Oral History of Max Palevsky

Interviewed by:
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Recorded: August 29, 2006
Los Angeles, California

CHM Reference number: X3650.2007

Gardner Hendrie: [August 29, 2006] We have today Max Palevsky, [who] has very graciously agreed to an oral history for the Computer History Museum's Oral History Project. I think I'd like to start, Max, with just a little bit of your family background, so we have some idea of the environment that you grew up in. Could you tell us a little bit about your mother and your father, or any siblings you had? Where you lived, that sort of thing.

Max Palevsky: My mother and father were both born in Eastern Europe. They were not illiterate, but close. My father could read Yiddish quite fluently. Neither of them could deal with English very well. My mother always used to tell me that she was hungry every day of her life before she came to this country. And then of course when she came to this country, she had three children, and then the Depression hit. So they had a very difficult life.

Hendrie: Okay. What did your father do? What was his occupation?

Palevsky: My father was a house painter. And didn't have an automobile, so he had to carry everything on the streetcar.

Hendrie: That's definitely the hard way to do it.

Palevsky: Yes, and he was very proud that we were never on the dole, because you know, in the middle of the Depression, 25 percent of the people in this country were unemployed.

Hendrie: Yes. Did you have any siblings when you grew up?

Palevsky: I had an older brother, and an older sister. My older brother, who is now dead, was a physicist who worked on the atomic bomb project down in Los Alamos.

Hendrie: Wow.

Palevsky: My sister is still alive, and lives out here in the valley.

Hendrie: Okay. Tell me a little bit about your very early education. You went to the public schools, I'm presuming?

Palevsky: I went to the public schools, and the public schools in Chicago were notoriously bad. Chicago was run by gangsters, and everything was done by graft, and the Chicago schools, the public schools, consequently suffered. They weren't very good, but I went through them.

Hendrie: Did you always know that you would go to college, since you obviously came from a family that had never thought about that?

Palevsky: No. No, I never… It was always difficult with me about what would happen, but when my brother got to a certain age, he was very bright, and he got a scholarship to Northwestern.

Hendrie: Okay.

Palevsky: When I got to a certain age, I got in the army, and I had the GI Bill.

Hendrie: Okay.

Palevsky: My poor sister, who had neither, never went to college.

Hendrie: Okay. So there had to be some sort of financial avenue.

Palevsky: Absolutely.

Hendrie: So all the kids had the ability, but...

Palevsky: That's right.

Hendrie: Okay. What are your first earliest recollections of what you thought you might want to do when you grew up?

Palevsky: I always was interested in mathematics and science. The degree I got first was mathematics. I just had a knack for it, and I was interested in it, so I thought I would do something in it. But I never knew what.

Hendrie: Yeah, so you didn't have a clear, "I want to be a xyz."

Palevsky: No, no. And certainly not a computer scientist.

Hendrie: You couldn't imagine.

Palevsky: Right.

Hendrie: There wasn't any way to do it. Tell me just a little bit about your military career. Did you go into the...

Palevsky: During the Second World War, there was no Air Force. There was an Air Corps that was part of the United States Army.

Hendrie: Yes.

Palevsky: It wasn't a separate branch yet. They had a program to train young people to eventually, with a lot of training, become weathermen. And I signed up for that, and was sent first to the University of Chicago to learn -- I was just a kid, I was 18 -- to learn basic science and mathematics.

Hendrie: Okay.

Palevsky: At the end of a year, the army figured out that the mortality rate among weathermen was nothing like what they expected, and they had too many. They didn't need any more. So rather than being sent off to learn about weather, I was sent off to Yale to learn about electronics.

Hendrie: My goodness, so the army did very well by you in terms of recognizing your ability and using you for something other than <inaudible>.

Palevsky: Very lucky. Yeah.

Hendrie: Do you remember when you went into the army? You were drafted, or you volunteered?

Palevsky: No, I volunteered so that I could get into this program.

Hendrie: Yes.

Palevsky: [Looking at documents] No it doesn't have it here. I went into the army, I think, in 1943.

Hendrie: Okay. Essentially right after graduating, because otherwise you would have been drafted.

Palevsky: Yes.

Hendrie: All right. So you went to Yale, and you went for electronics.

Palevsky: I went to Chicago first, and then to Yale.

Hendrie: Okay, and what happened there? How long did you stay there?

Palevsky: I stayed there a year, and then I got sent to basic training, and then to New Guinea.

Hendrie: Okay. Now what kind electronics did you work on when you were in New Guinea in the Air Force? Or the Air Corps?

Palevsky: New Guinea was the central base for electronics for the Air Force in the South Pacific. It had trained people so that if something could be fixed but was complex, it was flown to New Guinea and worked on there. But mostly what we did, if planes had been used and were getting old, the plane would be flown to New Guinea, and all the parts of it that were still okay [were salvaged]. If a wing or a part of a body was starting to show sign of age, that doesn't mean that the radio equipment was bad. What we did is we took all the parts of the plane that were still usable. Then with bulldozers, bulldozed the rest into the jungle.

Hendrie: Okay. Did you work there until the end of the war?

Palevsky: Yes.

Hendrie: At the end of the war you came back?

Palevsky: Yes.

Hendrie: Now, you were not married or anything at this time.

Palevsky: No.

Hendrie: How did you decide where… You decided you wanted to use the GI Bill.

Palevsky: I had had such a good experience in Chicago in the Army that I went back to the University of Chicago and got a degree in mathematics.

Hendrie: Okay. Now your resume says you also got a degree in philosophy.

Palevsky: Yes.

Hendrie: Where did your interest in philosophy come up from? Do you have any idea?

Palevsky: Well, part of it's innate.

Hendrie: Okay.

Palevsky: But if you study science and philosophy, there are a lot of questions that are philosophical, and that interested me, and I started to read and study philosophy.

Hendrie: So you became interested in taking courses in philosophy when you were at the university, and you enjoyed them.

Palevsky: M'hmm.

Hendrie: When you graduated from University of Chicago, do you have down what… Oh, yes, we went over what year, it was '48, right?

Palevsky: M'hmm

Hendrie: What did you do then?

Palevsky: I just continued. I loved going to school. So I went off to Berkeley, and went to graduate school in philosophy. Then I went back to the University of Chicago, and went to graduate school in philosophy. And then I came out here, and I was a teaching assistant in the philosophy department here.

Hendrie: At UCLA?

Palevsky: Yes.

Hendrie: Okay. Now how did you support yourself during all of this?

Palevsky: Well, you know, when you're a teaching assistant you get a few dollars a month, and I lived very simply.

Hendrie: Yes, okay. So you just had odd jobs to support yourself while going through school.

Palevsky: No, I supported myself on what the university paid me, which wasn't much.

Hendrie: Okay, but it was enough.

Palevsky: It was enough.

Hendrie: Okay. Let's see, can we put a benchmark on when you're now at UCLA as a teaching assistant in philosophy? Would this be 1949 or 1950?

Palevsky: Around then.

Hendrie: Okay. Now, at some point you decided that the academic world wasn't as much fun? Or, what went through your mind?

Palevsky: Well, you want me to tell the story?

Hendrie: Yeah, I love stories. Tell me the story.

Palevsky: One day a colleague of mine at UCLA said, "You know, John von Neumann is speaking." You know who that is?

Hendrie: Yes, of course.

Palevsky: "John von Neumann is speaking at Caltech. Why don't we go listen?" So we went out to Caltech and he was giving a lecture. I can't give you the precise title, but essentially what he was talking about is that with the advent of computer technology, it was now possible to build a device that corrected its own errors.

Hendrie: Okay.

Palevsky: And you know he was one of the great minds of the 20th century.

Hendrie: Yes.

Palevsky: It may sound a little trivial, but it wasn't. As part of that talk, he spoke at some length, not much, about the way one designed devices. And that the correct most efficient way was to use symbolic logic. Logic has an odd history. The first person to codify logic was Aristotle, in the 5th Century BC. He was, of course, a brilliant, brilliant, brilliant man, and he dominated philosophy for centuries. During the middle ages, the philosopher of the Catholic Church was St. Thomas Aquinas. And St. Thomas Aquinas is just a redoing of Aristotle. The logic of Aristotle became the logic of the Catholic Church, and it was essentially syllogism. "All men are mortal, Socrates is a man, therefore Socrates is mortal." That type of logic dominated. You see, that was the only place where logic was studied. In philosophy departments.

Hendrie: Yes, in philosophy departments, right.

Palevsky: So when computers came along, with engineers and physicists and mathematicians, none of them had ever studied logic. After I heard this lecture, I decided that that would be a good thing for me to do, since I knew logic and I had some background in electronics. So I picked up the Yellow Pages, and I applied to all the companies that looked like they might be involved in computers, and I got job offers from every one of them.

Hendrie: Oh, my goodness.

Palevsky: But most of them were for programming, and I didn't want to be a programmer. I wanted to work with electronics and logic. At the time, Northrop had a computer division, which they sold almost immediately when I joined. I went there, I talked to them, they put a few problems on the board which were the kind of thing that someone who was studying symbolic logic for two weeks knew.

Hendrie: Yes, these were not difficult logic problems.

Palevsky: Because they didn't know anything about logic. Of course I wrote down the answers without thinking, and so they hired me. I started, and I had some background in electronics. I started designing computers, and very quickly they sold that division to Bendix, and Bendix is where I really worked, learning…

Hendrie: You got started in the electronics, the digital world.

Palevsky: Right, exactly. And I was sort of [the] local logician.

Hendrie: Okay. So there were not a lot of people who understood logic.

Palevsky: No, no. In fact, at the beginning -- it's ironic -- at the beginning of the computer field, there were a few people who were by profession philosophers who worked in computers, because they were the only ones who had studied symbolic logic.

Hendrie: Yes.

Palevsky: Now, it wasn't quite as I say, because if you remember, late in the 19th century, some Englishmen started playing with symbolic logic, and that resulted in Bertrand Russell. That's not Aristotle, that's symbolic logic with a vengeance.

Hendrie: Yes. Yes.

Palevsky: Have you looked at those books?

Hendrie: Well, I know the works of Boole, but I don't know the ones of Bertrand Russell.

Palevsky: Yeah, Boole was a little primitive.

Hendrie: Yes.

Palevsky: But the Principia Mathematica, there's three volumes, each three or four inches thick with small print, and all symbols, practically no words. They were all proofs. The point of it was to prove that symbolic logic was the basis of mathematics; that you could derive all of mathematics from symbolic logic.

Hendrie: From symbolic logic. That was his goal.

Palevsky: Right. Anyhow, there was some history. So I started designing computers.

Hendrie: So you started. You went to work for Northrop, and immediately discovered you weren't working for Northrop anymore, you were working for Bendix.

Palevsky: M'hmm.

Hendrie: Now, did Northrop have anything other than the differential analyzer, that Maddida product?

Palevsky: Yeah, I worked on… I designed the last and most sophisticated differential analyzer.

Hendrie: Okay. So that's what you did when it became Bendix.

Palevsky: Yes.

Hendrie: I remember I first met you at a conference where you gave a paper on a digital differential analyzer, which I presume is the product you're talking about.

Palevsky: Yes

Hendrie: I don't know whether it was the D12 or...

Palevsky: I don't remember either.

Hendrie: Yeah, it doesn't matter. So you started working on digital differential analyzers. Now, didn't Bendix at this time do some parallel work? Didn't they purchase Harry Huskey's quote "design" for the G15?

Palevsky: Well, Harry Huskey was sort of shady, I thought. The one who did all that was a physicist from Caltech. He was a friend of mine. He was the one who really designed the machine.

Hendrie: Oh, Evans?

Palevsky: No.

Hendrie: No? Okay.

Palevsky: The name slips my mind.

Hendrie: Yeah, okay.

Palevsky: But he, and Bob Beck, who was an employee, together designed this G15, the first computer, general purpose computer.

Hendrie: Okay, so Huskey just sort of had an architecture which he sold to them.

Palevsky: Yeah, yeah.

Hendrie: He didn't have a detailed design. A logical description. As a logician, you'd say this completely describes the machine.

Palevsky: Not only that, but he didn't get it. He wasn't too bright.

Hendrie: Okay. Well, we actually have a couple of oral histories of Harry, which is pretty interesting.

Palevsky: From Harry?

Hendrie: From Harry.

Palevsky: He's still alive?

Hendrie: He's still alive.

Palevsky: You're kidding.

Hendrie: He lives in Georgia, and I just did an oral history of him last spring.

Palevsky: My, my. My, my.

Hendrie: Of course the thing he talks the most about is, he really enjoyed, he was lucky where he was, to have worked doing some work, not designing, but doing documentation for ENIAC, and then working with Turing. What an opportunity to work like somebody like that. Then, I guess he did put together the team that did the SWAC, which was of course out in the West coast. But anyway. Do you remember what your first assignment was when you arrived at what became very quickly Bendix? You were an engineer with no experience.

Palevsky: I wasn't an engineer. I wasn't anything

Hendrie: You weren't an engineer. You were a logician with no...

Palevsky: When there wasn't any of them.

Hendrie: Yeah.

Palevsky: That wasn't a proper job description.

Hendrie: Alright. So you just started working on DDA's, learning how they worked, and then took over the design of...

Palevsky: I must say, of the people who worked on DDA's, the man who was really brilliant was a guy from Control Data who started his own company that built super computers.

Hendrie: Oh, Cray.

Palevsky: Cray.

Hendrie: Yes, Seymour Cray.

Palevsky: Yeah. I never met him, but I read his papers, and they were brilliant.

Hendrie: Yes, he was a relatively shy person. Now, did Dave Evans play any role in the DDA work?

Palevsky: No. He was head of the company.

Hendrie: He was the chief honcho.

Palevsky: Yes.

Hendrie: You just worked as a project engineer, sort of like, at this time.

Palevsky: Yes, exactly. Is Dave still alive?

Hendrie: I do not know. Sutherland is, and we have interviews of Sutherland. Of course, you know the graphics company I think was the most famous thing that Dave Evans was involved in. I do not know whether he is alive, or not. Well, maybe I can ask the question. Do you know whether Bob Beck is still alive?

Palevsky: Bob Beck is still alive, the last I heard. He came to my 80th birthday a couple of years ago, and he lives down the coast and has a farm. He's a farm boy by nature.

Hendrie: Okay.

Palevsky: He was brilliant beyond… He was just… And never… Came from a simple farm family, and never would have thought of going to college. Except when he got in the army, he got into some kind of technical work. The captain who was head of his unit kept saying to him, "You know, you're extraordinarily bright, and you have to college when you get out of the army." He just beat that into his head, and so when he got out of the army, he went to college.

Hendrie: Okay.

Palevsky: And then started to work, and was just extraordinarily brilliant.

Hendrie: Do you think there is any chance he would ever do an oral history?

Palevsky: Oh, sure.

Hendrie: Well, when we finish, I would love to get any contact information you have for him, because I very much want to do that.

Palevsky: No, no, he was very special.

Hendrie: We need that. He made really wonderful technical contributions to a bunch of products, at least, as far as what I know.

Palevsky: Yes. All the things that Harry Huskey takes credit for, Bob Beck did.

Hendrie: And made them work.

Palevsky: M'hmm.

Hendrie: Okay. Talk to me some more about your designing digital differential analyzers, DDA's. Is there still a market for these at this time?

Palevsky: No, because you have to remember that at the beginning of the computer industry, computers were very slow. To solve the differential equations that describe an airframe was a horrendous job. This was an attempt to build a special-purpose computer that was intended just for that task.

Hendrie: That's why Northrop, being an aircraft company, developed the Maddida.

Palevsky: Exactly. But then as computers got faster, there was no need for them.

Hendrie: Talk to me a little bit more about your period at Bendix doing their next DDA. How long did you do this? What happened?

Palevsky: Let's see, I was at Bendix from '52 to '56.

Hendrie: Okay. So four years.

Palevsky: During that time I worked mostly on DDA's. But I did have a hand in the G15, in the general purpose computer. I helped a little, and learned a little. I was not the key player.

Hendrie: Yes, okay, because they were right over there in another… The designers were all coresident. All this work is being done in Los Angeles, correct?

Palevsky: Yeah.

Hendrie: Not in Indiana.

Palevsky: No, no, no.

Hendrie: Okay. Something I read said you also taught a lot of courses. How did that happen?

Palevsky: That's a little overstated. I gave a lot of lectures.

Hendrie: Okay. Why did you end up giving the lectures? The person you worked for said you ought to do it?

Palevsky: No, there was just something in me.

Hendrie: You liked doing it.

Palevsky: I liked doing it. I spent an awful lot of my younger life around university.

Hendrie: So it's the teacher genes.

Palevsky: Yeah.

Hendrie: Let's continue the story. You're still at Bendix. Tell me a little bit about what led up to your leaving Bendix.

Palevsky: Well, there were a lot of factors, of course. A change of that sort in one's life is never simple, or rarely.

Hendrie: M'hmm, yeah.

Palevsky: One of the factors was that the Germans down in Huntsville… You know, after the war the American government picked up all the scientists who had worked on the missiles in Germany and sent them off to Huntsville Alabama to work on building an American missile. They had the same problems. How do you build a mainframe for a missile? They worked with DDA's.

Hendrie: To solve the differential equation, the mathematics side of it.

Palevsky: Right, yeah. So they bought a machine. Then they very nicely got the government to put up the money to allow us to build a more sophisticated machine. I got to know all those people; I was in Huntsville often. So I learned a little. That was sort of entrepreneurial.

Hendrie: Yes.

Palevsky: Then at a certain point -- there always are difficulties, or differences of opinion -- the Germans in Huntsville were very encouraging, and suggested they would give me a contract if I started my own company.

Hendrie: Did you have an idea that they were particularly were interested in?

Palevsky: Yes.

Hendrie: Could you tell us a little bit about that idea?

Palevsky: Well, they were interested in having DDA's built for them, which Bendix wasn't very interested in. And then they were interested in computers generally. They were just learning, too, you know.

Hendrie: Okay, all right.

Palevsky: They were Germans who had gone through university before there were computers.

Hendrie: Yes.

Palevsky: They weren't experts. So I left Bendix and got the Yellow Pages again, and looked, and decided to go talk to a company that made television sets called Packard Bell. I went to talk to them, and they said, yes, they would put up the money for a subsidiary. So in '57, I started a subsidiary of Packard Bell called Packard Bell Computer, and we started in a store front on Pico Boulevard. You know where that is?

Hendrie: Yeah.

Palevsky: Just a little store. We bought oscilloscopes and all the things. And we set about getting ready to build a machine. All the first things you have to do. You have to get circuits, you have to do the logic, and all that.

Hendrie: Who were your partners? Who came along with you?

Palevsky: Bob Beck.

Hendrie: Okay, [he] was a primary partner.

Palevsky: Yes, Bob Beck was my partner and the real brains of the situation.

Hendrie: Okay.

Palevsky: I was sort of the outside man, and he was the inside man. We slowly built up a company, and with the people in Huntsville. Then a lot of other people were interested, and we started manufacturing machines.

Hendrie: Now the original machine that you built at Packard Bell, was that a DDA?

Palevsky: No.

Hendrie: Is that what they wanted, originally? The Huntsville people?

Palevsky: No, no. By that time, it had become clear that computers… See, it was another one of those lucky coincidences that just as we started, solid state electronics appeared, so now you could do things in a different way.

Hendrie: Yes. You didn't have to use all those tubes.

Palevsky: You could build machines of a certain complexity that had a high probability of being operable at any given minute. With a thousand vacuum tubes, it was never running. The vacuum tube was always going out. Also, we made the decision early that we would start with silicon transistors.

Hendrie: Oh, really? Which were quite new at that point.

Palevsky: We built the first silicon computer. The advantage there was heat. Silicon transistors will operate at a much higher temperature, so you could build complex machines and not have it run down because of heat, which would happen with Germanium transistors.

Hendrie: Okay, good. Now, is this machine the machine that became the Packard Bell 250?

Palevsky: Yes.

Hendrie: Okay. Who were the key people? Where did the idea for this machine, I mean, who came up with the architecture?

Palevsky: It's a long time ago.

Hendrie: Okay, all right.

Palevsky: A bunch of us were working on it.

Hendrie: A bunch of you, yes. Do you remember who you sold the first ones to? Are there any particular sales stories that you remember?

Palevsky: Well, I think we sold one to the Germans. I remember one of the high points in my life. The guy who was head of, not Hewlett Packard, but it was a company that did process control.

Hendrie: Okay.

Palevsky: And it had the name Hewlett or Packard in it.

Hendrie: Yeah, process control.

Palevsky: Well, at one point, when we were three guys in a store front, they standardized on our computers.

Hendrie: Ah, okay.

Palevsky: And that was a big one.

Hendrie: That was big one.

Palevsky: Yeah. I don't know, we sold them to all kinds of people, particularly process control people.

Hendrie: M'hmm, because it was a small machine.

Palevsky: A small machine. Very reliable.

Hendrie: Now this was still not a core memory machine. This still had some kind of delay line. Do you remember what kind of delay?

Palevsky: No, it had a drum.

Hendrie: It had a drum? Oh, it wasn't it a delay line machine?

Palevsky: No, no, no, no.

Hendrie: It was a drum machine.

Palevsky: I never worked on a delay line machine.

Hendrie: Okay, all right. We just found -- the museum just found -- a PB250 to add to our collection in Europe.

Palevsky: Really?

Hendrie: Yes. We found two different people had this computer collection, and it was all going to be scrapped. So we went over and rescued it, and one of the items was a PB250, so now we have one. We didn't before, which I think is wonderful. I remember the story, the early advertisements for the 250, and they had "Designed by Robert Martin Beck" actually on the ad. Is there a story behind that? Because that was really different.

Palevsky: Bob Beck has a brilliance that's very unusual.

Hendrie: And he deserved that recognition.

Palevsky: Yes.

Hendrie: It should be on there. All right. Did you get any other outside financing other than the founder of Packard Bell? To get it going, until you got it profitable?

Palevsky: Their money. We only used their money.

Hendrie: You only used their money.

Palevsky: We were really a part of their company.

Hendrie: Did anybody have any equity? So there was no real equity in this. You had some independence because you were a separate company.

Palevsky: I, and several other people, had a deal that if we got to a certain point, we would get a bonus of a certain… I forget the details.

Hendrie: Yeah, okay. At some point, the computer was successful. Was it a successful business? Do you remember whether it made money?

Palevsky: I like to think it was, but I don't remember the details.

Hendrie: You don't remember the financial details. Okay. So what happens next in your career?

Palevsky: What happens next is that we were run by people from Packard Bell, and they didn't know up from down. They eventually went out of business.

Hendrie: All right.

Palevsky: They were run by people who were not very smart. That always caused trouble when we were trying to explain what we trying to do. So at a certain point in...

<pause to change tape>

Hendrie: All right. Let's continue. You were saying that the people that ran it [Packard Bell] were not very smart.

Palevsky: Yes, I guess I have a certain level of -- what's the word I want? This is what I was talking about, getting old -- entrepreneurial spirit in me. So I looked around and I gathered together people I knew with money, and raised enough money. I started my own [company], Scientific Data Systems.

Hendrie: Who were some of your early investors?

Palevsky: Oh, a family here -- I can't remember their name -- who were heirs to the Sears fortune. You see, I'm from Chicago. Those were Chicago people and I had, even though I came from a very poor family, going to the University of Chicago and being around Chicago I had met some people who were rich. And I called on them. I had met people in the electronics business by then who had some money. Given the whole group, I could raise enough money to start a company.

Hendrie: Okay. Was Arthur Rock involved as a venture capitalist?

Palevsky: Absolutely. Arthur Rock was a key element in raising money.

Hendrie: How did you meet him? Was it through when Teledyne? Didn't Teledyne take over Packard Bell at some point?

Palevsky: No, I don't think so. Maybe.

Hendrie: Okay.

Palevsky: Arthur was on the board of Teledyne. No. It was that I had met, by that time, a number of venture capitalists around LA, and one of them said, "You should talk to Arthur Rock."

Hendrie: Okay. So, that's what you did.

Palevsky: Yes.

Hendrie: And he thought enough of your idea that he was willing to invest in it.

Palevsky: Yes.

Hendrie: He was a very smart man too.

Palevsky: Yes, he made a lot of money.

Hendrie: He made a lot of money, and was good at picking people to back. All right. Were there certain key people that you particularly wanted to get involved in this new venture?

Palevsky: Well, one of the things I think I'm good at… I'm not good at… I'm not Bob Beck. But one of the things that I have always done is I've always kept a book, and as I traveled around -- since I was the outside man -- whenever I traveled around, I would note the names and contacts of people I thought were really bright. What we did when I started the company is, one-by-one, I hired three people from England, two people from Germany, one person from Scotland. These were all people that I thought were extraordinarily bright, and they were.

Hendrie: Were these people mostly involved on the technical side, in engineering?

Palevsky: Yes.

Hendrie: These were a technical team.

Palevsky: Yes.

Hendrie: Do you remember whom you hired to head up the original engineering?

Palevsky: Oh, Bob Beck.

Hendrie: Bob Beck headed up the original engineering.

Palevsky: Oh, yes. Oh, sure.

Hendrie: Okay. Now I know [Montgomery] "Monty" Phister was involved in the company at some point.

Palevsky: Yes.

Hendrie: But he was not there at the very beginning.

Palevsky: No.

Hendrie: All right. [In] an oral history you did back in the '70s, you mentioned--

Palevsky: Really? I did an oral history in the '70s?

Hendrie: You did an oral history in the 1970s with--

Palevsky: For whom?

Hendrie: With a woman from the Smithsonian.

Palevsky: Really?

Hendrie: Yes. I'd be happy to share the transcript with you.

Palevsky: No, no.

Hendrie: If you want to go back and read it.

Palevsky: No.

Hendrie: You don't need to. Okay. Her last name was Mapstone. I've never met her. I don't know who she is. Anyway, you mentioned a Harold Marchant.

Palevsky: He was one of the Englishmen.

Hendrie: He was one of the Englishmen. Okay.

Palevsky: Very bright.

Hendrie: Very bright. Did he work on the circuits?

Palevsky: He worked primarily on the circuits.

Hendrie: Yes.

Palevsky: On the electronics.

Hendrie: Okay. Then you mentioned a Henry Harold.

Palevsky: Henry Harold was primarily a logician.

Hendrie: Okay, so he was a logician, would work on the logic design. Was your original plan to build two computers to begin with? Because certainly from the outside world, we saw a 910 and a 920, which was sort of remarkable that a startup company would produce two different models.

Palevsky: No, but they were really the same machine, only different sizes.

Hendrie: Oh, really. Okay. So there was an awful lot of common logic and things like that.

Palevsky: Yes.

Hendrie: Certainly one of the interesting things I remember about especially -- I don't know whether it was true of the 920, but certainly I believe was true of the 910 -- was that the registers were very low cost because they were circulating. They were dynamic registers that required fundamentally a transistor for each bit, which I remember at the time I thought that's a very clever idea when I found out about it.

Palevsky: No, no. We did very well.

Hendrie: Yes, you had a lot of pretty clever--

Palevsky: Again, I'm prejudiced.

Hendrie: Of course.

Palevsky: But I think if one looked at it objectively, we made the best machines. Now, we were just a bunch of guys out in California in a small building. We couldn't compete with IBM.

Hendrie: Of course not.

Palevsky: IBM had the 1620 and even though it was… IBM's problem with competing with us, because we were building small computers for scientific purposes. If they built a small computer for scientific purposes that was good, and was price-competitive, the main competition would be themselves. So it was a field that they had to tread on very lightly, because they didn't want to ruin their main business.

Hendrie: Yes, which made an opportunity for other companies. Do you remember any of your sales successes with the 900 series?

Palevsky: No.

Hendrie: Okay. Sometimes, there are stories like that.

Palevsky: No.

Hendrie: Okay.

Palevsky: But we were very successful.

Hendrie: Yes, you certainly were. Do you remember who you had that headed up sales and marketing in the really early days? Was it Dan McGurk?

Palevsky: Dan McGurk was a little later.

Hendrie: Yes, that's what I thought, that he was later. That's all right. Good. Tell me a little bit about how the product line evolved. You then came out with the 930, is that correct?

Palevsky: Yes.

Hendrie: Now was that just a faster machine?

Palevsky: A bigger, faster machine.

Hendrie: Bigger, faster machine. Okay. More transistors in it, and maybe a faster clock rate.

Palevsky: Yes.

Hendrie: Now, something was done to that machine. Was it at Berkeley, where they were working, they were playing with timesharing?

Palevsky: Yes.

Hendrie: Do you remember any of that story?

Palevsky: Well, there were a lot of places working on timesharing, not only Berkeley. That machine was a good start. On several fronts. That machine was modified to do timesharing.

Hendrie: Okay.

Palevsky: That became the 940.

Hendrie: All right. So you took those ideas and brought them back in-house and cleaned up the university engineering, which usually is not quite as good as…

Palevsky: Right. And programming.

Hendrie: And programming.

Palevsky: Oh, yes. It took a lot of programming. A different game.

Hendrie: Yes, of course, a whole new operating system. Okay. Good. There was also a machine, the 92. Do you remember that one?

Palevsky: Yes. That was a small machine for… I forget who we sold it to. But that was an attempt at addressing a simpler market.

Hendrie: Okay, for simpler machines. It wasn't a 24-bit machine.

Palevsky: No.

Hendrie: Sort of an off the record story is I was designing the DDP 116 at 3C [Computer Control Corporation] at that time, which was going to be a 16-bit machine. You came out with the 92, and I read the specs and got the instruction set and did a little trial programming. I decided that you were going to be a threat to the 116 because I only had a single register/accumulator. So I added, halfway through the design, a second accumulator, so I could do double precision as fast as you could. It's sort of what happens. Anyway, this is your oral history, but I thought you'd like to hear the story. It affected me.

Palevsky: Forty years later.

Hendrie: Forty years later, right. Tell me about the evolution of the Sigma series machines. Going through the machine history, I think that's the next thing we should be talking about.

Palevsky: That was the last thing we did.

Hendrie: Okay.

Palevsky: That was an attempt to enter an even more sophisticated market. By that time we had confidence that we knew something about it, and we designed a very sophisticated machine. I think you have one [in the museum].

Hendrie: Yes, we do. We have a Sigma 5. Did you have a new crew in engineering that did the architecture and design of that?

Palevsky: No.

Hendrie: Did Bob Beck work on that machine too?

Palevsky: Sure.

Hendrie: Okay. So the same people, they just--

Palevsky: --moved on.

Hendrie: Moved on, spec'd a more powerful machine, and then they designed it. Now that was an even more expanded family of machines. Was that an intentional move, or something that you figured out, or did people ask for a more powerful one?

Palevsky: No, no. I was always… One of the things I did besides being the outside man, I was always head of product planning. I had a group. There were like seven of us that did the product planning. So I was always involved in planning.

Hendrie: Always talking to them. They were always working on where should we go, what should we go do next. All right. Very good. In the early days, did you do a lot of special engineering for particular customers?

Palevsky: No.

Hendrie: You mostly just sell your basic machine.

Palevsky: Yes. We did a little of it, but very little.

Hendrie: Very little. That wasn't a big thing. Could you talk a little bit about any of your philosophy of running the company that you think, looking back, was important to its success, in addition to hiring very, very good people?

Palevsky: Early on, we made a deal with a French company who used our designs and copied some of our stuff and paid us. So I would go over to Paris. They were outside of Paris in one of the bandeaux [ph?]. Once when I was there, when you read about who discovered computers, one of the names that is mentioned is a man who worked on computers during the Second World War in Bad Herzfeld, a little town, a little "bad". Do you know German?

Hendrie: Yes.

Palevsky: A "bad" Is a watering place. It's a little resort. So I got on a train and I went there to meet, and it was just a little place. He had so many ideas. He never really put them all together.

Hendrie: Do you remember what his name was? Does that come to you?

Palevsky: No. If you look in a history book, you'll probably find it. The others are…

Hendrie: It wasn't Konrad Zuse, was it, by any chance?

Palevsky: Yes, very good.

Hendrie: All right.

Palevsky: Very good. The others were the guys that ended up with UNIVAC…

Hendrie: Yes, Eckert and Mauchly.

Palevsky: Eckert and Mauchly. Those are usually the names that are given for the inventors.

Hendrie: Well, we were fortunate enough to have Konrad Zuse's son - Zuse passed away - come and give a lecture at the museum with some pictures of the early work of his father. His father designed his first computer because he was a draftsman, and he was upset with how much work -- in a civil engineering firm -- how much work these girls would have to do to do all the civil engineering strength calculations for building a bridge or something. He built a mechanical computer in his parents' apartment living room when he was in his early 20s. Pretty amazing. [pause] I think I was at the point of asking you whether there were any particular sort of management philosophies that you felt were…

Palevsky: Oh, yes. Well, the question you raise is a little touchy. I told you about my upbringing, my parents. I was driven. I would appear -- this is at all stages of my work time -- I

would appear in the parking lot and keep track of what time people arrived. If they arrived late, they would have a hard time. I drove myself; I worked 18 hours a day, seven days a week.

Hendrie: So you didn't ask them to do things that you weren't totally willing to do.

Palevsky: I didn't ask. I told.

Hendrie: Told them to do that. Okay.

Palevsky: No, I was very difficult. That sort of set the tone for the company -- that everybody worked, and worked hard. Now let me say on the other side, there's nothing more discouraging, there's nothing more that is difficult to deal with, than working with a group where no one cares. Then you just have the feeling that what you're doing doesn't matter. I was at the other extreme. I cared and I beat into everybody that they cared. I'm still in touch with a lot of the guys, and that was the best time of their lives.

Hendrie: Yes. They did not, in the end, resent it.

Palevsky: No.

Hendrie: They respected your leadership.

Palevsky: Compared to the rest of their lives, they had never been in on a venture like that where we were all… All the guys of any seniority had a piece of the action. So they all now live quite well.

Hendrie: So they all were rewarded for working really hard.

Palevsky: Oh, sure. But there was a certain amount of resentment, of being driven. I drove people. And I drove myself. So that was one of the things that was peculiar in particular. Then I think another thing was that it was an extraordinary group of people, who are really a very bright bunch of people at all stages. We were just so fortunate in getting really smart people. They worked together and we did very well. In less than ten years, we sold the company for one billion dollars. Now, that's a billion dollars then. That's a lot more money now.

Hendrie: I believe that.

Palevsky: It was just… There wasn't any magic. There wasn't any... There was just a bunch of bright technical people working very hard who created this.

Hendrie: Okay. Bright people working very hard create some wonderful things.

Palevsky: Yes.

Hendrie: Okay. That's very interesting. There are some people whose names I thought I'd mention, and maybe you have stories about what they did, or how they joined the company. These are just people I happen to know who were at Scientific Data Systems. One we already talked about is Dan McGurk. Do you remember how he ended up joining?

Palevsky: He was at one of the other companies. I forget where.

Hendrie: Well, I know he was a salesman for Ramo Wooldridge.

Palevsky: That's right.

Hendrie: In the process control business.

Palevsky: I was looking for someone to run sales. I met with him, got to know him and hired him.

Hendrie: Okay. He always seemed to be a very bright, able person.

Palevsky: Very good. He's had a very hard life.

Hendrie: Really?

Palevsky: Oh, yes. He had been very sick.

Hendrie: I didn't know that.

Palevsky: He's still alive, but he's not well. Although, I talked to him the other day and he told me he plays tennis, which made me terribly jealous because I can't play tennis.

Hendrie: [Laughs] All right. When did Monty Phister join the company?

Palevsky: I don't remember.

Hendrie: Okay.

Palevsky: But he was a very brilliant man.

Hendrie: Did you hire him to be head of engineering when Bob Beck retired? I should go back. How long did Bob Beck stay with--

Palevsky: Almost ten <??> years.

Hendrie: Really? Okay.

Palevsky: Monty became one of the heads of one of the Departments of Engineering and was a brilliant man.

Hendrie: Okay.

Palevsky: He was head of logic design.

Hendrie: Okay, and he, of course, wrote a well-known book about logic design.

Palevsky: Did he?

Hendrie: Yes. I don't know whether people use it now, but I was a logic designer. That's what I did. Part of computers that I worked on.

Palevsky: That was after.

Hendrie: Yes, I'm sure it was probably after. I know Arnie Spielberg worked for you for a while.

Palevsky: He was an engineer, and not very good.

Hendrie: Okay.

Palevsky: That's why I think I don't like his son's movies.

Hendrie: [Laughs] Excuse me for the laugh. Well, I think Arnie had lots of creative ability, which he certainly gave to his son. But you're probably right. There was a financial person. Is it [Sanford] "Sandy" Kaplan?

Palevsky: Sandy Kaplan.

Hendrie: Yes, tell me about him.

Palevsky: He just died like three weeks ago. [April, 2006 – ed]

Hendrie: You're kidding!

Palevsky: No.

Hendrie: Talk to me about how you met him and what was his role.

Palevsky: Sandy was one of the key people. Sandy was just a brilliant financial mind. That's a part of the business that none of us knew about. We were all on the technical side and Sandy was just brilliant, and ran that side just without a hitch and was just wonderful. We were very good friends. It was a great loss for me when he just died.

Hendrie: Do you remember how you met him or how he came into your life and joined up with you?

Palevsky: I belonged to the Beverly Hills Tennis Club, and either he belonged before or right after. It was through that area of my life.

Hendrie: That's how you first met.

Palevsky: Yes.

Hendrie: He didn't work for some company that you were involved in.

Palevsky: No.

Hendrie: All right. Tell me a little bit about your thinking about selling the company. Do you remember when you first thought, "Well maybe I won't just build this to a $2 billion company. Maybe I'll…"

Palevsky: I was sitting at my desk. The telephone rang. It was the head of Xerox. He said, "We'd like to buy your company". And that's the way it happened.

Hendrie: Oh, my goodness. You didn't come to say, "Well, you know, there are these problems, these issues going forward."

Palevsky: No, no, nothing. What I did is I then called Arthur Rock and I said, "You're good at this. You negotiate it." Arthur took care of that, and we sold it.

Hendrie: That's pretty easy. And look what a poorly run company can do with a well-run company.

Palevsky: Oh! Well, but you see--

Hendrie: Yes, some thoughts on what happened after that.

Palevsky: There's a lot of talk, a lot of -- if you'll pardon me -- bullshit that's given around on the advantages of capitalism and competition. But here you see the other side of the story. Xerox was a company… There was a man that everybody thought was a little crazy, who had this idea for copies. Nobody would put up any money and then really, the man who did it was the guy who was the lawyer, not a member of Xerox at all. He got a couple of other people, and they started a company, and they had the patents on copying. And all they had to do was get enough trucks to carry the money to the bank. They just had the world tied up. The company was terribly run, and there wasn't anybody in it that I thought was very bright. But they had a monopoly. Once that monopoly lapsed, they went under.

Hendrie: They did not have the ability to win in a competitive environment.

Palevsky: They had such a great position. When we were approached, they still had the monopoly, and they still had tons of dough. They took over the company and they didn't know what to do. They just didn't know, particularly an entrepreneurial company. They knew something -- how to run a monopoly -- but we were hardly that. So we sold them the company.

Hendrie: Did most of the people who were the leadership in the company leave when Xerox...

Palevsky: No.

Hendrie: They stayed?

Palevsky: Oh, yes. I became a member of the board of directors of Xerox and I stayed. But they took over control.

Hendrie: Okay. So they made the important decisions. Did some of the spirit go out of the company do you think?

Palevsky: Oh, sure. There was no longer somebody in the parking lot every morning driving everybody.

Hendrie: [Laughs] All right. How long did you stay with the company after you sold it?

Palevsky: [Looking at documents.] It isn't on here. I can't see it.

Hendrie: Probably one or two years?

Palevsky: Something like that.

Hendrie: Yes, something like that.

Palevsky: [Finds it.] Here. '69 to '72.

Hendrie: All right. So you stayed for--

Palevsky: Three years.

Hendrie: For three years, okay. Now do you remember approximately how much of Scientific Data Systems -- certainly it had become a public company during this period -- how much of it was owned by the founders and employees?

Palevsky: I don't know. 30% or 40%.

Hendrie: Okay, so a significant amount of it.

Palevsky: Oh, yes.

Hendrie: So there was plenty of money for everybody to go around.

Palevsky: Oh, yes.

Hendrie: Well, that's good. There is a certain amount of joy seeing the people who struggle with you to make something, see them get rewarded.

Palevsky: That's exactly it - struggle with me.

Hendrie: To get rewarded. Good. During this period, what did you decide to do, now that you certainly were… You didn't have to make any more money to feel you had risen above your childhood.

Palevsky: Well, during this period, two guys, whose names I don't remember, got the Nobel Prize for inventing solid state devices.

Hendrie: Shockley and Bardeen.

Palevsky: Right. Very good. Shockley started a company up in Silicon Valley.

Hendrie: Shockley Semiconductor, yes.

Palevsky: I never met the man. But without exception, everybody said he was awful. The two bright people that he had hired, Andy Grove and Gordon Moore… Not Andy Grove.

Hendrie: No, you mean Bob--

Palevsky: Bob--

Hendrie: Bob Noyce.

Palevsky: Bob Noyce.

Hendrie: And Gordon Moore.

Palevsky: Gordon Moore. They started Intel. Since I had dealt with them when they had worked at their other company, they asked me to join the board and to invest. So I was one of the founders of Intel.

Hendrie: Oh, very nice.

Palevsky: Yes, that was a great experience. So that was one of the things I was involved in. I was on several other boards. I've always wanted to travel. I was married. I had children. I always was busy.

Hendrie: Okay. All right. Now on your biography, it says you also got a little bit into producing movies; got into the movie business.

Palevsky: Yes. I've always been... I grew up just when… I was born in 1924. Talkies came in in 1929. So when I was young, it was the beginning of the movie industry, and I've always been fascinated with movies. Living here, I got to know a lot of movie people. At one point, I decided it would be fun to make movies. There was this wonderful man named Peter Bart, and he and I started a production company, and we made movies.

Hendrie: All right. Good.

Palevsky: In fact, I was just honored. I have given five cinematechs in my life. Do you know what that is?

Hendrie: No, I don't know what that is.

Max Palevsky: A cinematech is a hall that's like a museum for movies, where you play movies that are important from all over the world. I gave one to the City of Santa Monica down the way here, and they honored me a few weeks back. The two stars of the movie came -- of the movie we showed. We showed *Fun with Dick and Jane*. Do you know that movie?

Hendrie: I have heard of it. I haven't seen it.

Palevsky: It's very amusing. But Jane Fonda and… names! Oh, who's the other star? It'll come to me. Anyhow, they were both there, and a lot of people. The hall was full. It was very nice. It was very nice. George Segal [was the other star]. I haven't produced a movie in a long time, but I'm in the process of negotiating to build another hall on the cinematech in Jerusalem. There's a cinematech at the University of Chicago that I gave. I've just been interested in movies.

Hendrie: Yes, in movies, and having people be able to see movies that are not just for a commercial for-profit environment.

Palevsky: Yes.

Hendrie: Okay. That's a great idea. I didn't know anything about that. Are there other stories about your career since Scientific Data Systems -- you were relatively young when Scientific Data Systems was sold -- that you might be willing to share?

Palevsky: Well, I've been married five times.

Hendrie: Oh, my goodness.

Palevsky: And I have three grandchildren. I have five children. I've traveled almost everywhere in the world. In fact, I just came back [from Japan]. I took 12 people, my sons and their girlfriends and their wives, and the guy that's a friend of mine who is the head of the Japanese… Do you live here?

Hendrie: No, I live in Boston.

Palevsky: Oh. There's a very good part of our museum here that's devoted to Japanese art. The man that's head of that is a friend of mine. He very nicely arranged this trip. As I say, there were 12 of us, and he made two trips [beforehand]. He's had a house in Japan for 25 years. Periodically, he teaches at the university there. He made two trips prior to our trip to arrange everything.

Hendrie: My goodness. That's wonderful.

Palevsky: We had two weeks that was just such… It was amazing. Have you been to Japan?

Hendrie: Yes.

Palevsky: Well, you know how amazing it is.

Hendrie: I know, yes. My wife and I have been there, I think, five times.

Palevsky: That's what I've been there.

Hendrie: It really is amazing.

Palevsky: I've been there five times. He got us into everything.

Hendrie: Into things that I'm sure I've never been able to get into.

Palevsky: No, no. That I never got into until him.

Hendrie: Until you had the right contact.

Palevsky: So I do things like that.

Hendrie: That's pretty interesting.

Palevsky: No, no, but it's also a great deal of finding satisfaction with my children.

Hendrie: Yes, exactly. What are the ages of your children?

Palevsky: 40 to 20.

Hendrie: Okay. So you have some from your most recent marriages?

Palevsky: Uh-huh.

Hendrie: Very good. That's enjoyable.

Palevsky: Uh-huh. Oh yeah. I've been very lucky. Just very lucky.

Hendrie: That sounds very lucky. It must have been hard on your family during your entrepreneurial years, because of your compulsion to…

Palevsky: I have one son that I don't talk to, or don't see, or don't… And it's exactly that, because I was just not a father.

Hendrie: You just weren't there. You were just consumed by what you were doing at work.

Palevsky: I just wasn't there. You pay for things.

Hendrie: But it sounds like you had some more children.

Palevsky: Yeah, but that's a real pain. [The son he doesn't see.]

Hendrie: How do you get over that? Yeah, that is. I feel badly for you. I have a friend that wasn't an entrepreneur, but he was a doctor who worked all the time. A high school friend. Same problem. I don't know what you do. Well, we're just really not doing an interview [now]. We're just chit chatting. I should thank you on the tape for doing this, Max. I really appreciate it.

Palevsky: My pleasure.

Hendrie: You're welcome.

Palevsky: I'm a great fan of your organization.

Hendrie: Good. I'm glad to hear that.

END OF INTERVIEW

