

CHEMICAL HERITAGE FOUNDATION

**GORDON E. MOORE AND JAY T. LAST**

Transcript of an Interview  
Conducted by

David C. Brock and Christophe Lécuyer

at

Woodside, California

on

20 January 2006  
(With Subsequent Corrections and Additions)

## **ACKNOWLEDGMENT**

This oral history is part of a series supported by grants from the Gordon and Betty Moore Foundation. This series is an important resource for the history of semiconductor electronics, documenting the life and career of Gordon E. Moore, including his experiences and those of others in Shockley Semiconductor, Fairchild Semiconductor, Intel, as well as contexts beyond the semiconductor industry.

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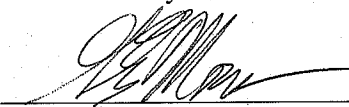
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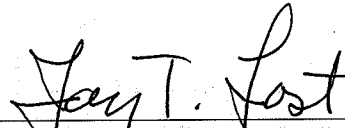
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## **GORDON E. MOORE**

1929 Born in San Francisco, California, on 3 January

### Education

1950 B.S., chemistry, University of California, Berkeley

1954 Ph.D., physical chemistry and physics, California Institute of Technology

### Professional Experience

1953-1956 Johns Hopkins Applied Physics Laboratory  
Research Chemist, Physical Chemistry

1956-1957 Shockley Semiconductor Laboratory  
Member, Technical Staff

1957 Fairchild Semiconductor  
Founder  
1957-1959 Director of Engineering  
1959-1968 Director of Research and Development

1968-1975 Intel Corporation  
Co-founder and Executive Vice-President  
1975-1979 President and Chief Executive Officer  
1979-1987 Chairman and Chief Executive Officer  
1987-1997 Chairman  
1997-present Chairman Emeritus

### Selected Honors

1975 Distinguished Alumni Award, California Institute of Technology

1978 Harry Goode Award, American Federation of Information Processing  
Society

1979 Frederik Philips Award, Institute of Electrical and Electronics Engineers

1980 Computer Society Pioneer Award, Institute of Electrical and Electronics  
Engineers

1988 Founders Award, National Academy of Engineering

1990 National Medal of Technology

1993 Medal of Achievement, American Electronics Association  
1993 John Fritz Medal, American Association of Engineering Societies  
1996 Excellence in Achievement, California Alumni Association  
1996 Elected to Horatio Alger Association of Distinguished Americans  
1997 Founders Medal, Institute of Electrical and Electronics Engineers  
1997 Alumnus of the Year, California Alumni Association  
1998 Fellow Award, Computer History Museum  
2000 D.L. (honorary), Princeton University  
2000 D.Sc. (honorary), University of Illinois at Urbana-Champaign  
2000 Lester Center Lifetime Achievement in Entrepreneurship and Innovation  
Award  
2000 PricewaterhouseCoopers Leadership Award for Lifetime Achievement,  
The Smithsonian Institution  
2001 Othmer Gold Medal, Chemical Heritage Foundation  
2001 Vollum Leadership Award, Oregon Graduate Institute School of Science  
and Engineering  
2001 World Technology Awards: IT-Hardware  
2001 Millikan Medal, California Institute of Technology  
2002 Presidential Medal of Freedom  
2002 Order of the Golden Ark, The Netherlands  
2002 25<sup>th</sup> Anniversary Lifetime Achievement Award, Semiconductor Industry  
Association  
2002 Bower Award for Business Leadership, Franklin Institute  
2003 Elected Foreign Member of the Royal Society of Engineering (UK)  
2003 L.H.D. (honorary), Johns Hopkins University  
2004 Perkin Medal, Society of Chemical Industry  
2005 Lifetime Achievement Award, Marconi Foundation at Columbia  
University

## JAY T. LAST

1929 Born in Butler, Pennsylvania on 18 October

### Education

1951 B.S., optics, University of Rochester  
1956 Ph.D., physics, Massachusetts Institute of Technology

### Professional Experience

1956-1957 Shockley Semiconductor Laboratory, Mountain View, California  
Senior Technical Staff

1957-1959 Fairchild Semiconductor, Palo Alto, California  
Senior Technical Staff; Co-Founder  
1959-1961 Head of Integrated Circuit Development

1961-1966 Amelco Corporation, Gardena, California  
Director, Research and Development; Co-Founder

1966-1974 Teledyne Technologies, Inc., Gardena, California  
Vice President, Research and Development

1980-present Archeological Conservancy, Albuquerque, New Mexico  
President

1980-present Sierra Monitor Corporation, Milpitas, California  
Director

1982-present Hillcrest Press, Inc., Santa Ana, California  
President

1998-present Think Outside, Inc., San Jose, California  
Member, Board of Directors

### Honors

1999 Hutchinson Medal, University of Rochester

## ABSTRACT

This oral history with **Gordon T. Moore** and **Jay T. Last** focuses on the years 1956 and 1957, during which time Moore and Last worked at Shockley Semiconductor Laboratory and Fairchild Semiconductor was founded. This transcript is about the life of ideas and the people who brought those ideas to fruition; Moore and Last reflect on their experiences during these years while flipping through an old notebook that documented various aspects of the meetings they had over an eighteen month period. In order to fully understand this oral history, the reader must consult the Supplement to Gordon E. Moore and Jay T. Last Oral History, oral history number 0327S, which is also part of the Chemical Heritage Foundation's collection

## INTERVIEWERS

**David C. Brock** is a senior research fellow with the Center for Contemporary History and Policy of the Chemical Heritage Foundation. As an historian of science and technology, he specializes in oral history, the history of instrumentation, and the history of semiconductor science, technology, and industry. Brock has studied the philosophy, sociology, and history of science at Brown University, the University of Edinburgh, and Princeton University (respectively and chronologically). His most recent publication is *Understanding Moore's Law: Four Decades of Innovation* (Philadelphia: Chemical Heritage Press), 2006, which he edited and to which he contributed.

**Christophe Lécuyer** is research historian at the Chemical Heritage Foundation. He holds a Ph.D. in history from Stanford University. He has published extensively on manufacturing districts, university-industry relations, and the history of electronics and scientific instrumentation. He was a fellow of the Dibner Institute for the History of Science and Technology and taught at MIT, Stanford University, and the University of Virginia.



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