

# **VITAMINS AND HORMONES**

**VOLUME 41**

# **VITAMINS AND HORMONES**

VOLUME 41

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# VITAMINS AND HORMONES

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DONALD B. McCORMICK

*Department of Biochemistry  
Emory University School of Medicine  
Atlanta, Georgia*

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**ROBERT OLSON**  
*University of Pittsburgh School of Medicine*  
*Pittsburgh, Pennsylvania*

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## Contributors to Volume 41

Numbers in parentheses indicate the pages on which the authors' contributions begin.

JOHN N. FAIN, *Section of Biochemistry, Brown University, Providence, Rhode Island 02912* (117)

LEONARD JARETT, *Department of Pathology and Laboratory Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania 19104* (51)

BENITA S. KATZENELLENBOGEN, *Department of Physiology and Biophysics, University of Illinois and University of Illinois College of Medicine, Urbana, Illinois 61801* (213)

JOHN A. KATZENELLENBOGEN, *Department of Chemistry, University of Illinois, Urbana, Illinois 61801* (213)

BRUCE E. KEMP,<sup>1</sup> *Howard Florey Institute of Experimental Physiology and Medicine, University of Melbourne, Parkville, Victoria 3052, Australia* (79)

FREDERICK L. KIECHLE, *Department of Clinical Pathology, William Beaumont Hospital, Royal Oak, Michigan 48072* (51)

DOROTHY T. KRIEGER, *Division of Endocrinology, Mount Sinai Medical Center, New York, New York 10029* (1)

HUGH D. NIALL, *Howard Florey Institute of Experimental Physiology and Medicine, University of Melbourne, Parkville, Victoria 3052, Australia* (79)

JUDITH B. SHERWOOD, *Department of Medicine, Albert Einstein College of Medicine, Bronx, New York 10461* (161)

<sup>1</sup>Present address: Department of Medicine, University of Melbourne, Repatriation General Hospital, Heidelberg, Victoria 3081, Australia.

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## Preface

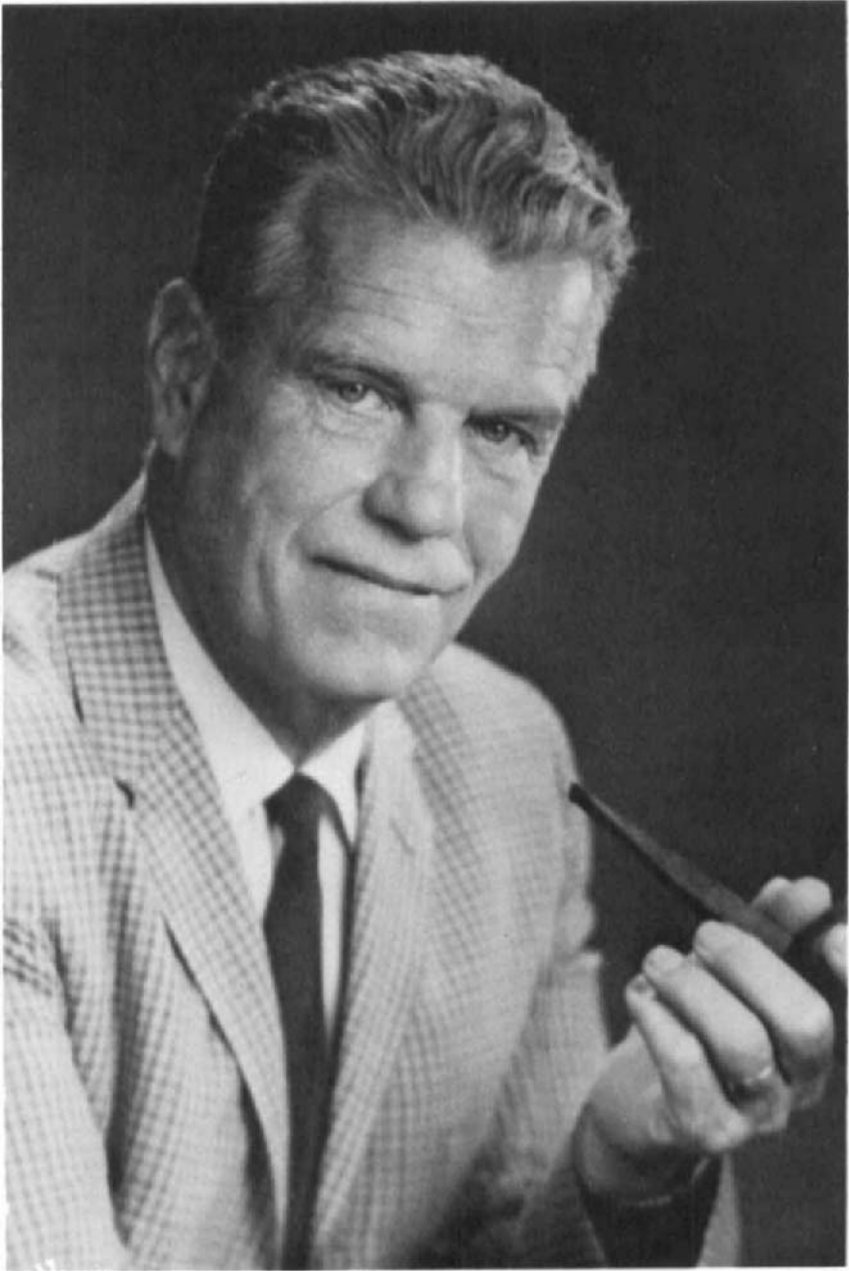
The subjects reviewed in this volume of *Vitamins and Hormones* reflect well the intent to present topics that are novel and current, and represent in broad scope the sciences that impinge on and embody endocrinology and nutrition. Several of the subjects represent "firsts" for this serial publication. Dr. Krieger has prepared a wide-ranging and thought-provoking discussion on brain peptides. The origins, biosynthesis, and CNS function of peptides newly discovered or newly found in the brain are of intense current interest. Similar interest has developed regarding the significance of phosphatidic acid and phosphoinositide metabolism in the mechanism of hormone action. Dr. Fain presents a valuable discourse on the hormone-induced activation of these processes with consequent increases in intracellular metabolism of triphosphoinositide with production of diacylglycerol and triphosphoinositol. The latter products may prove to be, like cyclic adenosine monophosphate, important intracellular messengers of hormone action. Less clear-cut is the mechanism of action of insulin. Drs. Jarett and Kiechle review the status of research on intracellular messengers for insulin action. A factor(s) enhancing the activities of intracellular enzymes involved in physiological responses to insulin is (are) released from cell membranes on the interaction of the hormone with its receptors. This substance(s) is acid and heat stable, of low molecular weight, and may represent the elusive intracellular messenger for insulin.

Drs. John and Benita Katzenellenbogen describe the utility and problems of affinity labeling of estrogen and thyroid hormone receptors. This approach has been used widely to identify, mark for purification, and study subunit structure of hormone receptors. Also reviewed for the first time in *Vitamins and Hormones* are the chemistry and physiology of erythropoietin. Dr. Sherwood discusses, in particular, the impact of radioimmunoassay on studies of this hormone and its implication for purification, determination of physiological control, and clinical research. Drs. Kemp and Niall discuss the chemistry, actions, and molecular biology of relaxin. They suggest that, ultimately, new clinical uses for relaxin may be found, particularly when the hormone can be produced in quantity, possibly through recombinant DNA-directed biosynthesis.

Science during the past year lost a beloved and admired colleague, Dr. Robert S. Harris. Dr. Harris was a man of many important accomplishments and served as one of the two original editors of *Vitamins and Hormones*. An outstanding summary, of interest to colleagues, friends, and readers of *Vitamins and Hormones*, of the life and works of Dr. Harris was prepared for this volume by Dr. Juan Navia. We are indebted to Dr. Navia who interrupted his busy schedule to write this tribute on very short notice. We also thank the staff of Academic Press for their excellent help in preparing this volume.

G. D. Aurbach  
Donald B. McCormick

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(1904–1983)

## Robert Samuel Harris (1904–1983)

By JUAN M. NAVIA

*School of Public Health, Department of International Public Health Sciences, The John J. Sparkman Center for International Public Health Education, The University of Alabama in Birmingham, University Station, Birmingham, Alabama 35294*

Few men have made a choice early in life, persevered with dedication and love in the pursuit of that goal, and completed successfully their self-appointed tasks within a lifetime. For Professor Robert S. Harris, a senior editor of *Vitamins and Hormones* during its first thirty-one years of existence, all of this was accomplished without neglect of family, friends, or personal love of music and sports. I would like to share with the readers a very personal recollection of this man who was my professor, friend, and colleague for more than thirty years. A review of his many contributions and the manner and style in which he accomplished them will inspire and teach us how one achieves a productive and fruitful life.

Bob Harris was born in Brookline, Massachusetts on May 10, 1904. At an early age he was attracted by the challenges and opportunities offered by a new scientific and technological academic institution in Cambridge, the Massachusetts Institute of Technology. MIT had been located in the Rogers building on Boylston Street since 1866. The move to Cambridge in June 1916 marked the end of one era and the beginning of another for the Massachusetts Institute of Technology. Prescott (1) describes Inauguration Day, which was attended by outstanding scientists and distinguished speakers such as Henry Cabot Lodge, who emphasized that "this great institution . . . will now enter upon a yet broader field of usefulness and contribute more generously even than in the past to the cause of learning and to the development of trained and educated men." Bob understood these academic ideals and was impressed by the tremendous technological achievements of the MIT faculty and alumni.

Many luminaries in science and technology attended the Golden Jubilee Banquet which was held in Symphony Hall on the evening of Inauguration Day. Charles A. Stone, president of the Alumni Association, addressed the participants:

We are gathered here this evening to celebrate the fiftieth anniversary of the activity of the Massachusetts Institute of Technology. Pure science and technology have combined to make possible in 1916 many things which in 1866 the most courageous prophet would not have dared to predict.



Perhaps the most marvelous of all achievements of science is the power to transmit the human voice 3000 miles or more. The courtesy of the American Telephone and Telegraph Company has made it possible for us to speak this evening, not only to alumni and guests in Boston, but also to the alumni gatherings in thirty-four cities in different parts of the States.

For the remainder of the evening communications were established always using the same formula: "Hello, New York." Walter Large replied "This is New York." "How many have you there Mr. Large?" "We have 130 members and guests." "Thank you." Then many other cities, even cities on the west coast, were contacted (1). To hear voices from these distant cities gave a sense of the intimacy of the entire MIT family and a thrilling realization of what science had accomplished in this special field.

The recording of these exciting events gives us a sense of the feelings, ideas, and events that instilled in Bob Harris the great desire to be part of this family of scientists and to dedicate his professional life with great love to the institution which at that time captured the mind of many aspiring scientists and engineers. In 1924, Bob Harris was accepted into MIT, and until his retirement this institution would be his academic home. He received a Bachelor of Science degree in 1928, and soon afterward he became a Research Assistant in the Department of Biology and Public Health. Three years later he became a Research Associate in the department, and began work on his Ph.D., which he completed in 1935. During his training, he specialized in nutritional biochemistry, and in 1937 he was named Assistant Professor of nutritional biochemistry in the Department of Biology and Public Health. Bob Harris started his career guided by his interest in the health and welfare of people and the need to apply his recently acquired scientific knowledge.

During the late 1930s and early 1940s, Secretary Henry Wallace and colleagues at the United States Department of Agriculture developed a national school lunch program in which "surplus" foods were used to supply lunches to many thousands of malnourished and undernourished school children. Dr. Harris was called on to participate in the discussion of the school lunch program to decide whether the real purpose of this program was to dispose of surplus foods or to feed children. Surplus foods alone seldom provide a balanced diet, so it was decided to supplement this supply with food concentrates obtained from other sources. Secretary Wallace proceeded to appoint Dr. Harris special Assistant to the Secretary of Agriculture, and a three-year research grant from the Rockefeller Foundation allowed the project to begin. Within one year an attractive food mixture resembling a cereal flake product was developed, which, together with a serving of fruit juice, served three times a day, would completely nourish a child. This