Oral History of Robert Brooks

Interviewed by:
Gardner Hendrie

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Gardner Hendrie: I just want to thank you, to welcome you. This is Bob Brooks and he has joined us to do an oral history for the Computer History Museum. Thank you for agreeing to do this, Bob.

Robert Brooks: I'm glad to do it.

Hendrie: Before we get into some of your adult history, could you tell me a little bit about your family background? Where you grew up, you know, brothers and sisters that you had, what your parents did, a little bit of context for where you came from.

Brooks: I'm a single child. I have no brothers or sisters, and I grew up mostly, I'd say from kindergarten on, in Binghamton, New York. And my parents -- my father was a distributor for General Motors. He was a man who, in those days, had the State of New York. If a dealer in one place had a brown car that he wasn't selling -- it could be anything, a Buick, Oldsmobile or Pontiac -- and a guy in Watertown, New York, needed a brown car, my father was the guy who knew who had what cars and got them transferred. They didn't make cars per order in those days.

Hendrie: Yes, okay.

Brooks: And then, during the World War 2, he had to leave that job because there wasn't any work for him.

Hendrie: There weren't any cars.

Brooks: Right. So anyway, he went to work for an outfit called Ozalid, which made blueprint paper and stuff like that in Johnson City, New York, the next town over. And then after that, when the war was over, he became a Buick salesman in a local Buick dealership.

Hendrie: Was your mother a stay-at-home mom?

Brooks: Yes. In those days, that's what you did.

Hendrie: That's what you did, exactly. It was very rare that both parents worked Okay! When you were going to school, what's your earliest memory of what you thought you might want to do when you grew up?

Brooks: Oh, I don't know. I played around with radios and crystal sets and then tube radios in cigar boxes and things like that. And then when I went to high school, I went across town. I didn't go to the high school near my house. I went across town to a vocational school that was just opening up. We were the first class to go all four years or all three years through the school. And I took an electrical course there.

As a matter of fact, our work was to put the electrical lab together for the school. So there was a lot of hands-on education there as well as training to be an electrician. I had no thoughts at that time of going to college. But then I went to work in Sidney, New York for Scintilla.

Hendrie: Is this when you graduated from high school?

Brooks: Yes, graduated from high school.

Hendrie: Do you remember what year you graduated from high school?

Brooks: 1940.

Hendrie: Okay.

Brooks: And then I worked in Scintilla for a couple of years.

Hendrie: What did they do?

Brooks: Well, they were making aircraft Magnetos. And I was the inspector or something like that. Any way, my boss urged me to go to college. So, I left that job and I started to work my way through college. I was working my way through Clarkson College up in Potsdam, New York, for an engineering degree, electrical engineering degree.

Hendrie: And they had an engineering course?

Brooks: Oh, yes.

Hendrie: Of course, okay?

Brooks: And then the war came along and I volunteered for service, so I went in the Signal Corps. After only two years of college I went into the Signal Corps, played around there, and then when I got out...

Hendrie: They put you in the Signal Corps because you knew electronics or something about it?

Brooks: Oh, yeah. I was in secret work with radio teletype. And it was brand new at that time. I went to Bell Labs and learned how to troubleshoot the equipment and everything about it. Then I was sent

overseas and I ended up at MacArthur's headquarters all the time because he was the guy who was sending stuff back to the states by this radio teletype, which was very secure communication.

Hendrie: Yes. I'm sure there was a lot of encryption and decryption.

Brooks: Right. So, unfortunately, because I was in such secret work they didn't have a job description for me. So I was a buck private the entire war. <Laughing>

Hendrie: <Laughing>

Brooks: Anyway. I got too near some bombs. I was watching MacArthur's press releases because they'd come through my system and they were in clear text. I could read what he was telling the people back home. So he had Manila captured about two weeks before he even saw the place. Anyway - -

Hendrie: Yes. He was very self-promotional, wasn't he?

Brooks: Yeah. So one time I told a cohort, "I am going to have to get off the air because I'm being bombed by the nonexistent Japanese Air Force." And that Air Force was supposed to have been wiped out, but we were getting bombed.

Hendrie: Yes, of course it wasn't wiped out.

Brooks: And that's how I lost my hearing.

Hendrie: Oh, really? Okay.

Brooks: And nobody believed me. I still lined up sets and everything else with the dials even though I couldn't hear anything. And finally I got Dengue fever and that put me in the hospital. And the minute I got there and they saw how deaf I was, they said, "You're going home." And I think there were 49 guys on line the next day, all deaf.

Hendrie: <Laughing>

Brooks: Anyway, so I came back and then I had the GI bill, so I went to Union College.

Hendrie: Oh, yeah. Union, I know. It's a good school.

Brooks: Yeah. I got an electrical engineering degree there. Then I had the GI bill and had them talked into it, too " The disabled veteran". I forget what public law it's called now. Maybe public law 16, I forget now. But any way, I had them talked into giving me a PhD, I mean, you know, paying for me to get a PhD at the University of Pennsylvania because Pennsylvania was -- at the very beginning of computers, when they had just finished the ENIAC, and they were the first university to give computer courses and everything else. I did some work on the EDVAC. I had to do a thesis, actually designing something, and I designed a magnetic core memory. But it was sheer luck that it worked, okay. Because later on, IBM contacted me when they learned I had, because my thesis preceded their work. But I told them forget about it, that my work was real sloppy; I didn't know what I was doing, you know, and I wasn't going to take any credit for it.

Hendrie: Right. You were just trying to get your thesis done. So, this was your PhD thesis?

Brooks: Yeah.

Hendrie: Wow. Okay. Now, was this using shift registers? Or how did you -- what did you do with the cores? Do you remember?

Brooks: No. I was using transformers. I forget what kind of transformers I was using. I can't think of the name. [pulse transformers] Anyway, what happened was they fell on the floor and the lines were still connected and I saw it had a differentiation between the stored zero and a stored one, okay. So I very carefully wrapped up the deformed transformers that were down there, wrapped them up and put them back up to the top of the table and they still worked, okay? And I put them in a black box, called my thesis supervisor and demonstrated it, and he said, "Go ahead and write it." I'd missed graduation because of the thesis, so I got in a graduation in September, I think it was a September graduation.

Hendrie: Do you remember what year?

Brooks: Anyway he gave me an okay then. So I borrowed somebody else's cap and gown. I got the degree maybe on a weekend, let's say, I don't know. I then packed up, went to Schenectady, had a rehearsal for my marriage. I got married the next weekend. And then I got on the train with my bride in Albany, New York, Sunday night, the day of my wedding, and I reported to Barber Colman Monday morning to work on their computer in Rockford, Illinois. And I was in charge of that. I had met a fellow named George Stibits.

Hendrie: Yes. I know who he is. Yes.

Brooks: He designed relay computers.

Hendrie: Right. At Bell Labs.

Brooks: Right. Well, he was at Barber Colman because he had met the president of Barber Colman.

Hendrie: Now, what was Barber Colman? I don't know about Barber Colman?

Brooks: Well, they make garage door openers, things like that, okay. Knitting machines, I mean, mills fabricating material, knitting machines. But, some way or another, they had created a typewriter, an electric typewriter that was the fastest thing existing. And this is what prompted them to -- George Stibits told someone, "You know, the thing that's holding up computers these days is the in and out -- getting in and getting out information. They can do it but they can't, it's stalled, bottlenecked. And your printer is twice as fast as anything else existing right now. We'll build a computer that uses your printer and we'll make some money."

Hendrie: Okay. Now Stibits was still at Bell labs?

Brooks: No. No. He was on his own then. He was on his own.

Hendrie: Yeah. He was consulting.

Brooks: Yeah. So he designed the thing and then put me in charge, because I was the only computer guy around. The rest of them were plain engineers that didn't know what those were -- you know, anything about logic or anything else and how to multiply and divide this and that and timing and all that. So anyway, I did that. After a year or so -- we got it working and all that -- I realized that it wasn't really going to go anywhere, I mean, as far as, you know, it just wasn't there.

Hendrie: Was it using relays? Because that's what Stibits knew was relays. Was this a relay computer? Or did that have vacuum chips.

Brooks: Oh, no. It was electronic, well, actually, it used tubes. There were rotating discs with magnetic heads that would lay down -- one leg would lay down the zeros and ones, okay. Another head over here would pick them up again. And you could get shifting of your data and all this with that, see.

Hendrie: So it was electronic, yeah. He used vacuum tube circuits.

Brooks: With tubes and everything else.

Hendrie: Yeah, with tubes. Okay.

Brooks: No relay,s no. So any way, then I decided to look for a job away from Barber Colman. And of course I had my choice of jobs. I made all kinds of money with travel. I mean, everywhere I went to

interview paid me to and from Rockford, Illinois. But I was really going from Univac to Long Island, Sperry or something like that, Raytheon, IBM, all this, you know. As a matter of fact, I got to IBM, that's my home town, Binghamton, Johnson City. I told them, I said -- they said, "We haven't got anything for you." I said, "Well, that's okay." They said, "We're going to pay you for your trips back and forth." I said, "You don't have to." I said, "I live here and I've already made all kinds of money on this trip already." But they insisted on paying me, so I took the money. So, anyway, I took the job at Raytheon.

Hendrie: That's when you took the job at Raytheon, okay.

Brooks: And at Raytheon, my job was to--I was the only guy, it turns out, because of my job, I was the only guy who knew how the computer really worked. Because I had to check everybody, you know, one guy is building an arithmetic unit, another guy is building a storage, you know, another guy was building -- you know, they were all different groups. I was the guy that made sure that they tied together, that they all, that this guy knew, if this guy was sending him a signal, and it was going to come like this, was going to come on this wire, and it was for this function, then it was going to arrive with this time and the clock time and all that.

Hendrie: Yes, exactly. To make it all coordinate.

Brooks: Yeah.

Hendrie: Now, when they hired you, they'd already started this project?

Brooks: Oh, yeah, yes.

Hendrie: How far along was it?

Brooks: I came in just when things were getting done. I mean, when the arithmetic unit was ready to -- Hey, look, what do I do with it? You know.

Hendrie: Yeah. They're ready to be integrated together and see whether it really worked like a computer.

Brooks: That's right. Yeah.

Hendrie: Okay. So you remember what year that was that you moved?

Brooks: That was a couple of years before computer controls started. Well, let me see. Well, we can put it this way, 1948 to 1950 is probably Barber Colman, and then Raytheon was 1950 to maybe '52, whatever it is.

Hendrie: Yes. Okay. All right.

Brooks: If you want, I'll continue on. What happened was, then Lou Fein was in charge of the laboratory that was making this RAYDAC computer. And when the RAYDAC was completed and taken out and shipped out to Point Mugu, California, the Navy asked Raytheon to provide the maintenance and the programming for the computer.

Hendrie: So both maintenance and do programming, so both functions?

Brooks: Yeah. And Raytheon evidently decided to take advantage of the fact that they were the only ones who knew how to run that computer. So they evidently put in quite a high bid for the work. And Lou Fein, realizing this and having ambitions of his own to form a company, went to the Navy and said, "Look, I'll get a gang of guys, the guys who worked on this computer, to come with me, and we'll run this computer for you out there for a lot less money than Raytheon wants. So that's what happened. So he got the job. Then he called together the various people ho were instrumental in designing the computer and asked them if they wanted to start a company with him. And I think you know some of the rest, like the fact that - - I think he had ten guys or so - - two guys didn't take the invitation. The other guys did.

Hendrie: About ten of them were invited?

Brooks: But even, yeah, there were ten I think -- I think ten -- it's in here. Yeah, here it is. One, two, three, four, five, six, seven -- make it nine. Seven joined Lou and two did not. But all together, it would have been ten. And Lou got twenty percent of the stock and each of us got ten percent of the stock. And as it was, there was only eight people there, or seven -- that would be, that's twenty for Lou and seven left, there's ten percent over or something like that, you know.

Hendrie: Yeah. Left over?

Brooks: And that was to be used to be sold or given to profit sharing and so on and so forth, what have you.

Hendrie: Now, Lou didn't raise any capital or anything?

Brooks: Of the people who were invited, they didn't all come at this time. There wasn't any work for them. The people who were needed on the West Coast, they did come, they did leave Raytheon and they did go to the West Coast to work. There were three of us, I guess, who didn't go -- who weren't asked to go there. I was asked to stay here and get work for them, for the people so that the people that did go could come back home again. So, my job was to get work for the company. And meanwhile, they had some simple products. A friend of ours gave us work space over in Belmont and they made some real simple products.

Hendrie: Like what? Tell me about them. I love to hear about them.

Brooks: I don't know. One was called VILP (Vector Impedance Locus Plotter) or something like that, a locus plotter and I don't know what it did, but it was something simple. And I forget what else there might have been. I think that memo might have touched on it that I gave you. But, it wasn't much. Then what happened, though, was because of my connection with Stibits, Stibits was then connected with Art Tyler. Art Tyler was a scientist and computer guy with a doctorate. At Eastman Kodak. And he was looking for somebody to build the guts of the Minicard system.

Hendrie: Okay. He had the concept.

Brooks: Exactly. Yes.

Hendrie: But it had all this digital electronics things in it and nobody at Kodak knew anything about that?

Brooks: That's right. He didn't have anybody to -- you know, and the concept was they were going to make these little cards. They were going to put ten pages of information or the equivalent of aerial photographs on it. Part of the remaining page of that card would have binary information on it. They w told what was on the card, the files on that card. And he needed somebody to build the equipment that would scan these impressions and act accordingly and sort them out and instruct the Kodak system when to drop one of these files into a certain slot, meaning that it had been retrieved.

Hendrie: Okay. So Kodak was going to do all the mechanical part.

Brooks: Yes. Exactly.

Hendrie: And the optical part of putting the stuff on the film and all of that.

Brooks: And they were going to do that, too. And they were going to make the film, I mean, they were -- yeah. But once it got made and everything else, the readers -- from the readers on -- maybe they took care of -- they probably took care of the readers, too. But we took the readers' signals and from there on, we were the guys who instructed that, yes, this file has something of interest. Put it in Chute Number 1 or Chute Number 2 or Chute Number 3, because each file, when you're looking for information, you start very specifically, and you say, if it doesn't have that, we'll give you less specificity and so on and so forth. Like maybe for the benefit of the audience here, might say that if you were looking for something about the output of a product in London, England, by a factory that was in the outskirts of London, that's what you really want. So you'd ask for it that way, but then realizing that maybe the information isn't that good in the files. You'd say, "Well, if you can't find it that way, then give me the output of any factory like this in England." And another one might be, "Give me the output of anything in London in this particular area of town," and so on and so you had different categories. So that if you didn't get it with your first question, maybe your second or third question might produce what you needed.

Hendrie: Okay. Okay good. Can we just stop for a second? I am going to go get the mini card and ask you to hold it up and just...

Brooks: There's one here.

Hendrie: There's one in there? Yeah.

Brooks: Maybe it'd be just as easy to see it this way against the black.

Hendrie: Okay. That's a good idea. Let me focus in on it. Hold up just a second. Yes. Now, so there's the Minicard. And can you just point -- can you see it enough to point to where the digital information is?

Brooks: Yeah. Here's the visual, the pages, and over here is the coded information.

Hendrie: Over on that side? Okay. Very good.

Brooks: The Kodak job gave us the wherewithal to do something, you know. So we moved over to Babson Park and the empty second floor of a Poor Press building, and this is where we really started and where we hired people, where we designed things, where we made, you know, this is it. This is where we made the packages and we used them in the Minicard system and so on. And by the same token, by now we're starting to get other business. I was giving lectures everywhere, teaching people how to design computers. We had the packages by that time and we had certain packages.

Hendrie: Yes. You designed a set of circuits that all worked together?

Brooks: Yeah. And I didn't have anything to do with -- maybe the logic I did. As a matter of fact, I got a patent called the Universal Logical Package, that would allow you to take any four sets of four inputs and do any of the combinations of those many inputs. Anyway, what I was doing was going around, particularly the Army plants -- I remember Rome, New York, was one -- where the Army and the military were designing special purpose equipment for their own use. And I would go in there and I would teach these guys how to use our packages to do the functions that they needed to be done. And I'd teach these guys that, and then they'd buy the packages from us.

Hendrie: Yes. Okay. Yeah, that's exactly - - It's what is called Applications Engineering today. Okay. Good.

Brooks: So, and with all that, we were getting other business. And then, we were getting opportunities to bid on special purpose computers. And we did pretty well in landing the contracts for those. We had the building blocks and so on and so forth. So we could figure our costs pretty well, you know. And we were very successful in building special purpose computers for people.

Hendrie: Okay. Do you remember any of the...

Brooks: Well, one was for General Motors I think, and it was to tell the program when things should arrive at the assembly lines -- if they got there at the right time, at the right part of the right time at such a station. And that was one. Then later, of course, the Provident Institution for Savings, I met a guy who was in charge of that. Len Chamberlain was the vice president there. And he was a really the leader of bank automation, computing and everything else. I mean, he was the guy who started it all for the banks. And he started with this thing that we built for him we called the Tellertron, which was the first time that the tellers knew whether or not some fellow took some money out but is counting on another bank, branch of the bank and hustled over there to try to do it again. But now they knew that he'd already taken it out there and, you know, earlier than that, well, they didn't have any real-time grasp of what was happening to the money in the people's accounts.

Hendrie: I see. So this allowed you to query what was in accounts and keep running balances?

Brooks: If he went and took some money over there an hour ago, came over here -- prior to this machine, he could get away from it, and they'd say, "Oh, yeah, he's got money." So he'd take the same money out again. But now they couldn't because when a withdrawal was made over there, this teller learned about it. Every teller learned about it.

Hendrie: Right. Okay. Very good.

Brooks: The project engineer of that job, Don Benson, went to work at Provident, stayed with his system, provided the running -- he kept it running for them.

Hendrie: Okay. Good. Do you remember when that was done? What timeframe?

Brooks: No, I don't. Maybe -- probably doesn't tell you here. No.

Hendrie: Okay. Good. Let me roll back, now. You were originally one of three who stayed on the East Coast. The rest initially went out to the West Coast?

Brooks: That's right. Yes.

Hendrie: Okay. Who were the other two who stayed here?

Brooks: Bill Horton and Bob Massard. And I think that may be about it. Later on, when we had business, we brought Frank Dean over because now we could...

Hendrie: Brought him back, yes?

Brooks: No. Frank Dean was at Raytheon.

Hendrie: Oh, Frank Dean had stayed at Raytheon?

Brooks: Yes.

Hendrie: Yeah. So some of them, they said they'll come when there's business, but we're going to keep our paying jobs.

Brooks: That's right.

Hendrie: We have to have a paying job?

Brooks: When we first started, I would say of the founders, Lou Fein, and Ken Rehler, and maybe Bill Wolfson--was Wolfson out at the West Coast? Three of them. All right. Fein, Rehler and Wolfson went with the RAYDAC and ran it. Okay. Brooks, Horton and Massard were here. And so was Ken Rehler for a while, too. He was in charge of that stupid VILP. But anyway.

Hendrie: The VILP, the Locus Plotter?

Brooks: Yeah, Peter's Locus Plotter, whatever it meant. Any way, then when we got the Kodak job, now we could invite other people. And at that time, we invited Frank Dean and Ben Kessel. Probably, that's about when they came. Because now we were going to make some money. I mean, we were being supported by the money being made in the West Coast.

Hendrie: Yeah. You never raised any venture capital or anything like that, the way DEC did to get started?

Brooks: No. But we had a very good friendly banker, by the name of Chamberlain. And that was -- I'm not sure what bank was it? It was New England Merchants Bank.

Mrs. Brooks: Fletcher Chamberlain.

Brooks: Yeah. Fletcher Chamberlain. Yeah. He was really great. He served as our bank and we would show him, you know, that we had a job coming in, and we needed some money. And he'd go to bat for us. He, really, he was as responsible as anybody for the company's surviving.

Hendrie: Okay. So he would bridge between getting paid for jobs if he saw that they were coming, he'd lend you the money in between?

Brooks: Yeah. Yeah. Bob Massard was over there every other night. Bob had a full time job as being treasurer and getting the money and so on. Yeah. They did a great job.

Hendrie: Okay. Well, one question that occurs -- can you go over the people who were the original ones who said yes, what their particular jobs were on the RAYDAC before? You had indicated yours was sort of what we would call Systems Engineering today.

Brooks: I'm not sure -- no. There were some pictures in here that showed some guys; that may help.

Hendrie: I think Bob Massard said he worked on a tape unit?

Brooks: Oh, okay. He was, yeah, and I think Wolfson. Horton was memory. I remember that. Horton was acoustic delay lines and that's how we got to know - -

Mrs. Brooks: Mark Tyler?

Brooks: No. No. The guy that we first started with over there in...

Hendrie: Oh, in Belmont?

Brooks: Yeah. I can't think of it now. I gave it to you earlier. We're losing our memory, people.

Hendrie: Yes. I know about that. [That was R. D. (Dick) Brew]

Brooks: I'm not sure what Frank did, either. Maybe, possibly arithmetic unit, I'm not sure.

Hendrie: Okay. Do you remember what Ben did?

Brooks: No, I don't. I can't think of it.

Hendrie: Okay. That's fine. All right.

Brooks: Actually, I didn't know them that well, either. I was so immersed with my job, you know.

Hendrie: Yeah, exactly. There's a lot that tended to happen. All right. Now, as the East Coast grew, who was the -- Lou Fein was the president of the company?

Brooks: Yeah.

Hendrie: Okay. And he was out on the West Coast?

Brooks: Exactly.

Hendrie: As it grew, did he -- were you -- who was running the East Coast?

Brooks: I was.

Hendrie: You were running the east coast and Rehler was sort of...

Brooks: I'm not sure if he was at the time Lou was there.

Hendrie: Yeah. So what happened there?

Brooks: I don't really remember exactly now what it was. But whatever it was, Lou wanted something and the other guys didn't want to give it to him.

Hendrie: The rest of the team?

Brooks: Yeah, the rest of the founders. Yeah. They didn't want to give it. And we were the board. I mean, the founders were the board of directors. And whatever it was that Lou wanted, we disagreed with. and Lou then decided to leave the company. And the poor guy -- it was a mistake I avoided -- and the poor guy had to sell the stock back at net book value.

Hendrie: Oh, okay. And it wasn't worth very much.

Brooks: No. And he had twenty percent of the company.

Hendrie: My goodness.

Brooks: And what's even worse was that some of the other guys who were working with him, when he quit, they decided they didn't want their stock either. And I begged the guys, I know, I can still see the one

guy says, "George, don't sell the stock. Keep it," you know. And he didn't. So the guys who kept the stock, they all retired merrily. And he could have, too. As it was, it even got worse for him. This will be revealing in some senses.

*Editor's note: George Manahan's Mother contracted a serious illness and he had to sell his stock to pay for a trip back East.

Hendrie: That's all right.

Brooks: When -- I am happy to say I wasn't there when Honeywell bought the company, because when Honeywell bought the company, this poor guy, who was 3C guy, had given up his stock. When Honeywell bought the company, he also lost his pension rights, then had to go to work for Honeywell for yea many years to get his pension.

Hendrie: Oh, my goodness.

Brooks: The founders who were there at that time did not secure, keep the pensions going when Honeywell took over.

Hendrie: They didn't secure that as part of the agreement with Honeywell?

Brooks: That's right.

Hendrie: Oh, wow, that really is... so he stayed at 3C, but he lost his pension?

Brooks: He was now working for Honeywell.

Hendrie: Now he's working for Honeywell and no pension. So now he has to just keep working there?

Brooks: Yeah.

Hendrie: Well, he wasn't one of the founders, though, right?

Brooks: No. That's right. No.

Hendrie: He came later. All right. Do you know what happened to Lou Fein?

Brooks: Well, I hear he's dead.

Hendrie: Yes.

Brooks: I mean, Bob told me that when I was talking to him. He's learned he had died when he was 70 years old, in 1975 I think it was.

Hendrie: Oh, my goodness. Yeah. Quite a few years ago. That's a long time ago. All right.

Brooks: And I don't know what happened to him after he left Computer Control.

Hendrie: Yeah. You don't know what he did or where he went?

Mrs. Brooks: He went to Northern California as I recall.

Brooks: Maybe. Yeah.

Hendrie: To Northern California? All right.

Mrs. Brooks: Silicon Valley, how's that?

Hendrie: That's fine.

Brooks: Now, do you want that story about what happened in the West Coast when I...

Hendrie: Yes. Now, when did you become president?

Brooks: Well, when he...

Hendrie: When Lou Fein left...

Brooks: When Lou Fein quit, left...

Hendrie: Then the board, the other founders decided...

Brooks: Then the board turned to me and says, "You're running the East Coast, why don't you," you know...

Hendrie: Why don't you run the whole thing?

Brooks: Right. So I became the president. Now, I must say, too, that the company really was run as a committee. We used to meet every week.

Mrs. Brooks: Every Monday.

Brooks: At Ken's Steak House, have dinner, and maybe meet before then but then go to Ken's Steak House for dinner. I think it was at lunch even as frequently as once a week, we got together and talked about where we were going, what we were doing, how we were doing it. It was a...

Hendrie: It was very collegial, yeah. I mean, everybody sort of...

Mrs. Brooks: They were all in the box.

Hendrie: They were all, yes, they all sort of worked it out together.

Brooks: Yeah.

Hendrie: Okay. All right. Now, do you remember when it was that you became president? What year?

Mrs. Brooks: 1954 or 5, the year Mark was born.

Brooks: Oh, you're right, 1955 then.

Hendrie: 1955, okay, so this is only a couple of years after the company starts. So now you're president in 1955.

Brooks: Right. Right. And then I heard -- I kept in touch with all the rank and file and everything else. I'm a very people-oriented guy.

Hendrie: Sometimes we call those walk-around managers.

Brooks: Yeah.

Hendrie: They go and they talk to the troops, they don't just listen to their direct reports.

Brooks: Yeah. That was me. Any way, so I heard from West Coast, a friend of mine, one of the technicians there, that there was something weird going on in the West Coast and that I should come out and make a visit. So I packed up for a weekend visit, about one set of clothes on me. And I went out there and when I got there, I discovered that the people meeting me -- whoever it was, I don't remember -- but we weren't going in the direction of Westwood where we had an office. And so, I soon discovered that instead we were going to Ken Rehler's house. He was in charge of the West Coast. When I got there, he had his upper management with him. I don't know how many there were, three or four, five people. And the secretary, which sort of threw me for a loss. And they then announced that the reason they were all together there was to tell me that unless they received yea amount of stock and so on, became co-owners of Computer Control, that they were going to quit and take the RAYDAC contract from us and continue to run the RAYDAC for the Navy.

Hendrie: Wow. Now, can I just interject for a second? The stock still is -- have you given any stock to employees or is it still held by the founders mostly?

Brooks: I'm not sure.

Hendrie: You're not sure. Okay.

Brooks: And they were stock options any way.

Hendrie: There were stock options?

Brooks: There were stock options.

Hendrie: Then, so you've given stock options to people?

Brooks: So they had to buy it, yeah. We didn't give it away. It was the option to buy.

Hendrie: Yeah. Of course, but they had options?

Brooks: Yeah, okay. But they could buy it at net book value.

Hendrie: Right. Now Ken Rehler was one of the founders; is that right?

Brooks: Yes.

Hendrie: Yes, right. All right?

Brooks: Yeah. And I don't know how much he had bought or anything else, right. So anyway, I explained to them that I couldn't respond to that demand because that was a board decision, would have to be, and you know, that I'm sorry but I can't do anything about it. And they insisted on an answer. So I made sure that they were serious about insisting on the answers. So I then announced to them that they were all fired. <laughing>

Hendrie: <Laughing>

Brooks: And I guess somebody gave me a ride home. And so, I then had to go find out who would remain and also tell the Navy that I wanted them not to interfere; I want edthem to stay out of my affairs. As long as the RAYDAC computer was working and as long as they were getting the results, I didn't want anybody tampering with it. We got a contract and we were keeping the contract. We were living up to the contract. I then called people in -- and the programmers and engineers who were there -- and I asked whether they were staying or not. And nearly everybody said they were going to stay. But one guy said, no, he wasn't going to stay because he heard I was a bastard and no good and so on and so forth. So he was not going to have anything to do with me. So, at that point, I started laughing. And I said, "Well, in that case, I said, I am going to give you a very, very good recommendation." You know, I said, "I think you're the only honest guy here." <Laughing> And it was, he was one of the few who did stay.

Hendrie: Oh. That's great.

Brooks: Anyway, so, I had to call up my wife and tell her to take the kids out of school, put the dog in a kennel and come on out. And I'd come back and get them. And she said, "I can't come because I have a hair dresser's appointment".

Mrs. Brooks: He wanted me to take off on Monday morning. This was Sunday night. And I said, "I can't make it on Monday morning. I have to get my hair done. And secondly, the dog has bitten somebody and is in quarantine. And it's April, and our kids don't have any spring clothes, you know, it's still snowing here." So we left on Wednesday.

Hendrie: I see. Well, you still left pretty soon!

Brooks: Okay. So anyway, then because we were staying, we ended up staying with an uncle whom I'd never met in Pasadena. He was a Navy man.

Hendrie: You know, we need to stop for just a second and...

Brooks: We'll pick it up again later.

Brooks: All right. So, we're staying with an uncle in Pasadena. And he had been in the Navy. He was a retired Navy man. And he suggested that I go talk to all these Captains who were now retiring in a month or so from the Navy and looking for work. So, I thought it was a great idea. I started contacting Navy men. And what was fun was that these Navy Captains, active Navy Captains, would present themselves at the Point Mugu Air Station there, whatever it was. And they would have to go through - the flags would be put up announcing their arrival. They'd have to meet with the commandant of the base and so on before they could even come to see me, you know. So you can rest assured that the commander in charge of our work was very happy to leave us alone because of all this brass coming in every day and talking to me. I ended up hiring a Captain Chrisman who was at that time the commandant of the Long Beach Naval Station. And so then we got other people. And my friend Julien Harwood came out from the East Coast. He was the accountant, one of the originals, and he came out and he took care of everything financial and got the -- kept the books going and the payrolls going and everything else. And so he was very valuablae.

Hendrie: And so you eventually got a new person in charge and...

Brooks: Finally it got going. I don't know how long we stayed out there but we finally got things going again. How long? Six months! Six months I was out there; the trip that was going to be one day.

Hendrie: All right. That's a great story. All right. Let's see. So, now, do you remember roughly how many people were working out in, you know, in the West Coast at the time this revolt occurred?

Brooks: Well, I'd have to guess. I'm just...

Hendrie: Yeah. Just a guess.

Brooks: Well, I'm just guessing probably the programmers were at the -- no, I guess the programmers were... well, I'm just guessing that maybe there were something like eight programmers and there must have been about six technicians.

Hendrie: All right.

Brooks: And at the time I was there, I don't recall them really building anything. It was later on that they started producing products of their own.

Hendrie: All right. But at that time.

Mrs. Brooks: We had a Westwood office.

Brooks: Yeah. That was it. And then I don't think -- we just had this Westwood office and that was about it.

Hendrie: Okay. And then you would work on the base, too, obviously?

Brooks: Yeah. Those two. Yeah, on the base, where the computer was and this Westwood office. And I don't remember anybody making anything, products or -- I think the guys were there that -- I think Bob Waller, for example, I think was there.

Mrs. Brooks: What about Chimero or whatever his name was? [Doug Chamorro]

Brooks: Yeah. He was there. I knew him. So maybe they were generating some ideas then. Maybe they were producing, but I don't remember. I certainly don't remember any products coming out of there.

Mrs. Brooks: What about Al Fenaughty?

Hendrie: Yeah. When did Al Fenaughty?

Brooks: No. Al Fenaughty never worked while I was there. I knew him, but he never was -- he was never a Computer Control man when I was there.

Hendrie: Oh. He was doing something else? I mean, he was... Al Fenaughty was doing something else?

Brooks: I think so. He was a friend of Bill Horton's from Minnesota Mining Company or 3M or something like that. [Bill Horton had been at ERA in Minneapolis]

Hendrie: All right. Okay. So they knew each other from a previous -- before Bill Horton went to Raytheon?

Brooks: Yeah. But Al Fenaughty was not working for Computer Control when I was there.

Hendrie: All right. So, now, you solve the revolution.

Brooks: Yeah.

Hendrie: You've got that under control. So now what's -- tell me some of the next chapters in your story. How long were you the president? When did you step down?

Brooks: When did I quit? I quit when -- I think...

Mrs. Brooks: Mark was about four.

Brooks: Is that right? That would make me -- I'd be 59.

Mrs. Brooks: He doesn't really remember you working.

Brooks: I know. <Laughing>

Hendrie: So it was probably about 1959.

Brooks: I was going to all these classes for management, American Management Association classes and everything else in an attempt to keep up with and learn how to be a professional manager.

Hendrie: To learn what -- yeah. Because you didn't have any training in doing the job you had?

Brooks: Executive, right. And result of these classes and everything else, I came back to the company with ideas on management that I thought were good. And I failed to get my fellow board members to agree with these views. And I told them I felt like I was a mere figurehead because I didn't have any authority of any sort.

Hendrie: No real authority, yes.

Brooks: Also, just to demonstrate it to myself, when it came time for raises, I gave everybody on the board a good raise such that it was even more than I was making, to see what would happen. Nothing happened. They didn't even turn and offer me a raise.

Hendrie: Oh, my goodness.

Brooks: Yeah. They excused themselves because they didn't -- they were engineers. They don't think about other people. So, this didn't help. <Laughter>

Hendrie: This did not help your feelings, right.

Brooks: So, anyway, I decided, I told them I wanted to have the authority for doing this, and I don't remember what it was, and that if I failed and didn't do a good job, get rid of me. But I wanted to have the

privilege of being able to make some mistakes of my own. And they failed to see this. So I quit. But, I didn't want to make the mistake that Lou Fein made and have to sell my stock back at net book value.

Hendrie: You did believe that this stock might be worth something someday?

Brooks: I knew darn well it would be. So I resigned as president and became -- I was now vice president again of East Coast. And they put Ben in as president, and I stayed as a vice president because I didn't want to lose my opportunity. And I don't think I resigned from the board, either. I was careful not to resign from the board either. So then when the...

Hendrie: Do you remember - - oh, you said that happened about 1959.

Brooks: No, I don't. Because -- then what happened was, when the stock preparations were made and the stock was all set to go at about that time, and I saw that I could leave and keep my stock, I then left Computer Control because -- oh, the worst thing was, the thing that really nailed it down, was that they hired a consultant after I quit. They had a management consultant who came in and gave Ben everything that I'd asked for.

Hendrie: Told the board "This is what you have to do if you're going to have an effective manager."

Brooks: Yeah. And they told -- they gave Ben the authority that I'd asked for. And that really did it -- I remember I walked out. I walked right out of the place on that one.

Hendrie: Oh, wow. Exactly. That's hard to take.

Mrs. Brooks: You went to Adage after that.

Brooks: Yeah. So then, Dick Brew was the guy whom we're talking about who had the company. That's a good story there, by and large. Any way, I called up Dick Brew and asked him for a reference. He said he wanted me to work for him, to come out and be his Director of Research.

Hendrie: This is the fellow in Belmont?

Brooks: He'd gone to New Hampshire. Yeah, so that would be a big advantage for me with the stock because there weren't any capital gains taxes up there. But I went up there and I talked to people. I'm good at handling people and handling engineers, you know. I don't have to know what they're doing. Anyway, that was a good story there. But it's not worthwhile for the museum here. And so then I called up, and I ended up with Adage in Cambridge. And I ended up being their Director of Research. Can you imagine? I'm a digital guy and this is an analog computer outfit, you know? So, I was in charge of

research there, which, again, as I say, was a question of keeping engineers happy, and keeping the sales force from selling stuff we hadn't designed yet.

Hendrie: Yes, which is another problem, right. Exactly.

Brooks: Anyway, so then when Computer Control went public, I sold half of my stock with the public offering. And then when the public offering was concluded and I was given my check, I used the Adage machine to copy it, and then said "So long, everybody," to them. And I went to Boston University School of Social Work after a master's degree in social work.

Hendrie: Oh, wow.

Brooks: And then I got kicked out of there in my second term, even though I had a straight A average, because I upset many of the people in the school of social work when I told them that if you're going to be professional, you should act like one, and you shouldn't bother putting a whole bunch of diplomas around the wall of your offices. Instead, your professionalism should react in the way you handed things, and that you shouldn't work for 10 thousand dollars a year. And you shouldn't let people who didn't have a degree in social work use the title social workers, things like that. Anyway, I sort of shook things up. They asked me not to come back the second term. I was carrying people, too, I was doing their work for them and everything else. I was twenty years older than the rest of the class.

Hendrie: Exactly. I'm saying, you're twenty years older. These are young kids.

Brooks: Any way, that's what happened. So, by that time I was sort of disgusted anyway. So...

Mrs. Brooks: You should explain that you had to explain to your children that you were not going to be graduating in June, your son's birthday, because everybody wanted to go to the graduation, and he was telling the kids in the kitchen. And our one daughter was leaning against the refrigerator. And she just slid down the refrigerator and said, "How do we explain our father is a college drop out?"

Hendrie: <laughing>

Brooks: Anyway, then from then on I was doing various things. Julian Harwood called me up, said he'd like to get out of the rat race, how about the two of us finding a business to do together. And we looked at shipyards, we looked at all kinds of things. We ended up -- that's what brought me to Cape Cod and Julian, too. We had a real estate office, and we had a building company. We had a land development, we did those kinds of things.

Hendrie: Yeah. Just did all these businesses.

Brooks: Yeah. And then since then, I do a lot of volunteering. I do Meals on Wheels, and I help the hospitals with putting lifeline units into people's homes. I take cancer victims to their appointments. And I was doing Habitat for Humanity.

Mrs. Brooks: You worked on starting a Big Brother organization.

Brooks: Yeah. I had I don't know how many big brothers -- and how many little brothers, but it's three official, and four more unofficial, three more unofficial.

Mrs. Brooks: Yeah. Three little brothers and then the last little brother's mother died and we took all the brothers and sisters, and he had them for a couple of years.

Hendrie: Well, that's very interesting -- an engineer who decides when he stops doing engineering to go do social work. Yes, that's different. As you said, most engineers don't think about people. But you're much more related to people.

Brooks: So that's it.

Hendrie: Okay. Very good. Well thank you very much!

Brooks: You're welcome.

Hendrie: For taking the time and doing this oral history for the Computer History Museum. Oh, one other question I forgot to ask you. Who would you say your best hires were while you were in charge, to the extent that you were in charge at 3C?

Brooks: Well, in my mind, this is a technical one. I mean, probably some engineer that we hired, very brilliant and produced something that made us an astonishing amount of money, I'm not sure. But in my mind, the best hire was Ed Hampson. His contribution of creating a production facility and then creating that substantial...

Hendrie: Subsidiary?

Brooks: Some subassembly line up in New Hampshire, what do you call it. Oh, everything Ed did was good. And I thought he was a guy I would brag about bringing in. I don't think I did bring him in, but if I did -- I'm not sure how he got into the company. But once in, well, he was my man.

Hendrie: Okay. And he really took a part of it that the engineers didn't necessarily know how to do.

Brooks: Yeah.

Hendrie: And made it work well?

Brooks: He just did a great job.

Hendrie: That's good. Now, do you know where he came from? Do I need to interview Ed Hampson to find out what he was doing before he came to 3C?

Brooks: Yeah. You would have to because I don't know.

Hendrie: Okay. You don't know.

Brooks: He'd probably be a good interview anyway. If you wanted, you know, if you still have time for him. Although, I'm not sure. He's in Maine -- I guess Maine and New Hampshire.

Mrs. Brooks: I can get his address.

Hendrie: Okay. Well, I think that's probably -- that might be good. I think, yeah, if you have that, that would be great. All right. Thank you again.

Brooks: Okay.

END OF INTERVIEW

