect, he was one of the first scientists to point out the superiority of human milk for human infants. He questioned how human milk was uniquely designed to be ideal for the human infant. In that respect, as a pediatrician, he attempted to document ecological factors of disease and their relationships to breastfeeding. In addition to his scientific preoccupations, he had a deep appreciation for classical music and was one of the founders of the Bach Society in Philadelphia and he participated in many humanitarian causes.

György received many distinguished awards for his scientific/humanitarian accomplishments in the field of nutrition and human milk. They included The Borden Award of the American Institute of Nutrition (1951), The Borden Award of Nutrition of the American Academy of Pediatrics (1954), The Modern Medicine Award of Distinction (1956), The Goldberger Award of the Council of Foods and Nutrition of the American Medical Association (1957), The Osborne-Mendel Award of the American Institute of Nutrition (1958), The Howland Award for the American Pediatric Society (1968), and The National Medal of Science that was presented by President Gerald Ford (1975) and was accepted by György's widow in 1976.

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