

THE BECKMAN CENTER FOR THE HISTORY OF CHEMISTRY

GERHARD HERZBERG

Transcript of an Interview
Conducted by

M. Christine King

at

The National Research Council of Canada

on

5 May 1986

BECKMAN CENTER FOR THE HISTORY OF CHEMISTRY

Oral History Program

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Gerhard Herzberg

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GERHARD HERZBERG

1904 Born in Hamburg, Germany on 25 December

Education

1928 Dr. Ing., Darmstadt Technische Universität

Professional Experience

1928-1929 Post-doctoral fellow, University of Göttingen
1929-1930 Post-doctoral fellow, University of Bristol
1930-1935 Privatdozent, Darmstadt Technische Universität
1935-1945 Research Professor of Physics, University of Saskatchewan
1945-1948 Professor of Spectroscopy, Yerkes Observatory, University of Chicago
National Research Council of Canada
1948-1949 Principal Research Officer
1949-1955 Director, Division of Physics
1955-1969 Director, Division of Pure Physics
1969- Distinguished Research Scientist, Herzberg Institute of Astrophysics

Honors

Honorary Degrees

1953 LL.D., University of Saskatchewan
1954 D.Sc., McMaster University
1956 D.Sc., National University of Ireland
1958 LL.D., University of Toronto
1960 LL.D., Dalhousie University
1960 D.Sc., Oxford University
1961 LL.D., University of Alberta
1964 D.Sc., University of British Columbia
1965 D.Sc., Queen's University, Kingston
1966 D.Sc., University of New Brunswick
1966 Dr.fil.hed., University of Stockholm
1967 D.Sc., University of Chicago
1967 D.Sc., Carleton University
1968 Dr.rer.nat., University of Göttingen
1968 D.Sc., Memorial University, Newfoundland
1969 D.Sc., York University
1970 D.Sc., University of Windsor
1971 D.Sc., Royal Military College of Canada
1972 D.Sc., Drexel University
1972 LL.D., St. Francis Xavier University
1972 D.Sc., University of Montreal
1972 LL.D., Simon Fraser University
1972 D.Sc., Université de Sherbrooke
1972 D.Sc., Cambridge University
1972 D.Sc., McGill University

1973 D.Sc., University of Manitoba
 1974 Dr.rer.nat., University of Hamburg
 1975 D.Sc., University of Bristol
 1975 D.Sc., Andhra University
 1976 D.Sc., Osmania University
 1976 D.Sc., University of Delhi
 1976 D.Phil., Weizmann Institute of Science
 1976 D.Sc., University of Western Ontario
 1979 D.Sc., Laval University
 1983 Dr.phil.nat., University of Frankfurt
 1984 D.Phil., University of Toledo

Elected and Honorary Memberships

1939 Fellow, Royal Society of Canada
 1951 Fellow, Royal Society of London
 1954 Honorary Fellow, Indian Academy of Sciences
 1956-1957 President, Canadian Association of Physicists
 1957 Honorary Fellow, National Academy of Sciences,
 India
 1957-1963 Vice-President, International Union of Pure and
 Applied Physics
 1959-1960 Chair Francqui, Université de Liège
 1960 Corresponding Member, Société Royal des
 Sciences de Liégé
 1964 Honorary Member, Hungarian Academy of Sciences
 1964 Academician, Pontifical Academy of Sciences
 1965 Honorary Foreign Member, American Academy of
 Arts and Sciences
 1968 Honorary Member, Optical Society of America
 1968 Honorary Fellow, Chemical Society of London
 (now Royal Society of Chemistry)
 1968 Foreign Associate, National Academy of Sciences,
 Washington
 1968 Companion of the Order of Canada
 1969 Honorary Member, Society for Applied Spectroscopy
 1970 Honorary Member, Royal Irish Academy
 1970 Honorary Fellow, Chemical Institute of Canada
 1970 Honorary Member, Spectroscopy Society of Canada
 1972 Foreign Member, American Philosophical Society
 1973-1980 Chancellor, Carleton University
 1973 Honorary Member, International Academy of Quantum
 Molecular Science
 1973 Honorary Fellow, Indian Chemical Society
 1974 Foreign Fellow, Indian National Science Academy
 1974 Honorary Member, La Asociacion de Quimicos
 Farmaceuticos de Columbia
 1974 Foreign Associate, Royal Academy of Belgium
 1976 ACS Centennial Foreign Fellow, American Chemical
 Society
 1976 Honorary Member, Japan Academy
 1978 Honorary Member, Chemical Society of Japan
 1978 Honorary Member, Real Sociedad Espanola de
 Fisica y Quimica
 1980 Member, European Academy of Arts, Sciences
 and Humanities

- 1981 Foreign Member (Physics), Royal Swedish Academy
of Sciences
1986 Korrespondierendes Mitglied, Bayerische Akademie der
Wissenschaften

Orders, Medals, Lectures and Prizes

- 1950 Médaille de l'Université de Liège
1953 Henry Marshall Tory Medal, Royal Society of
Canada
1954 Joy Kissen Mookerjee Gold Medal, Indian
Association for the Cultivation of Science
1957 Gold Medal, Canadian Association of Physicists
1959 Medal of the Society for Applied Spectroscopy
1960 Médaille de l'Université de Liège
1960 Bakerian Lecture, Royal Society of London
1962 Pittsburgh Spectroscopy Award, Spectroscopy
Society of Pittsburgh
1963 Twelfth Spiers Memorial Lecture, Faraday Society
1964 Frederic Ives Medal, Optical Society of America
1964 William Draper Harkins Lecture, University of
Chicago
1968 George Fisher Baker Non-Resident Lecturer in
Chemistry, Cornell University
1969 Willard Gibbs Medal, American Chemical Society
1969 Gold Medal, Professional Institute of the
Public Service of Canada
1970 Faraday Medal, Chemical Society of London
1971 Royal Medal, Royal Society of London
1971 Linus Pauling Medal, American Chemical Society
1971 Nobel Prize in Chemistry
1972 Chemical Institute of Canada Medal
1974 Madison Marshall Award, North Alabama Section,
American Chemical Society
1985 Earle K. Plyler Prize, American Physical Society
1987 Jan Marcus Marci Memorial Medal, Czechoslovak
Spectroscopy Society
1987 Minor Planet 3316=1984 CN1 named "Herzberg"

ABSTRACT

In this interview the late Christine King starts by asking Gerhard Herzberg to describe his schooling in Germany. An interest in science and mathematics was kindled at his school in Hamburg; indeed, Herzberg's first interest was astronomy. More practical considerations led him to follow the engineering physics course at Darmstadt, where he graduated with his doctoral degree in 1928. His introduction to spectroscopic studies was with Hans Rau, himself a student of Wien. A seminal year at Göttingen followed where Herzberg studied with both James Franck and Max Born; it was during this time that the basis for the well-known monographs was first established. A further postdoctoral year at Bristol with Lennard-Jones was followed by his return to Darmstadt as Privatdozent but the worsening political situation prompted Herzberg to seek a position abroad. He next describes his time at the University of Saskatchewan and how he was able to continue research, despite limited equipment. Analysis of cometary spectra led Herzberg into astrophysics which was further developed during the three year spell at the Yerkes Observatory. During the final section of the interview, Herzberg tells of his return to Canada and reflects on research direction at the National Research Council and the circumstances of the award of the Nobel Prize for Chemistry in 1971. Finally, Christine King learns of Herzberg's pastimes, in particular of his love of choral singing. As a coda, Herzberg is asked about his involvement with chemists, especially with those concerned with free radicals.

INTERVIEWER

Mary Christine King was born in China and educated in Ireland. She obtained a B.Sc. degree in chemistry from the University of London in 1968 which was followed by an M.Sc. in polymer and fiber science (1970) and a Ph.D. for a thesis on the hydrodynamic properties of paraffins in solution (1973), both from the University of Manchester Institute of Science and Technology. After working with Joseph Needham at Cambridge she received a Ph.D. degree in the history and philosophy of science from the Open University in 1980 and thereafter worked at the University of California at Berkeley and at the University of Ottawa, where she carried out research with Dr. Keith Laidler. Christine King died in an automobile accident in late 1987; her recent biography E. W. R. Steacie and Science in Canada (University of Toronto Press, 1989) was published posthumously.

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