CHEMICAL HERITAGE FOUNDATION

ISY HAAS

Transcript of Interviews
Conducted by

David C. Brock

By Phone

on

24 and 25 June 2010

(With Subsequent Corrections and Additions)

CHEMICAL HERITAGE FOUNDATION
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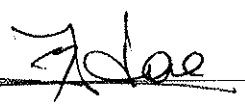
(Signature) 
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ISY HAAS

1934 Born in Istanbul, Turkey on 18 June

Education

1955 B.S., Electrical Engineering, Robert College
1957 M.S., Engineering, Princeton University

Professional Experience

IBM Research Labs, Poughkeepsie, New York
1955-1956 Superconductivity Research in Lead

Remington Rand Univac, Philadelphia, Pennsylvania
1957-1958 Circuit Design

Fairchild Semiconductor, Palo Alto, California
1958-1959 Device Evaluation
1959-1961 Microcircuit Development

Amelco Corporation, Mountain View, California
1961-1966 Device Development
1966-1968 Director, Research and Development

Inmet, Inc., Los Altos, California
1968-1978 President, IC Design

General Instruments, Inc., Chandler, Arizona
1978-1980 MOS Device Research

Semiconductor Engineering Corp., Inc., Tempe, Arizona
1980-2001 President, IC Design

Honors

1955 Summa Cum Laude, Robert College
1956 Orson Desaix Fellow, Princeton University

ABSTRACT

Isy Haas was born in Istanbul, Turkey. He and his parents were Jewish and Polish citizens, not automatically Turkish. They spoke French and German until World War II, when they ceased speaking German. Haas attended a French Catholic grade school and the English High School for Boys. He was always interested in physics, and at Robert College, where he graduated summa cum laude, he settled on electrical engineering.

Experiencing Turkish anti-Semitism, Haas wanted to go to the United States. He matriculated into Princeton University, where he obtained a master's degree in engineering, though his classes were mostly in physics and mathematics. His mentor and advisor was George Warfield, who recognized Haas's "feel" for the way things happen or work, his "physical intuition." One summer he worked for IBM, where he first became interested in computers.

Haas accepted a job at Remington Rand Univac in Philadelphia, working on positive-gap diodes under Josh Gray. Haas obtained his first patents there. Remington helped him gain his permanent residence, important because the military was his field's main customer. He left the Northeast for California, where he went to Fairchild Camera and Instrument (later Fairchild Semiconductor); there he worked with Gordon Moore, Robert Noyce, Victor Grinich, and Jay Last. Calling himself a "cynical circuit designer," Haas preferred evaluating devices. He developed Avalanche switching and wrote "a few" papers on four-layer diodes.

When Last founded Amelco Corporation, Haas left Fairchild for Amelco and stayed there about seven years, including the years after Amelco was incorporated into Teledyne Technologies. He worked with Lionel Kattner on diffusion, and they evolved a proof of principle for diffused isolation. Haas designed and evaluated most of the integrated circuits originating at Teledyne. Assuming Last's position when Last left, Haas became knowledgeable in many aspects of design and evaluation. He spent a year trying (unsuccessfully) to raise capital for his own company and then went into consulting.

At the end of the interview Haas discusses his patent for a two-collector transistor; Teledyne's military work; and the sources and development of equipment and materials. He talks more about Sheldon Roberts and Lionel Kattner. He explains how his move to Chandler, Arizona, improved the quality of his life. He concludes the interview talking about his work on MOS devices for General Instrument Corporation, which finally convinced him that he wanted to be his own boss. He took up what he liked best and did best: developing integrated circuits of all kinds. He had very little competition at first, so he did quite well. Eventually the field expanded and computers were developed to aid with design and simulation. Computers were too expensive for Haas at first, and a gradual decline in work led to his retirement. Haas says he is now attentive to the stock market.

INTERVIEWER

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.

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