



Oral History of Gordon Eubanks

Interviewed by:
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Brock: Thank you very much, Gordon, for agreeing to do this with us. We could begin at the beginning, as it were, and I think our research shows that you were born in November of 1946 in Arlington, Massachusetts but you didn't stay there very long, moving something like 13 times before the end of high school. I was wondering if you could tell us a little bit about your family of origin and your family background.

Eubanks: Yes. I was born actually in Cambridge, but they lived in Arlington, so, but Cambridge sounds so much better. And my father got out of the service and he'd married my mother, whose father was a general in the Army. So my father spent the war in Hawaii, I know, just on Oahu the whole time. So he came back, he did a start-up which failed in electronics which I know nothing about it. You know, you don't ask these questions till it's too late.

Brock: Right.

Eubanks: So it's a terrible mistake.

Fairbairn: So that would have been in the thirties that he was doing the start-up or in the forties--?

Eubanks: No, after World War II in the forties.

Fairbairn: After World War-- Okay.

Eubanks: '47, '46-'47. So then we went back to his home in Iowa where he worked for Collins Radio Company and then he worked for Collins. They sent him to New York, he got into sales, to England, to L.A. But since he never went to college, he decided to go into smaller companies. We went back to New York then to Tulsa-- I mean, to Ohio and then to Tulsa. So Ohio, Tulsa, he was involved with piezo electric devices. Tried to sell the airlines on piezo electric instead of the air-driven headphones. He lost that deal, obviously. We all remember those things that stick in your ear. So we went to Tulsa and then I graduated from, my senior year we moved to Tulsa. I graduated from high school there and went to the same high school with Dick Schaffer. Remember him?

Brock: No, I don't.

Eubanks: Anyway, he had a bunch of conferences. He was a *Wall Street Journal* tech guy before the famous one.

Fairbairn: So how did you find life in Tulsa? What was your experience there?

Eubanks: Well, your senior year in high school is a bad time to move, but it was great. Tulsa's a great town. There's so many places in the country I could live happily; they're all over the place. But it was a little bit of a shock from Ohio to Tulsa, but it was good. The high school I went to had more National Merit

finalists than any school in the country except for Nutrea [ph?] or in Bronx School of Science, which are special. So it was just a public school in Tulsa and--

Brock: Was electronics in your household?

Eubanks: So they had high-- It was a really good school, though.

Brock: Right. Was your father, he was choosing to go join a series of small electronics firms, is that right?

Eubanks: Yes.

Brock: Yeah.

Eubanks: Yeah.

Brock: So it's all in electronics. Was he--

Eubanks: Piezo electric, these are the things you squeeze and electricity comes out.

Brock: Right.

Eubanks: So needles for cheap phonographs where it used that cartridge, as it moved the needle moved. And they're used in transducers, they're used in submarines, they're used all over the place.

Brock: Right.

Eubanks: Yeah. And then they ended up in Sierra Madre, California and then moved to another place-- They were in Arcadia, then Sierra Madre then somewhere else.

Brock: Was electronics in your household? Like was he a hobbyist? Were you a hobbyist?

Eubanks: He built things. My father could build things I could never do. I mean, I try to build something out of wood, it'd just look like shit. I mean, he was a real craftsman, I will say that. But he built Heath Kits. He built an FM tuner. He built amplifiers. And I had the tuner for years. I don't know how it disappeared, but. He was very good with his hands and he started on the assembly line at Collins Radio.

Fairbairn: Oh.

Eubanks: And then got into sales. And Collins was a big, high tech company at the time. I mean, they dominated aviation electronics, they dominated the high end of amateur radio. A very good company in Cedar Rapids, Iowa.

Brock: And it seems like there's a kind of a military heritage in your family. Is that true or--?

Eubanks: My mother's father was quite the individual. Two full families, all the kids had the same names. Finally got out of the Army and did a whole number of years for the Red Cross in Washington. I mean, he was a character. But no, not really. If you're thinking of how I ended up in the Navy--

Brock: Yeah, a little bit.

Eubanks: Pretty easy. "Report for induction at 0700."

Fairbairn: <laughs>

Eubanks: So I managed to get an application in and get into officer's candidate school because this was '68, '69. I mean, that being drafted was not a great idea. I didn't really want to go to Vietnam.

Fairbairn: Right.

Eubanks: It's the honest truth. Now the Navy, I was very lucky to get into officer's candidate school. I believe I was the only person in my company that didn't have strong political connections.

Fairbairn: Wow.

Eubanks: So they give Bush a hard time about-- I mean, everyone that was getting in any of these things had some connection, I think. I shouldn't say that in public. I mean, I was very lucky. Took the test, got accepted, went there. Volunteered for submarines.

Brock: So you had gone into, or you graduated, what was your bachelor's degree in?

Eubanks: Electrical engineering.

Brock: Was it electrical engineering. And then you immediately went into the Navy or you--?

Eubanks: Well, I went to the Draft Board and said, "Listen, I'm doing some graduate work. I want to finish it. I'd love to serve." So that gave me a year. They said, "We'll give you a year." That's when I got into the officer's-- It wasn't, like, the next day or something. But if I hadn't got in, I would have got drafted and who knows. But, meanwhile, I went to Oklahoma State University, Stillwater, Oklahoma. Sheep and all kinds of stuff out there. They were very early on to computers, so every business student had to take a programming course, everyone, to graduate. And so, I taught Fortran, which it turns out I began to realize if the EE things didn't work, they caught on fire. I shut down half the campus one time doing a motors lab and--

Brock: What, did you short something out or--?

Eubanks: I couldn't find a fuse so I just thought I didn't really need it. I'm sure, they made me pay for this big transformer that blew out. And so, I was interested in programming and I got pretty good at Fortran because I was teaching it, and they also started a computer science department in '68. They had a few professors. They said this is really going to be important. So, I was lucky in that sense. I needed to work to pay the last couple years of school, so I was making \$300 dollars an hour teaching Fortran to business students.

Brock: Three--?

Eubanks: \$300 dollars a month.

Brock: A month.

Fairbairn: Yeah.

Eubanks: And I could,, you know, live on that.

Fairbairn: Yeah.

Brock: Do you think the university was into computers so early because of the connection to petroleum industry in the State?

Eubanks: I think it was more that they had some really good professors. A lot of the EE people about that time went to Colorado to work for HP on their calculators.

Fairbairn: Okay.

Eubanks: They hired three or four or five of the good professors. You know, maybe it was a fluke. At the time, I didn't spend a lot of time trying to understand this because I didn't really realize it. But you know, the stored program computer was actually developed in Iowa, not in Harvard, actually. So, you know, I'm a defender. Out here, you know, you went to Oklahoma State? I mean, you got to be kidding. <laughs> You know, because it's all Berkeley and Stanford and all that. But these were all good schools in the Midwest. They're not Stanford. They don't get the students, but that's really a huge difference. And they don't get the faculty, so they're just clearly not as good. But they were interested in computers and I did my first work there. They had a 1401. They had, you know, 1620s or whatever they were called.

Fairbairn: Yeah.

Eubanks: They had a lot of the, you know, that's what we used in engineering. We had to take a Fortran course. And since I needed a job, I basically said, "Yes, I can definitely program in Fortran and I could teach that." And so I had to learn as I went.

Brock: So you had learned it as an engineering student but you were teaching it to business students, is that it?

Eubanks: I had a course in Fortran programming, which I may not have dedicated my full effort to, but I--

<laughter>

Brock: Well, I was very intrigued, a little bit, about something I read in another interview that you did in the past about a kind of vision you had I think earlier, maybe before you even got to college, about a vision of having a computer of your own and using it to handle all different sorts of information, not just calculate. I was wondering if you could talk about that or talk about the development of your interest in computers.

Eubanks: I don't think that was a fully formed vision.

Brock: Yeah.

Eubanks: But this was in '64 when I was in high school, I liked to build things, so I built amplifiers, hi-fi amplifiers and stuff. I liked that kind of stuff. So I had a summer job where I got them to build the printed circuit boards for me, drill all the foundation for-- And I built-in amplifier, it looked like an IMSAI computer kind of size and it-- And so I would kind of, I remember daydreaming, "Wow, keeping all these, like, phone numbers and stuff and addresses. It'd be really cool to have something that did that for you." And computers were knowing that.

Fairbairn: Yeah.

Eubanks: But I didn't have a concept of how you go from that idea to actually build one. And then most of the seventies I was in the Navy, so it was hard to really be on the scene and--

Brock: One other question before kind of getting back to the chronology, were you a big reader of science fiction? A lot of people who got into computers were.

Eubanks: Not at all. Not at all.

Brock: But you were one of the group that was not. <laughs>

Eubanks: I never was. I don't like those kind of movies, particularly, you know, Star Wars, excepted.

Fairbairn: <laughs> Yeah.

Eubanks: But I mean, I'm not really a science fiction guy.

Fairbairn: Yeah.

Eubanks: But I did know Jerry Pournelle really well. You probably know his connection to the computer industry. You know who he is?

Brock: I don't. I'm sorry.

Eubanks: You know who he is as a science fiction writer?

Brock: No, because I'm not that well versed myself.

Eubanks: Oh. He's written dozens, a huge number of books. But he also was a columnist for *Byte* magazine.

Brock: Okay.

Eubanks: And he wrote a very influential column, so I got to be friends with him and visited him at his house a few times. He was quite helpful.

Brock: Great.

Fairbairn: So you finished your master's degree and then you were going to do something other than get into the--

Eubanks: No. I didn't ever finish my master's degree.

Fairbairn: Oh.

Eubanks: So the senior year in high school that summer, in college, that summer, I got a job with IBM.

Fairbairn: Right.

Eubanks: And that was the next incredibly lucky break. Normally, I would just go down and knock on the doors of little engineering firms in Tulsa till I got a job. But, my father insisted I go meet with his friend the branch manager at IBM. And these guys are, they were amazing. <laughs> I'll tell you, IBM. So, I got a summer job. They sent me to a two or three weeks up in wherever their headquarters were.

Fairbairn: Burlington? <inaudible 00:13:43>

Eubanks: Where the tennis courts and everything and the-- You got to meet Buck Rogers, who ran data processing at that time. That was really his name.

Fairbairn: <laughs>

Eubanks: And, and then you came back and this guy said, "It's good you're back. Monday, you're going to be at this small company and you're going to write Assembler for the 360 so we can sell them bigger computers, because they're running all in RPG now." This is a true story. So I-- <laughs> So he said, "Here's three program instruction books which will teach you BAL, with the green card and the--"

Brock: So write in the-- [ph?]

Eubanks: Instruction sets.

Brock: Yeah.

Eubanks: He gave me a green card or two and said, "You better get going because it's a, you know, you only have three days here. And here's the address and show up and take their programs and convert them." I'd never heard of RPG let alone ever written in Assembler.

Fairbairn: <laughs> Right.

Eubanks: So I spent the whole week-- This is a true-- I mean, it's kind of a, these are very lucky coincidences. This guy's name was Faye Johnson, I think. He was another amazing person. I'll tell you, the IBM of the sixties, early seventies, they knew how to sell. They really did. So that's how I really began to understand the bigger picture of computing and stuff, that it was more than writing Fortran programs that were 40 or 50 lines long, so.

Fairbairn: So did you do multiple assignments during that summer?

Eubanks: Well, I finished-- I got to the end of the summer, I wasn't finished, but I made good progress. I think they believed it was going to work, which I think is remarkable.

Fairbairn: <laughs>

Eubanks: So they kept me on. I worked on weekends and every time I'd just drive down to Tulsa from Stillwater, work and we got the project finished. They got them up and running. I'm sure they sold them bigger computers-- leased them, I'm sorry. They never sold those things. And then the next summer... I stayed up there a year because I was working on getting something other than being drafted, and I'd been accepted to officer's candidate school and they offered me a full-time job. They said, "You can work here till February when you have to go there and then you'll come back when you get out of the Navy." So I came in there as an SE and they sent me to Shell Oil to convert Autocoder from the 1401 to BAL so they could sell them bigger 360s. Because only the low end 360s had Autocoder emulation. So if your 1401, you could write a program that ran there, take it to that model 30 if it works, and run it on there in simulation.

Fairbairn: Right.

Eubanks: But they didn't support that in the 50 and some of the, maybe not the 40. I forget these details. But so I'd spent that summer programming all in Assembler, all at Shell Oil. This was real production. They did all their billing for the whole country out of that one building.

Fairbairn: Oh, my gosh.

Eubanks: So I wrote the dun notice.

Brock: Oh. <laughs> When you owed money.

Eubanks: If you hadn't paid your bill.

Brock: <laughs>

Eubanks: And because I remember a year later, I found out that there was a bug that they weren't supposed to dun senior executives at Shell if they hadn't paid their bill.

Fairbairn: <laughs>

Eubanks: And I'm like, "You got to be kidding? <laughs> Why would--?" That seemed so wrong, but-- <laughs>

Fairbairn: Yeah. <laughs>

Eubanks: It's true. So, I'd missed that, because you're taking this Autocoder, you know, these things. There's no documentation. This is not a tiny company, this is Shell Oil, zero documentation. Patches all over the place. No one who knows what the program's supposed to do. The test was to run a whole month's dunning, print out the notices then take my program and do the same thing and compare them notice to notice and see if they're exactly the same. That's how they tested it. I mean, there was no other--

Fairbairn: Right.

Brock: Yeah.

Eubanks: Yeah. And again, these people were paying a lot of money by Shell. It was a great opportunity. I had just, I had free will. I was with the customer. I never went to IBM's offices in Tulsa. I just went to the Shell building, except on Friday afternoon. I worked there with their IT department. And it was a great experience. And I tried to convince Shell of a few ideas which after they found out I did that, they made it clear to me I was to give no input. That wasn't my job. But I had an idea that--

Brock: From IBM. IBM told you not to do that.

Eubanks: Yes. IBM said don't go-- the sales guy went berserk that owned the account. But I thought that they-- I said, you know how, you guys are too young, but there used to be you go to a gas station, there'd be a book and they'd look up your credit card to see if it was not-- if it was on the bad list. It was a book like this thick, you know. So you'd pull up to get gas. If you looked shady or young, they would look the card up. That's very expensive and they had to print these books and send them to thousands of places each month. So I said, "Why don't you--" And the billing, every day they ran billing, 22 days in the month. And yet 90 percent, 85 percent were inactive. So I said, "Why don't we take the active ones to hard disk," they had these 2311s, hard drives, you know, maybe 4 MEG or some big hard drives, "And, and then bill off that and then any billing records that didn't match, we'd run them, depending on the amount of money, every quarter you could run them against the thing and send them a bill." Anyway, that's what they didn't like, that.

Fairbairn: <laughs>

Eubanks: And also that why don't you hook up where they could dial in and check the credit card. I think of that when I-- You go up now and you don't even have to talk to anyone.

Fairbairn: <laughs> Yeah, right.

Eubanks: But anyway, it was a great opportunity and the people I worked with, Dal Tobin was one and Faye Johnson and these guys were unbelievable. Incredibly motivating, incredibly-- I mean, because I was just some guy from up at the local college and no real computer science experience. And they believed, they didn't think that was important, actually.

Fairbairn: There weren't very many people with computer science experience, it was just--

Eubanks: Well, but they didn't think-- So I would help them recruit up there, because they'd say, "Point out the good students and don't--," like, you know, stay away, they'll deal with the recruiting, but. And they cared about the person and whether they were-- Because it was a sales office, right, and they really cared about that more than they did the degree. They said, "We can teach people everything they need to know."

Fairbairn: So how did you wind up going to the Navy versus Air Force or some other?

Eubanks: Because I had a fraternity brother who said, "You know, there's this OCS and you should really apply for it." I'd told him, "I'm not going to get drafted for a couple years." Then I told him, "Help me. I'm in desperate need."

Fairbairn: <laughs>

Eubanks: So I don't know whether he-- how much he helped, but--

Fairbairn: You got in.

Eubanks: Yeah. So that was lucky. The IBM connection was incredibly lucky. And they put up with me. I was kind of -- a little bit off the wall in those days.

Brock: In what way?

Eubanks: I probably thought I was a lot smarter than I am and thought I knew a lot more. And I really had no business experience. All my summer jobs had been either machine shop, then assembly line, and then little engineering companies where I worked for the engineer and helped them build things or design things.

Fairbairn: Right.

Brock: Well, was it-- When you got to-- When you were in the Navy, you were in the Navy from 1970 to 1978 or 1979?

Eubanks: I think '9-- yeah, '9, definitely.

Brock: '79.

Eubanks: And why so long? <laughs>

Brock: Well, no. I mean, the first question I had was, you know, here you are steeped in computers, you know, at IBM. Was it once you got to the Navy, was it an environment in which there were hardly any computers?

Eubanks: No, there were computers, clearly. I mean, there were a lot of computers and not anything like now. But so I was originally an engineering duty officer designation. I don't want to get into the muck here with the Navy. And then when I volunteered for submarines, I was changed to a line officer, because they were short of officers and so they're building submarines quickly. This was Rickover's program.

Fairbairn: Yeah.

Eubanks: One of America's great people. Right place, the right time. And so, I went down to Washington. He interviewed every single officer that was in the program as long as he was in charge of what they called O7 or O8, anyway, the nuclear power section. And he-- He's an amazing guy. But they did nail, they had people interview you, engineers and stuff, officers, you know, "Why did you-- If you're so smart, why did you go to Oklahoma State?" I remember that question.

Fairbairn: <laughs>

Eubanks: Another one, "Explain Maxwell's equations and why they're important." So, they gave you a real interview.

Fairbairn: Yeah.

Eubanks: And then they-- And then you interviewed with Rickover, which was short.

Brock: Why did you choose submarines?

Eubanks: Well, when they came to pitch, you were told to go to the presentation because your grades were, you know, your background was such that they might be interested. And they said, "You can go to Washington for two days," and it sounded better than getting up at 5:00 in the morning and doing all these exercises and stuff. But I didn't really understand that when they told you the-- when you agreed to go, you agreed to accept if they offered it, so that's what really happened.

<laughter>

Brock: It wasn't about choice. <laughs>

Eubanks: Yeah. But I think, I mean, in retrospect, it was a great choice. It was a great choice. I mean, this was a lot of fun during the Cold War. You're doing real stuff.

Fairbairn: But, I mean, a sub, you're underwater for weeks, months at a time, right, I mean?

Eubanks: Weeks. Sixty days usually. A mission would be 60 days.

Brock: That must have its own psychological challenges.

Eubanks: You're so tired because you work so hard. You know, it's hard to understand, but you stand watch every third-- 6 hours on, 12 hours off and then you have, as an officer, you have responsibility for people and equipment. And then they train 6 days a week if they're not on station. I mean, they train relentlessly. So, if you're doing a fire drill and you've got the midwatch so you're trying to get some sleep, tough. It was hard work, but I really-- I liked it a lot more in retrospect, I think. Because I wanted to get back and get into computers. So, I had a 3-year obligation with OCS. I added a year for submarines because there's a year of training. You go to basically a graduate school in nuclear engineering for 6 months.

Fairbairn: Right.

Eubanks: And then 6 months actually operating reactors out in the desert somewhere. Rickover was an amazing guy. So that was 4 years. And then when I was about to get out, they said, "We'll send you to graduate school. Get a degree in computer science." So they sent me to the Navy's postgraduate school to get my master's and so that added another-- So anyway, I was, it took, it added up. But at postgraduate school, the next incredibly lucky thing was Gary Kildall, who was an instructor, a professor, I guess. I don't know if he was tenured, but. He, of course, by then had written CP/M.

Brock: Well, could you maybe describe that whole scene of the Navy postgraduate school and the involvement of computing and, you know, where Gary Kildall fit within that scene. If you could just kind of tell us what it was like.

Eubanks: Well, I mean, it was great. It's at the Del Monte Hotel. Have you ever seen this place?

Brock: I've never been.

Eubanks: It's one of the old hotels that used to be along the coast. The only one still in operations in San Diego, the Hotel Del Coronado. So it was nice. No uniforms. It's different now, but no uniforms. Small classes. There were maybe 12 people in my section in computer science. And some pretty good professors. So Hamming, for instance, was a professor when I was there, Dr. Hamming. We had a great discussion about in "Star Trek" when you just beam someone down, what would be the information content, how much redundancy?

<laughter>

Fairbairn: Any error correction code.

Eubanks: Yeah. Seriously, I mean, so and you had some real-- Because they gave them a quarter off every year with pay, that was the deal. So people would go there. Deming is there now, I believe, or he was and maybe he just retired [ed: Deming died in 1993]. They've got good people. And Gary was known as the hardest professor for theses. You definitely didn't want him. He was supposed-- People were kind of scared. He tried to change the school some by hiring people from Santa Cruz and some of these, like [Frank] DaRemer, was that his name? [ed: yes], these great compiler people. And they were-- And I think he kind of lost interest. He wrote CP/M while he was at the school.

There's an interesting sort of segue that CP/M was all developed in PL-1 and PL-1 only ran on mainframes. And Gary ran all his stuff on the mainframe at the postgraduate school, so that one might argue, that CP/M logically should have been public domain. And that's true, and he finally changed, traded something to Intel and got one of those MDS

Fairbairn: MDS, yeah.

Eubanks: MDS, the things--

Fairbairn: Yeah, the process development system.

Eubanks: The two 8-inch--

Fairbairn: Big blue boxes with 8-inch floppies, yeah.

Eubanks: Yeah. He had one out in the shed behind his house in Pacific Grove. Then he could commercialize it, he felt, so that-- Anyway, I'm digressing. So, I got Gary to be my thesis advisor and he said, "Great, but you need to do something on a microprocessor." And in those days I believe there were only two computers that ran CP/M, the one they had at the school, and the one that another guy whose name escapes me, but he had one too, that helped Gary do the floppy disk drive-- the interface card. And so they had a wire wrap, this whole thing was a wire wrapped, no printed circuit board, controller for this 8-inch floppy, two 8-inch floppies. And there were floppies that Shugart had donated after they'd done the quality testing. These were definitely Warnian. [ph?] And that's how I did my thesis. You kind of wonder if, like, one of those wires had come un-- Because it was just like I wish I had-- Not having phones, you didn't have pictures of all this stuff, but this was a lab, just a dirty big room which was a lab up on the third floor of the building and that's where-- So anyway, I worked there with Gary and did a compiler and--

Fairbairn: So if PL-1 only ran on the mainframe, how did it run on the-- How did he get it--

Eubanks: Intel converted it, rewrote it to run on the MDS, but those were expensive.

Fairbairn: Oh, okay.

Brock: Right. They were like \$20,000 dollars apiece or something like that, yeah.

Eubanks: Some \$10,000 or \$20,000, yeah. So Gary in his-- So, so he got an MDS and he got CP/M out. But then Gary wrote, and this was where Gary's brilliance, I mean, he wrote a program that basically ran in CP/M, intercepted the MDS calls, the what was the operating system-- it was called something [ISIS?]- and translated it to CP/M calls and you could run all those Intel programs including PL/M on a CP/M machine. That was where, I mean, he did this in a couple days. I mean, he just got frustrated, You know, he said, well,-- I mean, they're not going to put this stuff on CP/M so I'll do it myself. It was just a little program. I mean, he just captured the calls. What was the operating system? I can't--

Fairbairn: Yeah, I can't remember either.

Eubanks: Yeah. It was called something. But Intel was very guarded with all this stuff and so Gary just-- And then Gary wouldn't give me this translation program, so I had a friend disassemble it and figure it out and make it work on my system with my hard drive, so.

Fairbairn: <laughs>

Brock: Well, could you if he was, if Gary Kildall was, you know, cultivating this persona as the toughest professor, why did you seek him out?

Eubanks: Because he was a-- I wanted to learn something.

Fairbairn: Yeah.

Eubanks: So I was a little different than most of the students that at the time went there to get their ticket punched and they were-- they didn't want things to be tough. I used to meet before every test for any of the courses with the whole class and review with them what they needed, you know, go over it, because I was becoming unpopular. Anyway, it was--

Brock: Yeah.

Fairbairn: You wanted to learn it and they didn't care.

Eubanks: I mean, I was there to learn computer science, give the Navy a few more years.

Brock: Right.

Eubanks: They were mostly intending to stay their whole career.

Fairbairn: Got it.

Eubanks: And there were some really good people, I mean, and I'm sure they did well when it all came to pass, but I wasn't looking to make a career out of the Navy. And the Navy wanted one more tour out of me as an engineering officer on a submarine and then they wouldn't have cared so much.

Fairbairn: Right.

Eubanks: So, anyway, that was--

Fairbairn: So what was your thesis on?

Eubanks: I wrote a compiler, a p-code, you know, with an intermediate language called C-BASIC-- I mean, called BASIC-E, I'm sorry. <laughs> BASIC-E, so BASIC-E and the E was for something. Eubanks maybe?

Fairbairn: <laughs>

Eubanks: I don't remember. I'm sure that I could remember if I worked at it. Someone sent me the whole source code one time and he said, "You know, I found this somewhere." <laughs> But I couldn't read a single file.

Fairbairn: Right.

Eubanks: I couldn't find anything that could help.

Fairbairn: You didn't have the media that'd open it, right.

Eubanks: But I have all the source code and I have the original copy of my thesis, all that kind of stuff. But only in hard copy because there was no mechanism really to--

Fairbairn: Right.

Eubanks: I could have got a mag tape. But so I did this compiler. So, I wrote it in PL-1 and did most of the run time in Assembler and it worked.

Brock: And how did you come to that as your project? Was that something you discussed with Gary or was that--?

Eubanks: Well, I thought compilers were very cool. A course I took from him. He passed out an LAR parser, this thing that was developed up in Canada, and so I sat there one night and tokenized two or three lines of program and then ran them through these tables manually and it was like, "Wow, this shit really works. This is so cool." And I thought this would be fun to write a compiler, so I created the BASIC, my version of BASIC, and it was BCD, which was really, so you could do business applications in it. And so anyway, that was-- And Gary was, Gary was good. He was helpful but he wasn't overriding, but then of course getting the thesis approved, I mean, I must have gone through 100 revisions. He was a very detailed guy when it came to that. That's what people didn't like. He kept make-- And I'm like, "Gary." So, he wasn't a great teacher, by the way. It wasn't like Gary was a great professor. He was just a passionate guy. In the operating system course he taught, he handed out the source code to CP/M and went through how a BASIC-- because he really believed the future was microprocessors.

So, he said, "Here's--" And then his class projects, remember the batch files on CP/M BAT? So that was actually done by someone in the class as a project. Another project was, there was another one that ended up, now he, I'm sure, tuned it up a little bit but those were the kind of things. He got people thinking practically how you would do it. What I did with a couple of other people was write a multi-tasking version of CP/M and it actually could kind of work. We're talking very small machines, but I could get a tape player to read the tape at the same time something else was putting characters on a screen or something. And I read all the dozens of papers on operating systems design. At this time, it was very, I mean, paging and stuff was pretty out there. And I decided operating systems were really hard. I mean, these were a lot harder to make work. Debugging this thing was really tough and you didn't have, like, an ICE machine, the in-circuit emulators that--

Fairbairn: Right.

Eubanks: To actually, really test this. So, anyway, I really enjoyed languages. I found it challenging but doable.

Brock: I had one last--

Fairbairn: So throughout this process, did you develop a personal relationship with Gary?

Eubanks: Yeah. We were incredibly close friends, I think. I used to stay at his house when he was gone to watch it when he and Dorothy would be off somewhere. We hung out a lot and drank a lot of wine.

Fairbairn: Go ahead.

Brock: Oh, just wondering, did you by the time that you were finished with your thesis, do you think you shared his conviction that, you know, microprocessors and microcomputers were going to be the most important thing in computing moving forward?

Eubanks: Absolutely. I mean, it was no question in my mind that these things were going to change the world.

Brock: Could you talk about just how you came to that realization or just expand on that a little bit?

Eubanks: Because some of the early applications under CP/M were things like full accounting systems. The Structured Systems Group, Keith Parsons, Alan Cooper. Keith has passed away, actually. But they wrote full accounting. And there were others, it wasn't just them. And these were all my customers later on. But I believed, you know, the future-- Now, I'm not sure I envisioned how compact it would all become. I certainly didn't envision these kinds of things. But I did envision that, I did believe, envision's the wrong term, I believed strongly that there was a great future in this and a tremendous opportunity, but people didn't take it seriously. So, when I was going, after I got out of graduate school, I took my public domain stuff and put it in the public domain and actually fixed bugs for a long time. But I also took it and changed and made a new product called C-BASIC, so BASIC-E, but I took the public domain part and made my own product and started a company called Compiler Systems. My mother ran it in Sierra Madre and she hired all the people that worked there from Caltech.

Fairbairn: <laughs>

Eubanks: She just went around and put posters up saying, "Work with computers. Make your own hours, good pay." Every one of them ended up getting a PhD. I mean these kids were brilliant.

Fairbairn: So, how did this work? Is there any conflict between you being in the Navy and having your own company? Is that--

Eubanks: As long as I didn't have it interfere with the Navy. You read sometimes or hear people say that I was caught programming on the submarine. It was never-- I never had the-- I mean you didn't have the kind of room to bring all this stuff on, first of all. And you didn't have the time. So, that isn't true. But the second tour, I converted to the commercial application while the next ship was in shipyard at Vallejo. So, I worked hard in the shipyard. I was working twelve hours, fourteen hours a day. But then I'd come home and work on this, and on weekends when I didn't have duty, I would work on it.

Fairbairn: And you convert the BASIC-E to a commercial version?

Eubanks: Commercial version.

Brock: CBASIC.

Eubanks: Yeah, and I had a printer that almost got me thrown out of this apartment complex it was so loud. I couldn't be in the apartment when it was printing. It was a line printer that IMSAI gave me. IMSAI funded it, and we had a contract. And I had the equal rights to the product.

Fairbairn: What was entailed in converting it to a commercial product? Was it just making it more efficient or just--?

Eubanks: I added more capability. I made it faster but mostly added more comp-- and Keith Parsons was particularly helpful in this because he was working in BASIC-E and would come and visit me periodically. So, one of the things we added to CBASIC was a while statement, so you could loop that way, you know, while/when. So, that first appeared in CBASIC contrary to Microsoft's view of this. And he would-- we'd talk about things that it needed. And I had access through Gary to be able to take the grammar and continually generate new grammar of the LALR parser that the guy in Toronto at whatever that school-- Waterloo, at Waterloo. They had an amazing computer science program there, really good. And they developed this sort of table-driven parsing. It's one of the things one of their graduate students-- so, I got out the version of CBASIC and because Structured Systems was writing all this code, it was pretty well tested. So, then I eventually had to leave the shipyard and be in the Navy. But this was a missile submarine. So, they had two crews, so the ballistic missile submarines are always out there. They do ninety days and then ninety days off-- I mean-- I'm sorry, sixty days off. You'd go, and you had to-- the first thirty, you had complete leave, then you'd have some training. So, I would program during that period. And meanwhile, my mother -- she was very nice. She was a lot more charming than I was and kept people motivated. And they were testing the new products as well as-- the new versions as well as dealing with customer issues.

Brock: And were you-- who were your customers for CBASIC?

Eubanks: Just individuals, people who wanted to do-- believed in writing applications for CP/M-based microprocessors.

Brock: Got it.

Eubanks: And along the way, Microsoft had a brilliant idea, which was to build a card that would make an Apple II run CP/M called the CP/M Card. Isn't that what they-- or the Microsoft Card, they called it the Microsoft Card. But it plugged into a-- this did wonders for the Apple II that no one really ever gives credit is that now you could use an Apple II in business. And you could run these applications that were being written in CP/M.

Brock: Right.

Eubanks: And I don't know how much you guys have-- do you have these cards around and--

Fairbairn: We may. I don't know.

Brock: I'm not sure if we have that one. I'll check.

Eubanks: And so, the really important point of this is that when Bill Gates came to Gary-- and I think this tells a lot. He said, "Okay, we're going to build this card, run CP/M on an Apple II. And you know we want to get a license for CP/M," just like every other hardware vendor. So, if you were Gary, what would you have done? You might have said, "Well, I want to share the-- I want a share in the profits." Instead he gave him an unlimited license like he gave every other manufacturer for \$50K. And if you talk to Bill about-- this card had a big impact on Microsoft. But that was Gary. You know Gary didn't believe that people were going to buy this card and stuff. So, they sold a lot of these cards.

Fairbairn: So, Microsoft was shipping the CP/M operating system with this card as a package?

Eubanks: Yeah so, you'd go into a computer store. You had your Apple II. You'd buy I believe it was called the Microsoft Card [ed: it was called the Microsoft Softcard]. But I don't remember-- this is certainly not impossible to find. But it's been a long time since I've seen one. I wish I had one because I like these artifacts. I find I--

Fairbairn: Yeah, it would be interesting to see if we have it in the museum.

Brock: Yeah, I'll check.

Eubanks: You must. But this really was important to Microsoft, because it really gave them a real revenue stream over the Apple II, which, up to then, they weren't getting any revenue from that part of the market. They were getting revenue from OEMs who bought their BASIC. And so, originally, Microsoft would convert the BASIC. They had I think PDP-10s or 11s up there. They had great systems. And they would convert it to the hardware that a particular manufacturer, primarily Japanese, was manufacturing. So, there was a lot of these CP/M machines, you know, dozens and dozens and dozens. And they would-- but they realized that well, if the people just bought CP/M, they would then not have to do any conversion. Does that make sense? So, this occurred in about 1969, '68, back in-- I mean '78, '76. And so, Microsoft was sending customers to Digital Research. So, I remember I was back in Monterey from Hawaii. And I was talking to Gary. We're walking at Lover's Point down there, what they call Lover's Point in Pacific Grove. And we had this discussion about this. And I said, "Gary, now you need to bundle a BASIC interpreter with your operating system. And you will level Microsoft." Now, maybe he wouldn't--

Fairbairn: Because Microsoft was only BASIC at the time.

Eubanks: They were only BASIC. I mean they were great. And, you know, Bill is a force to be-- I'm not saying that they would fold. But that would have been a huge competitive advantage if you went to the OEMs instead of, for this fixed fee, instead of paying a \$100K, pay \$75 and a BASIC interpreter. The

irony of this is Gary had a BASIC interpreter he wrote years before. So, do you know about the astrology machine and--

Fairbairn: No.

Eubanks: So, Gary, when he was at the post graduate school, believed in Micros, had written PL/M. He was approached by a game company to make a stand-up machine that did the-- or a friend of his, Bill someone, that did astrology. And then another one was biorhythm.

Fairbairn: It's like an arcade machine?

Eubanks: Yes, a big stand up machine. He had one in his house for a long time. I don't know what ever happened to it. But he delivered it. But in typical Gary fashion, he didn't just write a program to do this. He wrote a BASIC interpreter and then wrote the programs in BASIC because he knew there might be more. And he had that interpreter. That is, by the way, how he got the MDS machine we talked about. He traded his BASIC interpreter to Intel for an MDS machine. And you know there's certain irony in this. I think if he had bundled that and maybe got one programmer to support it-- and he said, "Well, that will hurt your business." I said, "No, my business is completely different. Mine's a commercial--" That's what the CBA-- Commercial BASIC, you know fifteen-digit BCD arithmetic-- it was-- there are universities that used CBASIC to do astronomical calculations because it was so accurate. All the sines and arctangent, all these were accurate to like fifteen digits.

Brock: Right.

Eubanks: As well as the-- then the business people, the digital math. You didn't have the rounding problems. So, I'm kind of scattered here in this. But it's kind of-- during this period, this is how it came together. And Gary I think had less vision and less drive on this stuff. But he was an incredible programmer. And when he decided to do something, he made it happen. The key is what you do, right? Not just-- but, so all those facts in there that-- he took it from the-- he got the MDS machine. He'd originally done this-- it might have been John Torode. It was some of these early people. And a lot of these things that are published say who these people were that wrote-- did this stuff.

Brock: At this time, was your CBASIC in competition with Microsoft's BASIC?

Eubanks: Well, we thought so, but of course better marketing, better thinking would have seen them as an ally. And proof of that is that IMSAI had both available on their computers. Osborne licensed both. I had like four percent or three to four percent of the stock in Osborne in trade for this.

Fairbairn: Oh, wow. What did you see--

Eubanks: And I gave both Osborne and IMSAI the source code.

Fairbairn: So, you licensed it to the computer manufacturers to bundle with their machine.

Eubanks: Well, in this particular case, yes, to bundle it with the machine. Otherwise, we sold the thing in each run-- you needed the run time. This was not a well thought out business model. We should have licensed the run time, allowed than to hook the run time to their applications, licensed it differently, charged a few dollars per run. There's a lot of things as you think back. I spent a lot of time on things I could have done different. This is one of them. But yes, you just bought the CBASIC for ninety-- whatever it was. It was expensive. Things in those days were really expensive. VisiCalc was not cheap.

Fairbairn: Right.

Eubanks: And so, things went along here until IBM was going to-- and that's when things really changed with the industry. And Gary definitely made some mistakes. But most of the stories about this are just not true, what really happened.

Fairbairn: So, well, before we move on, and given that timeframe, if you could recount your version. I know you've told it before, but for the record here in this interview, if you could describe sort of what happened with IBM, Microsoft, DRI--

Eubanks: So, IBM was doing this project out of Boca Raton run by a guy who was sort of in a penalty box because something-- he'd been moved down there to do this thing. He died in the aircraft.

Fairbairn: Eastridge?

Eubanks: Eastridge, a good guy, I mean you've got to say he's a forgotten name. Right? The guy had the vision. So, his team were developing this microcomputer, this standalone. And IBM had done this before. They'd had these small machines and stuff. And they had a lot of floppy technology because they developed all this in South San Jose, and hard drives. They really had a lot of experience with this. So, they went to Microsoft and licensed the BASIC and then went to Digital Research to license the operating system. So, they showed up at Digital Research.

Fairbairn: CP/M.

Eubanks: CP/M, yeah CP/M. They showed up in Pacific Grove, had an appointment. The same day, HP was there signing the largest contract in the history of Digital Research.

Fairbairn: To license CP/M as well for their--

Eubanks: For one of their computers, which was their business. You know they'd license it just like Microsoft.

Fairbairn: Right.

Eubanks: And so, Dorothy was in charge of the business side and Gary the engineering. So, Dorothy was there, and she-- I wouldn't call her an efficient executive, a high-level executive. But she was trying to

handle HP. And here's IBM who'd been there before. This wasn't like the first time IBM had ever shown up. But they were serious. Digital Research, in one of their fatal mistakes, was they had a local lawyer, not Fenwick or Sonsini that they could have easily afforded. And they knew of these people. They just had this local guy because they'd always used them for their property investments and other stock. And I don't have his name, but I'm sure it's in all these histories. So, he wouldn't sign the IBM nondisclosure. He said don't sign it. He told Dorothy, "Don't sign it." So, what do you do? Dorothy--

Fairbairn: People are sitting there?

Eubanks: They're in the thing. And they're in a conference room, if there were conf-- you know. They're there. HP-- so, she's dealing with HP, getting this finalized. She's got IBM. The lawyer says, "Don't sign this nondisclosure. It will be a terrible thing." And so, Gary, meanwhile, was delivering a software delivery to a pretty important OEM who's name again--

Fairbairn: NorthStar?

Eubanks: It wasn't NorthStar. It was-- it might have b-- but someone like that. And so, he flew the plane from Monterey up to the Oakland area, which was far better than driving. It was-- he wasn't doing this to get his recreational hours in. He flew up there. He delivered it. He came back. And he got to the office, and there was IBM. There was-- Jerry Davis was the lawyer. Jerry was there, Dorothy. So, Gary immediately signs the nondisclosure. This isn't the story of Gary, and he didn't want to ta-- it's all completely wrong. So, he signed the nondisclosure. And then Gary and Dorothy were going on a cruise and flying to Florida the next day. They were actually on the same plane as these IBM people. They talked to them. It was all friendly. There was no-- because Gary was a passionate guy about this technology.

Fairbairn: So, what else happened at that meeting when they signed the nondisclosure? Were there--

Eubanks: They talked. They talked about the terms and conditions. And then IBM went back. They didn't s-- they were out-- because they went to-- I don't know that it was the same trip, but they went to Microsoft. They went there. Then-- so, it wasn't that Gary told IBM to screw off. It wasn't any of these things you read, any of this unfairness. So, at that point, a company called Seattle Computer Products had an 8086 board that you could plug into an S-100 bus, I believe it was an S-100 bus, and run and 86. But they had no operating system. And so, they-- I forget the guy who re-- Peterson [ed: His name is Tim Paterson]

Brock: Yeah, something like that, yeah, yeah.

Eubanks: Tim Paterson. He talked to Microsoft, and Microsoft decided to license it from him.

Fairbairn: Hold on. He wrote-- CP/M was an 8-bit operating system?

Eubanks: Yeah, and he disassembled, basically studied CP/M and copied it in an 86 world.

Fairbairn: He updated it to a 16-bit operating system?

Eubanks: Yeah. He rewrote it so it ran on an 86 processor, probably disassembled it to figure out how certain things were done. Most of it was pretty easy to understand. And my understanding, and I wasn't there, but my understanding was that it wasn't Bill that was in favor of this, but it was Kay Nishi in Japan thought that they should go for the oper-- but I don't know that that to be true. I've heard that. So, here you are. You're Microsoft. You got the language. Someone's got an operating system. You guys have checked it out. You can buy it for nothing. So, he offered it to IBM and said, "Instead of dealing with two of us little companies--" And I think they got-- they weren't happy with the fact that they wouldn't sign the nondisclosure, that there was Dorothy and Gary, and they were married, and it seemed maybe a little dysfunctional would be an understatement. I mean these were small companies in a very different time, no VCs I don't believe at that time. And--

Fairbairn: So, but as part of the-- IBM was going to need a 16-bit operating system, right? So, CP/M was going to-- if Gary was going to sell to them--

Eubanks: He had one. He'd finally converted it.

Fairbairn: Okay.

Eubanks: But he waited a long time. So, there were-- there are a couple problems here. I'm probably not explaining this right. Gary didn't deal with the business. And Dorothy and Gary weren't always on the same page. And Gary had a lot of extracurricular activities, which disrupted the company. And most of the women worked for Dorothy. Most of the men were programmers in those days. And it was very dysfunctional. I mean it really was, and little. So, it isn't that Gary blew him off. It was really that this lawyer didn't give him great advice. And meanwhile, if you were an IBM person sent out, and you're looking at these companies thinking, "You've got to be kidding me."

Fairbairn: Right, we're basing our future on this?

Eubanks: Yeah, this project. So, Microsoft seems to be a little bit better organized. Bill is a very articulate person when he-- I mean so... When he offered, or maybe they asked him if they could get it-- I don't know. I really have no hard data. I do know, though, that Gary didn't throw IBM out or refuse to deal with them or any of these things you read. It was really, he had an 86 operating system. And he ran into the same problem actually earlier when he came out with CP/M 2, because 1.4 was the first one and then 2, because he didn't support big enough disks. And he didn't think it was important because he was off working on something else. And finally, a woman named Kathy Strutynski actually bailed him out, rewrote CP/M to support the big-- and they got with 2. And he got away with it that time. But to tell you how frustrated manufacturers were, Altos, Dave Jackson-- so, Altos made great hardware. That's all I used the whole time, as soon as I could get it and get off the IMSAI stuff. Dave came to me at the NCN-- National-- NCC, was that what it was called?

Fairbairn: The joint computer conference?

Eubanks: The one that was in-- the last one was in L.A. Then they sort of-- there was another one in Chicago, but it evaporated like Comdex eventually. So, they had all the PCs in a tent. So, anyway, Dave came to me down there and said, "I want you to come and work for us and run software. We can't rely on Digital Research. They're just not delivering this 16-bit. And we need to produce 16-bit stuff." And I said, "Well, Dave, I'm in the Navy. I can't exactly quit." He said, "Well, sure, just quit." This is a great conversation. He's British. Have you ever met him? Or have you ever interviewed--?

Fairbairn: I haven't.

Eubanks: I don't know if he's still alive. He's quite a character. But I'd known Dave because when he first, first decided to do something, his first prototype looked just like an Apple II. It was a monitor in a box with a computer and everything. And then he decided to build these rack mountable kind of-- you know, the-- and they were very successful. That's where that local g-- who's the guy that does all the angel funding? What's his name? He worked at--

Fairbairn: Oh, you mean Ron Con-- Ron Conway?

Eubanks: Conway came out of Altos, I believe. I think so. Maybe not. [ed: Ron Conway was President and CEO of Altos Computer Systems from 1988-1990]

Fairbairn: Could be.

Eubanks: Yeah. So, anyway, it's not one meeting with IBM. There's a cultural difference between Microsoft and IBM. Microsoft was willing to fight and take some risks. Gary was very-- he was like, "We're Digital Research. We'll always be the leader. We've got CP/M."

Fairbairn: So, there's a cultural difference between Microsoft and DRI?

Eubanks: Yeah, and Gary particularly.

Fairbairn: Right.

Eubanks: You might-- something just flashed out of my mind. But anyway, Gary was a technologist and not a business guy. And they didn't blow off IBM. I think IBM probably went back and said, as you said, "We've got these two tiny companies." One of the top lawyers, or the guy who used to run Fenwick, not Bill Fenwick but the guy after him, tells a story about this, but I don't think I should publicly repeat this whole story. But he's experienced this too. I mean he took a bunch of Japanese to see Digital Research and then went to Albuquerque to see Microsoft way back. And he-- this is a great story. I believe Gordy [Davidson] is telling it exactly as it happened.

Brock: But it has echoes of this--

Eubanks: It does. It has echoes-- and it has echoes of the fact that these are small-- you can imagine how IBM must have felt. They go back to Boca Raton and say-- and at that point, Gary was clearly the dominant company, Gary and VisiCorp.

Brock: Mm-hmm.

Eubanks: VisiCorp had an unsolvable problem. It's North Korea kind of unsolvable. I mean because they had a contract with Software Arts. I'm sure you guys have gone through all that stuff. But VisiCorp and Digital Research were very powerful at that time. And I actually worked with the founder of-- or the CEO of VisiCalc, Terry Opdendyk. And he and I actually had agreed that we-- and Digital Research, Gary and the board, I thought had agreed to merge the companies. This was before anyone went public. It would have changed things tremendously. And then I was-- then a weekend, and it fell apart. Gary wouldn't do it, wouldn't talk about it.

Brock: When was that roughly?

Eubanks: Maybe I'd been there a year, so '91-- '8--

Brock: One-ish.

Eubanks: One, two-ish. You probably know Terry. I mean you should ask him.

Brock: I very much know his name, but I haven't had a chance to speak with him yet.

Eubanks: They had this contract that was-- the royalties were like fifty/fifty or some ridiculous thing. And then they went off on this Visi-- VisiOn fantasy and things. I really liked Terry. I haven't seen him decades probably today, a long time. He's a VC now, or was a VC. But to me, the solution, when Microsoft announced in '81 the PC-- when IBM announced the PC, the solution was for Gary to get together with VisiCorp and really drive applications and let the chips fall where they fall in the operating systems. And there was still an opportunity, obviously, an opportunity to build a very successful company on that. After a while, and probably this is more looking back than it was at the time, I'm sure I wasn't as smart as I think I was at the time, but it became clear that this was an uphill battle that Digital Research would not win. So Terry was the guy who told IBM they didn't have CP/M. They had a lookalike. So, this is a part of the story I don't think ever really gets told. So, Terry told that. Gary was furious. You can imagine, think Trump-like, about this, about Microsoft because Gary would never cross Microsoft because they sent him customers, and it was-- so, Gary decided that he was going to sue IBM.

Brock: So, this is--

Eubanks: He was in dire need of better legal advice, but so, they went to New York. I'm sorry, you were going to ask--

Brock: Oh, no, does-- Terry Opendyck told IBM, by the way, this operating system you're getting from Microsoft is not like a real CP/M?

Eubanks: It's a lookalike.

Brock: Okay.

Eubanks: Be careful, or whatever.

Brock: Right.

Eubanks: So, Gary was going to sue Microsoft. So, they went to New York. And so, instead of Gary going to IBM and saying, "Listen, this came from Seattle Computer Products. It's a knock-off. It violates our copyright, violates our intellectual property. IBM is the last company that wants to do this. So, I don't begrudge Microsoft. We're-- but let's get real here. We should deliver the operating system because it's our brand and our product and blah, blah, blah. And we have one thousand independent software vendors. But we want to work it with you." Instead, they were going to sue them. So, you can imagine what that was like. At IBM, they had more lawyers than most law firms. I mean they were-- had been beaten into the ground with this kind of antitrust stuff. You wonder if they'd stood up to them like Microsoft did and fought it whether it would have been different. But anyway, so this is all kind of detailed nerdy stuff, but Gary went to New York and made a terrible deal. They agreed that instead of bundling the operating system, they would offer three operating systems. Gary thought was a big victory. But of course, Microsoft-- as long as MS-DOS was the application that all-- the operating system all the applications ran on, then it didn't matter about the others. Or people who wanted the P system from San Diego because of-- they wanted to write Pascal stuff, that was good. But CP/M was left out in the dark.

Fairbairn: But they also missed this issue of the price. MS-DOS was fifty dollars and the--

Eubanks: Right, right. And they also price-- yes, absolutely. They priced it completely different. They had all the applications that would run on it. It was a terrible decision to try to sue IBM. I mean I think it would be clear to say IBM had more internal lawyers than there were employees in Digital Research and Microsoft put together and probably their law firms because they'd been fighting lawsuits for decades.

Fairbairn: Oh, yeah, armies and armies of lawyers.

Eubanks: So, they went there. This was the decision. And meanwhile, it really benefited me that-- all this because Gary was pissed at Microsoft. So, he bought compiler systems at a very generous deal and-- very generous. If Digital Research had won the operating systems, I would be sort of like Ballmer. But I wouldn't have bought the Lakers I don't think. Maybe the Giants but not the Lakers-- not basketball. But anyway, I mean so, I truly-- again, another lucky-- so, there's been all these things that worked right, because I couldn't really have sort of on my own doing compilers become less important every day, these systems, right? I mean initially, they're important. But over time, it's the applications. It's just not really a great business.

Fairbairn: So, he bought your company. Now, you were still in the Navy?

Eubanks: No, I was out of the Navy.

Fairbairn: You were out of the Navy.

Eubanks: But I was still living in Hawaii writing code because I was writing a native code compiler that would generate 8080 code. And I called CB80, CBASIC80. And then it was really, if I say so myself, this was really a good product. This was really good product. And I had a guy named Paul Lancaster that worked with me. I'd met him in Hawaii. And he was a remarkable programmer also. He wrote the linker, for instance. I explained over the phone what it was supposed to do, and he wrote it in two weeks because I couldn't buy-- I couldn't get Gary's linker. It would have been a lot better to have one linker and one assembler. But anyway, Paul was an amazing coder. So, we're talking like over the-- the compiler generates these link records. I just was explaining what each one of them did. Here's the number of them. It's just amazing. I guess-- and he wrote it all in assembler. He did everything he did, I think, in assembler.

Fairbairn: And this is part of what Gary bought?

Eubanks: Yeah, he got that linker. He didn't care about it because he already had a linker. But--

Fairbairn: So, then you went to work for Gary. You were a DRI employee for a period of time?

Eubanks: Right, for two years.

Fairbairn: And did you just continue to work on the same product that--

Eubanks: Well, then eventually, I ran-- there's a lot about what happened with Digital Research in there that really isn't my history, but they had VCs by then, PA Associates and-- what's the guy's name? I'll think of it, anyway, Hambrecht-- no, not Hambrecht. That was a-- anyway, they had another guy. Two people invested. And they were beginning to realize. So, they were going to hire a CEO. And they had three candidates, one from Intel I thought would have been awesome and two others. And the one they hired was the one that told Dorothy she'd still be a VP. I was at the dinner. I remember her at the end saying, "He's the guy they want. He's really not the best guy."

<laughter>

Eubanks: John, had six, eight kids. He was-- he was an interesting guy.

Fairbairn: So, they did hire him?

Eubanks: Yeah. Not the guy that would have probably fixed it.

Fairbairn: Right.

Eubanks: He probably would have fired us all because he probably would have brought in more prof-- none of us were-- I mean it's not like we were experienced professional managers. We were just winging it. But he certainly would have fixed some things. But instead, they brought in someone who didn't. And then I left. And someone else eventually took over there who did a really good job if it all's-- if everything's taken into account, they got an outcome for Digital Research. They sold it for twenty million. But all the money went-- this is one other comment on this. Everything was about Gary and Dorothy. It wasn't about employees. I used to attend board meetings. And there was a board meeting-- have you heard-- have I told-- is this in my other--

Fairbairn: Go ahead.

Brock: I don't think so.

Eubanks: So, they're going over stock options, you know, the boring stuff. And Dorothy said, "Well, that woman isn't getting any." And so, Jacqui Morby looks and, "Why?" "Well, she's unprofessional." Explain-- she says, "Well, after work, she stays to do extra stuff, but she brings her daughter in. And she's sitting in the office while her mother works overtime for nothing." Another time, the daughter busts into the boardroom, jumps on Gary's lap--

Fairbairn: Gary's daughter?

Eubanks: Yeah, Gary's daughter jumps-- and Dorothy's daughter. And Gary may have other daughters that I don't know about. But she jumps in his lap and says, "I need to go riding." Gary gets up and takes her to the equestrian center, another true story. I mean I was sitting there when this happened. It was just-- it's eye opening. I mean-- and that would not have happened at Microsoft I don't think.

Brock: <laughs>

Eubanks: And it's not that one person's not as good as the other. It's just Gary wasn't meant to build a big company. And I've never seen a company where husband/wives were a good fit anyway. I mean it's a tough-- I can't imagine doing this with Rhonda, my wife. I mean I just can't. I mean it would be a disaster.

Brock: <laughs>

Eubanks: We'd both end up with half as much and rich lawyers. I mean it's just crazy. So, I went up to the Valley and hooked up with a guy named Dennis Coleman. Dennis's claim to fame is he wrote the first spell checker that actually did it the way we do it now. It'd go through a document and find the words, give you-- it was amazing that he did a good job with this product. And so, Dennis and I met because his fiancé-- he was a professor at Stanford Business School. He was an MIT graduate, technical guy. He was in Hawaii to get married. And he called me and said, "I understand you have the only reliable computer system in Hawaii. And I want to buy time on it." And so, I said, "Well, I don't know, but why don't you come over. I'd like to meet you." We talked. And so, I was in the Navy. So, I would go to work in the mornings. So, he would come over and use my system to work on Spellguard, that was what it was

called, work on Spellguard while I was at work. And he was out there getting married. And we got to be friends, kind of a small-- I mean he was astounded that I would just give him access to the house and the computer. And I know that he would-- he'd use it, and then he'd wipe everything that he'd done like I-- he was a very-- I mean I, on the other hand, thought if he could take my code and do something with it, good for you. It's really-- I mean-- so, anyway, so Dennis and I started a company we called C & E software. We raised some money from a group called the Masters Fund in Colorado Springs.

Fairbairn: Masters Fund?

Eubanks: Yes. The idea was these people that invested in it were like Mitch Kapor, these people that were, at the time, the sort of leaders--

Fairbairn: Yeah, they were the gurus of industry.

Eubanks: Use their experience, this is not a new story now. I mean-- but none of these things really worked. But Carl Carmen was a great entrepreneur. He was the first head of engineering at-- what's the soul of a new machine?

Fairbairn: Data General.

Eubanks: Data General, he was the first-- he took over from de Castro as head of it. You can imagine that job. And he was the guy in "The Soul of a New Machine" they all worked for. He's the one that went down and shook the boards. It's a great book. I couldn't put that book down. But Carl was-- very fortunate to get Carl. He invested half a million dollars for forty percent of the company, and we had C&E Software. And we were going to compete with Software Publishing-- pfs: file Report and Write-- because we thought that Fred Gibbons' interest was in simplicity and we thought customers actually wanted more. I explained all this to Esther Dyson once when I was driving her from San Francisco to Palo Alto, and she said, "Turn left." I dropped her off at Fred's house.

<laughter>

Eubanks: I was like, "Esther!" She said, "I'm not going to say anything." So we actually hung out and went out in town and drank some wine. There was a wine festival. We went in a computer store. I said, "Why are there no books about pfs:?" And he said that, "We'd fire any of our programmers if they needed a book to use our product." And I thought, "This is a huge opportunity." He's a great-- I mean, Fred is-- a tragic skiing thing with the aneurysm that he had. So sad. He was one of the real deals. I'm counting no one actually watches this stuff.

<laughter>

Eubanks: So anyway, we were going to do an integrated product, and we were working on it, Dennis and I.

Brock: Word processing and--

Eubanks: Word processing, report writing, and file. Exactly what pfs: had. So meanwhile, John Doerr shows up at my-- I bought a condo at Sand Hill Circle. You know the condos that go to the outside? Now I'm sure they're gazillions, but they were pretty reasonable then. And I bought one because I was trying to raise money for this, and there were all these VCs there. I was there and John Doerr shows up. Just shows up.

Brock: So how does he know you, and what's your history with him beforehand?

Eubanks: I'd pitched--

Brock: Your company?

Eubanks: I'd pitched the C&E thing to them in a meeting when they still were in San Francisco at the top of one of the Embarcadero buildings. Tom Perkins, and John, and I talked. So Tom starts the meeting off. He says, "Why are we wasting time on this bullshit?"

<laughter>

Eubanks: Because John was like, "You got to get in." Because Lotus had just gone public, and they were like, "Wow, we invested in Lotus. We need more software." So anyway, they didn't invest but they told me, "The person who will invest is Carl Carmen. Go see this guy." Because they were investors in this fund and all their CEOs that had been successful invested in this fund. So John shows up-- but he didn't really know me. But he was in this meeting with-- it was John, Tom, and I. Later on, Tom didn't remember that, but I certainly remembered it. And we weren't having much luck getting major VCs to invest. So John said, "There's this company, Symantec. I think we should put these two companies together." I said, "Well, we have three people and one of them is trying to find us a facility." Maybe we had four people at that time. Maybe we had another programmer. So, John says, "I think we could probably do a 50/50 deal." They'd put millions-- I mean, all the heavy hitters invested in Symantec at the AEA in Monterey in 1981. They all poured money in. So I said, "I'll go look at them." I went and met with them and came back and said, "No, this place this is going nowhere. Their product ideas have failed. I mean, this is--" I didn't say "crazytown," but it--

Fairbairn: What had Symantec been trying to do at that time?

Eubanks: Symantec. Yes, they did call it that. They were trying to do natural language. They'd cornered most of the heavy hit-- that's why it's called Symantec. A terrible name and people think we're Simmon Tech." They used to think we're Simmon Tech, that Austin semiconductor thing. So, they were going to do a database driven by natural language and it didn't work. Because Lotus fired their CEO, John-- and put him in charge of Symantec-- I don't want to go into all the stuff about him. So I met with him and came back and said, So then he came back a few days later and said, "What if we give you

ninety percent of the equity and ten percent go-- 90/10 and KP will invest another million dollars?" So I call up Carl and say--

Fairbairn: You mean Kleiner Perkins would hold on to only ten percent and they'd give you ninety?

Eubanks: All the shareholders of Symantec got ten percent. The shareholders. Now Kleiner, of course, reinvests it. The price wasn't that high. Kleiner didn't get hurt badly by this, and Kleiner made out, in the long run, amazingly on this deal. But yes, that was the deal. So, I talked to Carl. I said, "It's tough to raise money now." This is 1984. The market's not strong. It's a bad time. This sounds like something to think about. They have a building. We'd get rid of our building, which was leased to that database company that Borland ended up buying.

Brock: Ashton-Tate?

Eubanks: No, not that database company. We looked at that. We thought about buying it at Symantec. So the only reason-- you couldn't buy it because-- Microsoft couldn't buy Ashton-Tate because of the lawsuit-- no. I'm confusing it with a different thing. Delete all that stuff. I'm confusing it with a different database company that Ashton-Tate-- that-- anyway. The one that was in our offices, Borland, ended up buying it, but I forget the name of it. So we merged with them. We moved into this third floor-- they had two floors of this building in Cupertino. There was not even-- the second floor was just used for storage. They spent money-- so we buckled down. We ended up building a product called Q&A which was a very successful product. In the end it was a very-- I'm very biased but it was a really good product. We also made some acquisitions to build out our line of productivity products. We bought TimeLine. We bought into the Mac by buying Living Videotext, which had ThinkTank. So we did a lot of acquisitions and we managed to survive.

Fairbairn: So you became CEO?

Eubanks: No. I became Chairman and Vern stayed as CEO. I managed to get Tom Byers to come up from Digital Research. That turned out to be really critical because Tom did three things. He started publishing products under the name Turner Hall. Because Dottie Hall was Vern's girlfriend-- wife, eventually-- and Rod Turner was at the company, so he called it Turner Hall. But he published products, mostly Lotus add-ons. This was a very hot market for small-- but it gave us enough cash flow. That's one thing he did was he published things so we could continue to build against Software Publishing. He hired Ted Schlein, which was critical. He was Brook's brother, and I think the connection to Kleiner at this point was very helpful to have a broader group of people inside there that cared about us. Eventually Vern left, ended up-- he started that airplane company down in Phoenix. He's a whole story in himself. We managed to get traction, get profitable. We actually went public in '89. And the only utilities at that point-- we had SAM and Symantec Antivirus for the Mac, and some Symantec utilities for the Mac which were-- Ted Schlein found these, believed in this market.

Brock: So what were your revenues when you went public approximately?

Eubanks: I don't remember. I could look that up for you.

Fairbairn: Tens of millions?

Eubanks: Tens but not hundreds. We were probably running at maybe a \$40 million-- I don't know. I don't really honestly remember.

Fairbairn: Again, you were chairman. You were not CEO.

Eubanks: No, by then I was CEO. Vern left in the mid-eighties. There were times when we couldn't make payroll. We gave people stock. We had a promotion where, if you buy Q&A and send in a pfs: product box or wrapper or proof of purchase, we'll give you a \$25 rebate.

Fairbairn: So was Q&A the competitor to-- what you named the competitor to Software Publishing's product?

Eubanks: Yeah, we called it Q&A because it had a natural language. You could type questions in English. It was, for its time, running on a PC on DOS with 640k maximum, it was a pretty-- I mean, I'm very biased, but this is a very cool product.

Fairbairn: It's amazing what we did with very little processing power in those days, isn't it?

Eubanks: It is. I mean, it is. This would be a great thing to have a-- where people could type in questions. I don't know if you could find a machine it ran on. My aunt, until the day she died, that's all she used for things. And I was worried because it was hard to get the format from a floppy disk to something else. She did a cookbook and stuff. <laughs> Anyway. The guy who wrote the word processor, by the way, that was hired to do the word processor, his name was Barry. We thought he was kind of maybe a little bit overoptimistic of his skills. He claimed to be a great poker player, among other things. He was actually Barry Greenstein, who's that guy who's won all those things on-- he was on TV all the time. When they used to show poker? Remember?

Fairbairn: Oh, yes.

Eubanks: He's one of the-- he's the guy who donates all his tournament winnings to charity. He turned out to be-- because they make all their money in these private games, I think. So anyway, Barry was-- so he was not a programmer, but he wrote-- he did an amazing job with this word processor. We hired as a consultant the guy who wrote WordStar to do all our windowing and stuff. Not everyone was happy about it, so they wouldn't give him any memory. They just said, "Yeah, they do it all on the stack." <laughs> He was quite a-- so we had good people. A lot of fun. A lot of naiveness and stuff. But we managed to get the product out, build a revenue stream, be profitable, and actually go public.

Brock: What year did you go public?

Eubanks: '89. A tiny deal led by Robertson Stephens and-- who was on the other side? Anyway, we did it. And then, after the second or third earnings report, I was in my office and Bob Dykes, the CFO, came in and he said, "Good report. Analysts are happy. Conference call great. By the way, we'll be out of business in three or four years." True. He said it. To me.

Fairbairn: Not to the analysts?

Eubanks: I said, "Glad you didn't bring that up on the call. What are you talking about?" And he said, "Well, I've been thinking that, you know, Windows and Office-- Windows is going to gain momentum. Office is going to be very successful." I said, "You know I agree. Actually, honestly, I've been worried about this." And he said, "Well, what should we do?" And then we decided-- the team: utilities. That we're very successful with SUM and SAM for the Mac. This is an area that might be ripe for acquisition. So there were three possibilities. The backup company in Louisiana. That already doesn't sound good. I forget the name of that company. [ed: Fifth Generation Systems].

Fairbairn: A company doing backup software?

Eubanks: Yeah. FastBack. Anyway, then there was Central Point Software and Norton. Those two. So we visited both, and at that point Central Point was really hurting Norton. They had a good product. But we couldn't do what's called a "pooling of interests," and we thought that was really important. It's no longer allowed, but it's a way of doing an acquisition that you don't have any good will.

Brock: Yes, it's a write-off. To a write-off.

Eubanks: So it doesn't hit your earnings and stuff. And Norton was having some problems and I think Peter wanted to sell, so we were able to negotiate a deal with Norton to buy Norton for \$82 million. I know. It sounded like-- we got criticized that we'd paid too much.

Brock: It's too much, yes.

Fairbairn: It's too pricey for your size, right?

Eubanks: Yes, well we were doing \$80 million a year the first year. <laughs> And Central Point felt the pressure. They issued a product that had problems, had to be recalled. And we really ended up doing very well in '90, '91, in that timeframe.

Brock: May I ask you a question about that? Why did you feel that-- if you could feel the heat coming from-- you saw the threat on the horizon with Microsoft Windows and Office. Why was utilities different? How did that evade-- why couldn't-- I guess another way to put the question is why couldn't Microsoft have just come in and--

Eubanks: They could have. They could come in and do anything. But they weren't stupid, and they didn't do things for vengeance. They tried to do good business decis-- I mean, they didn't just pick on

people for the-- If you took them on, I think they were pretty aggressive but they can't do everything. And we spent a long time building a very strong relationship with them. We worked closely with them. Very closely. Listened to them. And we did some things they said that couldn't be done with the operating system. With Windows. The way we did the disk reorganization. Remember when you used to optimize the disks and it looked good because on the screen it was all together, but it didn't actually make that much difference. I don't even think those things exist now. I don't know. But we had very good engineers, and I think that went a long way in those days with Microsoft. They respected that. We had very good people, like Enrique Salem, that was down there. There's no one that doesn't like Enrique. You can't help but like him. He's just an amazing person. I found him programming in a back room, actually. Working on something called NDW, which was a front end to Windows. Windows didn't have much, so we had icons. So we built this partly to land on top of Windows. If Windows 95 had been a little more reliable I think we would have done a lot better with-- and then by '97 they'd copied all that stuff. Our approach wasn't to get all angry and sue them. Our approach was to find opportunities, talk with them where there was-- and the antivirus began to take over everything. So the Michelangelo antivirus and stuff. I think we were in the right place at the right time. Obviously, it turned out to get into utilities security was a good idea. And certainly, we would have disappeared trying to be in low-end productivity.

Fairbairn: So did those other products wither away or did you kill them?

Eubanks: I just took the resources and put it into the-- on the side of where we thought the future was. It wasn't necessarily popular. Someone left a bottle of vodka with a skull and crossbones-- that vodka that was out for a while-- on my doorstep. It's hard to make these decisions. So, we were in sort of security, but we also had pcAnywhere. We had a language group. We had a bunch of stuff. I think where John Thompson, in '99, he saw-- of course, he had a great-- he ran, I think, all of the Americas for IBM. The sale, the whole-- he really understood the large customer. He was a really seasoned executive and he put all the focus on the security and it paid off. So, between 2000 and 2010, where most people were trying to get over the collapse in '99, 2000, Symantec was just going like this.

Fairbairn: So when did you leave the company?

Eubanks: '99. In the middle of '99.

Fairbairn: And he took over.

Eubanks: Yes.

Fairbairn: And what drove your leaving the company?

Eubanks: Well, I mean it's a lot of things. I think the board felt like I'd been there a long time. Since '83. I felt like I'd been there a long time. I thought there were great opportunities in these startups. Everyone was going public, making a fortune. I thought, "Geez." So Kleiner offered me this job at Oblix, and so... But really I stayed too long. I really wasn't the right person.

Brock: That was your first CEO job. I mean, this is the first time you're running any substantial operation.

Eubanks: I know. I know. But if we cut through everything at some point it takes a different set of experiences. You get too close to the team that you've got. You're not willing to be hard enough. I remember a board member saying to me one time, "Why are all these people getting basically the same bonus? Surely they're not all the same." I'll never forget that, because that was really another way of saying, "Your job is to be--" And it wasn't that way in 1985, or '86, or '87. It just-- after how many years-- it was like a lot of years. It was good.

Fairbairn: Time for a change.

Eubanks: Certainly the company benefitted. In retrospect, they couldn't have done better than getting John. John's now, what, the chairman of Microsoft, right? He's the guy who hired the CEO.

Brock: Yes.

Eubanks: He's incredible.

Brock: Oh, I hadn't realized that was the same person.

Eubanks: There's many, many John Thompson's that were at IBM in those days, in the nineties. There was a technical one. But John would always say, "Of all the John Thompsons, I'm the tall black one."

<laughter>

Eubanks: He's a stud. And then after him Enrique. So Enrique came to Oblix with me and then he got recruited to a company to be CEO that then Symantec immediately bought. He was back at Symantec. I think they realized that maybe there was room for improvement, but they kept the CFO, actually. They realized they got Enrique back. Enrique took over as CEO after John.

Brock: SO what was Oblix? What were you brought in to do? What was the state of the company at the time?

Eubanks: Well, if I'd known the state-- If I had done more work on it... So Oblix was a group of people who wanted to use LDAP directories. They thought this architecture was important. And Will Hearst was really into it. He's the guy at Kleiner who invested. He was a partner for a while at Kleiner. Will invested. And so Will would show up with champagne and Ronda thought it would be good to hang out with Will Hearst. This looked like a good company. So I didn't probably do enough due diligence. They had real good talent there, and they were doing a name and address system for corporations to keep track of their employees and their phone numbers and stuff. A ridiculous business-- I mean, most people would--

Brock: This was 1990?

Eubanks: '99.

Brock: 1999.

Eubanks: Most people would buy a database and get someone to program it a couple days and have some assistant enter everyone in. This was silly. But the LDAP directories were an important architecture and identity management was becoming more important. So Netegrity was the leader in access control and identity kind of stuff. They were in our offices one Friday because we had some experience working with LDAP directories, and we were talking about how we might work together. I was listening to a little bit of it and what they did. So I came in on Monday and said, "We're going to do what they do, only we're going to do it better." And we did. We did do well. Enrique in there running engineering made a big difference. We got rid of some people. It turned out there were some-- Nand Mulchandani was one of the original people. He is a super superstar. So we had a good time and we did access control, but we built more identity stuff on top of it. We sold some big accounts like Coca-Cola and Southwest Airlines. We ran by \$20 million, so for a startup, that time frame, it was pretty good. So Netegrity, meanwhile, was really getting hammered. And so when it was us and them, that was good. The CEO was actually-- on September 11th, a number of years ago-- missed his flight to LA, one of the planes, raced to the next plane and they wouldn't let him on. I think that shook him up. I don't know. But he was a good guy. But then they sold the company. Sun got involved in identity management and, more important, IBM really got into it. Because it was a corporate-- you know, when we sold Coke and people like that-- Southwest-- this got IBM's attention. I don't know that it was just us, but they saw it as important. They bought a company in Austin and then it became a lot harder.

Fairbairn: Now you're up against the big guns.

Eubanks: Yeah, well, it's one thing to be up again-- so when we were doing this at Symantec against Software Publishing, that's one thing. It's another thing to do it in a world where PCs are very critical, and these are server-based solutions. The world was just completely different in 2001 than it was-- or 2003-- than it was-- why John was so great at Symantec is he understood how to sell to these people.

Brock: So you slid through the dot.com bust?

Eubanks: Well, I went to Oblix and we were getting our act together during the worst part. We were so small. We had funding. So we didn't really have to deal with it. Meanwhile, the one thing that was strong was security, and John was driving that up. But I was completely uninvolved.

Brock: So Oblix was-- you were still in development mode during that time?

Eubanks: Yes, well, they had some customers that, in '98 and '99, threw money at them. One of those New York banks. But I went and met with these people and said, "How's the implementation going?" "Well, I don't know..." I said, "Do you really need an address-- how do you look up people now?" He said, "Well, we actually have a system." "So why did you buy this?" "Well, you know, we want to be involved." I mean, it was a crazy discussion. "Our bankers think we should be--" So they just basically

gave the company money. I'm not going to name any names. But the identity was a real business. We could have done some things different. I didn't appreciate that identity and access control-- you also had to be able to provision these systems. That was actually as important. And if, in retrospect, which is easier, if we'd held off on building sales, put more money into engineering, and built provisioning, I think we would have been more competitive.

Brock: What is provisioning?

Eubanks: This is setting up the systems so that a person can be in them. These are all mainframe systems. The more enlightened 2003 idea was to go after cloud provisioning and cloud identity, where you didn't really need to deal with all these old systems. And some people have done a good job of that. Like I said, I don't keep involved in any of this stuff. But we ended up selling it to Oracle. It's done well there. They've done well with it. Some people, I believe, are still at Oracle. Had good careers.

Fairbain: How big was the company? What did you sell it for at the time?

Eubanks: We sold it for \$100 million. We're doing \$20 million, something like that.

Fairbairn: You had how many people?

Eubanks: I have no idea. Can't remember. I mean, at the time I knew, because you had to get-- everyone that Oracle took, which wasn't everyone-- it was a nasty thing to go through. Common stock got nothing because of the--

Fairbairn: That's what happens.

Eubanks: Yes. I mean, it was a tough thing. It was very fortunate, I think, that one of my real heroes in the business side of all this, Safra Catz-- Safra was Symantec's banker the whole time I was there. So she, at least, set up a meeting and sent the people to listen. And their head of M&A was an amazing guy, too. DLJ was the banker that Safra was at. DLJ was our other underwriter.

Fairbairn: At Symantec?

Eubanks: Yes, at Symantec. Again, another one of these very lucky things. I don't think everyone that worked at Oblix would say it was a great outcome, but the technology lived on and a lot of people kept working it. Prakash Ramamurthy stayed there for a while. He's a really, really strong guy. Ken Sims went on to do something different. So anyway, I whipped through that part.

Fairbairn: So then you were left with, "What do I do now?"

Eubanks: Yes, well--

Fairbairn: What year was that that you sold it to Oracle?

Eubanks: I think it was '07, '08. You probably know more than I do.

Brock: I saw 2005, but I could be wrong.

Eubanks: Sometime in there. It seemed like a hundred years.

<laughter>

Eubanks: And then, on September 12th, after September 11, 2001, I realized, "We're going to have to cut back." Cuts. We had to cut back to be sure we could survive. We never got a good foothold in Europe. Weren't enough scale. But it's what it was. We sold the LDS Church. That was a really great experience. I'll tell you they were good people. They were. And some of the stories you hear about-- but they were one of our customers. I remember they said, "Well, we've decided we're not going to implement this, so could we get our money back?" I said, "Well, no, not really." They said, "Oh, well we understand."

<laughter>

Eubanks: Other customers were calling me. See there's a difference with-- this was a mission critical application, so we got to see people like the CIOs of these companies, where, at Symantec, a lot of this stuff-- antivirus, they were-- the CEO wasn't really-- the CIO wasn't really involved. They always wanted more support, more resources. So when I called them to tell them that we were sold to Oracle, they were like, "You're kidding. Don't do that." I said, "But you want more resources. You're going to get all kinds of resources." I think it worked well for a lot of the people. But not really what they were aiming for when they started the company in '98. There's a great story. When they were recruiting for a CEO-- so this was started by a group of Indians from India. What's the politically-- is that the right way to say those? So great people. Most of them. They're interviewing, and the CEO says, "Well, I think the problem is you've got way too many chiefs and not enough Indians." And so the guy said, "What do you mean? We're all--!" Anyway, it was I guess funnier at the time.

<laughter>

Eubanks: I remember this-- because I didn't hear all this before.

Fairbairn: Great line.

Eubanks: I think some of the previous candidates did a lot of digging. The thing about running a company-- I know experience is so critical but one thing about inexperience is that people know how-- they don't know how thick the wall is, and they'll run at it a lot harder. Experience is a double-edged sword, because then you've got reputation to protect. You've got other things that you're inevitably involved in, and, most important, you know how thick the wall is, so you don't want to fail, so you might not run at it hard enough. And I think, if you look at the great successes in the Valley, these are people who ran at the wall really hard. They weren't going to get concerned with the fact that it's going to hurt,

that it's hard. And I think youth is more likely to have that. I don't know. I don't think you could have hired a bunch of experienced managers and created Facebook. This is something for the elitist Ivy League schools? Are you kidding me?

<laughter>

Eubanks: So anyway, I have that bias, so I like-- I never entertained any-- there was other opportunities, but I never entertained-- I think it's time, you get to a certain point, it's good to go help startups.

Brock: Could you talk about some of that activity that you've done since the Oracle acquisition?

Eubanks: I worked with-- so Stanford has a course in entrepreneurship. It's a hard class to get in, apparently, but they have teams of four people. So I would be a mentor for one of the teams. I knew one of the instructors. So one of the teams-- I'll never forget meeting them. I sit down with them and, "What are you guys thinking of doing? It's really important to get this idea quickly and not spend two weeks trying to figure it out. It's only a short course." So they said, "Well, we're going to build satellites and launch them." And I said, "Excuse me?"

<laughter>

Eubanks: I said, "You know, this is a credit course." They said, "No, no, no. We--" And the head of it was a PhD candidate in astrophysics. The short of it is, they actually launched a-- they raised money, launched a satellite-- two satellites, and were bought by Google.

Brock: Oh, this is--

Fairbairn: Is this Mark Leslie's course? Does Mark Leslie teach it?

Brock: Yes, he probably takes full credit for that.

Fairbairn: But in the course. Is he involved in that course?

Eubanks: Yes, he-- what's the woman who-- the one I know who lives down in Pebble Beach, or has a house down there? Audrey MacLean. It's her course. This is a great course. It's one of the things about Stanford that makes them different, is that they can get these people-- and then you get-- the people who critique at the end, they present to real VCs. Ted Schlein, people like that. And it's just a different environment, but that was one of the really fun experiences. Another one's in quantum computing that I've been involved with. This is an interesting area. I've learned a lot about it. They're still chugging. They just raised money at a pretty good valuation.

Brock: Is this Rigetti?

Eubanks: No.

Brock: A different one.

Eubanks: That's one of the--

Brock: Right, one of the competitors?

Eubanks: One of the people there in this whole-- So if Google or Microsoft or one of these people deliver on the hardware, then there's going to be an opportunity. There are definitely going to be problems that will be solved, I think, by quantum computing. Can't be solved practically. But it's harder than you think to do that. It's harder-- there's a lot of problems that they can solve almost as well with-- you know, just simulating it you can solve a lot of problems that you would think give you a huge win with quantum, but you don't get that win. There's a company up in Vancouver that makes hardware. One of the challenges: the hardware has to run at almost absolute zero, and that's the easiest problem.

<laughter>

Eubanks: And the interference -- it's a complicated problem but they're working on it. A lot of people are working at it. IBM, Microsoft, Google. You've got to say that those three people-- if they put their mind to it, I think it gets solved. It's different than the PC though. People say, "Why are you only in the seventies, the PC world. It must have been the same kind of feeling, but it's different because there are real physics problems that have to be solved here.

Fairbairn: It's much bigger now.

Eubanks: Yes, we had microprocessors. We understood how to build computers. We understood the programming methodology.

Fairbairn: You could do it in your garage.

Eubanks: Yes, I mean, people could do this.

Fairbairn: So what about any of your own investments? What kind of work have you done in that regard?

Eubanks: I don't invest our own money hardly ever. We invested in the satellite company. That turned out well. We invested a little bit in the quantum thing. We'll see how that goes. Mostly I help in return for a small amount of equity. We've invested in venture funds. I look back at how lucky-- I mean, I'm really a very lucky person for all these stages. It takes a lot of-- the equity values in the nineties were just not what they were 10 and 15 years later. We didn't have companies raising money at a billion dollars and stuff. So there are a lot of people who have made a lot more money, but they probably haven't had any more fun. I don't think it's fun when the government is so interested. I think that would be pretty crazy stuff to have to go through. I don't believe that, you know, at least we talked about it that, you know,

companies aren't going to be in such a position they can't be-- there's no competition because the technology does change. So would I have been smart enough to invest in software-- -in <laughs> more--

Fairbairn: Facebook?

Eubanks: No. Well, that's a good one but I wouldn't have probably invested. Google. Those guys were hanging around looking for money for a long time, right. I mean, but I was thinking of just the building in San Francisco--

Brock: Salesforce.

Fairbairn: Salesforce.

Eubanks: Sales Force. How could I-- You know, would I have-- Did I get that right away? Probably not.

Fairbairn: Do you have something that, you know, that you're interested in now or is there anything-- What technology areas do you think are most promising?

Eubanks: I think that probably there's a huge opportunity in the whole medical area. One of the things quantum computers can do-- could do, if we could build them, is analyzing drugs. Because you've got to, you know, in chemistry, it's, when I learned it there was a valence, right. But actually, it's much more complicated and there's a lot of heavy physics in this and being able to simulate this and try thousands of molecular combinations very, very quickly could make a huge change. We could move from group, basically, there's a drug, a solution, to customized where you can take the DNA. Obviously, this could take decades if not hundreds of years, but I do believe that there's an area there where people will be able to solve problems.

There'll also be a lot of opportunities in things like in the areas of finance where people can do better analysis quicker, but I don't know how interesting that is. But I certainly think across all of medicine, you know, really, we now take a kind of a you've got a cold versus for you, this particular thing takes this particular solution. I think we get there. Something's going to happen about the whole, you know, I'll probably regret all this, but the whole division in the country, things are polarized, you know, incredibly. Everyone knows this, they talk about it but no one's doing anything. I do believe the internet makes this worse, has created this problem and we've got to find a solution and I think technology. We're going to have to develop some technologies and some approaches that keep us from being able to get so polarized and so-- We're all in our own little group and we have our own group that-- And it's like 100 times worse than it was in high school.

<laughter>

Eubanks: I can't imagine people <laughs> going through high school now with all this stuff.

Brock: Right.

Eubanks: I mean, it's got to be brutal and we're seeing it in statistics on things that are happening. So I think that something there, maybe some leadership in the country could help too. But it's an area for technology. But I don't spend-- I read a lot. You know, there's a lot of good stuff to read.

Brock: Yeah.

Eubanks: But I don't spend a lot of time trying to get involved in solving problems like that, you know.

Fairbairn: So it sounds from the conversation earlier that you are involved in some philanthropic activities.

Eubanks: Mm-hmm.

Fairbairn: Do you want to say a little bit about that?

Eubanks: Well, I live in a great area, Monterey Bay. There's Carmel, there's all these-- and Monterrey. But there's a lot of problems there, so I've been involved with the UC Monterrey Bay-- USC--

Fairbairn: UCSC?

Eubanks: I can never get the initials-- it drives the president crazy--

Brock: <laughs>

Eubanks: SUMB. <laughs>

Brock: Oh. <laughs>

Eubanks: State University of Monterrey Bay.

Brock: Oh, right.

Eubanks: It's one of the many state universities.

Brock: Yeah.

Eubanks: And most of them are similar and there's a great opportunity. I mean, a huge percentage of the people in Monterrey and the adjoining counties aren't qualified out of high school to go there. Think about that. And if you look at it by minority groups, it's much worse. So, I spend time with that. We spend time on the Boys and Girls Club trying to support them. We think that does great work down there. And of course, you got to support the medical, the hospital. So to me, those three things are really important. We also spend a lot of time supporting the Panetta Foundation down there. Leon is from there.

Brock: Oh, that's right.

Eubanks: Who had the best job in the world. He ran the CIA. I mean, how cool would that be?

<laughter>

Eubanks: I mean, just for a week.

<laughter>

Eubanks: He's a great guy.

Brock: Yeah.

Eubanks: His son is our congressman, actually, Jimmy. Yeah. So they have an institute there and they focus on kids, educating them in politics, getting them internships in Washington. It's very bipartisan. Bring in speakers, give awards to people who have served the country. And so we do donate a lot to that and support them in every way we can. And then I'm very involved in philately, the stamp collecting stuff.

Fairbairn: Yeah, tell me, where did that come from and how did you-- What have you focused on and--?

Eubanks: Well, you know, this is ultra-nerdy if you're not involved, but so I was a stamp collector as a kid and then you stop collecting in college and, you know, you have girls in college and all this stuff. And then as you get a little bit more resources, people tend, some of them get back in, some don't. That's how it trends with almost everyone I know. And of course, there's less kids getting involved now so it's a little—

Every hobby, every one of these kinds of groups, has this kind of scary situation. But I focus on the first two stamp issues of the U.S. and there's exhibitions where you compete. It's a lot of fun and a lot of good people. But as a side from that, the Postal Museum and the Smithsonian were very involved in that and the Smithsonian in general, a great national resource. So, we do spend time because of that. And then there's nonprofits in the philatelic world groups, the U.S. Philatelic Classic Society, you know, these-- I mean, there's dozens of these groups which I'm involved in a couple of them that are in areas that I'm interested in.

Brock: So what are the first two issues of the U.S., what--?

Eubanks: The first two Federal issues were 1847 and they issued a 5 and 10 cent stamp.

Brock: And this was the first time the Federal government issued stamps?

Eubanks: 1847.

Brock: And before that it was states or what?

Eubanks: No. There was a period when some postmasters in some cities used stamps as a way of letting people prepay. The mail traditionally was done where the receiver paid.

Brock: Huh.

Eubanks: Well, the tradition if you go way back, people didn't really pay for service they hadn't received. That wasn't the normal way things worked. So the post offices all around the world, they would deliver a letter and you would pay the postman or you wouldn't get the letter. Of course, there's huge problems with this. And so England saw this in 1841 and they issued the first stamp in the U.S. [ph?] Brazil, interestingly was right in there and the U.S. was fourth or fifth. A very political decision. It took them, they had to go stage-wise. They first issued stamps then they required stamps and, you know, where you had to prepay. There was a time when it was cheaper to prepay with a stamp than to prepay with cash or to pay at the other end with cash. Anyway, they eventually got to where most everyone got to be, which is where you paid postage with stamps. But yeah, in the 1800s. I mean, Benjamin Franklin was the first postmaster and you probably don't remember that, but it is a true--

Fairbairn: It slipped my mind.

Eubanks: Yeah. Well, they do this kind of stuff, these histories at the Postal Museum do. And there are a lot of people who you'd be surprised are collectors. And if you want to spend a few million dollars, Bill Gross is first of his \$60 million collection is going on auction next month.

<laughter>

Fairbairn: So, 1847 was the first one.

Eubanks: Yeah.

Fairbairn: And when was the second one?

Eubanks: 1851. So that was a 5 and 10 cent and the postal rates were 5 cents for under 300 miles-- you're really interested?-- and it 10 cents over--

Fairbairn: We're trying to educate our audience, you know.

Eubanks: Over 300 miles. And then over 3000 was 40 cents. So in other words, to California, it was 40 cents.

Brock: And that would be, that's a huge amount of money.

Eubanks: A huge amount of money. I mean, this was serious amounts of money and that was per half ounce.

Brock: Geez.

Eubanks: Well, it was a lot more expensive before that.

Brock: Really?

Eubanks: Right. So, this is a whole social history issue that originally, postage was for the royal family, the kings and, you know, and the communicating and they had mail runners and the real people who do real work didn't really participate. And then they would begin to have a postal system as there was more upper class and more people for it. If you watch "Downton Abbey," they always would put the mail in the sort of preview of it, they'd drop letters on the thing. Anyway, so those people communicated by mail because they could afford it, but most people didn't. And also in the country, families never left where they were born. It wasn't until the expansion of the West, the land, free land, the gold rush, that it really became important. And as commerce came up, it became more, you know, postal system-- That's the way people did contracts. They'd send a letter and then-- And these letters would be copied twice so they had a-- There were no Xerox machines or anything. <laughs>

Fairbairn: You'd have-- somebody would have to write it out for you.

Eubanks: So, I mean, there were-- And these were all men, by the way, that did all this work because of course women didn't work in those days. And it was, it's an interesting history, a social history of-- But in England there were people who were really pushing hard to get the price down so average people could communicate with their families and businesses, so they introduced the penny black was the first stamp. You've probably seen pictures of it if you-- You probably don't remember. But it allowed a one penny for a letter, a half ounce letter.

International mail, like to England in the 1850s, was about 24 cents plus that was the sea-- to get on the ship. There were huge issues between whether English would dominate the mail or the U.S. and, you know, it was a-- So I mean, on and on, it-- I find it interesting, most-- My wife finds it extraordinarily boring.

<laughter>

Eubanks: But she's a great proofreader of these exhibits, so she's an amazing and we'll and sometimes have long arguments about some of these words. <laughs> But--

Fairbairn: So you put together exhibits--

Eubanks: Yeah, they're--

Fairbairn: And could they be--

Eubanks: There's a whole competitive exhibiting scene. Up here at the Marriott by the airport they have a show every April and there will be 300 frames. A frame has 16 pages. Most exhibits have 8 pages, although there are single frame exhibits. And people compete, get judged much like a dog show or--

Fairbairn: Based on the--

Eubanks: Or the consours at Pebble Beach.

Fairbairn: Not based on the--

Eubanks: I mean, same thing, right? People buy cars, they show them.

Brock: Right.

Eubanks: They get judged, they get ribbons.

Fairbairn: And is it judged based on the content of what stamps you have or how they are presented or both?

Eubanks: Yes, it's both. And it's a political-- it's a very-- So it's a hobby that like a lot of things have gone more popular. So why should someone that can spend a million dollars compete--

Fairbairn: Right. That's what I was wondering.

Eubanks: But it's the same in auto shows, it's the same in dog shows.

Brock: Right.

Fairbairn: Yeah.

Eubanks: I mean, our golden retriever we just got, he's a year-old almost, but he's still-- You see that little mark on my forehead--

Brock: <laughs>

Eubanks: He, you know, these dogs for show dogs cost a lot of money.

Fairbairn: Yeah.

Eubanks: And transporting him and going. But there's a lot of effort in the philatelic hobby and I think all the others to get more focus on the job you do in telling your story. And they're great people. I mean, I will say I've met a lot of great people doing this, but I'd meet a lot of great people if I hung out at the computer

museum or if I-- I mean, you know, this whole computer history is a similar idea, you know, people who want to preserve these ideas.

Fairbairn: It's just a different set of nerds.

Eubanks: A different set of nerds, right.

Fairbairn: <laughs>

Eubanks: It is. It's a different set of-- But nerd just really means you're specialized, you're--

Fairbairn: Yeah.

Eubanks: In a, what's the word for--

Fairbairn: Siloed or--

Eubanks: Siloed.

Fairbairn: Yeah.

Eubanks: That's the word I was looking for. You know, you're siloed in a hobby and, so there are Facebook groups, there's, you know. And good stuff. I think hobbies are good. There's a lot of research on this. Hobbies are good for your health, good for your mind. People who are just fanatic about puzzles. I was reading something on the founder of Facebook the other day. He and his wife are into puzzles-- into games, you know, mind, you know, challenging board games. So it's really--

Fairbairn: Yeah.

Brock: There's a whole puzzle community as you say.

Eubanks: A puzzle?

Brock: Yeah, that's very devoted.

Eubanks: Well, we do 2000 piece puzzles sometimes at the holidays and people have 10,000, 20,000. I mean, where do they find a table-- <laughs> How do they actually do this? <laughs> And then there's two-sided where they're both the picture is 90 degrees.

Fairbairn: Oh, yeah. Yeah.

Eubanks: And I mean, yeah, so people are really into this and I think it's a good thing. We don't value leisure in the same way. My wife's been involved in the art museum in Monterrey. And there's an art

center, right. I mean, photography and painting. With the earthquake a lot of the artists came down to Carmel. And yet, attendance at these museums and stuff, you know, try to get, you know, you have under-30 mixers. You know, getting people--

Fairbairn: Yeah. Yeah, we have the same issues.

Eubanks: Yeah. I mean, our son, I mean, he just needs a computer video game and--

Brock: <laughs>

Eubanks: Hope you're watching this, Keith.

<laughter>

Eubanks: He's in law school now, <laughs> but I'm sure he's playing a lot of video games.

Fairbairn: So of all those things, what do you look back on most fondly or feel proudest of or, you know, sort of what did you feel was--?

Eubanks: Well, I feel really proud of how Symantec turned out. It's been in business 25 years going on 30. It's still in business, an independent company. But it wasn't what I did, I mean, it's everyone says it is but it's honestly true, there's a lot of people who build something and a whole bunch of people that don't get any visibility, that are lost in the history of something.

Fairbairn: Right.

Eubanks: That's why I like that book about Silicon Valley. I thought it highlighted some people that--

Fairbairn: Unsung heroes.

Eubanks: Yeah. I keep forgetting the name of it.

Fairbairn: "Troublemakers."

Eubanks: "Troublemakers," yeah. But I'm really proud of what Symantec turned out to be. I can do 100-- I think I spent a lot of time just sort of thinking about what I might do differently if I was doing it over. I think Oblix was a great effort by a lot of really good people and I certainly think about what I'd do different.

Fairbairn: What about the venture capital industry? How has that evolved and changed and what's your observation of the current state of that part of the equation?

Eubanks: Well, I think there appears-- I'm not involved and I've really not worked with a lot of VCs recently, but it seems like there's an overwhelming amount of money. So the difference between the

people with money and the rest of the people is a growing problem. I don't need to tell you about traffic here, how obscene it is. And you know, it's just unbelievable the amount of money that a few people control and how much money VCs have to invest. And I think people do a lot of dumb investments, it seems, but VCs make a huge difference. But why here than in New York, which they also have a lot of high tech, but why not in Oklahoma? I get asked this, you know, but they say, "Well, we teach entrepreneurship." And I say, well, it's one you don't think of entrepreneurship, but, you know, this is an oil and ranching and stuff and there's probably a lot of entrepreneurship, you know.

Fairbairn: Yeah.

Eubanks: But, but it takes-- so here you have the universities, you have the venture capitalists, you have the people with experience, people are attracted here to-- they want to be part of that. They don't want to be in a 9 to 5 job or a safe job, so to speak, a less risky. So it's hard to reproduce that. But we just toured, we did a cruise through part of it was China and going through there and I was astounded, the real entrepreneurship. Our guide in Shanghai was, I don't know, hard to tell, maybe 30. She spoke fluent English. Never lived in this country or an English-speaking country. Loved living in China. She said, "You know, if you want to fight the government, this is not a great place." But she said, "It's a good place." A lot of, talked about entrepreneurship. Her friends were entrepreneurs. It was really popular. So guess what her most favorite TV show is?

Fairbairn: <laughs>

Brock: I have no clue.

Eubanks: "Billions."

Fairbairn: <laughs>

Eubanks: I was, like, astounded.

<laughter>

Eubanks: And, and she said the whole internet thing is no problem. She said we use VPNs. You know, and she said, if something happens, maybe they shut that down, but--

Fairbairn: You said it's not a problem, the censorship in China is not a problem?

Brock: To get around?

Eubanks: Not, she didn't-- Well, I mean, she seems to be able to just--

Fairbairn: Yeah, the cope.

Eubanks: But again, there's a group of people who probably would feel very different and, you know, there's not a freedom of opinion. But as long as your opinion is I want to have a good life and work hard and not fight the government. Beijing was the same way. These little towns, people were friendly and-- I did not get the impression, of course you're intended not to get the impression of something, but I didn't see anything that-- There are cameras everywhere. There are cameras everywhere in London, too. Probably in New York and around here too. You have to be pretty smart to be a criminal these days.

<laughter>

Fairbairn: Yeah, it is pretty astounding, everything that gets captured on video. It's like there's always a camera somewhere that will catch you.

Eubanks: Someone was telling me about today about these gangs that recruit A students, so they get them through law school, so they have a lawyer. <laughs>

<laughter>

Eubanks: I don't know. I have no idea if it's true, but. <laughs> It's just-- But anyway, I-- Where were we?

Fairbairn: We were just sort of wrapping up, I think.

Brock: Yeah.

Fairbairn: We were just covering the views of the current state of the technology advance and venture capitalism and the state of Silicon Valley.

Eubanks: I think it's good but there's just too many people.

Brock: <laughs>

Eubanks: And so if I'd leave for a 9:00 flight, I have to leave Monterrey, say, at 5:00, because I have to assume it could at worst case take three hours.

Fairbairn: Yeah.

Eubanks: I watch these people coming over the Pacheco Pass and they commute into work. My guess is they're not making that much money. I mean, this is just, I mean, this doesn't work in the long run. It's not like a bell curve, it's a huge bifurcation and I'm sure that all the billionaires are very generous, but this is more of a big picture thing.

Fairbairn: A societal problem.

Eubanks: It is. And we need rapid transit. If there were trains from Monterrey, if I could really reliably get up to San Francisco. We have season tickets to the Giants, really good tickets, I mean.

Fairbairn: That's a trek.

Eubanks: We go to, you know, it's great, Stub Hub's great because you could kind of monitor-- you can sell them.

Brock: <laughs>

Fairbairn: Sell off the ones you don't want.

Eubanks: Yeah. I sell off 90 percent. We give 9 percent to charity and 1 percent we use ourselves. Do you have fundraisers? If you ever need six-- These are great seats and there are six tickets.

Brock: Oh, wow.

Eubanks: Right by the rail at Club Level, right by the announcer. So we are happy always, you know, they're not much, they're, you know, they usually get a couple K at these auctions. You're probably looking for the \$100K bottles of wine or something.

Fairbairn: Well, there are other opportunities I can think of, so.

Brock: Yeah.

Eubanks: But, yeah, the traffic here has got to be fixed. I have to drive to the city now, it'll take me two hours do you think, probably?

Fairbairn: Yeah, you'll be all right. It's not too bad at this time. And actually, you know, the-- Yeah, I think of getting to the city, that of all the ways into the city, this is actually the, coming from the peninsula is actually the easiest one. If you have to go across the Bay Bridge or something like that, you're--

Eubanks: I have to do that tomorrow morning. <laughs>

Fairbairn: You're in trouble.

Brock: <laughs>

Eubanks: In the morning, though, going towards there I have to go to Berkeley and probably not too bad. I don't know.

Fairbairn: It should be all right. All right, well, we should wrap up, huh?

Brock: Yeah. Well, thank you so much. It has been absolutely fascinating.

Eubanks: I don't know how helpful these are, but--

Brock: Very helpful.

Eubanks: I have a real interest in sort of how this industry started and it bugs me the things like the Kildall story. They just can't, you know, they just can't seem to understand the bigger picture.

Fairbairn: Mm-hmm, mm-hmm. No, I think that, I have equal fascination, I mean, even though I've been here for 50 years and lived through it all, you know, you're in your narrow little thing and you don't really know what's going on and so just being involved in these oral histories has been a great education and entertainment as well to really understand what's going on.

Eubanks: Well, I think they're good. I think they're good. It'd be interesting to get not necessary CEOs but maybe people at a level or two below, just what did they think.

Brock: Mm-hmm. <laughs> Yeah. And we do-- we do oral histories with a variety of people, so hopefully we can--

Fairbairn: If you want to read some really interesting ones, we have six or seven of scientists working in the microelectronics industry in the Soviet Union during the fifties and sixties and to hear what it was like on the other side working in this industry is a fascinating matter.

Eubanks: Wow. Where did you get those?

Fairbairn: We went to Russia and we interviewed them. <laughs> I didn't personally, but.

Brock: Our colleagues did.

Eubanks: How cool is that.

Fairbairn: Yeah.

Eubanks: Wow. That would be--

Fairbairn: One of them's a Nobel Prize winner. I mean, these are, you know, very senior people and they're in their eighties. Some of them have probably passed away since we took them a few years ago, but just, you know, there are a few comments that I remember, one of which was a guy said, "Well, we would have made faster progress in microelectronics except they put all the good physicists on the atomic bomb program."

<laughter>

Fairbairn: And, you know, it was all the case of they would graduate and they were told where to go and what to do.

Brock: Yeah.

Fairbairn: And they didn't have any choice. And that was largely okay. They didn't-- That was-- -And if they were told to do this, did you have any training in that? "No. So I had to read up and figure out, and, you know, how to do that." The thing that they didn't like was being told to copy American microprocessors or <laughs> rather than doing their own <laughs> creative work.

Eubanks: Well, Intel did a pretty good job, I mean, I think, all things considered. They're a pretty amazing company, and taken in total. I was in the White House grounds once with who is the-- who is the cofounder of the--

Brock: Gordon Moore or Bob Noyce?

Eubanks: No, the-- No, the--

Brock: Andy Grove?

Eubanks: Andy Grove. So, I'm terrible with names lately. I don't know if this age thing-- It's beginning to worry me. So we're walking, we had to leave. We were there for a meeting and we're doing, talking about encryption. Remember when they wanted to have backdoors to this stuff and trying to explain.

Fairbairn: Right.

Eubanks: So a whole group of people would go under some organization that did-- tried to influence Congress. So we're walking off the grounds and we're not sure where we are and I'm more worried about that because I said, "You know, <laughs> my guess is they have dogs and guns."

Fairbairn: <laughs> Yeah.

Eubanks: "I mean, we should really."

Fairbairn: Sure.

Eubanks: But he wanted to yell at me about how the software industry didn't really get it.

<laughter>

Eubanks: He did not-- They did not get it and, you know, you got to take a hard line with it-- <laughs> He was amazing. That was my only real experience with him, but.

Fairbairn: <laughs> Well, Intel has been incredibly successful, although that's one of the things I've looked back on and I've thought, you know, Intel has despite its success, has-- seems to have very little vision. They got into microprocessors as a result of a customer program and then didn't believe, didn't have the foresight about personal computers. They were late into personal computers. All the early ones, Apple, Commodore and everybody else used 6502s. Commodore -- MOS technology products. Intel was very late to the personal computer and only went into personal computers because of the IBM deal. And they've struggled since then.

Eubanks: But that was the deal that mattered, yeah.

Fairbairn: They missed the mobile thing. If you compare them with Apple, Apple has completely different culture and reasons for success. Both of them have been successful but Apple was, "build something and they will come" and Intel was always trying to figure out what to build and never could quite figure out the right thing or to figure out what the next move was. With a couple of lucky breaks, they've done well. And they execute like hell and they've got great sales. There are aspects. But in terms of picking their direction, they haven't been very good at it. <laughs>

Eubanks: Yeah, they, it's a funny thing. They were smart to move from memory chips when they did to get into processors.

Fairbairn: They had no choice.

Eubanks: But they didn't ever-- They had very few, if any, design wins with the 8080, even though the whole CP/M thing was all talked about as 8080, they were all Z80s. Virtually every computer had a Z80, not an 8080, so it was interesting. They defined it but they didn't own it. The 86, it was different, you're right, because they won the IBM deal, even though they had that program with--

Fairbairn: Project Crush.

Eubanks: Crush.

Fairbairn: Yeah.

Eubanks: But Crush didn't really close IBM, it was a separate thing is what I've understood from people.

Fairbairn: Yeah, we have that on tape, too, but--

Eubanks: Who did you interview?

Fairbairn: We got the whole Crush program team.

Eubanks: Yeah, but-- Yeah. They have probably a Crush-oriented. Who's the-- who was the head of it that writes the books about this, the D.C.--

Brock: Bill Davidow

Eubanks: Davidow.

Brock: Yeah.

Fairbairn: Yeah, well, he was the one running the program.

Eubanks: Yeah.

Fairbairn: Yeah.

Eubanks: Crush. But I understood that IBM came in from the side, but I don't know that.

Fairbairn: I don't know that particular one.

Eubanks: Someone told me. Who knows?

Fairbairn: Yeah.

Eubanks: But so, you know, Gary Kildall, the VisiCorp guy, Terry Oppendike, they all worked at Intel at the same time when these processors were coming out. I think Gary was a consultant.

Brock: I think that's right.

Eubanks: Yeah.

Fairbairn: Yeah, Gary, I mean, you know, in that meeting, the Gary Kildall Memorial thing, you know,--

Eubanks: Were you there?

Fairbairn: Yeah. I had arranged the video and I took all the pictures.

Eubanks: Oh. I apologize for not-- I was up here at the Marriott and I drove down, raced through that thing and left.

Fairbairn: Yeah, so--

Eubanks: So the guy that was on my far right drives me crazy because he's just so wrong about this stuff, about the-- Anyway, go ahead.

Fairbairn: So the guy from Intel that was at National-- Now I forget the name [ed: Brian Halla]. Anyway, he was very complimentary of Gary and said, "one could say that Gary saved Intel because of the software—"

Brock: Mm-hmm.

Fairbairn: What made Crush successful was that Intel had--

Eubanks: Yeah.

Fairbairn: All of the support systems. They had the software; they had the support chips. The processors sucked, but they had all the stuff around it to make a system. And that's what they sold on the basis of. They never sold on the basis of architecture and whatever, because they'd lose. <laughs> And they were losing. They were losing badly before the Crush program took over. But, yeah, he made the comment that, to some extent you could say that Intel was successful because of Gary, because of the software that he supplied-- he supplied the software for the MDS systems.

Eubanks: He provided PL/M.

Fairbairn: He provided--

Eubanks: And actually, the one-- PL/1 that ran-- a PL/M that ran on the-- that system was rewritten. He didn't write that. The version he ran was in Fortran and ran on mainframe. It had to have Fortran to run it.

Fairbairn: Yeah, but--

Eubanks: Or, I mean, it was run-- it was-- you had to have a Fortran compiler and whatever targets it could target-- it could run.

Fairbairn: Yeah, I'd have to go back and look at the details, but he was very clearly-- It was very clear that that was, Gary's work was a key success factor for Intel.

Eubanks: Well, that was a very upbeat thing. There was no reason to try to balance the pluses and minuses.

Fairbairn: No, I mean, he didn't-- He didn't have to,

Eubanks: Yeah.

Fairbairn: Off camera, he was very-- He was eager to tell that story.

Eubanks: Well, I think there's some truth in that, but Gary's only involvement wasn't in the operating system, it was in the PL/M compiler that he wrote to prove-- And the reason he--

Fairbairn: PL/M, that was a--

Eubanks: PL/M.

Fairbairn: That's what he wrote, right?

Eubanks: Yeah. I sometimes say PL/1 when I mean PL/M.

Fairbairn: PL/M was the thing that he was referring to, was it that?

Eubanks: Yeah. PL/M was important but so was the operating system and those development systems. I think Gary was extraordinarily important in the industry, the CP/M. It was unfortunate that he didn't really care about building a business.

Fairbairn: Yeah. He had a great

Eubanks: Or get someone that would build a business and let him--

Fairbairn: He had a great vision and was a great engineer, if you will. I mean, he could build great stuff.

Eubanks: He was a great programmer. He got off on this kick about LEGO and he built this whole LEGO system.

Fairbairn: <laughs> I didn't hear that. Oh, I'm not sure I know what that is.

Eubanks: That's the little, the graphics things for kids that would work on characters and it's a programming language called LEGO.

Fairbairn: Oh. Oh, oh. The programming language.

Eubanks: He wrote a whole LEGO system that would run on CP/M.

Fairbairn: I see.

Eubanks: Then he decided that this PL/1 compiler was unbelievable. When he wrote an Assembler for the 86, this is going to tax me, but the little things that were set, like carry and stuff, some of these they had flags, that's the term. So, and you had to clear them in some situations and so it became, and compilers particularly, it could become very wasteful. But he wrote his Assembler and then he used this global flow analysis to be sure that all the-- They never cleared a flag that was already cleared because they could do an analysis of the whole programming.... He was amazing in many, many ways and he was a pretty good athlete, a good water skier. He was definitely charming would be an understatement. He had two-- He bought two Lamborghinis, not one, and I thought, "This is crazy," but of course he made a fortune on those two cars.

Fairbairn: <laughs>

Eubanks: Not a fortune, he made a lot of money on those two cars, <laughs> because, you know.

Fairbairn: The price went up and not down, right.

Eubanks: He was, you know. But, I'm not sure that I would say he saved Intel. The IBM deal saved Intel. So the critical question, I think, on Intel is what really caused IBM to go with it. Was it Crush? Was it some other independent thing that just happened? I think that is an interesting question and I don't know the answer.

Fairbairn: I don't know, but I know, I mean, the people here can answer that question.

Eubanks: Yeah.

Fairbairn: I mean, people who were heavily involved, so.

Eubanks: Well, people have opinions, but it's a, I don't know. I'm like David Allen, I've talked to him about this and what he thinks, and he was certainly in charge of Crush and did a great job with Crush. I don't know how many victories Crush had.

Fairbairn: They had thousands.

Eubanks: Did they?

Fairbairn: Yeah.

Eubanks: Before or after IBM?

Fairbairn: It was before, I think.

Brock: All at the same time; I think they were contemporaneous.

Fairbairn: I don't know what the relative time frame is, but yeah, there's, you know, that first year they had, like 2300 design wins or something.

Eubanks: So another guy that was there during all this was Jim Lally.

Fairbairn: Lally, yeah.

Eubanks: You know Jim?

Fairbairn: I don't know him, but I've heard his name so many times that it feels like I do.

Eubanks: Funny it comes up. He's sort of an obscure guy now. He was on the board of Symantec with John Doerr for a while. He was an Intel guy and he had some opinions. I don't know. I mean, I wasn't there. My only contact with Intel was going through the back door and buying an 8080 instruction document. You know, you didn't just get these online, right, you had to buy one, you had to find one. And I went up, drove all the way up to Intel from Monterrey and bought one, so I had all the instructions. This is before they had the cards. You know, like the IBM had the green card and the yellow card.

Fairbairn: Yeah.

Eubanks: I'm sure they continued to have those with the processors. Intel didn't produce those right away for the chips, so you had to buy a manual.

Fairbairn: <laughs>

END OF THE INTERVIEW