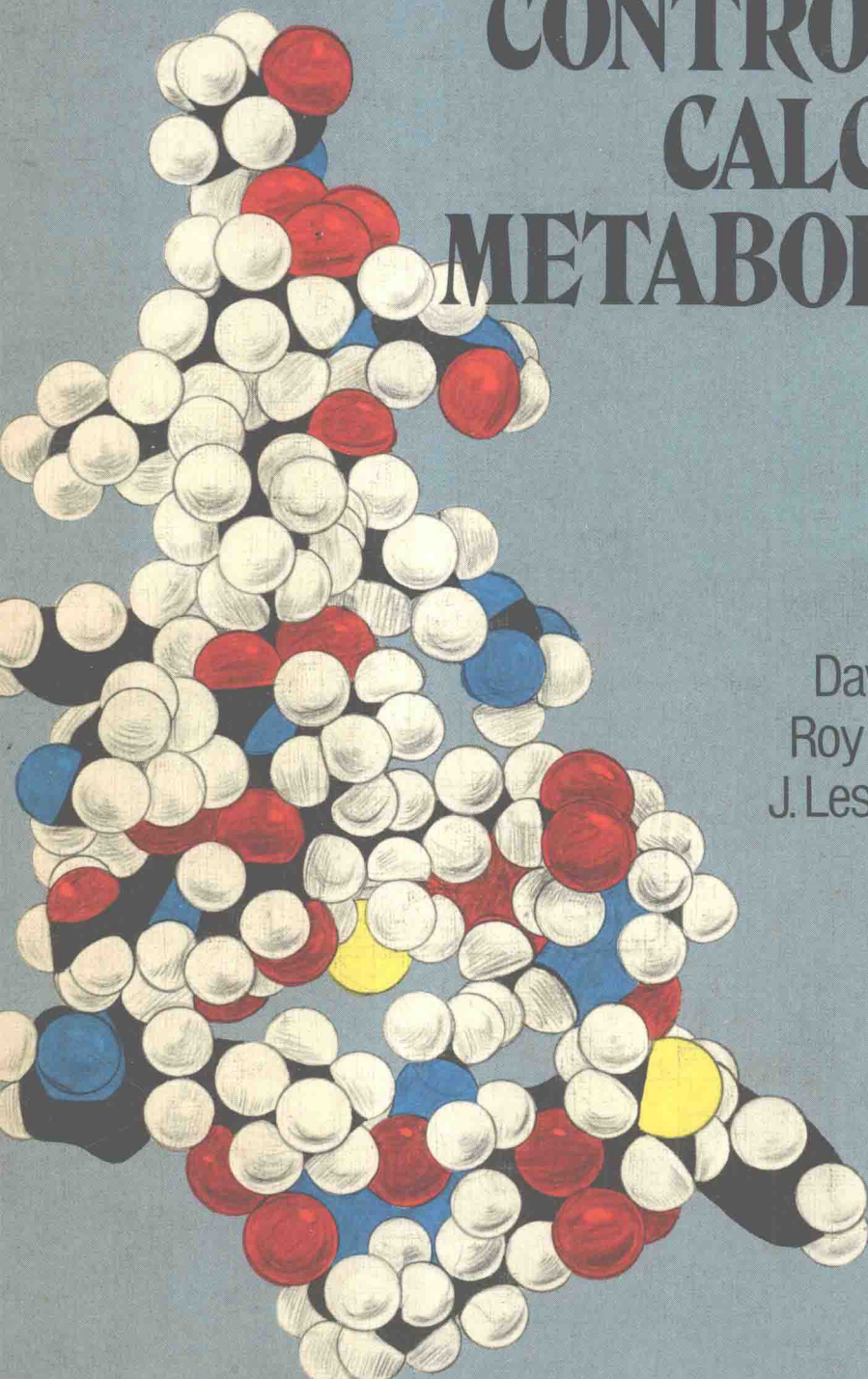


# HORMONAL CONTROL OF CALCIUM METABOLISM



Editors  
David V. Cohn  
Roy V. Talmage  
J. Les Matthews

International Congress Series 511  
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# Hormonal control of calcium metabolism

Proceedings of the Seventh International Conference  
on Calcium Regulating Hormones  
(Seventh Parathyroid Conference),  
Estes Park, Colorado, U.S.A., September 5–9, 1980

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## Hormonal control of calcium metabolism

The molecule portrayed on the cover represents the theoretical conformation of PTH 1-31, the biologically active amino-terminal region of parathormone (adapted from Cohn, D.V., Smardo, F.L. and Morrissey, J.J., *Proc. nat. Acad. Sci. (USA)*, 76, 1469, 1979).

# SEVENTH INTERNATIONAL CONFERENCE ON CALCIUM REGULATING HORMONES

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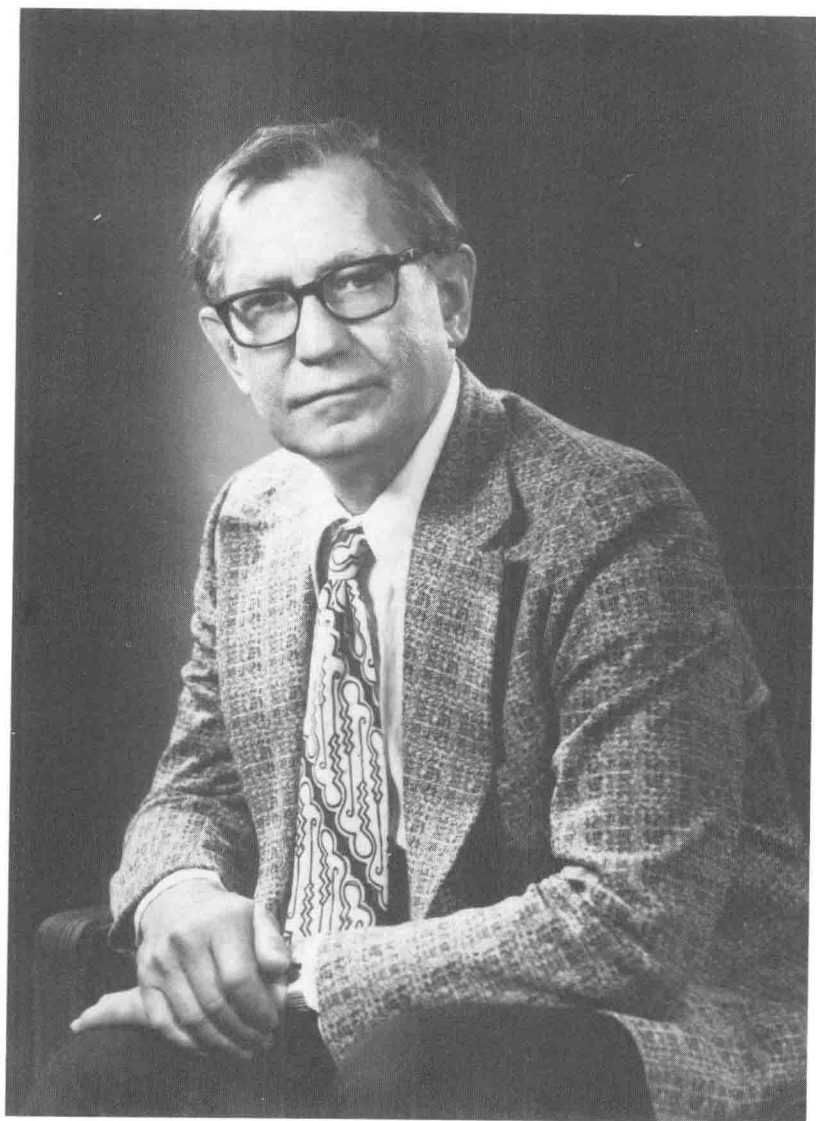
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*William F. Neuman*



## IN MEMORY OF WILLIAM F. NEUMAN

‘... And the heart goes numb in a tide of fear and awe for those we cherish, their hopes, their frailty. Their shadowy fate’s unfathomable design.’

These lines, from a *Cast of Light* by Anthony Hecht, were spoken by the author at a memorial service for William F. Neuman, held at the University of Rochester on January 8, 1981. ‘Bill’ Neuman had died suddenly and unexpectedly, at his home, on January 4.

It was appropriate that Hecht, a renowned poet, should speak as a friend of Bill’s, for Bill attracted friends from all fields of human endeavor. He befriended artists, scientists, industrialists, politicians, laborers and children. His vigor and vitality, his zealous pursuit of truth in science, his enthusiasm for teaching, his generosity and compassion, his good humor in the most trying of times, his affection for literature and art, and his love of music, especially jazz, were characteristics of Bill that made him larger than life, a contemporary Renaissance man.

Bill’s memorial service was testimony to a man who left a legacy much greater than his scientific achievements. Most of those around him remember that he invested his life in people and built a career around an interest in nurturing and training individuals to be inquisitive, to follow their curiosity, and never to doubt their ability to achieve. He taught by example and by showing an infectious enthusiasm for research. Bill often expressed his genuine delight that he could work in a lab and actually get paid for something he relished so much. This enthusiasm rubbed off on all of us and helped inspire our efforts.

Although he was passionately involved in his research, and spent long hours working at it, he always found time and energy for other pursuits. Bill was a scientist who could challenge the mind with the complexities of physical chemistry one minute and discuss Sunday’s football scores in the next. A 14-hour day in the laboratory could be followed by an equally long stint in the kitchen where he could delight the palate with elegant cuisine prepared by his own hand. He was an articulate, forceful and, when necessary, a blunt spokesman for scientific and humane concerns within the University, the Community and the Nation. As a jazz trombonist he was creative and expressive. He was a folksey, down-home person in private conversations, and a polished, compelling diplomat as Department Chairman, President of the Faculty Senate or when testifying before Congress.

He was a persuasive and effective advocate for the support of basic science and scientific education by the Manhattan Project and its successors. He chaired a committee that raised funds for, and then supervised, the building of a new Unitarian Church. He worked to prevent the atmospheric testing of nuclear weapons, and he built toys for his children.

Bill Neuman was an active participant in the Parathyroid Conferences from the very beginning and served for many years on the Organizing Committee. He enjoyed these meetings, for the science, for the chance to engage his contemporaries, but mainly for the reunions with former students and fellows. Bill had often remarked that his greatest satisfaction in his scientific career was in the people whose careers he had helped to launch. While his publications numbered over two hundred, it was his association with 28 Ph.D. students and nearly as many postdoctoral fellows that provided so much of the enjoyment which he derived from his work. The majority of these are currently active independent investigators in work related to the skeleton and associated fields.

One recent student, in reminiscing of days under Bill’s tutelage, recalled that on



occasions champagne was passed around to celebrate a new discovery. If the celebrations were premature, and the discovery proved evanescent, there was never gloom, simply a recognition that it was a part of scientific investigation.

Bill's scientific career began at the University of Rochester where he completed his doctorate in Biochemistry in 1944. It was during his graduate studies that his remarkable partnership with 'Margy' Neuman developed. When Bill met Margaret Wrightington, she was also a graduate student. They were married in 1943 and, that same year, Margy was the first woman to receive the Ph.D. degree in Pharmacology at Rochester. Subsequently they raised a daughter and two sons and maintained an enviable working relationship in the laboratory.

With the development of the Atomic Bomb, the Atomic Energy Commission set up a Research Unit of the Manhattan Project at the University to study biological effects of ionizing radiation. Bill joined the Toxicology Division of the Project at its inception and led a section studying in-vivo uptake and deposition of radionuclides. His first journal publications dealt with radioactive phosphorus uptake by calcified tissues. An interest in the skeleton and its metabolism had begun which was to persist for the next 35 years. For an extended period, Bill worked to develop a fundamental understanding of the physical chemistry of bone mineral, its composition, solubility and ion exchange characteristics. This effort led to the publication of *The Chemical Dynamics of Bone Mineral*, a book which quickly became a key resource for people entering or working in the field. One of Bill's many talents was evident in this monograph, the ability to organize the available information on a complex subject and present it in a readable and useful format. A colleague once said, in grudging admiration of the book: 'Bill may not understand this subject better than the rest of us, but he certainly convinces you that he does.' He could articulate this topic and many others with a conviction and clarity of style that belied any gap in his knowledge. This kind of self-confidence characterized his approach to most of his endeavors. He wasn't afraid to be wrong and at times took delight in proving he had been. Over the past decade Bill had reversed his position with respect to the concept of a 'bone membrane' at least a dozen times. The prospect of an experimental design which might convincingly eliminate that theory was as exciting to him as one which might add solid support to it.

Bill was a great storyteller and could stimulate his audience in discussion of a wide range of topics. But he was also a great listener and analyst. He possessed a unique knack for absorbing and sorting out a colleague's complex set of experimental observations and coming up with a straightforward sensible approach to a solution.

On warm July evenings in the future, Bill's absence in the snack bar at Kimball Union Academy will be apparent to many of us.

P.Q. BARRETT  
J.S. BRAND  
J.R. COLEMAN  
G.A. KIMMICH

## PREFACE

The Seventh International Conference on Calcium Regulating Hormones was held in Estes Park, Colorado, U.S.A., September 5–9, 1980. There were 419 registered delegates and associates from 15 countries. The formal entries and posters were presented in the new and beautiful Convention Center of the YMCA Camp of the Rockies.

The social activities included a banquet at which the first Marion Laboratories Award for Distinguished Research in the field of Calcium Regulating Hormones was presented to our Honorary Chairman, Professor Pieter J. Gaillard, by the Medical Director of Marion Laboratories, Dr. Robert Henderson.

The Board of Directors deeply appreciates the generous financial support for this conference provided by:

Armour Pharmaceutical Company  
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The KROC Foundation  
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We wish to acknowledge the cooperation provided by the A. Webb Roberts Center for Continuing Education, the Research Service of the Veterans Administration Medical Center, Kansas City, Missouri and the School of Medicine, University of North Carolina, Chapel Hill, North Carolina. We are particularly indebted to Dr. James W. Hamilton for his extraordinary efforts in organizing the poster session presentation. Finally, we are grateful to Lanelle Chancellor, Laurie Florence, Margaret Teague, Donald Teague, Anne Seaton and Peggy Klindt for programming assistance, to Mrs. Karen Scharnhorst for editorial work on the proceedings of the conference and to Virginia L. Hartley for help with the design of the cover.

DAVID V. COHN  
ROY V. TALMAGE  
J. LES MATTHEWS

**EDITORIAL: INTERNATIONAL CONFERENCE ON  
CALCIUM REGULATING HORMONES, INC.**

The readers of this series will recognize that this Conference on Calcium Regulating Hormones is in essence the Seventh of the International Parathyroid Conferences. The first of these was held in 1960 in Houston, Texas, U.S.A. under the auspices of Roy V. Talmage, D. Harold Copp, William F. Neuman and Roy O. Greep. Since the first conference we have witnessed an enormous increase in scientific interest and investigation in the field of calcium regulation, including the discovery of calcitonin and the active metabolites of vitamin D, a growing awareness of the complex relationship of parathormone to its precursors and important new techniques for evaluating bone metabolism.

It was decided by the Board of Directors that a change of name was desirable to better identify the breadth of investigations embraced by the participants in these conferences. To this end, the name Parathyroid Conferences has given way to International Conferences on Calcium Regulating Hormones, and the organization has itself been incorporated as a scientific and educational non-profit foundation. Under this framework, the possibility exists that other types of specialized conferences related to the field of calcium research may be sponsored.

Under its charter, the International Conferences on Calcium Regulating Hormones has a Board of Directors whose members are selected by a vote of the conferees attending the international meetings and a President and Vice President selected by the Board of Directors. In addition, each recognized national or regional society in the field of calcium research may designate a member to the Board of Directors.

The governing body of the Conferences as established at the Estes Park Meeting is:

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It is hoped that the International Conferences on Calcium Regulating Hormones, Inc. will offer to the scientific community a continuing and representative framework for the exchange of scientific information.

DAVID V. COHN



*Pieter Johannes Gaillard, Honorary Chairman, Seventh International Conference on Calcium Regulating Hormones.*

## A TRIBUTE TO PIETER JOHANNES GAILLARD

The Executive Committee and the Board of Directors pay tribute to our Honorary Chairman, Pieter Johannes Gaillard, a distinguished scientist in the field of bone and cell biology, who has been associated with these conferences since the first one was held in Houston in February 1960. Four years later, he organized the highly successful Second Parathyroid Conference in the charming seaside resort of Noordwijk aan Zee near Leiden. It is very fitting that he should receive the first Marion Laboratories Award for his contribution to these conferences.

Pieter was born in Rotterdam, 18 January 1907, and in 1925 entered the University of Leiden as a medical student, receiving his doctorate in medicine in 1931. It was his ambition to become a surgeon but fortunately for us, a prominent Leiden surgeon (Dr. DeBruine Groenveld) persuaded him to learn the new technique of tissue culture. It was a happy inspiration, and in 1932 he received his Ph.D. for the thesis: 'Hormones regulating cell differentiation in tissue culture'. He chose as his model the embryo chick calvaria, and it was natural that he should become interested in the effects of parathormone in this system. His contributions to the field, recently reviewed in *Clinical Orthopaedics and Related Research*, have been enormous. His laboratory is still very productive, even though Pieter technically retired three years ago from the Chair in Cell Biology at the University of Leiden which he had occupied since 1947.

Shortly after receiving his degree, Pieter was appointed the chief assistant in the Department of Histology at Leiden, and during the Occupation, his laboratory – conspicuously labelled 'Contagious Disease Research – Keep Out' – served as an illegal radio center and a store for food distribution to the underground. When the war ended, Dr. Gaillard was appointed Director of Public Health for the City of Leiden and was responsible for the difficult task of food distribution and disease control during the reconstruction period.

He was elected to the Royal Netherlands Academy of Sciences in 1946, and served as its president from 1966–1975. He is also an honorary member of the Hungarian Academy of Science and a foreign honorary member of the two Belgian Academies of Medicine. His service to his country was recognized in 1965 by its highest honor – the Order of the Netherlands Lion. He also received the Cross of Merit of the Netherlands Red Cross. His achievements have been recognized by honorary doctorate degrees from the University of Bordeaux and the University of Liege.

Pieter is a statesman of science who helped organize the European Symposium on Calcified Tissues, the European Cell Biology Organization (of which he was president from 1969–1978) and the International Society for Cell Biology. He has just come from the 2nd International Congress on Cell Biology in Berlin, where he served as Honorary President. We honor him for his achievements, but mostly for himself. We are fortunate that he was persuaded to master the techniques of tissue culture – and chose bone as his model. We look forward to his continuing contributions in the future. Pieter, we salute you.

D. HAROLD COPP  
Professor of Physiology  
University of British Columbia  
Vancouver, Canada

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