CHEMICAL HERITAGE FOUNDATION

JAMES R. VON EHR, II

Transcript of an Interview
Conducted by

David C. Brock

at

Zyvex Labs, Inc.
Richardson, Texas

on

24 January 2011

(With Subsequent Corrections and Additions)

ACKNOWLEDGEMENT

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This oral history series is an important resource for the history of nanotechnology, documenting the lives and career of key scientists and engineers that shaped and contributed to the contemporary practice of science and technology.

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Once the Oral History Program has sent me a copy of my oral history transcript, I agree that (a) I will return the transcript with my edits to CHF within three months of its receipt by me and that (b) should I not return the edited transcript within that time, I agree that CHF may complete the

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Should I have any questions or concerns about participating in the creation of this oral history before or during the recording of the interview or about the processing of the transcript, I can contact the Program Manager for Oral History at the Chemical Heritage Foundation:

David J. Caruso, PhD
Program Manager, Oral History
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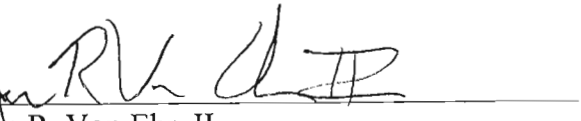
(215) 873-8236

Agreement

I have read the information contained within this release form, and David C. Brock has offered to answer any questions or concerns I had about this document or the interview. I hereby consent to participate in this oral history interview.

(Signature) 
James R. Von Ehr, II

(Date) JAN 24 2011

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Oral History Program
315 Chestnut Street
Philadelphia, Pennsylvania 19106

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JAMES R. VON EHR, II

1950 Born in Grand Rapids, Michigan, on 2 June

Education

1972 B.S., Computer Science, Michigan State University
1982 M.S., Mathematical Sciences (Computer Science), University of Texas, Dallas

Professional Experience

Texas Instruments
1973-1984 Section Manager, Senior Member of Technical Staff

Altsys Corp.
1984-1995 Founder, President & CEO

Zyvex Group
1995-present Founder and CEO

ABSTRACT

James R. Von Ehr, II, grew up in Grand Rapids and New Buffalo, Michigan, one of three children. His parents did not attend college but emphasized that education was important. Von Ehr's interest in electronics was fostered by the gift of some vacuum tubes, a homemade Heathkit ham radio, and electronics magazines. He was a page in the Michigan legislature when he was fourteen, and he finished high school as one of the first two National Merit Scholars from New Buffalo. This achievement won him a scholarship to Michigan State University, where he began a physics major but switched to computer science. He and some others, wanting to see how the operating system worked, hacked into MSU's computer system; this breach was traced to him, and he was forced to desist, but the group thought of themselves as the "alternative systems programming group," a name Von Ehr memorialized in the name of his first company, "Altsys Corporation."

Von Ehr's first job was developing CAD tools for integrated circuit layout for Texas Instruments (TI). On his first day there he met his future wife, Gayla, who was also an engineer. While at TI he obtained a master's degree at the University of Texas at Dallas. Disagreement with the goals of management caused Von Ehr to leave TI and, with Kevin Crowder, to start his first company, Altsys Corporation. They began with a plan to develop games, running the entire operation from Von Ehr's house. Eventually they decided on utilities for Macintosh computers, which he says, wistfully, had beautiful architecture. Settling on font editing, they developed FONTastic, helping create desktop publishing. Next was FONTographer for Apple's LaserWriter, used to develop typefaces for most of the world's languages. Business was so good they expanded out of the house into a real office. Next Von Ehr developed FreeHand, which he licensed to Aldus Corporation. Eventually he got FreeHand back and sold Altsys to Macromedia, where he continued working for two years. He hired the team that wrote Dreamweaver; eventually Adobe took over the business and killed FreeHand. Von Ehr had been selling his stock gradually, and at that point he started a new company, Zyvex Corporation.

Von Ehr had become fascinated by nanotechnology as a result of hearing Eric Drexler speak and of reading his books. He has funded Zyvex's foray into nano with a great deal of his own money because he believes in nano. Von Ehr had expected rapid development along the lines of computer technology, but he says that the United States is behind China and Japan in commercialization.

Zyvex received grants from the National Institute of Standards and Technology (NIST) and the Defense Advanced Research Projects Agency (DARPA). Early on they partnered with Honeywell for a grant from the Advanced Technology Program (ATP), one of the few government programs Von Ehr considers worthwhile. When ATP was shut down Von Ehr fired his President/COO and assumed management himself. The company was split into three companies, one of which was sold. Von Ehr sees nano becoming increasingly important in medicine—Zyvex is involved in a joint venture—Nano-Retina—with an Israeli company to develop a vision system for the blind—and in military applications, as well as in quantum computing. He and Steven Jurvetsen attended the signing of the 21st Century Nanotech Research and Development Act, sponsored by Senator George Allen, where he felt impressed by the White House and exhilarated by standing next to President Bush.

With E. Glenn Gaustad Von Ehr formed the Texas Nanotechnology Initiative. He has also endowed scholarships at Michigan State University; he describes the process of application for one of the scholarships, saying he thinks he could never have won one. He continues to work at Zyvex Labs and his Singapore company, Zycraft. He is fascinated by energy, especially energy storage, and would like to establish an energy storage company; but he says that the government regulations and mandates make a new company prohibitively expensive and even threaten personal freedom. He says he would establish a public company only outside the United States.

Von Ehr meditates on the interface between computers and nano; the inevitability of progress; the value of competition. He thinks the government's role should be to encourage invention by purchasing new technology, such as LED lighting, when it is at its most expensive; let entrepreneurs, not research at universities, develop new products. We should use the example of the semiconductor revolution: let private enterprise invent and develop by incremental goals. He wishes the NNI would focus on energy and energy storage; as an example of poor planning he points to the windmills in Texas, which are underutilized because there is no way to store their energy, nor to transport it to market. He believes nature makes the best catalysts; we should learn from the ways biological mechanisms work and emulate nature's atomic precision.

In addition to his work, Von Ehr finds enjoyment in reading science fiction, in his art collection (he loves Escher's unique way of looking at things), music, and promoting his libertarian ideals, including through the Cato Institute, Reason Foundation, and the Competitive Enterprise Institute, where he is now on the Board of Directors. He explains that he discontinued his subscription to *Scientific American* because it became a forum for personal attacks on scientists who did not toe George Soros's left-liberal party line. He talks a little about transhumanism and artificial intelligence and the ability of humans to adapt He continues to believe in nano and is convinced that history will vindicate him.

INTERVIEWER

David C. Brock is a senior research fellow with the Center for Contemporary History and Policy at the Chemical Heritage Foundation. As a historian of science and technology, he specializes in the history of semiconductor science, technology, and industry; the history of instrumentation; and oral history. Brock has studied the philosophy, sociology, and history of science at Brown University, the University of Edinburgh, and Princeton University.

In the policy arena Brock recently published *Patterning the World: The Rise of Chemically Amplified Photoresists*, a white-paper case study for the Center's Studies in Materials Innovation. With Hyungsub Choi he is preparing an analysis of semiconductor technology roadmapping, having presented preliminary results at the 2009 meeting of the Industry Studies Association.

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NNI should focus on energy, especially energy storage. Thinks entrepreneurs should work on nano; government should lead way by consuming early, costly products. Competition is good. We should learn from ways biological mechanisms work. We should emulate nature's atomically precise size. Feels he has enough money to do what he wants. History will validate his ideas. Sarbanes-Oxley imposes prohibitive costs on going public; he would never risk his own net worth and freedom. Might establish public company outside United States. Cato Institute. Michael Crichton's *Prey* and other science fiction. His art collection; especially likes M.C. Escher. Likes music. Interest in energy conversion. Thinks nature is best catalyst. No grid storage for windmills so much of Texas's wind power turned off. Fascinated by VRB Power in Canada, bought by Chinese; wishes he'd bought.

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Universities good only for producing graduates, many foreign; United States poses visa problems. We should use example of semiconductor revolution: look to industry and have incremental goals. Japan's investment in glass companies and tires. Toxicity tests on nanotubes show no inhalation; good substitute for carbon black. Barriers to entry by EPA, OSHA, other agencies. China and Japan ready to market. China working on anti-counterfeit printing

that uses no ink; research facility in Beijing now closed to tourists, so probably making progress. View of EPA: "facts don't necessarily lead to regulation." Tubes embargoed going to China; products designed and sold here but made there. Growth of technology. Ray Kurzweil. Transhumanism, artificial intelligence. Ability of humans to adapt. Mihail Roco and NNI. Senatorial Trust; attending President Bush's second inauguration. Von Ehr's libertarian ideals. Against price supports but thought ATP a good program. With E. Glenn Gaustad formed Texas Nanotechnology Initiative. Endowed scholarships at Michigan State University. Future of molecular nanotechnology. Python, C++. Computer hackery, not computer science. Lego Mindstorms. Interface between computers and nanotechnology. Power of assembly. Continuing invention. Medicine. Inevitability of progress.

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