

CHEMICAL HERITAGE FOUNDATION

ALAN G. MacDIARMID

Transcript of an Interview
Conducted by

Cyrus Mody

at

University of Pennsylvania
Philadelphia, Pennsylvania

on

19 December 2005

(With Subsequent Corrections and Additions)

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ALAN G. MacDIARMID

1927 Born in Masterton, New Zealand, on 14 April
2007 Died in Drexel Hill, Pennsylvania on 7 February

Education

1948 B.Sc., chemistry, University of New Zealand
1950 M.Sc., chemistry, University of New Zealand
1952 M.S., chemistry, University of Wisconsin
1953 Ph.D., inorganic chemistry, University of Wisconsin-Madison
1955 Ph.D., inorganic chemistry, University of Cambridge

Professional Experience

1955-1956 University of St. Andrews, Scotland
Assistant Lecturer

1955-1956 University of Pennsylvania
Instructor in Chemistry

1956-1961 Assistant Professor

1961-1964 Associate Professor

1964-1988 Professor

1988-2007 Blanchard Professor of Chemistry

2002-2007 University of Texas at Dallas
James Von Ehr Chair of Science and Technology, Professor of
Chemistry and Physics

2004-2007 Jilin University, China
Professor of Chemistry

Honors

1967 Philadelphia Section Award, American Chemical Society
1970 Frederic Stanley Kipping Award, American Chemical Society
1982 Madison Marshall Award, American Chemical Society
1982 Doolittle Award, American Chemical Society
1983 Royal Society of Chemistry Centenary Medal and Lectureship (England)
1984 Chemical Pioneer Award, American Institute of Chemists
1985 "Top 100" Innovation Award, *Science Digest*
1989 John Scott Award, City of Philadelphia

- 1993 Francis J. Clamer Award, The Franklin Institute
- 1999 Chemistry of Materials Award, American Chemical Society
- 2000 Nobel Prize in Chemistry (With Heeger, Shirakawa)
- 2001 Rutherford Medal, The Royal Society of New Zealand
- 2002 Member, Order of New Zealand
- 2002 Member, National Academy of Engineering
- 2002 Member, National Academy of Science
- 2003 Fellow, Royal Society of London, England
- 2004 Friendship Award, State Administration of Foreign Experts Bureau, P.R.
China
- 2004 Establishment of the Alan G. MacDiarmid Laboratories of Polymer
Research, Karnatak University, India
- 2005 Establishment of the MacDiarmid Institute of Innovation and Business,
São Carlos, Brazil

ABSTRACT

Alan G. MacDiarmid begins the interview by discussing his childhood in New Zealand and goes on to describe how two books, both chemistry-related, sparked his interest in chemistry. Due to economic hardship, MacDiarmid juggled working and attending the University of New Zealand part time to complete his bachelor's and master's degree. Denied a scholarship to study in England, MacDiarmid came to the University of Wisconsin-Madison as a Fulbright Scholar to study inorganic chemistry. After obtaining a M.S. in 1952 and a Ph.D. in 1953, MacDiarmid left Wisconsin and finally got to fulfill his dream of studying at the University of Cambridge under H. J. Emeleus. Focusing on inorganic chemistry, MacDiarmid obtained a Ph.D. in 1955 and accepted a position at the University of Pennsylvania after a brief stint as assistant lecturer in the University of St. Andrews. MacDiarmid did his most seminal work at Penn, where he remained for fifty-plus year and is still a faculty member. His early research in America was funded by Cold War related projects overseen by government funding agencies such as the Air Force Office of Scientific Research and the Office of Naval Research. Then on a visit to Japan, MacDiarmid serendipitously met with Hideki Shirakawa, who was doing similar research on conductive metals. Over tea they discussed their work, and MacDiarmid invited Shirakawa to Philadelphia. It was there, collaborating with another Penn faculty member, Alan Heeger, that the three published influential works that led to the discovery of conducting polymers and their shared Nobel Prize in Chemistry in 2000. MacDiarmid, an inorganic chemist, emphasized the importance of inter-disciplinary research with Shirakawa, an organic chemist; and Heeger, a physicist. MacDiarmid describes how interdisciplinarity can advance current research and promote innovation. He concludes the interview by suggesting possible future research directions and the need to decrease dependency on fossil fuels.

INTERVIEWER

Cyrus Mody is an Assistant Professor of History at Rice University. Prior to that position he was the manager of the Nanotechnology and Innovation Studies programs in the Center for Contemporary History and Policy at the Chemical Heritage Foundation. He has a bachelor's degree in mechanical and materials engineering from Harvard University and a Ph.D. in science and technology studies from Cornell. He was the 2004-2005 Gordon Cain Fellow at CHF before becoming a program manager. Mody has published widely on the history and sociology of materials science, instrumentation, and nanotechnology.

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