Computer History Museum

Oral History of Samuel F. (Ted) Dabney

Interviewed by:
Chris Garcia

Recorded: July 16, 2012
Mountain View, California

CHM Reference number: X6557.2013

Garcia: We are here on July 16, 2012 with Mr. Ted Dabney. Okay, so let's just start with a little bit of early stuff. When and where were you born?

Dabney: San Francisco.

Garcia: Local boy.

Dabney: Yes.

Garcia: Oh, okay, and that was in the—

Dabney: Year of 1937. I was born 12 days before the Golden Gate Bridge and I was in a baby buggy going across it. <laughs>

Garcia: Wow, good call. Okay, and did you go to school in San Francisco? Did you grow up there?

Dabney: I went to school— well, I went to a lot of schools. My first high school was Las Gatos and then when I moved back to San Francisco, I wasn't very good academically so I went to a trade school at John O'Connell, took trade drafting because I didn't know what I wanted to do, but I had had a course at Hunter's Point. A friend of mine had gotten me into a course there where we studied analytic geometry. I didn't know what it meant but I just loved the course, so when I got into John O'Connell, I took trade drafting because I didn't know what I wanted to do but I knew I was going to have to draw it. <laughs> Then, in fact actually while I was at John O'Connell, I was 16 years old. I got a job with the Division of Highways, which you can't do until you're 18 but I got one. <laughs> So I was a surveyor for the bridge department, building this freeway system from the Bay Bridge up to Hospital Cove and all that area in there. I didn't have a California driver's license, but I was in charge of the truck. <laughs> It was my job to put the truck up every night.

Garcia: So that area would be what's today 580?

Dabney: No, there was no 580. No, no, no. That was 8th and Bryant, Harrison Street, that area.

Garcia: Oh, I know that area very well. Very good tacos over there.

Dabney: Well, there wasn't then. <laughter>

Garcia: Okay, so when did you first find yourself being interested in— I mean, that was sort of the genesis, but—

Dabney: Well, from that school, I decided I really did want to get an education so I went to Polytechnic. You know where Poly used to be?

Garcia: No, actually.

Dabney: Right across the street from Kezar Stadium.

Garcia: Oh, over there. Okay.

Dabney: Yeah, and they're both gone now, but I went to Polytechnic and tried to get some courses there and didn't do a real good job getting what I wanted. I wasn't a very good school, but it was either that or go to Mission High and I wasn't going to go to Mission. I was beat up too many times there. <laughs> I lived in the Mission district. I mean, in the Mission district, so those guys gave me a bad time. But at any rate, I wound up at San Mateo High and that's where I actually graduated from, but in order to graduate my last year, I had to cram a bunch of courses because I had no algebra and I had flunked social studies or whatever they call it, American problems. I don't remember what they called it, but I flunked that, had to take that again. Anyway, I lucked out. I got a math teacher named Walker at San Mateo that just blew me apart, just really good. I'm not saying I got a good grade. That wasn't the point. The point was he taught us everything from calculus, interval calculus. He taught us determinants. You know what indeterminate is? I do. <laughs> He taught us Boolean algebra. That was before computers. He was an amazing guy. Our tests, our final test was one question: Prove the binomial theorem by mathematical induction. <laughs>

Garcia: Wow.

Dabney: That was our test. Anyway, so when I got out of high school, I was a surveyor. That was the only thing I knew so I got a job as a surveyor with McCandless and Jet in Menlo Park over near Palo Alto someplace. I don't remember where they are now. But anyway, yeah, it was Menlo Park and became a surveyor. Within three weeks, I was Assistant Chief of Party, which was pretty good. I had a lot of experience with the State, even though it was just a summer job, but I was good. But then the winters came. <laughs> Guess what? There's no work. <laughter> That blew me away. All of the sudden, no work, so I wound up getting laid off. That's when I decided to join the Marine Corps.

Garcia: Oh, okay. And how long were you in the Marines?

Dabney: Three years, three months and 24 days.

Garcia: Pretty accurate on that. <laughter>

Dabney: That one I know.

Garcia: Did they have you working in—

Dabney: I told them. When I joined the Marine Corps, I don't care what it is, I want a Class A school, any of them. I don't care whether it's aircraft maintenance and repair. I don't care if it's electronics. Whatever it is, I want a Class A school. He said fine. So I went to boot camp in San Diego, wound up getting in trouble and the DI gave me a bad time and thought I wasn't going to get to school and I wound up in an artillery outfit, 10th Marines in Camp Pendleton. But then we were out on an exercise and all these guys were talking about being able to sign up for electronics course. Okay, okay. Anyway, so when we got back, I went over to talk to him. He said, "Okay, you can sign up for the course but you gotta extend your enlistment for a year." I had a three-year enlistment. I had to extend it for four years, which was fine. I got the school, wound up at Treasure Island for 16 weeks. <laughs> That was good, that was good. Then wound up in San Diego, MCRD, for another electronics course and that was put on by Collins. Collins, you know, pretty sharp dudes, and I kept asking them questions like, here they show up with schematics. And I said, "How do you know that's a 100k resistor? How do you know that? How come that was a 2k resistor?" That kind of stuff, started asking these kind of questions. These guys loved these questions. They explained to me why and I didn't understand anything they were saying. <laughter> But I learned a lot of jargon, like time-domain reflectometry and it was a radio relay thing so there was this— I forgot the terms now, but anyway, it was a multiplex audio system, so when I got out of the Marine Corps. I got out early because I signed up for San Francisco State and so they accepted me, which meant I got to get out early, but I knew I couldn't go because I couldn't afford it and I wasn't smart enough. <laughter> So anyway, I wound up with a job at Bank of America and the way I got in there was I had all this jargon. They really thought this meant something, and it did, except I didn't know what. <laughs>

Garcia: Now, this would've been about '58, '59?

Dabney: That was '59, yeah.

Garcia: '59, okay, yeah.

Dabney: '59's when I got out, yeah.

Garcia: Yeah, Bank of America at that point was already really on the cutting edge of technology.

Dabney: Oh, yeah, yeah. It was ERMA.

Garcia: Yeah, ERMA.

Dabney: Yeah, in fact, the prototype from ERMA was built by Stanford Research Institute, SRI, and they had built a traveler's check scanner as a prototype and so Bank of America actually was using that, the traveler's check scanner, and my job was to keep it running. So I got to interface with Don Gazzano down at SRI, back and forth, back and forth over the phone about how do I reset this, thyratron because it used thyratron tubes and this kind of thing, and had the magnetic numbers and all that stuff. That was the beginning of ERMA. From that, they said, yeah, okay, we can do it and I had nothing to do with ERMA. I was over in Berkeley some place, but that was part of the experience. I left there after a year because Bank of America, it didn't understand technology where I was. I mean, they put a guy in charge that just didn't know anything. I mean, he's supposed to be in charge of this research group and he just didn't know anything, so that really kind of upset me and that was why I left. In the meantime, a guy I worked with had left and gone to work for Hewlett-Packard. I said, "Ah, that's a good idea." So I called up John Herbert, the guy, and said what to do and in the meantime he had gone to work for Ampex and so he told me about Hewlett-Packard and what to do and go down there and so I went down there and about aced the test. I mean, it was a hands-on type of test, but the only reason I did that is I had taken these tests at Lenkerk [ph?] first and failed it. <laughter> But they tested on exactly the same thing, an RC oscillator. So I got the job at Hewlett-Packard and I was there about six weeks. John Herbert, the guy who had gone to Ampex, called me over. He says, "I want you to come interview with my boss at Ampex." I said, "I just got this job. I just got a raise. I got a promotion. I worked assembly and did tests and I got a raise," and all that kind of stuff, within a six week period, so I was doing good. And he says, "Well, come on over and talk to Kurt anyway," Kurt Wallace. I said, "Okay," so I did. He was asking me a bunch of questions about this, that and the other. The only one I remember, he asked me to draw a phase inverter, a vacuum tube phase inverter and I put a 100k resistor in the plate and 10k resistor in the cathode and he asked me if I knew Ohm's Law. <laughs> A phase inverter must have both resistors be the same. You got a non-inverted on one side and inverted on the plate and he asked me if I knew Ohm's Law and I said, "Well, I thought I did." <laughs> They offered me the job, engineer. I mean, engineer. It was about $580 a month, which was twice what I was making at Hewlett-Packard, which was good money. And I figured, hey, it's going to take them at least three months to find out I ain't no engineer. <laughs> I figured in the meantime, three months of engineering experience cannot hurt. <laughs>

Garcia: Now, you were there. That was 1960 at this point, '61?

Dabney: Yeah— no, no. I was at Bank of America for a year, so it had to be '61, yeah.

Garcia: Yeah. So what did they have you working on when you got to Ampex?

Dabney: I was working on a phantastron.

Garcia: Who?

Dabney: Huh? Hey. <laughs> Okay, see, I was working in the military products group. I wasn't working in yet all of the video stuff, and that kind of— but they were developing a system for DOD that would show film images on a CRT. Okay? But they wanted to be able to change the size. Well, that's what the phantastron did. Phantastron, it's all vacuum tubes. It's all vacuum tubes, and so I built this really neat— I'm out here working at the bench, I'm working really hard just trying to figure all this out. I'm reading the Navy book and all this kind of stuff. This old guy walking over said, "What are doing?" I look at the guy. He's got a gray suit on, all this kind of stuff. I says, "I don't know if I can tell you about it. It's all military." "Oh, yeah. I'm sorry. I'm sorry," and he went away. Some guy says, "What was Alex doing here?" "Alex, I don't know." Alexander M. Poniatoff. That's where Ampex came from. <laughter>

Garcia: Wow.

Dabney: And I ran him off.

Garcia: Well, at least he knew you were doing what you were supposed to. You were in the DOD section then, so there was the other section, too. There wasn't a lot of crossover there?

Dabney: No, I wasn't in the DOD section. It was Ampex military products.

Garcia: Oh, okay.

Dabney: Okay. And we were doing a job for DOD and that expanded a lot. About that time, the U2 started flying and they had this 70 millimeter film that they wanted to be able to transmit from one place to another. Otherwise, you have to put it on a plane and ship it. Well, we had a way of reading film with electron beam and so what we do is we take the film and we would run a scintillator on it. The scintillator is a material that when you hit it with electron it puts out a piece of light, it puts out a photon. And then we aluminize it, put it in a vacuum chamber and sputter it and that would take the charge off, so we could scan film. We could run this thing through the machine, put it in a vacuum thing and run it through the machine and make an electronic signal out of this film and that's what they wanted. Then, GE had the other part so it would take the signal and turn it back into film. So we worked with Schenectady quite a bit on that one. One of the things that we did is we recorded the whole radio spectrum on one piece of tape.

<laughter> And we could play the tape and tune it in anywhere. It was really neat. So I was there about six years and Ampex started another whole division called Video File and so Kurt Wallace, my boss, was asked to go down there and take care of it because he's a really good engineer, and he asked me to go with him, so I said, "Fine, I'll go, sure."

Garcia: And that was Video File?

Dabney: Ampex Video File.

Garcia: Oh, that was the disc recording system.

Dabney: Yeah, huge discs, big rhodium discs. Yeah, huge, huge thing.

Garcia: Yeah, that ended up being influential but not super successful if I remember correctly.

Dabney: Well, it would've been successful except that the cost of big scale computers at that time, which this had to be— it had to be where it's outrageously expensive. And then by the time— the vidicon camera that I had responsibility for was a $3,000 vidicon. And the monitors, I was also in charge of all the monitors, had to evaluate them and redesign them and do all that kind of stuff. I also designed all the power supplies and that kind of thing. It was just really expensive and what happens is anytime you get on the leading edge of something like this 'cause— Canadian Royal Mounted Police, they bought a system and they were very happy with it. Southern Pacific bought a system. They were really happy with it. Los Angeles Sherriff bought it. They didn't like it and so they wouldn't pay for it. <laughs> Now, I think that's what actually killed it, but it was very expensive, very expensive.

Garcia: Wow. So you're still at Ampex at this point and this is '67, '68-ish?

Dabney: Yeah, yeah.

Garcia: Okay, so what was your next step?

Dabney: Just designing. Actually, I was designing exactly the same thing I did at Ampex military products only instead of using vacuum tubes I was using transistors. <laughter>

Garcia: Isn't that always the case; same design only different companies.

Dabney: Well, I designed all the video amplifiers and gamma correctors and all that kind of thing for Ampex military products because you had to be able to change the brightness to darkness contrast, which is gamma, the gamma of the picture. And then also we had to enhance it and— I'm trying to remember the term. There's a special way of doubling the rise-time without changing the bandwidth.

Garcia: Oh, really?

Dabney: Yeah, yeah. Aperture correction. That's what it's called, aperture correction, and I did all that with vacuum tubes. Now I got to do it all with transistors. I went from a rack, now I got a double sided PC board. <laughs>

Garcia: So while you were at Ampex, what sort of team were you working with? Were there any significant figures who would go on at that point?

Dabney: Well, I worked for Kurt Wallace. Well, actually I worked for Ed DeBenidetti. He was hired in later from Granger and he was real hotshot engineer. I mean, extremely good engineer, and so I wound up working for him and he taught me a lot because I'm really wimpy. I'm just not very assertive. <laughs> Which why it took 40 years to find out who I was. <laughter> But I kept making— Ed would say— okay, I'll give you an example. On this vidicon, on this $3,000 vidicon, I had designed the circuit that controlled the filament of this thing because it's like any other vacuum tube. It has a filament. But being the price of the vidicon, you had to control the current. You had to control the voltage. You have to make sure it doesn't go over voltage. You've got to make sure it doesn't go over current. And I had invented a circuit that would predict the life of the thing. Kurt wound up giving that patent to somebody else, but that upset me but I figured, hey, what the hell. <laughs> So I designed this circuit. It was a great circuit. The only problem is you couldn't turn it on <laughter> because it's got to be wrong. It's got to be over, under, something's got to be wrong, so it's going to shut itself off. So I had to go and do a lobotomy to the circuit so I could get it to work, but that's the kind of thing. Ed, he just got on me and he started laying into me, laying into me, laying into me, laying into me and finally I just, I had enough and I went back at him. He says, "Now you learned." <laughter>

Garcia: Okay, so, now was it around this point that you met Nolan?

Dabney: Yeah, yep, yep. Nolan got hired in. I met Nolan originally because Kurt Wallace had brought him over and introduced him to me and basically had told me that he wanted me to sell Ampex to him. I guess Kurt really liked him, but my job— because he knew how much I liked Ampex, so my job was to sell Ampex to this guy so he'd come to work for us, so I guess it worked because he did and he wound up in my office, so that's how we got to know each other.

Garcia: Excellent. What was he working on? It's always been sort of a gray area.

Dabney: <laughs> He always had stuff on his desk. That's all I know. I don't know what he did. I never even asked him. I was worried about doing my work. I wasn't worried about anybody else's work, but I had no idea what he did. I think he studied stuff. I just don't know. But we were close. We wound up being close friends. He was a game player, chess player. He liked chess and so he got me to play chess with him, but he had also started going over to this game "Go" but he needed somebody to play with so he decided I ought to learn the game of "Go" so we could play together, which we did and we played pretty good, that complicated game. You ever heard of that game?

Garcia: Oh, I've played. I'm not very good. <laughter>

Dabney: Oh, okay. If you've ever moved one of those stones around, you know what I'm talking about. <laughter>

Garcia: I always get kind of the eyes problem.

Dabney: Yeah, yeah. I know it. I was playing these Japanese guys up in Japan Town and we were playing the game and all he could say in English was, "No eyes, no eyes." <laughter> Looking at me, "No eyes, no eyes." No, you're right. Nothing I can do. He had me beat, tremendously beat. But anyway, Nolan had this brilliant idea. He's a carnie guy, back mountains carnie, and he thought a pizza parlor, a carnival-type pizza parlor would be a great thing to do. So I said, hell, what the hell. We started looking around. It's one of these things, you have these ideas and no way you could ever make it happen. I mean, you could barely afford the pizza, much less buy a pizza place. But anyway, we'd go around and we looked at these places, all these places. Well, he came in to me one time and he says, "Hey, Dabney, I want you to go see something with me." I said, "What?" He said, "Oh, they got this thing over at Stanford Artificial Intelligence Center that's just this outrageous thing." I said, "Okay, we'll go." It's they got this rocket ship thing playing on this massive computer. I mean, they had a megabyte of core memory, the magnetic core memory. You know what that takes. <laughs>

Garcia: Oh, yeah.

Dabney: So, I don't know if you know how much that costs— <laughs>

Garcia: Oh, yeah. That was pretty much a solid _____.

Dabney: So anyway, we were looking at this and he decides, we can get a PDP-8 or a Nova computer and we'd could time share this and put coin slots on all these things and make lots of money. I said, "Oh, okay." I'll go along with anything. It doesn't matter. I'll go along with pizza parlor,. I'll go along with anything. <laughs> So we got together. We got a programmer, Larry Bryant, and we all went together

and set up this company called Syzygy and that was Larry Bryant. Larry Bryant had submitted that and so we looked it up in the dictionary and sure enough, it was a good name, so we used that and that was our partnership. But in order to do anything, we all agreed that we got to put in a hundred dollars. I'll open a bank account and we'll have it there. And so I opened the account with a hundred dollars, then Nolan gave me a hundred dollars and I put that in, but Larry never gave his hundred dollars. Well in the meantime, Larry couldn't get time on a computer. He couldn't write any code and we did a cost analysis on this thing and said no way. <laughs> There's not enough quarters. <laughter> So that kind of died and that was the end of it. That was the end of that whole project. We went back to pizza parlors and stuff.

Garcia: Now were you aware of the Galaxy Game at that point?

Dabney: Yeah, but the Galaxy game had a computer. It had a PDP something.

Garcia: PDP-11.

Dabney: Yeah, PDP-11 okay. It had that and it was a single player and it cost a dime. You could never pay for the thing.

Garcia: Yeah, because we actually had that up and working at the museum.

Dabney: Yeah, I think Google has it now, don't they?

Garcia: I think we leant it to them and they gave it back recently.

Dabney: Oh, okay, okay. So no, that was a great thing but there's no way you could make any money with it.

Garcia: True.

Dabney: And that's not the idea. Technical excellence is fine. No, we wanted something— our idea was to make something you could make money with, but since there was no way we could make money with it, we decided we weren't going to do that. Like I say, we went back to Pizza Parlors. And so Nolan comes by to me one day and he says, "When you adjust the vertical holds on a TV set, the picture moves back and forth like that." I said, "Yeah." He says, "Why is that?" So I explained to him why and he says, "Could we do that? Could we do something like that?" I said, "Yeah, but we'd have to do it digitally. You can't do it analog. You'd never have any control." And I forgot about phase locked loops. We could've

done it with a phase lock loop, but I knew we could do it with digital. So he says, "Why don't you work on that?" so I did and I kicked my daughter out of her bedroom and set it up there and got all the stuff working and sure enough, it was working fine, and Nolan kept coming over all the time. He was always at my house looking at what I was doing and finally got this thing working and he says, "That's it. Let's do it," and boom, he was off and gone. Next thing I know, he got a contract or an agreement with Nutting Associates to actually build the game. So he quit his job with Ampex and went to work for Nutting to invent this game and that's basically what he did. And then I'd come around in the evening. I wasn't going to give up my ten year job with Ampex just for this stupid thing <laughter> but I'd come over in the evenings and help him out, help him out, help him out. And then we decided on the partnership and what about Larry Bryant and I said, "He never put in his hundred dollars," so he was out. If he had put in his hundred dollars, he would've been in the partnership but he didn't so he wasn't. Not that he ever did anything anyway, but that was irrelevant. Neither one of us had done anything either until I designed this motion circuit. And so Nolan went to work for Nutting to build this game and so I helped him out, designed the matrix for the diodes. We couldn't afford ROMs. ROMs were expensive. They were real expensive, so I had a friend that had two boxes of diodes. I bought them from him for ten bucks each or something like that and we had all these diodes and I said, "We can make anything we want out of diodes." So you've seen a Computer Space inside, used to you had a picture of the diodes? Yeah.

Garcia: Oh, yeah. We have a strange one, actually, in the exhibit. So that was the origin of Computer Space.

Dabney: Yes, yeah, yeah. I finally quit my job and came over full time because all of the sudden it looked like we were going to have something and Nutting was willing to pay my salary and I didn't really do much on that. My job was to know how to build a cabinet so we could put it in because we didn't have any cabinets. All he had were the cabinets for his computer quiz, which wouldn't work. It wouldn't work also. I had to build the cabinet. Oh, I didn't tell you. When we started playing Go, we had this little Mickey Mouse board that we sat on a wastepaper basket, but it would bump it and it would all fall apart so one time I happened to be going by a store that made doors and they had all these cutouts for the windows and the doors, so I bought a bunch of these things, six bucks a piece or something like that, and I carved a "Go" board in one of them and brought it in and that was really neat because that was really heavy, but we had to figure out where to put it. We had no place to put it. So I made another one, a "Go" board. On the other side, I put the Video File logo on it, okay, and that way, when we hung it on the wall, all you see is the Video File logo. <laughter>

Garcia: Ah, subterfuge!

Dabney: Yeah, yeah, yeah. Anyway, I just had to throw that in, but where did I throw it in from? I don't remember.

Garcia: So you're at Nutting now?

Dabney: Oh, yes, I'm at Nutting now and I'm designing the cabinet and all like that and everything, so that's kinda the beginning of it. From there on it was— no one got ahold of Bally. You'd try to do something with them— 'cause we decided this was a good thing to do, design games for older people. And so he called Nutting— I mean, Bally, in fact, I think he went back there to see them and they said as along as we were with Nutting then they'd have nothing to do with us. You know, because they couldn't. I mean obviously you can't have one game company working with the other game company. And at that time we were still both on sovereignty with Nutting. So we said, "Well, cut. Let's cut it." Oh, and in the meantime— oh, this is the fun part.

Garcia: <laughs>

Dabney: Bill Nutting was not the brightest guy in the world.

Garcia: <laughs>

Dabney: He had a salesman named Dave Rolston that had kept that company with an archaic old game, you know: Computer Quiz. He had kept, you know, just selling just enough to keep the company alive, just working his butt off trying to, you know. When Computer Space came along, you didn't have to work. I mean you just pick up the phone and, "How many you want?" That's basically it. So Bill Nutting saw how much money he was making: he fired him. <laughs> Do you believe? I mean, a salesman should be the highest paid person in your company. I mean that's how you know you're doing good, how much money your salesman's making. If he's making more than you are, fine. It's okay.

Garcia: <laughs>

Dabney: But, no, he fired him. But Rolston had built up a bunch of pinball machines, pool tables, stuff like that, around in the valley. But now he wanted to get rid of it. So Nolan and I bought it from him. So when we quit Nutting and started our own company, Syzygy, the only money that Nolan and I had, since we didn't have our paycheck anymore, was the money we were getting from these machines. <laughs> So we would go around making the collection and split up the money, you know. That kind of thing. So first thing Nolan did, he hired Cynthia Villaneuva to come in and handle the phones, you know, be a receptionist and that kind of thing. Then he got ahold of Bally again. Now that we were on our own we were able to get a contract and the contract said a video game and a pinball machine. So we had the contract. My job was to design the pinball machine. It was an important part of the contract. And Nolan hired Al Alcorn to design the— or to build the video game. But Nolan wanted a driving game. I think had had told Bally he was gonna give 'em a driving game. I don't know that for sure, but I think that's what it was, 'cause I know he wanted a driving game. He was adamant about wanting a driving game. So

anyway when he brought Al in, he put Al to work on just using the circuitry that I had designed to create a game, just to get it to working. Well, we had seen the Odyssey game and it made sense. A ping pong game is pretty simple. We'll do that. And so Al in about three weeks, he had it all done. It was, you know, banging back and forth. Didn't have any sound though. It was terrible without sound. <laughs> But anyway, in there we're playing this thing and this is fun. This is a lot of fun. Boom, boom, boom. You know, that kinda stuff. And so then Al added sound to it and that made it really great. And he had segmented the paddle, so if you hit it with the bottom of the paddle, it would go down. If you hit it with the top of the paddle, it would go up. If you hit it in the middle, it would go across so you know, that. <coughs> Al was clever. He was a clever engineer. But, no— I don't care what you say, he was not a founder of Atari. <laughs> And that's what he says he was. <laughs>

Garcia: <laughs> Oh really?

Dabney: Yeah, yeah. I really got on him about that. So now he knows I hate him. It's not true, I mean, it's just— but I just really gave him a bad time about calling himself— and he thought it was okay. But, he wasn't. He was hired help. <laughs>

Garcia: <laughs>

Dabney: <laughs> He was hired on at $1000 a month.

Garcia: He was employee number three? After you and—

Dabney: No, no. He was employee number two.

Garcia: Number two. Okay.

Dabney: Cynthia was number one.

Garcia: Oh, okay.

Dabney: He was number two. And Nolan and I still didn't work for the company.

Garcia: Oh, okay.

Dabney: We were living off the money we got from the games we bought from Ralston 'cause the money we were getting from royalties was just enough to pay the rent and pay Cynthia, pay utilities, you know. And so, that was— all we had was what we got from the slot machines. I mean, not slot machines. I'm sorry: pinball machines.

Garcia: And now you were located over in Santa Clara at this point?

Dabney: Yeah, over on Scott Boulevard.

Garcia: Ah, yes. I remember that building. <laughs>

Dabney: Yeah, we— in fact, Marty and Curt and I went over there the other day to take some pictures of it.

Garcia: Oh wow.

Dabney: Well, for the book they're doing.

Garcia: Oh yeah?

Dabney: Anyway, where I was? I get— I lose— you know, when you get 75 years old, that all falls apart. <laughs>

Garcia: <laughs> So I think the last thing we were talking about was—

Dabney: I was working on the pinball and Al was— oh yeah. Al had designed and had it working, and he put some sound in it, which was really neat, "beep, beep, beep." You know, that kind of stuff? And we were playing that in Nolan's office, and "bang, bang". I mean we were just having the greatest time in the world. But Nolan said, "No, no. We want a driving game. Gotta have a driving game. This was just an exercise." You know. I said, "Nolan, this is fun!" <laughs>

Garcia: <laughs>

Dabney: Al said, "This is fun!" <laughs>

Garcia: <laughs>

Dabney: So we badgered him and badgered him, badgered him. "Oh, well, what're we gonna call it?" "Well, Ping Pong." "No. Can't call it "Ping". That's golf clubs. Can't call it that." So we decided we'll just call it "Pong". We found out later in England that that means "poop". <laughs>

Garcia: <laughs>

Dabney: But we called it "Pong". So we built up some prototypes and— we built 12 prototypes. And we sent one off to Bally, kept one in the shop, and then Nolan and I put one in our places where we had pinball machines and pool tables and stuff like that. We put 'em out, you know, at "Round Table Pizzas" and, you know, "Andy Capp's" and "Dutch Goose" and, you know, that kind of thing, places we had. And, boy, all of a sudden, Nolan and I were raking in the money. <laughs> 'Cause we were still living on that. And all of a sudden, you know, there was so much money we had to start banking it. We just— there was no way we could— you know, so we started banking and, in fact, the failure mode— Oh, no, no. I'm sorry: I got ahead of myself. The first one we put out was in "Andy Capp's". It was a small one that Al had built up. I built him a little cabinet for it. He built it up, then we sat it on a barrel and we hung a coin mechanism from a laundry machine, you know, on it. And so and I worked on the interface for that and came up with the coin box and all this kind of stuff. So we put that in "Andy Capp's". And this was before we built those prototypes. I got ahead of myself. And the failure mode— it failed almost right away. Oh my god, Al goes down there to find out what's going on. <laughs> The coin box got so full of coins, it jammed the coin mechanism. <laughs>

Garcia: <laughs> That's a problem to have.

Dabney: That's a problem to have, yeah. So that was incredible. And so, you know, we kept trying to get Bally to go along with this thing, and Bally kept saying, you know, kept not giving up a direct answer. So that's when we decided we're gonna build up 12 of them by ourselves. And we got them all working and shipped one of them off to Bally, put the other ones in the thing and that's when Nolan and I were making the money. I mean, God, we were making the money. It was incredible, 'cause we were still living off of just what we got from the machines and all of a sudden the machines were, you know, <laughs> gargantuan. So that was incredible. That really was incredible. So. But we still didn't get any response back from Bally, you know. No response. So Nolan and I and Al are sitting around in Nolan's office trying to figure out what to do. We can't sell it to anybody else. That's not an option, because Bally had paid us $24,000 for this thing. That wasn't even an option. So we couldn't sell it to somebody else. Bally wasn't gonna take it, and we couldn't afford to build it ourselves, design it, you know, go into our own manufacturing. So, we're sitting around trying to figure out what to do and I said, "Look. We have to manufacture it ourselves or go home. And I don't want to go home." And Al said, "You know what it's gonna cost? We can't afford these. You got ICs. You got these, you got PC boards, you got, you know, TV sets. You got cabinets. You got all this kind of stuff." And Nolan was right in there too with him, "You

can't afford this. No way we could afford this." I said, "Wait a minute, wait a minute. We're not talking about that. We're talking about with our decision. Our we gonna go home or are we gonna manufacture it ourselves?" Well, nobody wanted to go home. <laughs> So I laughed, "We gotta manufacture it ourselves." I said, "Okay, we made that decision. Now we'll figure out what it takes to do it. And I said I'll take care of the TV sets and the cabinets, and Al takes care of the ICs and PC boards. And Nolan takes care of everything else. <laughs> And that's the way I split it up. So, I found a distributor in San Francisco for Hitachi TV sets, and so I bought 50 of them. And I used my own money, 'cause the company didn't have any money. And I called P.S. Hurlbut who was the guy that manufactured the cabinets for Nutting Associates. And I had given him a drawing. Remember those 12 that we built before? I had given him a drawing of the cabinet that we wanted, and he gave me a price, but it was a little hirer than somebody else. So I went with somebody else, 'cause— save a few bucks, you know. But he had the drawing. So I called Frank over at P.S. Hurlbut and I said, "You know that drawing I gave you." He says, "Oh yeah." I says, "I need 50 of those cabinets, but I don't know if I'm ever gonna be able to pay you." <laughs> He said it'd be ready in two weeks. <laughs> No, he said, "You can pick them up in two weeks." I said, "We don't have a truck." He said, "I'll deliver." <laughs>

Garcia: Wow. <laughs>

Dabney: It's incredible how things work out for you. So I had the cabinets and TV sets. And the TV sets were not easy. Now we got to take them apart and make monitors out them. That was my job. And meantime Al's over there, you know, getting— buying all the ICs that he needs to get hold of Kramer and Marshall and start buying ICs. Find out National Semiconductor's counters don't work very well, they run much too hot. But they won't sell us gates unless we buy their counters. We went to AMD. They had a beautiful counter but they didn't make gates. <laughs>

Garcia: <laughs>

Dabney: So we'd buy all the counters from National Semiconductor and we'd throw them away, use the ones we bought from AMD. <laughs> I mean that's all they were good for. They just ran too hot. We're sitting there building these things. I got a cabinets in the building. Al's got the PC board built and he's hooking them up. And I'm modifying the monitors and I'm putting these things in place and everything, and I think we even had Cynthia out there helping us. <laughs> There were a lot, you know: 50 cabinets are a lotta of work. And Nolan's standing up there looking at us, you know, so, like, watching all this stuff going on. I went up to him and said, "What the hell you doing?" He said, "What do you mean?" I said, "You gotta go and sell these things." Oh man, his face went white. All of a sudden he realized the whole thing was on him. <laughs>

Garcia: <laughs>

Dabney: So he went into his office. He came back about an hour and a half later or something like that. He had the dumbest look on his face. I'd never seen that before. I said, "So, well, how'd it go?" He said, "I've made three phone calls and sold three hundred units, sight unseen." I said, "Oh, my God." One hundred and fifty to one guy, fifty to another, a hundred to another guy. So he said, "We're gonna need more money." I said, "Well, how much more do you need?" I think he said, "Gonna need at least $3,000. So I said, "I'll give Gary Teasdale, the banker at Wells Fargo in Cupertino, I'll give him a call and see what he can do." He says, "Fine, come on in. You gotta bring your partner with you." So okay, fine. So in the meantime Nolan had the brilliant idea— he got Bob Portale, the guy that ordered 150, got him to give him a purchase order. And that was something that was never done in that industry. Nobody— it's all word of mouth. I mean, you know, but he got him to give him a purchase order so that Nolan could show this to the banker and show him how really great and wonderful we are. On the way over to the bank, Nolan says, "Well, let me do the talking. I'll show him how great and wonderful we are." He didn't say that, I did. But I said, "Look, Nolan, they got no upside on this. All they got is down side. They're gonna want to know what, you know, what the problem are and what the down side is, you know, what the negative is of this thing. They want to make sure that we understand that." "Oh, no, no. I'll handle it. You let me do the talking." So I let him do the talking. Needless to say Gary Teasdale did not want to give us the money. <laughs> I went back after a couple days. I called Gary. And so I went hot-footin' it back over to the bank and had a long talk with him. And got the money. <laughs>

Garcia: So now at this point Atari is still just the three of you? The four of you, technically.

Dabney: Oh yeah. Yeah. Yeah, actually.

Garcia: Wow.

Dabney: Yeah, because we really had no money to hire any— Well, we had hired Al Alcorn, you know. We were paying him a thousand dollars a month. And we still had other expenses just for all this other stuff. So, no, we didn't have anybody else working there. But as soon as we started building these games, as soon as we started getting these orders, we knew we were gonna have to ramp up and build a lot more. So I got on the phone. And meantime we had paid for the cabinets, so I got on the phone and ordered 50 more cabinets. And so they show up. We got no place to put them. It just so happened the guy next store to us had left in the middle of the night without paying his rent. I got a sabre saw out and cut a hole through the wall. <laughs>

Garcia: <laughs>

Dabney: And moved in, opened the back door and let him put in the cabinets. The landlord came, or the manager, or whoever he was, came around and said, "You can't do that." You know, 'cause he had people waiting for this stuff, you know. But he didn't know it was gonna be vacant, 'cause he didn't know

this guy was gonna be running off. So he said, "You can't do this." Nolan said, "We did it. You just have to tell us how much we owe you."

Garcia: I can picture him saying that. <laughs>

Dabney: That's exactly the way it went. So that worked out pretty good. So we had that. But, you know, 50 cabinets is about what it takes to fill up 1700 square feet, you know. We had to build a lot more, so we knew we needed more room. But in the meantime, we shipped the 50. I put them in the back of a rent truck, you know, one these U-Haul things, and was driving them to L.A. And I got to one of these truck stops. I gotta pull in and stop. And so they said, "Well, you can park it over there." Whatever I gotta do. So I waited, and waited, and waited. What the hell's going on here? So I went over and said, "What the hell's going on? You know, I'm sitting there waiting." "Oh, turns out your truck's illegal." "What do you mean my truck's illegal?" "It's a out-of-state truck going interstate commerce. That's illegal." I said, "I don't know anything about it. I rent the damn truck up in Mountain View, you know. I'm down here." "Well, you can't have interstate commerce." I said, "It's not interstate commerce. We're staying in the same state." He said, "Doesn't matter." I said, "These are my things. This is my stuff. I can move it anywhere I want." "What do you mean it's your stuff?" I said, "I own the damn company." "Oh, okay. Go on." <laughs>

Garcia: Wow. <laughs> Oh, excellent. Now, "Pong" at this point has just started to pop out and it explodes right around '72?

Dabney: I don't know. Look, I don't keep track of time. I don't keep track of anything. <laughs> I'm technical. That's all I do. I'm very good at what I do. My job is to, if somebody wants something done, I figure out what it takes to do it. And that's basically all I do. I don't watch calendars, I don't— you know.

Garcia: So what was it like when the froth started, when people started to catch on to "Pong"? What was it like in the company at that point?

Dabney: I really don't know. I was so busy. 'Cause in the meantime we moved over from there from the roller rink— we had 10,000 square feet over there, and we're moving all this stuff. And I'm busy. I'm hiring people. You know, I'm picking up hitchhikers and hiring them. You know, I mean that— I swear to God, that's the truth. And we're hiring people just to build these things, you know? And over in the roller rink, they got people on roller skates running around building these things.

Garcia: Now this is the roller rink behind the Lawrence Drive-in?

Dabney: I don't know Lawrence Drive-in. It's over on— what's the name of the street? Martin. Martin Avenue.

Garcia: Okay, yeah. That is who I am thinking of. Yeah, that's now a pizza parlor or something, I think.

Dabney: No, it's not a pizza parlor. It's some other kind of thing. It's some organization. I don't remember what it is.

Garcia: Okay.

Dabney: We were there looking in the windows and all that kinda stuff. I could see where my office was. <laughs>

Garcia: <laughs>

Dabney: I spent all my time working on this stuff. I mean I didn't pay much attention to anything. I didn't know whether we were making money. I had no idea whether we were making money. I know I'm building units and shipping units. You know, I just delivered the first ones. I didn't deliver any more, 'cause that was miserable. That was miserable. I ran into a fog bank, and you know that Tule fog we got in the Valley? And my gas gauge is going lower and lower and lower, and I'm on this highway. And, man, I tell you, it's— you talk about scared to death. 'Cause, you know, when you're running out of gas everybody's gonna crash right into you, and, you know, kill themselves. They're not gonna hurt me, because they're gonna hit the back of the truck. But, you know— scared me. I can't get off the road. You can't see off the road, you know? I tried that once. Scared the hell out of me. I was able to get back on. And I'm driving along, driving along, just going, you know, really slow because my gas gauge is getting really low, really quick. All of a sudden all the fog lifts, here's a gas station. I go in and fill it up. <laughs> I don't know. Yeah, so I wasn't gonna do that again.

Garcia: Probably best. <laughs>

Dabney: Oh, well, by that time we could afford to ship them. You know, give Consolidated a call or one of these guys and let them.

Garcia: Now what was the next project that shipped after "Pong"?

Dabney: I don't know. I wasn't around.

Garcia: Oh, really?

Dabney: Yeah.

Garcia: Oh, okay. I hadn't realized you left—

Dabney: I know what it was. It was "Space Race".

Garcia: Oh.

Dabney: It was a game that I had told Al about.

Garcia: Mm-hm.

Dabney: And I said, "You outta do that." 'Cause I knew it was simple. It was easy. You could whip it together really easy. You could just write it, drive a rocket ship up between a star field, and so he did that one. That was the next game, but by that time we needed more square feet, you know. I mean 10,000 square feet was just not near enough. So Nolan and I decided to go out and look for another building. In fact, he had found a building, Cadre Building on Los Gatos on Winchester Boulevard. And so he wanted me to go out and take a look at it with him. Sure. And we looked at the building and said, "Boy, that's a really good building. You know, we do that, we can get this one." And Nolan said something. He says, "I don't really know if we can justify moving out this far." You know, Los Gatos instead of Sunnyvale, you know. That kind of thing. I said, "Nolan, we don't have to justify this to anybody. We own the company." <laughs> From then on— all the way back to the roller rink, he was dead quiet. Dead quiet. Nolan's never done this. He's always got something to say. Dead quiet all the way back. We pull into the parking lot and the parking lot's full of cars. I mean, just jam packed full of cars. Nolan says, "All these people depend on us, don't they?" I said, "Yeah." I said, "And their landlords, and the grocery stores and everything, you know, yeah. They all depend on us." He said, "What's it gonna be like to be really, really rich?" I said, "I hate to tell you this, but it's not gonna be any different. The only things that's gonna change is the number of zeros. 'Cause the relationship with money is always the same." And we had a little incident about that later on, but that was the point when Nolan changed completely. All of a sudden he realized he was gonna be really, really rich. And that was the end of our relationship. That was the end of anything other than him. It was just him. Him. Everything was him. You know. It's just— from then on I basically had nothing to do. In fact one of the times I was sitting over there— and he had hired some guy as a general manager or something like that— and he came over to me and asked me to write a job description. <laughs> Wait a minute. I mean that's the way I was being treated and it wasn't worth it. You know. Nolan— well, I don't know how to say that, but anyway. Nolan was not being the kind of person that I enjoyed being around anymore. He bought that Folgers mansion and, you know, that kind of stuff. One time I went up there, they were having a good time actually. Went up to the top floor. He had a snooker table up there and so we played a game of snooker. And I beat him. So we come back down and Nancy says, "Well, how'd the game go? Who won?" Nolan says, "I don't remember." <laughs>

Garcia: <laughs>

Dabney: I mean that's— so, you know. Anyway. I don't know. There's stories that came around after that. But that was the end of me with it, with Atari. 'Cause it was just— well, actually Nolan had told me that if I didn't sell out he would transfer all the assets to another corporation and leave me with nothing anyway. So, you know, might as well sell out. <laughs> Well, he had hired these guys, you know. John Wakefield and Pat Karns and some guy named Lloyd or something, but he had hired these people. Pat Cairns is a great guy. He's a good salesman, but he was hired as marketing, you know, Director of Marketing. Or Vice President of Marketing. He didn't know how to spell "marketing," much more what it meant. He was a salesman. Salesmen don't know what marketing is. And, generally, salesmen and marketing people don't get along real well, you know. <laughs> I mean, marketing always wants to do this and the salesman says, "I just want to sell product." You know, but anyway, he hired this guy John Wakefield, president of the company. I guess he was related to his first wife or something. But anyway the only thing he could do was decorate his office. I swear to God. That's all he could do. I mean, he was looking at this wall and said, "We want to get that door moved over." I said, "You gonna move the door four inches? You know how much that costs to a move a door four inches?" "Oh, no. That's all right. Were gonna do that." And the guy that he hired as Vice President of Engineering wasn't Al Alcorn. It was a guy with a Master's Degree that came from Ampex. I had worked with the guy. I knew what he was like. I knew he could not make a decision. I had been around him when he was not making a decision. You know, I knew he couldn't make a decision. So anyway. Atari was going down. They were going down at a rapid rate with that kind of management. It's just going down because Nolan doesn't know how to manage. He was smart to hire a new president, but not this guy. But, see, Nolan had a thing, if a guy's rich, he's gotta be good. This guy was an industrial psychologist and made lots of money in doing industrial psychology. So obviously he must be really good. That was Nolan's problem. But he had a thing about money. And anyway I tried to stay friends with him, you know. I tried because I enjoyed him now that I wasn't a threat to him, we could be okay, you know. It was all right. We were over at his house one time. He had gone to France. I had introduced him to a wine called Gamay Beaujolais. And he really liked that. That was good. He was over in France and they had a thing called Beaujolais Villages. And so he was starting to whiffle a really good deal with this 'cause he had a wine cellar at his house. He wanted to fill it up. Well, Nolan and his own inimitable thing, rather than check things out and figure out what's going on, he wound up with this really good deal on a little older vintage. <laughs> Really good deal! I mean he could have bought this one with this newer vintage, but no, no, he got this older vintage for a really good deal. The thing he didn't know is Beaujolais doesn't hold up. It goes bad. I mean, it not only doesn't stay good, it goes bad. So, anyway, <laughs> we went over to his house, tried to drink up all this wine. <laughs> We're getting swacked out of our brains. <laughs> And my daughter and her friend had come over with us. They were swimming and we're sitting there just drinking like crazy, and Nolan says, "Dabney, you know what I really hate about you?" I said, "What?" He said, "Dabney, you know what I really hate about you?" I mean this is absolutely the way it went. I said, "No, what?" "Dabney, what I really, really hate about you; remember when you told me that the only thing that was going to change is the number of zeros?" I said, "Yeah." He said, "You know what I really hate about you? <laughs> You had no right to know that!" <laughs>

Garcia: <laughs> Now even after you had left Atari, you actually did some work with—

Dabney: Yeah well he finally got the money from Warner Communications and he decided to do that Pizza Time Theater thing and so he'd asked me if I wanted to go in with him and he told me, honest he said I'll probably wind up doing to you what I did to you at Atari, you know, in other words, you know it works out good. I said, "No, no, no, no; I'd rather be your friend than your partner." So, he says, "Okay, well at least go take a look at my pizza parlor and tell me what you think." So I did and it was crappy, it was dirty, it was noisy, the pizza wasn't very good, and this was a brand new place <laughs> so I came back and I told him it was dirty. He said, "I'll take care of that; I'll fix that." I said, "Also it was so damn noisy I couldn't tell when my pizza was ready, and the pizza's not very good." He says, "Oh mediocre pizza is good enough." I said, "No, it's not." You know my dad was an accountant for hotels and things like that so he knew and I learned about food business, you know, really risky stuff and I said, "Anything less than mediocre is unacceptable; you're on the edge of unacceptable." "Oh no, we're okay; it's okay, it's okay." He said, "But as far as noise, we've got to have noise, we've got to have noise, because that's what the place is all about." So it's up to me to come up with a way to tell people when the pizzas are ready, you know, so I invented a thing that did that <laughs> and I told Nolan, I said, "Look, I'm going to build these things at home in my garage and I'm going to charge you an arm and a leg. I'm going to overcharge you for these because I really want you to build them yourself or get somebody else to build them, but as long as I'm going to build them, I'm going to overcharge you." "Okay, no problem." So I did it; I build them; I overcharged him. I was making tons of money off these things; just incredible and <laughs> all of a sudden somebody decided at Pizza Time that they were going to build them themselves. They didn't even tell me about it. They just decided to build them themselves; I had an order, they cancelled the order. I mean that kind of stuff, I mean that kind of stupid stuff because if they'd have told me they wanted to build it themselves, I would have given them all my parts. I'd have given them everything they wanted; I'd give them the schematics and all this kind of stuff, but you know I would even helped them build it if they wanted me to, because I didn't want to build them. The cabinets were the problem; the electronics wasn't the problem, it was the cabinets. So anyway, you know, that kind of stuff really... That's a terrible way to run a railroad <laughs>.

Garcia: Where'd you go next? Where was your next stop?

Dabney: Oh Nolan started a thing called Catalyst, so he needed some help with that. I says, "Okay," you know, "not a partner, but just a paid employee". My job was to take care of facilities and all that kind of stuff and I did pretty good. I had a neat office, I had all the copy machines in my office and this company Androbot, they build this robot thing, neat little thing, I mean "whoomp, doomp, doomp," moved around; really, really neat. So they were over making a copy of the PC board in my area and I guess they'd left one there or something and I looked at it. It won't work. I don't care what you say, it won't work; I guarantee you it won't work. I mean it will work for a while, obviously, but it won't work in production. It won't work outside the door. They had a little transistor, I saw a little transistor, you know, for the little three footed thing. I looked at the base lead, the base lead goes all the way across the board <laughs> all the way across the board. You can't do that; you just can't do it, I don't care who you are, you can't do

it! You could put a 200 ohm resistor right at the base, that'd be fine, but they just had this trace going all the way across the board and it doesn't matter what the transistor's doing, if you've got the base out there, and it's got a beta of more than one <laughs> it's going to give you trouble, so I told them, "Nolan," I said, "it's not going to work; I guarantee it. They're all going to fail." "Oh no, no, no." I says, "Let me talk to these guys, let me at least tell them what's wrong with it." "Oh, no, no, no, no, no," he says. Guess what? They all failed <laughs>.

Garcia: Yeah, that happens.

Dabney: <laughs> So that was my thing with Androbot. Or with Catalyst. But yeah it was... and then so then I went to work— I decided I wanted to learn more about integrated circuits so I figured the best way to do that was go to work for a company that made integrated circuits and the best way to do that is go to work for a company that makes integrated circuits as an applications engineer. You learn a whole lot about— So, I finally got the job, took a bid, I put in an application; even had an interview and all this kind of stuff but they didn't hire me. So— no, I didn't have the interview, that was the whole thing. But I was on the airplane one time, I was flying, coming back from Seattle and there was a guy there that I knew was from Raytheon so I went over to him, I says, "Hey, I applied for this job at Raytheon and never got a call." So got back and sure enough, I got a call. Well it turned out the guy didn't want to hire me, he didn't want to hire somebody who was smarter than he was. <laughs> I said "Well, that— And I could tell by the interview that was what the problem was but I told him, I said, "No, no, no; my job is to make you look good. I'm already good; I'm good enough. I mean that's not— if I get the job, that's fine. But my job is to make you look good and I'm good at that," so he hired me. But he got fired <laughs>. And the guy that fired him says, "What are we going to do?" You know, I says, "I don't know; I don't want to work for you." <laughs> "Well what are we going to do?" I said, "Well you've got to hire somebody in between us, you know, that I can work with." But in the meantime Raytheon was divesting itself, Raytheon Semiconductor was divesting itself of its hybrid unit; really nice hybrid unit so I went to the President of Raytheon Semiconductor and told him I wanted to buy it and gave him a proposal. Well he thought the proposal was pretty good. Well when he got back to Massachusetts, they kicked his ass for even talking to anybody. <laughs> He got in big trouble, <laughs> so when he got back, I got fired <laughs>.

Garcia: We were at Raytheon.

Dabney: Oh Raytheon! At Raytheon; I got a job at a Raytheon. Turns out that was quite a job; a very interesting job. I did learn about ICs, I learned a lot about ICs. I found out a lot of their data books were wrong <laughs>. I wound up rewriting part of their data book and started traveling all over the world. That was kind of neat and then well like I said, oh yeah I got fired; that's where I left it and I decided I wanted to learn about scanning electron microscopes. Alright that seemed like a good idea, so I got a job with a company... no, my brother had called me. He had been working for this company and he'd been offered a job at IBM and he didn't want to leave them without a tech, so he called me and asked me if I'd come and take the job. I said, sure, you know, I wasn't doing anything, might as well. I'm going to take

the job. You know he didn't make, you know, the kind of money I was used to but hell, I didn't care, I was, you know, I was doing alright. So I took the job, started learning all about scanning electron microscopes, started to learn about how bad some engineers are. <laughs> This guy had designed an AGC (automatic gain control) for the video; what they did is they had a scanning electron microscope that displayed it on a CRT (cathode ray tube) which is pretty tricky, you know, a good trick. The problem is that the AGC the guy designed was a time positional servo. Time positional servo says well if it goes up above a certain point, you put it down; if it goes below a certain point, you put it up, you know, that kind of thing. That's a time positional servo. So guess what? When the screen gets a little dark, it flashes up and when it gets a little bright, if flashes down <laughs> you know? I said that's no good; you can't do that, that's terrible. The engineer said, "Oh no, that circuit's right out of the book and it's just..." I said, "It's the wrong kind of circuit." So I designed him a circuit that did work. I mean it was not great. You see a scanning electron microscope, I don't know if you know anything about it, is it's noise, but some of the noise is coherent <laughs> so you can't really filter the noise because you'll lose everything you do <laughs> so what you have to do is, you have to amplify it first and it's a very, very small signal so I designed him a new circuit. It wasn't really an AGC, but it was a gain circuit, it was a variable gain circuit because on scanning electron microscope, sometimes the signal comes out loud and sometimes it's not too loud and what you've got to do is get it up to something you can work with and that's what this circuit did. It got it up to, you know, maybe a volt, volt and a half or something like that, or maybe sometimes it was only three quarters of a volt, so it wasn't always the same, but it was always enough to work with and then you could process the video because by the time you go through the circuit, a lot of where it's coherent becomes more exaggerated and now you can treat it like a regular video so that worked; that was good. That was really good. And then there was another engineer over there and he said, look at this CRT display. He was an engineer. He was designing something and the display looked like a waterfall, you know, just a little waterfall. I said "Oh, your emitter follower was oscillating." He thought it was so funny because emitter followers can't oscillate; everybody knows they can't; you've got to have gain, you've got to have phase inversion, you've got to have feedback; emitter follower has none of that. I said "Wrong." <laughs> I said "That's an emitter follower oscillating. I guarantee it>" <laughs> Oh, he would not believe me, and I said "All you do is you put a 2K surge resistor at the base and it'll be fine." "Oh, no, no, no." I said, "I'll do it; I'll put the resistor in it perfect." It was perfect. So then I wrote up this whole thing about why emitter followers oscillate <laughs>. He didn't accept that too well but that's just the way it was but it turns out that there's a delay between the base current and the collector current. Well when you delay current, that's inductive, okay? So you have an inductor and a capacitor and boom, guess what? <laughs> Anyway, so fixed that. They had a table that held the microscope and then they put tennis balls under it and set the thing on the tennis balls as a shock absorber; it was perfect, absolutely perfect. So they have tennis balls. So I went up to them and I said, "I'd like to buy some of your tennis balls." "Well why should I sell them to you?" I said, "I'm a valued employee, that's why." He said, "Well you can pay the same thing you pay at the store." I said, "Bullshit!" <laughs> I'm sorry I didn't mean <laughs>. But I said, well he's some controller from oh, what's the name of the company? This was a subsidiary of what is it, American Optical? Something like that, it was something like that, but he was a controller for American Optical. I don't think that's the name of the company but it's something like that and I says, "Forget it." So I went and told them I'm quitting. "Oh you can't quit. What do you mean you're going to quit? Is it a tennis ball? I'll get you all the tennis balls you want." I says, "No," I says, "you know, I made the guy a legitimate offer, he treated me like crap." I says, "No, I'm not going to stay around." So they couldn't

believe that I would quit because of tennis balls, but I did and they said, "Well, we'll double your salary." <laughs> That doesn't mean anything to me. <laughs> So I quit, so I wound up working for Meadows Games or something like that, you know, it was a startup video game company that, you know, that was kind of fun but that didn't last too long because they went broke. Then I went to work for Teledyne. But in the meantime I worked for Fujitsu too. Fujitsu was good. These Japanese companies are weird, I mean the American part of a Japanese company is weird; at least with this one. It had nothing to do with the quality of the work, it had to do with what they could sell to the Japanese. So what they did— they wanted a new organization table, so they had this beautiful organization table and somehow my job, applications came under engineering because after all, I was an applications engineering so obviously it's got to be. I says, "No, it's a marketing job, it's got to come under marketing." "Oh, well we don't have a marketing manager." I says, "Well, it's still got to be under marketing," so they put it under marketing, but they didn't have a marketing manager. So I don't who I work for. So I go to people; I go to their boss that would be the boss and the marketing manager and say I need some work to do. Before that, when they first hired me, they hired me to do PowerCon 8; I don't know if you're familiar with PowerCon but it's the seminar or one of these conventions, power convention and they had a thing called a ring emitter transistor and a ring emitter transistor is kind of neat; it's very fast. It's faster than some of these new FET's (field-effect transisters) and it was really fast, so I designed one, a little buck converter and took it to the show and presented it to the show and the guy in the booth next to me was from one of the companies that made these power FET's. I've forgotten this stuff, you know, that's the trouble. But anyway, he had one of these really high speed FET things running at 100 megahertz, little converter. I said I've got bipolar over here running at 200 megahertz <laughs>. He said "Oh, I think it'll be an interesting show. <laughs> So anyway, that worked out good but they had fired the marketing guy and I had nobody to work for and nobody else would take any responsibility for anything that I had to do so I didn't do anything. I just worked on my own business, you know, with the stuff I was building for Nolan and so in the meantime I get a call from Nolan. He asked me to design a video game for him that was just Pizza Time Theater; I sell it just to Pizza Time. So I said, "Okay." I got a hold of a book called "Isaac Asimov Presents Super Quiz". I got a hold of his agent, got permission to use his name and I built a game called, "Isaac Asimov Presents Super Quiz".

Garcia: I wanted to get one of those for the museum just because I actually knew Isaac a little bit before he passed.

Dabney: Oh yeah, yeah, yeah.

Garcia: Yeah, so I actually knew his agent too.

Dabney: Yeah, yeah so I invented that game and that was just for Pizza Time and I sold them a lot of games and everything and so I sat around Fujitsu; I was taking care of my own business. That's all I was doing and that doesn't sit well with me. You know I don't like taking somebody else's money and not earning it, you know, but I had nothing else to do. And I was building these Notalogs, "Number Callout

System" for Pizza Time; I was building these video games for— oh no, I was building the video games after I left Fujitsu, because I had started up my won company. I had gotten one of these guys, Tom Smith that I had met at Meadows Games and he and I together built this company and we call it Syzygy Game Company. We built up these games and we were selling them and I needed a cross compiler. So the only ones that I know is some company up in Seattle that made cross compilers so I call this guy up and it was Microsoft and it was Bill Gates that answered the phone <laughs>.

Garcia: Wow.

Dabney: So I ordered a cross compiler for <laughs>.

Garcia: From the man himself.

Dabney: Yeah well he wasn't; this was when Kildall was still the big guy, you know, the CP/M guy. I mean he was...

Garcia: Yeah.

Dabney: Hmm? Wasn't that his name, Kildall?

Garcia: Yeah Gary Kildall.

Dabney: Yeah, yeah, yeah. But it just so happens he was out sailing the day IBM showed up; he couldn't be bothered, so we got a hold of this guy up in Seattle <laughs>.

Garcia: So let's see you've left Fujitsu and then you went to Teledyne?

Dabney: No, no, no, then I started building these games— I built this Syzygy Game Company with Tom Smith and we were building these Isaac Asimov Presents Super Quiz to Pizza Time. And that was going real great, you know, I was selling lots of games and that was my first time actually running my own company which I really didn't enjoy at all <laughs>. I'd much rather do the work. Oh. But I bought a computer, I wanted a disc, a hard drive, I bought this 8 inch Shugart hard drive for $3,000 <laughs>. But that was nice; that was worth having but all of a sudden Pizza Time went belly up and they wound up owing me $40,000. I owed other people $40,000 so I just folded everything I owed them into Pizza Time's bankruptcy. <laughs> I didn't know I could do that but my lawyer told me I could do that so I did and that's when I went to work for Teledyne. Teledyne was good; I liked that. There again, I had to rewrite their data book; there was so many mistakes in it; just unreal and... so that worked out pretty good

and they had some management people in there, marginal. And that didn't bother me. I mean Teledyne was a good company. Until marginal people bought the company <laughs>.

Garcia: You were there for a pretty good long time?

Dabney: Yeah, yeah, yeah.

Garcia: About 10 years?

Dabney: No, no; it couldn't have been 10 years; couldn't possibly have been 10 years; maybe 4 or 5, somewhere around there. But at any rate, they bought the company and here again they had a salesman as a marketing manager. He didn't know anything about marketing; he just didn't know anything about marketing. I remember one time I was telling him, we were doing something, I don't know whatever the hell it was and I said, you know you need to do a marketing thing on this. You know and if you can't do that then you guys ought to go pump gas, you know, you just, you know I mean that's what this company's all about. Well... I finally had to quit. I just, you know, it was just a bunch of bozos around the company. I don't know how to run a company; I can't run a company, but I can tell if it's being run right. I worked for Hewlett Packard. David Packard would deliver the coffee; he'd come around the assembly line and bring us coffee. I mean you know, David Packard knew that the only thing that counted was the product; as long as the product was good, you just take care of the people that make your product good. That's all it takes and the profit will take care of itself, you know, I mean that's the way David Packard was; he was just... he was— Boy, that reminds me of a story. Nolan hired this guy, Les Oliver from Hewlett Packard. He was a controller and Nolan was telling me, I had taken over that coin op part of the business, the street operations we called it and Nolan wanted me to take that, so I did. So I happened to be over at Atari talking to them about this. I met this guy, Les Oliver. Well now I realized, I owed them $90,000 dollars for that. <laughs> I didn't know I owed them $90,000 dollars for that. But anyway, I got to know this guy Les Oliver and he was a yahoo, I mean real, real yahoo. I am not that bad on management people; I really am not. I really appreciate good management people, but when they're not good, <laughs> I know it, I can tell. There's something I can tell about companies. So I went to Nolan and I said, "Where'd you get this guy?" <laughs> "Oh that's Les Oliver; he came from Hewlett Packard; sales went from $25 million to $27 billion," you know. I said, "Well I think David Packard being under Secretary of Defense probably had more to do with it." <laughs> So anyway that was one of those real weird things, but like I say, Nolan was just the kind of guy— the guy was rich, he was good, you know, that was all it took. So anyway, so Teledyne was alright. I finally had enough with Teledyne. I went off. My wife and I decided to go. I'd bought a nice house in Saratoga up on top of the mountain. I could see Candlestick Park from my front yard.

Garcia: Wow.

Dabney: You know, I mean I watch fireworks all over the county when the 4th of July comes; I get to see just about everything. I remember I went out one day, I still have a problem with this; I went out and looked out my front window and I saw Mount Diablo right in my front yard it looked like. The sky was just so clear, I'd never seen it like that. It was kind of like it was magnifying everything, but it looked like Mount Diablo was in my front yard. It was incredible; I just couldn't believe it. But anyway, that was that. So... hey I can go on; I'll tell you my life story, you know? <laughs>

Garcia: <laughs> Where did you go after Teledyne?

Dabney: My wife and I went to the Sierras.

Garcia: Oh, okay.

Dabney: We sold the Saratoga house; went to the Sierras; bought a grocery store.

Garcia: Wow; that's a big change.

Dabney: Well, my wife did all the work <laughs>. Well we went up there; we wanted to just buy some property. Then we found this 20 acres; it was really neat and we bought the 20 acres and then tried to camp out there and that didn't work out too well so we bought a trailer down in Galt, a mobile home and had it hauled up and set up. We used that and that worked out pretty good. But then we thought, well we really love it up here, let's see if we can find a place that's got a house. This had an old house that was really beat up. We tried to stay in the house; we were colder in the house than we were outside, you know, that kind of thing. So we found 40 acres north of Crescent Mills and a pretty nice house a gambrel type, you know, where it's shaped like a barn; a really nice house. We bought that and in the meantime, the grocery store come up for sale. Say well let's— when we sell the Saratoga house, we'll buy that store. We did. And my wife has run it. Oh man, she works so hard on that. I mean you know it's just a lot of work, even a little bitty grocery store. The store was doing about $60,000 a year when we bought the store so you know, not too bad. But she kept building it up, building it up, and building it up and she says, you know what we need? We need a deli. So guess what? I got to build a deli <laughs>. So we built a really neat deli and she just oh man, when we finally sold that store she was doing $300,000 a year.

Garcia: Wow.

Dabney: I mean you know it was good. But then my daughter and her husband wanted that 20 acres, that first 20 acres that we'd gotten so I worked it out with them and when we sold the store we had enough money and I helped them build the house and you know, and gave— basically fronted them the

money to build the house and helped them build it and did all the electrical, you know, and stuff like that. But he got weird. We decided it was time to move away from the area. So that's when we found a house up in northern Washington and moved up there. And we're up there five years. That was six years ago, so.

Garcia: So wrap up more general questions, looking back at your entire career, what period do you think defined your view of what technology is.

Dabney: Oh that's easy; that was in that San Mateo High School where I had Walker as my teacher. Yeah that algebra course is what it was, but that changed my whole life; that whole thing, you know, I had it— that course I'd taken in analytic geometry was really kind of the start of it but when we got into differential calculus and we got into determinants and we got into, you know, proving the binomial theorems with mathematical induction and stuff like that <laughs> I mean, it just blew me away. I wasn't good at it; that wasn't the point. The point is, I was interested in it. I was fascinated by it. And that was what changed my life right there. That was the most important thing. So when they talk about school teachers, <laughs> the right school teacher can make a big difference in your life <laughs>.

Garcia: Wow. That's a good place to end actually. Okay.

Dabney: <laughs>

END OF INTERVIEW