



## **Oral History of Pitch Johnson**

Interviewed by:  
Marguerite Gong Hancock

Recorded September 12, 2019  
Mountain View, CA

CHM Reference number: X9152.2020

© 2019 Computer History Museum

**Hancock:** Pitch Johnson, welcome to the Computer History Museum. Today is September 12th, 2019, and we have this much-anticipated opportunity to bring your story into our collection. My name is Marguerite Gong Hancock, and I'm the executive director of the Exponential Center. So we want to begin at the beginning and ask you about when you were born and the formative experiences of your early life, your family, where you were born. Can you just start us there?

**Johnson:** Well when I was born, my dad had become the track and field coach of Drake University which is in Des Moines, Iowa. And when the time came for me to arrive, my mother went to her hometown of Quincy, Illinois, so I was born in Quincy. I stayed there with her a couple weeks, I don't know, and moved back to Des Moines. My childhood was really in Des Moines, and I visited Quincy pretty often as a kid because my grandparents were there. So I started grammar school in Des Moines when I got to be five, and amazingly enough within a couple weeks I was walking 10 blocks from my home over to the school.

**Hancock:** As a five-year-old?

**Johnson:** A five-year-old. I mean my parents would have walked me the first couple times but after that it was believed that as a five-year-old you were pretty independent. So I would walk to school every day, no problems, and had some friends and went through the first six grades there. And then after school-- I don't remember whether I was five or so-- but very soon afterwards, I would walk over from Elmwood School to Drake University, the track and football stadium, and I would walk by myself. Looking back on it out of school and watch the track men practice and just watch my dad working with them. Then he would give me a ride home in the car after that.

So of course, you form ideas of what's what. I didn't know what a university was, but I knew what a track team was, and pretty soon I realized there were other sports. <laughs> That was a big revelation to me. Then a couple times I'd walk home from the stadium, and one time I walked through the biology department and I saw some things in jars, preserved animals and stuff, and I said, "You know, there's something else around here." <laughs> I was waking up. It's hard to believe when you're just learning what's what, but I learned that the university was a lot more than the athletic department, and so I became aware of that.

But I would say, while I enjoyed school and I studied hard, I did fine, I was always thinking that I lived in the track and field world. My babysitters were track athletes, my dad's friends were faculty members and other coaches. In those days I would say the coaches were much more integrated with the faculty, and the president of Drake University whose name was Morehouse -- his ancestor had discovered Morehouse's Comet by the way. But anyway, I just grew up around a track and field environment. Then I began to realize more and more what else was going on, and I did enjoy school. I did well, so I did do that.

One interesting part of the first years was, my father became friends with a local sports announcer whose name was Dutch Reagan. So they had a card playing group, it was a game called pitch, I won't describe,

and then one of the members also was Henry Wallace who was rather left-wing, eventually secretary of agriculture under Roosevelt. So interesting to think of Dutch, now Ronald Reagan of course, in the same card group, but they were. And they'd come over to our house. I was sort of excited about knowing a person who was on the radio <laughs>, and we got to know the sports editor of the Des Moines Register.

So when I was a little older, probably six or seven, Reagan asked me if I'd like to go downtown and watch him broadcast a game. In those days, he would sit there and look at tape coming in, and the game between the Cubs and the Pirates I believe it was, and he would just announce the game as if he were there. I mean one funny thing was he got behind, so he said, "So we'll skip over from the seventh to the ninth inning," <laughs> and then he'd describe it as if he were there. But then just the next year he went off to Hollywood, and my dad and he stayed close. So I remember being in L.A. in a hotel room with my dad, and he asked Reagan up, and so I asked him a bunch of questions about the movies. There'd been a movie called *Brother Rat*, and I asked him the man got hit in the head with a baseball. He said, "It's made of cork." <laughs>

So I don't want to go on too long except that he's the only president I've known well. Then when many years later he was governor and my dad was dying of cancer, he wrote my dad the most beautiful letter of friendship. He didn't get there in time, but my mom got it. It meant a lot to her, and I still have that letter as a matter of fact.

**Hancock:** Do you have that? It must mean a lot to you.

**Johnson:** But anyway, those first 12 years I was beginning to learn lots of stuff outside of the track, although I kept my focus. My dad was an Olympic athlete, he was a hurdler in 1924, the Chariots of Fire Olympics. So, I dreamt or hoped I would be of that stature. Then in 1940 my dad got offered the track and field coach job at Stanford, and so we all came west in 1940.

**Hancock:** How was that to move from Illinois to a new state and to move from Drake to a new University?

**Johnson:** Well from Iowa basically. Illinois was the birthplace, but Iowa--

**Hancock:** Oh, excuse me. From Iowa. Yeah.

**Johnson:** So it was quite a change. We first moved to Los Altos, a place called Loyola Corners, but it was too far from the school with athletes couldn't come visit. So, we moved to Palo Alto in 1941. One part of the living in Los Altos, I was on the banks of Permanente Creek, and Permanente Creek was called Permanente by the Spanish because it ran all year. So historically they started a cement company up Permanente Creek and they called it Kaiser Permanente, and it developed a health care plan. Later on when Kaiser adopted the health care plan for their whole company they liked the name Kaiser Permanente. Mrs. Kaiser apparently liked it. So even today I sit down with people from Kaiser Permanente-- one time with the president-- they weren't really aware of why Kaiser Permanente is called Permanente, from a creek name which the Spanish had.

So then we moved in 1941 to Palo Alto in the summer, and of course in December a kid from next door came over and said the Japanese have bombed Pearl Harbor.

**Hancock:** What did you think?

**Johnson:** I hardly knew what Pearl Harbor was. I learned pretty fast, and then we started having blackouts and all that stuff. This kid enlisted almost immediately. He was a high school kid, a senior.

**Hancock:** Did those world events seem far to you to, thinking about Hawaii or--

**Johnson:** Well they seemed far then because I knew my maps by then. I knew what Europe was and Japan was. It was '41, I would have been in junior high school.

**Hancock:** And by the way, if we could stop there. We didn't get your birthdate and year and that would help us know how old you are.

**Johnson:** My birthdate was May 2nd, 1928.

**Hancock:** Okay. Thank you.

**Johnson:** A long time ago. So I just went through Jordan Junior High's eighth and ninth grade there. It was a seven to nine, but I went to seventh grade in Los Altos grammar school. Then eighth and ninth at Jordan, and then tenth, eleventh, twelfth at Palo Alto High School.

**Hancock:** So, as you were a middle school and high school student, was your world still revolving around track and field, or were there subjects that were of interest to you?

**Johnson:** Well it was for me in a way, but I began to get interested in my studies. In high school especially I had a really great physics teacher, and I enjoyed learning why things happen in a physical sense. And I had some very fine teachers including a lady named Louise Heatwole who was really tough-minded about writing well, and so I have a lot of-- I don't have them now-- papers were marked up pretty clearly with red pencil. But I was a good writer in high school. I was a champion of the North Coast in the 440 yards, and we didn't have a state meet. Then in between my junior and senior years I got kidney problems, so they wouldn't let me run 400, 440, but I did get to run 100 meters. But I just wasn't speedy enough, so I didn't do much my senior year.

By then, my dad had left coaching in 1945, and I graduated in '46. Stanford, however, wanted me to come and run there, and I did. So, I had a scholarship and a job in the girls' dorm-- not all bad. <laughs>

**Hancock:** How'd you work that out?

**Johnson:** So anyway, I went to Stanford on a scholarship, and my folks sent me some money. But it was a great experience. I had no debt when I got out of school, which is unusual nowadays.

**Hancock:** Very unusual. So as you think about your Stanford years, what are some of the things that were most formative for you?

**Johnson:** Well, I think deciding to study technology. I did well in the technology courses. I became a mechanical engineer. I thought of majoring in physics because it was the atom bomb time and all the physicists were all the rage, but I just realized I really wasn't Robert Oppenheimer or close to it. But I did study mechanical, I got good grades. And then when I got to be a senior, I decided I didn't want to be a design engineer, but I did apply to Harvard Business School.

It was interesting about that though, I got into Stanford Business School. But Harvard, I had an interview, I said I didn't really know anything about business, I just wanted to go to business school to learn what business was, a very honest answer. And so I got a little thin letter later on saying, "You don't seem focused to us, and so we think you should learn more about what you want to do before you come here." So I went back East, to Washington D.C. by the way, to run in the national track meet. After that meet I got on an airplane, went up to Boston and asked to see the admissions director, which I guess you could do in those days. He saw me, and I said more or less, "It's really strange to me you rejected me. I'm a national-class athlete, I got really good grades, and I was very candid in my description in my interview." So after a while I got a letter letting me in.

So <laughs> the funny part, when I actually did go in the fall, I went right out of college into business school, I went to see the director of admissions and I said, "Thank you, I really appreciate it, I'm going to make the best of this I can." And he said, "Do me a favor, don't tell your friends that you pounded on my desk and I let you in." But I think the fact that I was eager and showed a desire did impress them, and so at least they let me in. But I love that thing, "Don't tell your friends"--

**Hancock:** Don't tell anybody else.

**Johnson:** -- "because they'll all come pounding on my desk."

**Hancock:** Can we go back just for a minute back to your Stanford years? I was thinking about some of the people that you might have known on campus. You were there during the time with Fred Terman?

**Johnson:** Yes. Fred Terman was my dean. I got to know him.

**Hancock:** Could you talk about your interaction with him?

**Johnson:** Yes, I can. He was a very interesting man. I hear he was a tough bird later as a provost, but as a dean of engineering he was very accessible. I only went to see him, I think, twice during my whole time there. But within a day of my trying he would say, "Talk to my assistant," and she'd say "Oh yeah, can you come in tomorrow at 2:00?" and all that. So, he was not unavailable at all.

And two things happened in my interview with him. I went to see him the first time-- we had to take a course called Western Civilization. It turned out to be one of the most valuable courses of my life actually

in terms of living your life. But I said, "Do we really have to take this soft stuff?" He said, "Yes you do." <laughs> He said, "You'll realize some day how important nontechnical training is to you." So I accepted that of course.

Another time-- the culmination of engineering training was supposed to be machine design-- and I told him that the professor we had, whose daughter was in my high school class by the way, was concentrating on the wrong things. He didn't let us choose our own thing to design and he only gave us three things to work on, so I chose a garage door hanging mechanism. And so, he would mark us off for not making good arrows on our drawings and all that stuff. So I went in to say, "Look, this course should be the culmination of the experience of all the courses you're ready for that you would take in an engineering course." So he said, "The professor, it's his last year here." I said, "It's also my last year here." <laughs> So he laughed a little bit.

But the thing I'd say about Fred Terman was-- although I realize he's important much later-- he was accessible and listened to what the students had to say-- very, very important quality.

**Hancock:** Thank you. And you had an association with Stanford which later became such a powerhouse for technology and entrepreneurship. But at the time, was that yet part of Stanford, or what was kind of the climate of the day?

**Johnson:** Well, by then Bill Hewlett lived across the street from us in Palo Alto, and I don't know the exact formation date of Hewlett Packard. It was before then. I think it was in the early '40s.

**Hancock:** It was January 1st, 1939.

**Johnson:** '39. Okay. That's very early '40s. And so, Bill Hewlett and Dave Packard had already started it, and I just knew Bill a little bit from being a neighbor. But they, by any measure, are the founders, along with Fred Terman, of Silicon Valley. I wasn't aware, I don't think, of the existence of Hewlett Packard. I guess that maybe I was aware by the time I got out of school. But I really didn't think about starting my own company or being an entrepreneur at that point. We didn't have any training in entrepreneurship. Very good training, except for that one professor, they were really good professors.

Then I went off to business school, and the Korean War broke out just as I was graduating in 1950. So I got an exemption from the draft to go to business school. And by the time I got out of business school I would have been drafted, so the Air Force happily came around and offered commissions to a whole bunch of us at Harvard Business School. I went in the Air Force as a maintenance officer, not as a pilot. I became a pilot later and it became an important part of my life. But in the Air Force I was a maintenance officer.

**Hancock:** Before we go ahead to your experience there, do you remember what was your first job even as a young child or as a summer job?

**Johnson:** My first job, they were summer jobs. So, I worked in a boys camp for several years.

**Hancock:** What was your role there?

**Johnson:** Well, there were two things. The first couple years I was a counselor. I had a cabin full of boys, two of whom were the Crosby twins. Bing Crosby had twin boys and they were in my cabin.

**Hancock:** Oh really?

**Johnson:** And they would always try to fool me pretending like one was the other one, and I didn't meet Bing because of that but I did meet the two boys. The camp office was based in Southern California, so we had a lot of movie people there. Then I had a chance to become like an amateur cowboy, so I got assigned to the corral and helped to take care of the horses. There was a real pro cowboy, but I learned how to ride and take care of horses. So I'd say I spent at least two summers doing that. I would be in charge of the horses as the boys went on a pack trip.

**Hancock:** Oh, I see.

**Johnson:** One interesting story was there was a kid named Michael Douglas who was the son of Kirk Douglas, but I hardly knew it. He got hurt on a trip. Michael fell down and broke his shoulder, I believe it was. I knew all the horses pretty well-- so I went to this pack horse named Blue, I said "Blue we're going to put a saddle on you, and you're going to give this kid a ride back to camp.

**Hancock:** Right to the horse's eye?

**Johnson:** By the way, I believe he knew what I was saying. He didn't know the words of course, but I said, "You've got to walk very carefully, and you've got to take this kid seven miles back to camp. I just want you to be very careful, very gentle, and you come to a log step over it, don't jump over anything. This kid needs your help." So I was looking him right in the face, and so he did that.

**Hancock:** Did he really?

**Johnson:** Very, very careful. He was a great big draft horse. He wouldn't have been normally a horse you'd ride. So I went back to the corral and gave him some oats and I just put my nose up and said, "That was so good," and he kissed me. He put his nose up. I was very moved by that <laughs> because here was two, not human beings, two animals really talking to each other. And the kid by the way, I think he became a director or something in a movie.

**Hancock:** I think he was an actor also.

**Johnson:** An actor, was he?

**Hancock:** Yeah. I think so.

**Johnson:** So that kind of fame was because this camp had famous kids in it. <laughs> But the relationship with Blue, I've always remembered that. And since that time, I've been around horses a lot at a camp my wife and I go to, and I've always sort of felt that they're people. You know some of them and you don't some of them. Some of them are nice, and some of them ain't so nice.

But at Stanford, what happened athletically, I was the number two in the Pacific Coast. . I think I anchored our mile relay championship team, but it was 1950, it was in between Olympic years, so I wasn't anywhere near ready. And then I thought, "I'll go to business school and work out like hell, and maybe I'll get good enough to make the team in '52." Well, once I got to business school, I was so loaded with work I really couldn't work out well enough.

**Hancock:** Was that a conscious decision for you to leave behind this life of track and field?

**Johnson:** Conscious, yeah. I had to make a choice, although I don't think I'd have made it anyway. I did run a little bit for the Boston Athletic Association a couple of indoor meets. But that was the point when track and field as a personal activity became less important to me. But It always was high on my list of intrests'

As a matter of fact, when I got into business school I talked to the guys on the track team and I said, "You know I don't know any girls back East." I meant east of Reno. So luckily one of them gave me the name of my now wife of 65 years. She was living in New York, she was going to Vassar College. But one time I was there on a weekend, I called her, and she was home, so I said, "May I call on you?" Thought I'd better have a look before I asked her out and <laughs>--

**Hancock:** You didn't trust your friend's suggestion?

**Johnson:** Cathie doesn't mind my telling that story, I don't think. So it was not a whirlwind romance at all. One thing that causes smiles now, when your girl came to visit you, you had to find a place for her to stay in Boston, and I did. So we went out quite a bit, but it was three years before we got married, so it was quite an extended and not easy romance.

**Hancock:** So you married your Vassar girl. That's great. Before we get to Harvard, did you have a chance to work in some steel mills? Was that before your Harvard days?

**Johnson:** Oh yes, one summer, because my dad went to work for a steel company as managing their agricultural properties. So I did work in a mill and I was in the open hearth down in Fontana one summer, and I was fascinated by that. So when I was graduating from business school Inland Steel came around looking for management trainees. I interviewed them, of course I said, "I have to go in the Air Force now, but I'd be interested in working in the mill. I don't want to be a management trainee; I'd like to work in the open hearth." Well the guy was fascinated by this at Harvard Business School. So about a month before I got out of the Air Force I got a letter from Inland, it said, "Do come to see us, we'd like you to consider what we talked about two years ago." So I moved my bride then from Manhattan to East Chicago, Indiana, and I got a job working in the steel mill with the end point being I'd become a manager.



But one very important thing happened. My first day in the mill, the superintendent-- which is a big deal—the guy runs the department. I mean it's hard to explain what a big deal it was. Even with unions the men depended on him, if a guy gets caught at night, he'll call the superintendent to come get him out of jail. I don't think it's that way anymore, but that's the way it was in those days. So, the superintendent sits me down, a guy named George Lawton, and he says, "You know Pitch, we've had college kids here before." <laughs> And he didn't stop at that. He said, "We're going to teach you how to make steel, but I'm not going to do it. The guys on the floor are going to do that. So, I want you to spend the next several months getting to know them. I don't care that you learn a thing about steel. If you get to know the men and start working with them and they enjoy being with you you'll learn how to make steel from them."

By the way, best piece of advice I can-- as the eager college MBA type of guy I was going to go-- he said, "Easy, easy. Get to know the men." And I've felt ever since then when I'm in a new situation, take a little bit of time to get to know the people that you are going to work with, and it's paid off-- I don't know, paid off isn't even the right word. It's just made the whole thing more rewarding and enabled me to do my job, whether I'm a new director of a company-- I'd take time to know the management, walk around the house floor a little bit. And I just used that advice many times in my life.

**Hancock:** Very wise advice. So as we think about your time at Harvard, did you have any particular professors that were influential or classmates during that time?

**Johnson:** Yes, I did. It was interesting, and his name was Paul Lawrence, but he was an expert in human resource management. He was an assistant professor and very new then, but he came up with the concept of self picture. He said you have to know-yourself-

**Hancock:** Self picture?

**Johnson:** Self picture was what he called it. We all have self-pictures, and the closer you can keep your self-picture to where others see it and the way you really are, the better. Some people have self-pictures that are completely divorced from where they are. So I think that again was a valuable concept that I've tried to follow-- I mean of course I've failed plenty of times and thought more of myself than reality. And it's helped judging other people too. People that seemed like they're for real, and there's people that seem like they're blowing their horn all the time. Paul Lawrence became a very famous professor later. But he was a young assistant professor just starting out when I was there. I would say of all the stuff I learned in business school, that's one of the most valuable. Of course, learning about marketing. I remember accounting, credits by the window, debits by the door, I remember that phrase but--

**Hancock:** It's all you need to know.

**Johnson:** No, we had good accounting, but I had some very fine professors. I don't at all want to put them down including George Doriot who understood entrepreneurship. He didn't have a course in entrepreneurship. He did teach a course called manufacturing, but he brought in entrepreneurs as guest speakers, and it did occur to me then that there were people starting companies.

**Hancock:** Was that the first time? Had he started ARDC at that time or was that a little--

**Johnson:** I think he had. Yes.

**Hancock:** He had. And was that a new concept, this sort of founders and entrepreneurs?

**Johnson:** That's right. So, I first heard about venture capital-- he didn't name venture capital, another professor did that-- but in terms of practicing it, he's the first person I ever met who did that. He was very accessible, like Terman. You wanted to see him, you'd see him. On the other hand, he was always sort of giving advice on how to behave. But I respected him and liked him and enjoyed his class. I think it was a year-long class if I'm not mistaken. Maybe it was half a year, but it was a good class.

**Hancock:** When you heard him talking about financing risk, in a sense risk finance for early companies, did that strike you then or would your love for venture capital come later?

**Johnson:** It struck me as something I didn't know anything about. I knew people started companies. I think Mrs. Field had hers. She made cookies, and I remember she talked about starting her business, and a lot of other ones. So the answer is no. It hadn't struck me. Of course, I knew people started businesses, but I thought maybe drug stores, and mom and pop grocery stores and stuff. Those are businesses but, yeah, the idea of technology becoming—

One thing Doriot did say that was very valuable was, you have to think of markets. People think of technology as very important, but technology doesn't mean a thing if somebody doesn't want it or can be made to want it. So I think he pointed out the importance of understanding the market when you're starting a company, and that was a very valuable piece. It's not obvious even now to some people.  
<laughs>

**Hancock:** We started to talk about your time in the Air Force, and you may not think of yourself as a military guy in particular, but you were there for two years.

**Johnson:** Two years, yeah.

**Hancock:** What difference did that have for your experience there?

**Johnson:** Well I'll tell you one thing. I learned several things from being in the military. I think it's the first time you have a sense of being part of something that's very large, much bigger than you, and like everybody else will tell you the same story. But the first time you're in a parade and you come to present arms and they play the national anthem, it gets you. I've heard the national anthem many times, but it was sort of like an introduction to the military and it was just moving. I'm not too sentimental a guy, but I've talked to other people, just about everybody has that same-- the first time you come to present arms and You hear the national anthem, you suddenly realize you are in something much, much bigger than you, and you're devoting yourself completely outside of yourself. I think that's something <laughs> we all have to learn at some point.

**Hancock:** Yes. Very powerful. Important.

**Johnson:** Then I think another thing that I learned, later in the mills though. I remember when I was stationed in Sacramento and I walked on the floor the first time, senior enlisted run the military. I mean yeah, the big guys make all the big decisions, but they're the ones making things happen. So this master sergeant came up and said, "Welcome Lieutenant Johnson. We're glad to have you here. I've got the best mechanics in the air force here." So he said, "Just let us know what you want done and we'll do it." The message was "don't tell me how to do it." <laughs> So that's a pretty good lesson that I learned, I sort of knew it but he emphasized-- and he didn't say the words-- but I could tell right away he wanted to know what to do and what job. Most of it he knew anyway because it was a production line of inspection and repair. But I think that was later on when I went to work in the mills, just shortly after that, I got sort of the same lesson.

**Hancock:** So you were saying that you returned to Inland Steel.

**Johnson:** I started at Inland later

**Hancock:** Let's talk about your time at Inland Steel. You returned afterwards, they had this position waiting for you and you stayed there for quite a while, right?

**Johnson:** So what happened was, they don't get many business school guys anyway who want to get into production. In business school, I wanted to be a corporate executive, so you could get to be a corporate executive by marketing, finance, and production. And I thought production would be the right one for me because I had enjoyed my earlier time. I just liked the smoke and the flames and the kind of guys and women that worked in the mill. I was attracted to it, and so I found it satisfying. Shift work is unusual because you work days, then you work midnights, then you work 4:00 to 12:00. But sometimes you have 80 hours off the way the cycle works. So Cathie and I didn't have any kids to start with, we'd go into town or something. But I would say those mill years were my first exposure to actual professional life that I thought I was going to pursue.

However, we met Bill and Phyllis Draper-- Bill came to work as a sales trainee, and he was in the overall management course. But we moved into something called company houses they could provide to young executives and senior hourly guys, so we lived near each other. Bill and Phyllis and Cathie and I became quite good friends, and I think I'll skip over this, but we did things together. Becky was already born but Tim was yet to come, and Polly was yet to come.

And so moving forward from 1950 to 1959, Bill's father had started a pioneer venture firm in Palo Alto called Draper, Gaither & Anderson. So, Bill left at that point to go to Palo Alto, my own hometown. At the Big Game that year, I went and introduced him to my friends, those of them who were still around, and they became friends of Bill's. Then we came out for the Big Game, in '61 and stayed with them. And Bill, I think he really loved his father and liked that work but he wanted to be on his own. So, I think he may have suggested, or maybe we just it was natural, so we sat down at his kitchen table like hundreds of kitchen tables in Silicon Valley and cooked up this venture capital firm.

**Hancock:** How did that conversation go?

**Johnson:** Well it went something like this: "The government now has a program called Small Business Investment Companies. If we can get together a little bit of capital we can form an SBIC." A little bit of capital meant between us we had to have 150, so 75 each. So my father-in-law had a great job, and I went to him with my heart in my mouth <laughs> and said I'd like to borrow \$50,000. He said, "Okay, well tell me about it." I told him what it was, and so I was able to do that. And I had saved up 25 from investing mostly in Cessna Aircraft in the stock market. So I got my 75 together, Bill did more or less the same thing I think. I figured I could do this, I said, "Bill, I don't know if I can get together the money," but I did.

So in the summer of '62, with my heart in my mouth, I left the mill. Because by then I was assistant superintendent of a shop. I won't go through all the promotions then, but I spent three or four years working shifts. Then I became a general foreman, which was days, and then assistant superintendent just for a brief time. So, I had been accepted in the mills, and they took this skinny track athlete and befriended him, if I could put it that way. I really hated quitting, but I realized that I had options on 42 shares of Inland, and I was making, I don't know, \$1,200 a month, pretty good pay. But I just thought here's a chance to be on my own, an entrepreneur in a sense, and to make some capital and to be on my own. So, I really did have my heart in my mouth, and they wished me well of course, and I went off on my own.

**Hancock:** That was a big risk for you.

**Johnson:** Oh, there was plenty of risk, that's right. But I somehow figured we'd do it. I just knew somehow that we could find some deals. First of all, there was very little money around, very few deals. So we got some office on Welsh Road if you know where that is, and we got started, and we called it Draper & Johnson Investment Company. So, we didn't have much. But Bill became president, I was vice president because I was junior in the business.

**Hancock:** I hadn't heard before about the source of your \$50,000, about your investment in Cessna. I know you have a long love of--

**Johnson:** No. I didn't make that. I made 25. Cessna was just getting going, and somebody had I think taken over Cessna. I think that was called the Blues Brothers, who had tied back in much later in my life, but they took Cessna. I had saved up a little. I worked in the mills eight years, so I'd saved up some money. We had fairly cheap housing, and the kids came along so they weren't exactly cheap, but I saved up 25-- I call it that, but I would say probably if I'd just accepted the cash I might have had 10 if I got lucky. So, I sold my Cessna stock, got my 25 and 50 and Bill put his in, and we started that in '62.

**Hancock:** So this is the birth of what would become the first venture capital companies here in Silicon Valley before it was even named Silicon Valley.

**Johnson:** Well before it was named, but it was the not the first by far-- not by far but by some. In other words Bill had-- his parents, his father--

**Hancock:** One of the early ones here. Bill had worked with his father, right?

**Johnson:** His father started Draper, Gaither & Anderson, and it had the Rockefellers behind it. I think they raised a grand total of five million bucks capital if I remember the number. So they had outside money. Bill and I chose a course where we owned the company but owed the government money. And we can talk about some of the deals we did early. But we did build a good enough portfolio that a real estate company called Sutter Hill wanted to go in the venture business. So a guy named Paul Wythes, as you know, came to Bill and me.

Bill wanted to go into venture. I wanted to be an operator. I was tired of being a coach. I wanted to be a player. So we had very little discussion about my joining in Sutter Hill. Bill and Paul were very early in the venture capital part of Sutter. The real estate part sort of folded up. That became important to me later. But I would say we did enough good deals and we had enough of a portfolio, so Sutter Hill was able to buy our portfolio. I was able to pay off all my debts <laughs> by the way.

**Hancock:** That's wonderful.

**Johnson:** And I didn't pay off-- well, it's a long story. My father-in-law died between the time he lent me the money and this event. So I later on gave all his grandkids-- I paid it back and then some. But my official debt to the government, and I had a little debt left over from Harvard. My first year I had borrowed money to go to Harvard Business School because I didn't obviously have a scholarship. The second year though they wouldn't let you borrow over \$12,000, so I had a grant my second year. I really didn't owe that much, and I paid that off and paid off the government. So, I had a couple hundred thousand bucks clear, first time in my life by a long way. And so, I began looking for a company to buy, but I ended up finding some deals to do on my own. But Bill and I had a good little portfolio.

**Hancock:** Do you want to talk about your first investment that you made together or any of those investments that you did with Bill?

**Johnson:** Well the first thing we did was a guy named Joe Giulie called Illumitronics. I don't know how we met Joe exactly. But you know, one thing Bill and I did was drive Palo Alto in our car and look for company names that might--- ending in ICS or something. And we visited people. It'd be sort of funny. We'd go in the front door and say-- we didn't say this-- "Would you like any money today?" But we'd say, "We'd like to see the president," and they'd say, "What about?" I said, "Well we're investors," and so we always got in to see the president. We never did find a deal we wanted to do that way. But Joe Giulie, I think probably Bill met him somewhere. Bill's the kind of guy who meets people by the way, Phil....

**Hancock:** <laughs> Phil.

**Johnson:** Joe Giulie had a company that was taking wire and then shrinking plastic onto it to make coated wire. And so we invested in Illumitronics, and it did pretty well. Then he also later did a checkweigher. In other words, it was unrelated, but something where you could send packages of, say, cereal down an assembly line. If they met a certain weight you kept them. If they were too heavy you

took them out. If they were too light you took them out. The checkweigher was pretty good. And much later on-- a related company but not during our era-- they made coatings for re-entry for missiles. That stuff that was not really why we got in it or part of what we did, but the wire coating and the checkweighers were two-- one was called Illumitronics Systems and one was called Illumitronics something. But Joe Giulie was the man's name. I think Joe's still alive, living in Los Altos Hills. He's also 91 speak of the devil, if I have the right Joe Giulie.

Then we did a company called Coherent Radiation, and a man named Allen Calvin, and it was programmed learning but there weren't any computers then. So this programmed learning was page after page of making choices about things. That was successful, and it went public. And then Allen Calvin, much later on and unrelated to this, started Palo Alto University which is a school behind Palo Alto. It was first named the community-- it was called something to do with behavioral sciences, the graduate school of behavioral sciences. But he eventually called it Palo Alto University and it's now a good size. He has an undergraduate program that Foothill-De Anza runs for them. In fact, I talked to Allen Calvin-- I couldn't remember the name, I called him up, "Hey, what was the name of that company you had?" <laughs> He couldn't believe I couldn't remember, but I wanted to remember it for this meeting. So now I remember the hard way.

**Hancock:** Good.

**Johnson:** But other early deals-- our two main deals were Coherent and Joe Giulie's company.

**Hancock:** Mm-hmm. Illumitronics.

**Johnson:** And let's see what else? I can't remember. We did two or three other deals. We didn't do any bad deals which is unusual.

**Hancock:** That is very unusual.

**Johnson:** But when Sutter Hill came along in 1965, they bought our portfolio and we both went on our own. He went with Sutter Hill, and I went on my own.

**Hancock:** You were mentioning your early role in working together. You had been friends for a long time, for years. How did that work between the two of you?

**Johnson:** Well it was interesting. We're different people. I've gotten more outgoing, I suppose, in my later years. But we'd go into a room and Bill would meet everybody in the room within 10 minutes and I'd be standing by the door talking to one person. And so Bill was the much more outgoing promotional kind of person. But we got along beautifully, because I think it's unusual to maintain a friendship and a business relationship. I mean it's hard to do that.

**Hancock:** Very unusual.

**Johnson:** Because neither one of us was trying to be dominant. We just did our thing, and we went together and visited deals. And I remember I bought a new car for a thousand dollars. I thought I was really doing something-- a Pontiac. But we had our first office on Welch Road, and a lady next door came in and said Kennedy's been shot, and that was another awful thing. But Bill and I, we stayed friends when we went our separate ways really. We saw each other all the time in a family way, and then tried to get Bill and me involved in Intel-- that didn't work-- because we were friends of Bob Noyce. I especially was a friend of Bob Noyce from a company called Coherent.

**Hancock:** And how did that story play out?

**Johnson:** Well, Bob Noyce, I'd been on a board called Coherent with Bob. We were both pilots and we talked about airplanes like all pilots do a lot. Also, he was a good director of the company, and Coherent was a deal that I did very soon after Draper & Johnson but not during Draper & Johnson. So we became good friends, and he said, "I'm starting a company making integrated circuits, I hope you'll be interested." I said, "Well, anything you're doing, Bob, of course I'd be interested." Bill and I had just separated, and Bill would like to take some personally, and I would, but I say a couple hundred K. So he said, "Oh that's so good." He said, "Art Rock's putting a deal together, give him a call." So I did give Art a call, and he said, "Well call me back next week." And then I called him back a week later, he says "I've done the deal and you're not in it." That's an exact quote by the way. <laughs>

So I felt awful. I called Noyce and said, "Art doesn't want me in the deal." He said, "Oh no, don't worry about that, I'll talk to him." So, he talked to Art. Art said, "Am I going to do the deal or is Pitch going to do the deal?" Now that's not a direct quote because I didn't hear him say it, but I've worked with Art many times. He's a tough but very honest man. He's not at all slimy or slithery, but he was really tough in this case. I really don't know why. I think he wanted the people who were in the deal to be people he brought in and sort of get credit for them with them, but I don't know. That's a guess.

But since that time, I've worked with him, Art, on several things. I became chairman of the opera and had to go knock on his door and get some money from him anyway. <laughs> That time he did.

**Hancock:** How did that go? <laughs>

**Johnson:** Yeah, but that's the story. It's part of history. I don't think the company would have done any better or worse with me on the board, but I wasn't.

**Hancock:** Well, you mentioned that you had had a desire to be an operator, to be the player and not the coach. And yet when you started Asset Management you went back into investment. How did that work?

**Johnson:** What happened was, I began to look for a company to buy, but I found deals to do. I was in touch with a guy named Prentis Hale, H.D. Thoreau would work for him, and he'd run the winter Olympics. I love the sports, I just haven't been to a winter Olympics. But Coherent Radiation was just about the first deal. I know how I heard of it-- this is another interesting story-- because my father-in-law's

job was running a company called Standard Oil in New Jersey. He knew the Rockefellers. So, I was in New York trying to get going, and I heard they had a venture capital arm.

Oh, I know, that's not even quite it. Charlie Smith was on the board of Coherent Radiation, which was the deal I did very soon after we split. I don't know how I heard about that. And so Charlie Smith said, "Oh you ought to meet the people in our office." So then I went to my mother-in-law and said, "I'd like to meet Laurance Rockefeller." Boy, I'm a little vague on this, but somehow or other I got an appointment with Laurance Rockefeller. Everybody around the office called him Mr. Laurance because everybody was named Rockefeller.

**Hancock:** <laughs> The whole family.

**Johnson:** So, I sat with him for about a half hour, and he talked about some deals at Eastern Airlines and things they'd done—very, very open and friendly. So I said, "Well thank you very much, I appreciate your time." He said "Oh, you have to leave?" <laughs> I said "Well no, it's that I thought you--" He said, "Oh, come on. You can spend a few more minutes with me." So, then we talked for about another half hour. This was in the afternoon. He said, "Can I give you a ride home?" I was staying with my in-laws up the street. So he dropped me off at their house.

But Charlie Smith was a partner there and became a friend of mine. I believe it was because of Coherent Radiation. I've got my timing a little mixed up here. But anyway, I was aware of the Rockefeller Family and Associates, and their activities. So, I just began to hear about deals them and do them myself. I had a couple hundred thousand left over from paying off my debts, and I'd never had any capital before.

**Hancock:** So when you think about the way that you wanted to operate under Asset Management, your very own firm that you founded in 1965, did you have certain principles or strategy? It sounded like you'd been very opportunistic in driving around with Bill and looking for technology companies.

**Johnson:** Good question, but it was really hard. How things were, there were very little money and very few deals. So I just heard about deals. One deal I read about in the paper. I called up the guy and eventually did it, I mean that kind of stuff. And I went to lawyers and accountants and said, "I want to make some investments. Please let me know if you've got something." So, I got some leads that way. But I think Coherent Radiation was my first deal outside of Draper & Johnson. Then I stayed on the boards of a couple things we were already in but I don't remember them.

But then because of Prentis Hale, they had invested in a company called Cromatronix in Berkeley, and they were doing liquid chromatography. So, I got involved in that one. There's two parts of that story that are interesting. It was right during the Vietnam War, and I was chairman of the board, although the board was about three people. And I was over there visiting, and the guys in the labs were wearing Viet Cong hats--

**Hancock:** Hmm. Surprising.



**Johnson:** -- which I thought, "Well that's sort of weird." Then I saw that they'd tacked the American flag upside down. I said "Guys, I'm not going to tolerate this." They said, "You can't tell us what to do." I said, "I'm going to make sure you get that flag right side up." So I went to see the president, Dick Gundelfinger, who was a Berkeley type of guy. I think he was sympathetic with them. So I went out with him and made him put the flag—they called me a fascist of course, but all I was doing was, I just call it normal patriotism. It wasn't even normal; it was they had done something abnormal. They can wear any hats they want. You know those conical Viet Cong hats?

**Hancock:** I do.

**Johnson:** So that was the interesting part of that. And they did well in designing a pulse pump for liquid chromatography. Then they got an assistant professor, Lee Hood [ph?], they got ahold of him to advise them, and this was the part that led to much other stuff that went on in that company. Also in 1964 at Stanford I took three courses, one in electrobiology that didn't exist, one in computer science that didn't exist, and then one in partial differential equations. I don't know quite why I did that. I didn't do very well. I did well in the other two courses, and so I was aware of the fact that you could take human genes, put them in nonhuman organisms and make human hormones. Well it ain't even worth talking about now, but it was really, really new then.

So when I got there in 1960-- wait a minute. It's two, three, four, five. So, when I got to meet the guys at Cromatronix, they had begun a contact with an assistant professor named Lee Hood at Caltech, and he had told them, "You can probably analyze proteins and figure out what DNA, RNA comprises them." So, what genes do. And then he had the idea that you could assemble proteins, and finally the idea that you could assemble DNA into genes. They started doing some of this stuff. And of course, he became a famous guy who is now the head of a research lab in Seattle. But they were acquired, I can't remember by whom, but it was someone who was interested in all this stuff. So I got out of that that way. But I think Cromatronix was among the first things I did on my own, that and Coherent Radiation.

**Hancock:** Well in your time as a VC, I read in one place that the count of investments you had made had topped 250. Is it even higher today, or is that a good estimate?

**Johnson:** Well, the last few years-- what happens now is we have a venture fund that's sort of part of our company. To start with, Cathie and I were the only limited partners, and I was very active in doing deals. Then I became veto power only, and then finally we just put some money with them and they do it. But they now have some outside investors, and they're putting a new fund together right now, as a matter of fact. We'll be investors there.

But the answer is I just don't have the patience to do the detailed homework that you've got to do to check out a deal. So, I have a terrific guy working for me that does that, but we're not really doing deals anymore. We have a fund that's run by three guys: a generalist, a computer science major, and a cardiologist, and they're doing the deals. They're mostly, I would call them computer-oriented health care companies. But the answer is I'm not doing the deals, and so I just send them to them and say I'm not doing deals anymore.

**Hancock:** So as you think about the companies, you mentioned a few of them, but if I were to make a list of your highlights--

**Johnson:** Well, Tandem is surely a highlight.

**Hancock:** I was going to say, how about Tandem and Amgen?

**Johnson:** Well Tandem's kind of funny because you can hardly tell the story now with any credibility. But Tom Perkins, who became very famous, had been at Hewlett Packard and tried to start a company to do a certain kind of computing, we called it nonstop. But for various reasons Hewlett Packard didn't want it. So he and Jimmy Treybig left HP, and Jimmy Treybig as a technician and businessman, and started Tandem. So I got a call from Tom Perkins-- here's where the funny part is—he said, "I'd really like you to be involved in this. It's going to be good. I'd like to have a name venture capitalist in the deal." Says Tom Perkins to me? <laughs>

**Hancock:** Says to you? That's good.

**Johnson:** Nowadays that's a joke. Then I guess I was, well, better known than Tom because he was just getting going in those days. So, I went on the board of that, and Jimmy Treybig was a superb entrepreneur and built this company around-- they call it nonstop computing. In other words, they put a group of computers together so that when one part failed then the other part took over. It was a good concept and it became a successful company. Then eventually it became part of Hewlett Packard. It was acquired by somebody down South, and then it was acquired by Hewlett Packard. So I ended up with a bunch of Hewlett Packard stock after all, which I did use mostly for gifts because I try to do-- not heavily-- but I try to do some charitable stuff as I go along. But I think Tandem-- I met some very interesting co-directors and it was very successful from a financial point of view because I got involved really at the beginning or near the beginning. So that was Tandem.

**Hancock:** Did we talk about Amgen, Teradyne?

**Johnson:** Well Amgen's much later.

**Hancock:** That's later, right?

**Johnson:** Teradyne, I forget why I was in Boston, for something. But I ran into a guy named Alex d'Arbeloff, and he said that he wanted to sell some of his stock. He had started a company, and he needed some money. The company didn't need any money, but he did. So, I bought, not a big stake but a pretty good stake in Teradyne. And he said, "Would you go on the board?" I said, "Yes." So, I was on the board of Teradyne for at least 10 years, probably 12. It made means for testing microcircuits, probes and testing equipment, and it was very successful. It went public and I made out pretty good through that. Why I was in Boston I don't remember, but I do remember meeting Alex d'Arbeloff and he's saying, "Well I'd like to sell some of my stock because I need some money, but the company doesn't need any money."

That had been ARD [Advanced Research and Development Corp.] I think, by the way, an ARD Investment also earlier.

**Hancock:** Oh. I didn't realize that. Can you say more?

**Johnson:** I don't realize that for sure, but I think so.

**Hancock:** You invested in so many companies. I was looking at one of the lists that has Applied Bio, and Applied Micro, and Biogen, and BiPar--

**Johnson:** If you take Amgen, Applied Bio and Applied Micro, there are three-- what Bill Bowes, well I knew him at Stanford, and we became quite good friends at business school, and we worked together, and we did papers together and stuff like that. So, when I entered the business in 1962, I got in touch with Bill and we got together. I stayed at his house in San Francisco and drove down from my base in Sacramento even though he wasn't there, and so I knew his parents very well. His mother was one of the first doctors in Northern California by the way.

**Hancock:** Hmm. I didn't realize that.

**Johnson:** She and a girl named Josie Pitcher who's a relative of mine. The early doctors in Northern California. Anyway, Bill and I did a couple deals-- but he had thought up three companies. One was Applied Molecular Genetics which would use these techniques of genetic engineering; then Applied Microcircuits was a company that would make very sophisticated microcircuit design; and Applied Biosystems, which was sort of related to what old Cromatronix was doing. And I called it his applied period. Artists have blue periods, and this was his applied period.

He asked me to join all three deals, and Amgen in the end turned out to be a super deal <laughs> and it's carried me a long way. In fact, I'd have been much better off to invest in Amgen, then go fishing for 20 years, but I didn't. <laughs> I should have. It wouldn't have been bad. Bill's now gone, but I'm very in debt to him for asking me into those deals. Because we were good friends, I'm not surprised he did. But those all were successful deals. What are some of the other ones you've got on your list?

**Hancock:** Well Chimerix.

**Johnson:** Chimerix. [ph?]

**Hancock:** Chimerix, CV Therapeutics, LiquidM, Mightier, [ph?] Nuance, Pharmacyclics, PMC-Sierra.

**Johnson:** Oh yeah. Well those are all names I'd have a little trouble remembering the details of.

**Hancock:** Verity?

**Johnson:** What?

**Hancock:** Verity?

**Johnson:** Verity? Yeah. Uhm-hmm. But these were deals which we did in our company but not necessarily by me, much later. But there's no particular tales about them. We heard about them somehow and made the investment and came out. I would say that over the years, I have no mathematical justification for this statement, but if we did 10 deals, about one would be what we'd call, as a Midwesterner, we would call a barn burner, I mean it just lights up the sky. And then there's about three deals that are good standard performers they make five, ten times your money or maybe six-- so that accounts for about a little less than half the deals. Then you got about three deals that just go completely broke, and there's about one or two deals we call the living dead. They don't succeed, they don't fail, and they just sit there and take up your time and money.

**Hancock:** You can't kill them, huh?

**Johnson:** And I can't give you the numbers that justify that, but that's about the way I've seen it over many years.

**Hancock:** You've played the role of being investor, sometimes lead investor, sometimes joining a deal. You've also been on boards sitting with other different people. Each good investor or venture capitalist has certain principles—"do you go for the jockey or the horse, I look for certain attributes." What are the things that guided your investment philosophy?

**Johnson:** I'd say entrepreneurs who show several qualities, the lead quality of which is understanding a market, understanding what people want or can be made to want. But don't talk about technology. Good technology of course is vital. And then some ability, demonstrated ability to have a personality that people will want to follow. Sometimes they haven't ever been much of a supervisor, but you've got to go by instinct there. And of course, very key is personal integrity. You'd like to take men and women who've shown in their demonstrable careers no chiseling, no side dealing, just straightforward. Most people actually are that way but you've got to be careful of those who aren't.

But now there's quite a few women involved. I wouldn't characterize women one way or the other, but I think women I've worked with in the last five years have been more alert to personalities. I don't know whether that's fair. I won't say all women are. I just say the women I've worked with have been much more alert to personalities and emotional needs than the men have. Now I'm not going to generalize all men and all women. I'm not that dumb, but I would say that.

And the other thing I've noticed too-- we're just talking about men and women-- is women have not been afraid to look like women. They put a nice dress on and put some makeup on and comb their hair and they look like and act like women, at least the way we think of women. <laughs> Now some don't. Some are very somber, suits and no lipstick and all that. But I think that's great. I mean, go ahead and be dressed and feel like a woman because there's a lot of advantage in that. And I mentioned that many women are better off in sensitivity to personal issues. I'm sure that I'll get in trouble for saying that, but that's what I really think. <laughs>

**Hancock:** Well, I'm glad you're saying what you think. You've talked about the attributes of entrepreneurs and importance of markets. You also had a unique seat to look at the evolution of technologies, and you had brought with you this background in engineering and a long-time interest. How would you characterize the Valley's evolution in technology and your role in helping build it and being in the front row driver's seat.

**Johnson:** I haven't done much personally to develop technology. I have followed it and read. I think I've kept up with what's going on. Lately it's harder and harder. But by picking companies in which to invest which are moving markets forward with new technologies, I've had my role in backing some companies that succeeded. When companies succeed, that technology moves forward. When the company fails that technology doesn't much go anywhere.

An interesting one is artificial intelligence. I invested in an artificial intelligence deal at least 15 years ago and it went nowhere. It was too early. Nowadays it's hot. So Ed Feigenbaum was a Stanford professor very strong in this area, and he was an adviser to us. He said, "I'm just afraid we're about 20 years too early." He was right but always was 20 years too early much before that. But the technology early on comes from research. I mean technology is the result of research, so the research going on in university labs, in government labs, and in just academic activity, and now to a certain extent by big companies. Research is just knowledge, and that knowledge doesn't necessarily become usable technology, but a lot of it does. So the country needs to be sure that it's paying attention to and backing research and keeping big companies encouraged to do it, backing government labs. I mean, having the government continue to support technology, much of which is done in universities but with the government funds. I'm more than a little worried that we're not keeping up with research,

But as far as development of technology, venture capitalists have backed men and women who seem to understand the markets related to the technology, and those which succeeded moved it ahead. And of course, I can bring the biggest name I can think of, I would say Apple did more to change the way we live than any company I know of. Now Facebook has, but I never subscribed to Facebook because I didn't want to get that much email. Turned out it was just as well I didn't. But Mark Zuckerberg lives practically across the street from me and nice, fairly modest. He just wanted to have a normal life. So I've never met him. I'd probably hate to tell him I never subscribed to his service.

But Steve Jobs' vision of how he could take technology-- he was a good technologist but he wasn't an inventor actually-- take the technology and put it different ways together and serve a market which he knew would exist if he could do it. So here we have something in our pockets that is of course a phone, it's a calculator and even a computer, and it's a camera. I mean, come on. It's changed the way we live. I don't go anywhere without having this thing with me.

**Hancock:** And it connects us to the internet and a world of information.

**Johnson:** I didn't turn it off. Evidently nobody calls me. <laughs>

**Hancock:** While we're talking about important companies, I want to go back to 1967 when you helped start Boole & Babbage.

**Johnson:** Oh yeah. That was, I think, the most important single deal in influencing modern business. I got a call from a guy named John Bryan. He said he heard about some guys that were starting a company to make programs, in this case to make computers run better. Well, it sounds interesting. I'll go. They were down here so I talked to them, and it was Ken Kolence and Dave Kaitch, and so we talked and talked. So I said, "That's pretty good." And I don't remember, this is an important matter that I don't remember. I don't think it was me though who said, "You've got to get a better name for it than just Kolence and Kaitch." So, I think Ken Kolence said, "How about naming something after George Boole?" I don't know where Babbage came in, but Boole was sort of the inventor of software and Babbage, maybe this is an overstatement, was the inventor of hardware. So we ended up calling it Boole& Babbage.

So I and some other friends invested in it early. It went along pretty well. They really weren't strong executives or marketing guys, but they were good, honest, decent guys. So I became chairman of the board, and we got going. The IBM 360 was the important computer, and we made a product that made the computers run better and one that made them connect to the auxiliary equipment better. And we enabled people to postpone the buying of a new computer because they could make their old computer systems run better. I had a business school friend who was running part of IBM, and he pointed out to me that we were competitors of his because we were postponing computer purchases.

But I think the important thing about Boole & Babbage, and one other company but I don't remember the name, we let people buy software. Up to then you had to write all your own software, and I think the important thing about Boole & Babbage is you could buy software, install it, and not have to write it yourself. So there were some business issues there, but in terms of the concept of the market and the concept of technology, doing that was very strong. And Boole & Babbage eventually went public, emerged at a very good price.

**Hancock:** What was the valuation? Do you remember?

**Johnson:** Pardon?

**Hancock:** Do you remember roughly the valuation when it went public?

**Johnson:** Well I do know this, it was just under a billion, and then the stock went up over a billion. And I didn't have that much but it was sort of fun to think about, "A billion dollars?"

**Hancock:** A billion dollars in that era, so early right?

**Johnson:** So, it did very well. And a guy named Bruce Goldman was brought in to run it and did a good job. But of all the deals I've done I think Boole & Babbage, at least I had a lot to do with what happened. I mean to talk about selling software, that's everyday business now, and I think we got that going. I can't

think of the other company that started doing it about the same time. But I would say of all the deals I've done, Boole & Babbage had more effect on the computer business than anything I've done.

**Hancock:** I'm so glad you had a chance to tell that in detail. You were not only an early investor, but you were with the company and as you said you really helped shape it. Do you want to talk about your own role?

**Johnson:** In what?

**Hancock:** In Boole & Babbage.

**Johnson:** Oh. Well, my role, as it had been in many companies when we were getting going, was to meet weekly-- as I did in Tandem by the way. Tandem had a big beer party at the end of every week.

**Hancock:** Those are famous. <laughs>

**Johnson:** So I'd go down and sacrifice my time and have a beer and talk to the members. But I'd visit Boole & Babbage once a week because those guys weren't businessmen. I've always wanted to have somebody who can run the company. This is a different company, but we had a guy come into a meeting one time and say, "I have three courses of action. I'd like the board to tell me which one." And I said, "No. Your job is to come to us with a course of action. If we don't like it we'll tell you, but we're not going to..." I realized right then the guy wasn't an executive.

But anyway, in Boole, so I'd go down there and they made decisions about marketing and selling stuff. And I finally realized after a few months they just couldn't do it. Good people-- I'm not at all knocking them as people. So I insisted that we bring in someone who was trained as an executive, and we found this guy Bruce Coleman-- I'm not sure how we got his resume-- and Bruce did a very good job of shaping it into a company. He left eventually but Paul Newton came in to run it, and he's the one who got it public and took it and sold it.

But yeah, just to repeat myself, I think of all the deals that I think of where I may have influenced the course of history more than any other, it would be Boole & Babbage. Interesting, it's an ironic part, so both Dave Kaitch, who has long-since died, and Ken Kolence, who has died recently, Ken made a few tens of millions, I would say ten or twenty million, I don't really know. And so he started his own company and blew every penny of it. So he was working at a hardware store downtown, and I used to go in and chat with him. He could feed his family, but I just thought, "Silicon Valley is so full of stories of guys with massive homes and 10 cars that people should see this more often, that sometimes you don't make it." Now he made it in his first deal but not when he went on his own, he just didn't have the stuff.

**Hancock:** Well I'm glad you mentioned that. Everything isn't always up and to the right, is it? <laughs>

**Johnson:** Of course, as I said in my earlier loose statement, three or four deals out of every ten fail. Now I haven't had that result myself lately because I haven't been that close, but you have to have the

guts to shut them down when they aren't working, and I don't. I mean, I remember a really good guy named Craig Taylor who worked for me for five or six years and then went on his own-- but he said to me a couple years ago, "You know, I had to unlearn something from you."

**Hancock:** What was that?

**Johnson:** He said, "There comes a time to shut a company down, not put any more money, any more effort into it, and you're not good at that." And he didn't say it that way. So he said, "I had to unlearn that."

**Hancock:** Do you think that's a fair description?

**Johnson:** I think it's fair, although sometimes you can be in a company 20 years and it makes it. I'm in a couple deals now that are one way or the other over 20 years old, and I think one of them is about to go public and one of them has spun off some pretty good companies. I don't think of those in particular, but I could do better and say, "Okay this isn't working, let's go home."

**Hancock:** I wanted to ask, we've talked about some of your favorite deals, the ones that have had the most impact, and some of the deals that you may not have been invited to or included in. But there are also maybe some stories that you've missed on, maybe Genentech or others. Do you want to talk about--

**Johnson:** That's right. Genentech is an interesting one.

**Hancock:** Yeah. So could you talk about that?

**Johnson:** I was well aware from that course I took that something like Genentech-- so a guy was working with me called Brook Byers -- you know Brook Byers-- and later on became of course very well known. But at that point he was working for me, and he's the one I sent down to look at Tandem. I sent him down there and he liked Tandem, and he eventually met Tom Perkins, <laughs> so he left far later to join Tom. But he said, "I heard about this company that Tom Perkins is studying or backing called Genentech." I said, "Well let's try to get involved in that. That's sounds great." He says, "No. His roommate Bob Swanson was saying, 'I want to get involved in my roommate's company.'" They both improved their roommates greatly later. <laughs> But we didn't do Genentech, and at first I thought boy was that bad. But then Amgen came along. I was able to do that and of course it wiped out any regret.

But I have things I didn't pursue eagerly enough. I heard about Apple in the early days, and I thought, "Who would use a computer, in the kitchen? I mean, recipes?" I didn't have enough imagination to see what Apple could become. And when Stanford was thinking about becoming involved, Steve Jobs came over to see me to talk about-- I was working with Stanford on some things. So my wife loved Apple everything and really thinks Steve Jobs is-- so I didn't tell her he was coming, so we met in the backyard and we're walking out the front door and I say, "Oh by the way Cathie, this is Steve Jobs," and she goes-- <laughs>



I wasn't a big buddy of his, but I knew him pretty well. He had dinner at a rather bad Mexican restaurant down across from the Whole Foods pretty often, and I'd see him walking from his house to the store which he liked to do. But I never really-- I should have got involved. Later when Steve was coming back I probably could have talked to somebody or done something, but I was so screwed up at that point I didn't. But I wouldn't say I just missed it.

We already talked about one that I did miss but not from my own efforts, Intel, these great big deals. We started a company to compete with Microsoft and we lost. I will shorten that down. But Microsoft beat us out. I saw the need for a program to help computers run, and I still have a little thing from my-- I don't know where it is now, we moved desks-- but it said, "To Pitch Johnson, champion fund raiser, but from the company that lost." <laughs> So I didn't get involved with Microsoft. I thought for a long time I had just missed Amazon. So the guy who took my place-- and we've got to talk about my teaching at some point because it was a very important part of my life.

**Hancock:** Yes. We're going to get to that next.

**Johnson:** When I had lunch with him a couple years after he took over my course, he said, "We're doing a deal which a guy wants to sell books online instead of in a bookstore." And I said, "It sounds like a good idea." So for years I thought it was Amazon. It was some other deal they did.

**Hancock:** Oh. Is that right?

**Johnson:** I'd always thought if I had pressed my luck, but until just last week or so, I always thought, "Well I blew that one by not..." If you work hard you can get in many deals, if you try hard enough. So Pete Wendell's this guy's name, so I spoiled my own story by learning the truth.

**Hancock:** Oh. <laughs> He was here recently to help be a moderator for a discussion featuring Scott Cook and Tom Proulx and Eric Dunn about Intuit, so Pete was just here a few weeks ago. Well, speaking of him since you're both on the faculty at Stanford let's turn to your teaching career and--

**Johnson:** Okay. Let's do that. When we were getting involved with Sutter Hill, there was a real estate part of Sutter Hill, and the guy who had been teaching an entrepreneurship course at Stanford-- an amateur, not a faculty guy-- was called Greg Peterson. And so Greg called me one time and said, "I'm taking a job in Canada, I don't think we're going to move ahead with Sutter Hill real estate, so I'd like you to think about taking over my course for a year because you could do it." So, I went over, interviewed some people at Stanford, the dean and Jim Van Horne and others. They said, "I think you could do it. Why don't you do it?" So I did, thinking I would step back after a year. 12 years later <laughs> I got Pete Wendell to come and teach it.

But so, there were several things about that experience. I began thinking about venture capital in a systematic way, in other words, what are the elements of it, what do you need to think about? And that was helpful to me. To teach something, you've got to study it. Second thing I realized, you learn as much from the students as they learn from you, maybe more. I had a few lectures but it was almost all case

discussions, and the insights these people brought to the discussion was very good. I think that while it didn't do much in a business sense-- I'd like to have my wife comment on that-- but I think I developed as a person <laughs> as a result of that experience.

**Hancock:** Hmm. In what ways?

**Johnson:** Well because I listened better. I've never been a great listener as most people will tell you, but after that class-- it was supposed about listening, I was supposed to let them talk. And then I realized that some of them know what they're talking about. Although there is a very satisfying thing in teaching that always comes along, and that is somebody says something that you've been emphasizing subtly, and you say, "Hey she really gets it <laughs> or he really gets it!" And that's a wonderful moment, but I've had a lot of distinguished graduates. Right now, my most famous one is Joe Lacob.

**Hancock:** Okay. Well...

**Johnson:** He went with Kleiner Perkins and did a great job for them. Joe asks my wife and me to the game about once a year.

**Hancock:** Oh, isn't that great.

**Johnson:** So, I'm hoping he'll ask me this year in the new location. But Joe and I have stayed friends, and I don't talk about it much, although I'm certainly talking about it now. I won't even go through the guys that-- some guys are running big companies, about 35 of the 600 are venture capitalists though.

**Hancock:** Is that right? A whole generation of new venture capitalists.

**Johnson:** Then we have a lot of them go into investment banking. And I ran into a guy last night at a dinner. I said "Uh-oh," <laughs> but he said hello and so I shook hands, and it occurred to me later he's the guy from Grand Junction, Colorado, so I did eventually remember where he was from and what he was doing. But I don't want to go on and on, except that there's two things about it. It developed me a lot, and I contributed, in my view, something substantial to the venture capital community by teaching that course, by letting them meet each other, talk to each other, and guiding the discussion. I did insist that they calculate internal rates of return and that kind of stuff, and that they think about valuations and how you make valuations, so there was content to the course. But I think there's enough of them out there in investment banking and corporate work-- of course all the other professors influenced them too, but my private ego trip says I sort of influenced them too.

**Hancock:** If we could now talk about your role in the venture capital industry. You very early on helped develop with a small group of people what would be known as the Western Association for Venture Capital, right?

**Johnson:** Well, we got it going in '62. I heard some venture capitalists were meeting in the city every month, I think it was 12 or so. So, I started going to those meetings but only about, I would say, 8 of them

or 6 of them were venture-- the other guys were real estate guys-- people didn't think about venture capital as sort of a separate thing. But I got to know some guys in those meetings, and it sort of made me feel like part of it. So, I was active as a director of the Western Association of Venture Capitalists, and I was elected president just before Bill and I sold out, so I had to step down and not take the job as president. But the Western Association of Venture Capitalists is still going by the way.

Then I got involved in the National Association of Venture Capital very early on, though not the earliest. And it's had a tremendous role in educating people and in educating the government. It's a very strong lobbying organization-- I don't want to use that word but it's the word. So we've influenced the government in some ways to make it more friendly, more useful to have venture capital be taxed properly and have it not controlled too much. Because we have a great history in our country of people starting companies, John D. Rockefeller among the greatest, but eventually he got so successful his company was broken up.

And now these guys—Jobs and Bill Gates and Mark Zuckerberg and the others, we could start naming them all—they've become very successful. And now I think in some cases they're believed to be adverse to our society and to our democracy. I will say that we've got to be careful of making it bad to be successful as an entrepreneur because while there are plenty of entrepreneurs elsewhere, we've got to keep the country wide open for new people to start companies.

And the thing we have to do is make it more open to everybody. In other words, we can't just have a few well-educated technology guys. We have to do a better job of making it open to people from other circumstances to get this chance, but we don't want to kill the chance in the first place. I will say-- although I'm sure that I don't have the numbers right-- there's lots more women getting involved in venture capital and in entrepreneurship now than there's ever been from my own observation. I don't have the numbers though.

**Hancock:** As you look at the way that the venture capital industry has evolved not only personally but through your work with leaders-- by the way we are so proud to have, I think it was a holiday poster or something that you made with Peggy Burke that showed the evolution of the industry.

**Johnson:** Oh yeah. So, in, I believe, 1968, I thought we should have something showing the history of one side the year and the other side the companies and people. And we made a poster with the help of the art director of Boole & Babbage who was a very fine woman, and she later on started her own company 1185 Design.

**Hancock:** And pays great tribute to you.

**Johnson:** Pardon?

**Hancock:** And pays great tribute and appreciation to you for the start and support that you gave to her.

**Johnson:** Is that right?

**Hancock:** Yes she did, for Boole & Babbage. And then as she started 1185, Peggy said that you were the one--

**Johnson:** Peg--

**Hancock:** Peggy Burke.

**Johnson:** Oh I saw that. Yeah. Did you send you that mail?

**Hancock:** Well, she had her oral history here at the Museum because she donated her whole collection of all her design work for all the companies in the Valley over time, and when she was talking about this she said, "My career began when Pitch started introducing me to other people."

**Johnson:** Well what she did, I asked the management of Boole & Babbage if she did the work afterward could I employ her to design this poster? So, I got the okay, and I gave her the information and sort of the general thought, but she's the one that made that poster look good. But Cathie, my wife, did a lot of research. She called all those people. She sent out questionnaires—I'll never forget, I heard her really getting after someone for not sending in his questionnaire, and that getting after guy was Art Rock.  
<laughs>

**Hancock:** Oh really?

**Johnson:** But Art did send it in eventually, so I don't think we're missing anybody at all really from those early days. There was 25 years of venture capital on that poster.

**Hancock:** It's very powerful.

**Johnson:** That poster, I mean people put a lot of them up in their offices and--

**Hancock:** It's up in our--

**Johnson:** You have one here?

**Hancock:** Mm-hmm. I can show you.

**Johnson:** But Peggy Burke is just, as you pointed out-- I didn't know you knew it-- she's retiring, I think, this year.

**Hancock:** The end of this year. December.

**Johnson:** Well, one thing she's done, we have a few friends—perhaps more than a few—over the night before big game when it's here, and so she's always designed the invitation to that. So she's going to do

it one more year. I don't know what we'll do after that, but 50 years of it. 25 occasions but 50 elapsed years.

**Hancock:** Amazing. So as you think about the evolution of the venture capital industry, you've seen it change in stage and size, of funds and emphasis and boutique and specialists and add on. What's your view about the way that the industry's evolving?

**Johnson:** I have a view. Venture capital used to be defined, at least in my mind, by starting and guiding young companies and providing them with enough capital to get going, spending time with them, guiding them, and being rewarded if they grew up. But naturally as it became a successful model, people saw these 10%, 15% returns on average and much bigger returns in some cases, money is looking for work all over the world. New York woke up to it, said, "Wait a minute," and so they started backing venture funds with lots of money. We never went that way, we stayed private. But they began getting returns, and then people managing the money liked getting those fees, and the share of the money of big deals. So, I won't go over it all, but I think roughly speaking, probably millions went in in the '60s, tens of millions in the '70s, hundreds of millions in the '80s, and billions in the '90s. And if you define it loosely enough-- it will be over 20 billion this year.

But it's not the formation of young companies, it's a money business now. In other words, guys put in money at 400 million or 200 million, and at one point 2 billion valuation and hope that's going to go to 3 billion when it goes public, and then they make a pretty good return on a lot of money. I could say that's not really venture capital, but it's honest, it's decent, it's open, and everybody knows what they're doing. And the fact you can get a lot of money in a young company now lets people start companies without the risk of going broke in that year afterwards.

On the other hand, there's companies that get valued highly and then when they finally try to go public or try to be sold, they're not worth so much. There's one right now that's going through that. And I can't say that it's not venture capital, but it's really more private equity and speculation now. Honest, decent, there's nothing wrong with it, I'm trying to say that. But it isn't what I'd call venture capital, I guess I'd say that. But the thing is, it's called venture capital in the newspapers, and that's why there's 20 billion going into venture capital.

**Hancock:** Let's talk about Silicon Valley. People around the world look to the Valley as a place or sort of an epicenter where technology innovation and economic value creation through entrepreneurship have come together, and so many people want to know the recipe or the DNA of the Valley. What's your explanation for why here and not somewhere else?

**Hancock:** Well, how it got going was several factors here. There was a leading research university, Stanford, but Cal was around here, and UCSF eventually by the way. These are major research universities providing talent to form companies and providing the research that leads to the technology. I'm talking about just after World War II, in the '50s, say. Then there was the culture of people having moved west over the decades being willing to try things and maybe not succeeding, and the tolerance of failure. People didn't over-sweat failing. Another thing was, the weather was great here. So guys that

went to the Pacific would stop here for a couple weeks and they'd say, "Hey, it's sunny here." Too sunny lately, but the weather's good.

And then on a national level, they didn't tax capital gains too heavily, you could get rewarded for building companies. So that was true everywhere in the country, but it's just these things came together of talent-- by the way I forgot to mention the supply of engineers that comes out of a place like San Jose State and Cal State East Bay. Cal and Stanford provided engineers and science, but we had terrific young engineering schools that provided people. So you had this talent liking to be here. But I think Fred Terman encouraging Hewlett and Packard, and people saw that example that you could start a company and do well. I credit Stanford for a lot of why Silicon Valley is here. Now Silicon Valley has moved all over. San Francisco's an important part of Silicon Valley now.

**Hancock:** It is.

**Johnson:** And it was historic, I don't remember the name, but how it got going in electronic news, and I think somebody called it "Silicon Valley" and it caught on.

**Hancock:** Don Hoefler in 1972, right? He called it Silicon Valley.

**Johnson:** I don't know. Don Hoefler?

**Hancock:** It was. Yeah. Don Hoefler. So, we've talked about the catalysts, and yet the Valley has had to recreate and reinvent itself through different waves of technology. How do you explain that, and do you have concerns about the future for what might come next? How sustainable is this model?

**Johnson:** Well, I think the cost of labor here is going to prevent much in the way of manufacturing. I do think that we'll form companies here. The engineering, much of it can be here, especially the fundamental engineering will be here. But I think the world is waking up to this, and people all over-- I gave a talk in Poland last year to a group of people interested in starting companies, and around Cambridge University. So, we're not going to hog it all, and we're going to maybe not grow as fast. But I believe if we keep our wits about us nationally in terms of taxes and encouragement and regulation, we will continue to have Silicon Valley as a growing, vibrant place because it's so interesting to live around here. But at a national level we can't go overboard with taxes, we can't punish people for being rich too much or at all really, and we can't over-try to control what businesses are started.

**Hancock:** You've been involved in other regions and other countries because they've wanted to draw on your expertise in Eastern Europe and other places. What have you seen as you've gone to talk with people there? What's happening there, and what lessons if any can you bring from those regions back to the Valley, or ones that you've taken from the Valley to those regions?

**Johnson:** When I first started going, Bill Draper left Sutter Hill, became head of the United Nations development program. And in 1990 he asked me to go with him and talk to the presidents of or senior people in Romania, Bulgaria, Albania, Yugoslavia, and Czechoslovakia. Yugoslavia then and

Czechoslovakia then. I did. Albania was very backwards, still had a communist prime minister and so it wasn't sort of ready for this. But most of those other countries began to see-- I couldn't go to Poland but the trip was to Poland as well-- they have seen how useful it is to start companies that serve the local markets first and international markets afterwards. And Russia, I got involved in. Russia is such a place where things are controlled so much but there's been some good companies started in Russia. I got involved in a venture fund that a friend of mine was starting, so I went to Russia quite a bit to be involved with this fund.

But the answer to your question is, we're going to do okay with the competition, but there's going to be competition all over the world, and the places I notice it now are England, France, Germany, Poland, China for sure. Although China's an interesting-- we don't even have time to talk about China except to say that China has very large freedom of economic activity combined with very restricted ability to speak your mind and say what you want to do. They're trying to control the economy and certainly with artificial intelligence especially and 5G they have moved ahead. I don't know if they're ahead of us or if they can stay ahead, but they have by government action have decided they want to emphasize those areas. Everybody's scared of them and they should be, but I think we can do the things here that will enable us to compete very well and stop them from being dominant in that area.

I don't even want to get into politics, but we should be very careful in moderating our trade deals with them because they are a big market and we are a big market for them. If we try to stop that trade-- and I'm not saying Trump is trying to stop it, but he is interfering in the process-- it just has to be thought through very well and worked out with them.

But the entrepreneurship is a world-wide phenomenon now. One interesting thing is when I first started working in Germany, it was unthinkable to fail. If you failed, you practically go to your farm and spend the rest of your life there. Nowadays it's much more normal to take venture capital risks, and one time we were offered-- I think it was Boole & Babbage actually-- we offered to invest in a company in Germany, and they wouldn't take a deal where they could lose some money. So we had a deal where they were sure to make some money, and we had a hell of a strong deal from our point of view. It worked out very well that saved the entrepreneurs from taking the risk. Nowadays though there's venture capital firms and there's deals started, and I think they are less scared of failure now.

**Hancock:** As you think about your career, are there other highlights that we should talk about that we haven't? Other roles that you've played professionally that you would like to discuss?

**Johnson:** Well, I think my term as chairman of the international committee of the National Venture Capital Association was a good period. The rest of the world was waking up to venture capital. So we used to have joint meetings in London of the NVCA and the European Venture Capital Association, and we'd get guys together. I think that period was a period of communication between the two, and I played a role in that. I think that my activities in helping form and guiding and supporting the Stanford Institute for Economic Policy Research called SIEPR. It was formed originally to keep Michael Boskin in town, but it has turned out to be a very significant place where applied economics is studied.

**Hancock:** Very significant world-wide influence, really, SIEPR.

**Johnson:** Yeah. And the point was we wanted to get Stanford economists heard on the national stage, but I get credit for one thing.

**Hancock:** What's that?

**Johnson:** That is we kept Michael Boskin in town, and because Michael got in town, well Chris Boskin and he were married, and Chris always gives me credit for keeping Michael in town so she could marry him. <laughs> And practically every time I see her she says, "Oh Pitch." <laughs> But it's not my primary job. It was a side issue, an important one. Let's see. What else? SIEPR. I've been active in Hoover.

**Hancock:** Are you still one of the overseers there?

**Johnson:** Hmm?

**Hancock:** Are you still on the overseers, the board?

**Johnson:** I am. When I first went to Hoover it was sort of separated from the rest of the university, and while I've only been one of many voices, I've encouraged the later Hoover directors to reach out, be part of the university, get people in touch, and I think there's still resentment. Not in the economics department but I think, I don't know, some of the humanities that thinks Hoover's sort of a threat to liberalism I guess I'd call it. But I have enjoyed Hoover, I've enjoyed being sort of a voice that doesn't mind arguing for the government sometimes, and I've been on it for, I don't even know, 15 years or something like that.

Another area where I have been active is the athletic department. I've supported and encouraged the track and field. Track and field has had a transformation. So at one point the dual meets where you'd have Stanford against Cal, Stanford against SC, Stanford against San Jose State, Stanford against UCLA and others, the dual meets were an important part of the season. It was only later that the championship meets and running for yourself-- being part of a team was exciting. But because the NCAA reduced the number of scholarships so much-- for a very good reason, they were trying to provide the same number of scholarships to women. That's been a very important part of the track. But the absence of dual meets has changed the sport at the college level. So, people don't pay much attention to it, yet they did. We'd have 10,000 or 15,000 out for a meet and do a meet against SC especially. There would be 50,000 for a football game, I'm not suggesting it's comparable. But right now, except at the international level, I would say this, newspapers and television don't pay much attention to college track.

**Hancock:** But you still are an avid participant in track and field. I think one of the times I talked to you, you were going to see the Usain Bolt. Is that right? Are you still a part of that world?



**Johnson:** Oh yeah. I've seen him run many, many times, and Usain Bolt for instance was an investor in a deal that was done only a couple weeks ago to promote sports at a level. Usain Bolt and Serena Williams both invested together.

**Hancock:** Oh really?

**Johnson:** Yeah, but Usain Bolt made a lot of money and saved it. And as a track guy is probably one of the most internationally recognizable names of any sport. So, at first, I didn't care for him because of his showoff after every race. But suddenly I realized what he did was, he made the international sport much more interesting. So, these Diamond League meets, I watched them on TV, and they have good crowds, I mean, big crowds to those.

**Hancock:** Yes.

**Johnson:** But like the Stanford-Cal meet will have a few thousand people if that, if a couple thousand. It was here this year. Next year is an even year. But I've contributed some money to the furtherance of the sport. I've gotten to know the track coaches pretty well, and our coach just left. He left because he couldn't afford to find a house for his four kids here.

**Hancock:** It's hard, even with the faculty housing--

**Johnson:** That's what he said. So, college athletics is a mystery, anyways, what's going to happen to it. I just saw this morning that the State has voted to allow athletes to be paid for the use of their images and their names.

**Hancock:** Oh, really?

**Johnson:** Uh-huh. That's just in morning's paper.

**Hancock:** Hmm. It's a big change.

**Johnson:** They wouldn't be paid by their school, but they get paid by a shoe company.

**Hancock:** By a sponsor. Interesting.

**Johnson:** By a sponsor. But I follow sports. And of course, I go to all the home football games. I go to many of the home basketball games. And I go to all the track meets. But you know, I like the other sports just fine. I just can't go out every night.

**Hancock:** <laughs> Well, I want to make sure that we cover some of the areas of your life where you've contributed to the community and been very active in the education area in the community college with Foothill and De Anza.

**Johnson:** One of the most interesting things was that very thing. I belong to a luncheon club in Palo Alto called the Palo Alto Club and I joined about, well, I don't remember exactly when. But soon the guy said, "Well, how come you don't do anything?"

<laughter>

**Johnson:** And I said, "What do you mean?" He said, "Well, there's an opening on the Foothill Community College board." So, I went and talked to the people over there and I said, "Okay, I'll do that." So, I ran and won. And then one of the interesting things about campaigning for that, I had to get the League of Women Voters to be for me. But there's an area of Palo Alto between the Creek and University and Middlefield and Alma, and I spent very little time there was a kid, because there wasn't much of-- Well, Palo Alto was there. Professorville and Crescent Park with a few people, and down around Jordan there was a few people. So I had the experience of knocking on doors and saying, "Hi, there. I'm running for Foothill." And it's amazing how friendly people are. They're not suspicious. They don't think you're trying to sell something. I guess I wouldn't say I never got turned down, but I had a lot of fun just running.

But I served 12 years, three four-year terms. And during that period, community colleges were free. They were supported by the State. But the economics got so we had to begin to charge. Another thing that happened then was the Vietnamese arrived en masse and they wanted an education. They were used to having education, and so we didn't set up classes for the Vietnamese, but we had to expand the size of classes so that these people could take training in modern technology. And they began to go to work as technicians in the growing businesses around here in the '70s. And I also started teaching my class at Stanford. Let's see. I don't remember how much it overlapped, but quite a bit. So other than a few committees here and there, that's the only really substantial community activity that I had.

**Hancock:** Well, how about your work with the opera?

**Johnson:** Well, that's cultural, yeah.

**Hancock:** Cultural.

**Johnson:** So I got interested in opera. One of my fraternity brothers had lived back East and liked opera, so he took me to a couple of operas, they just happened to be *Carmen* and *La bohème* in my senior in school. So then I went off to Harvard Business School and I think I didn't go to any operas. I went to some symphonies there. But I got interested in opera and certainly didn't have a chance in the Air Force. But when Cathie and I got married I was working shifts and she was interested in opera. So this was in Chicago. We saw, went down to something called the Lyric, which was the name of the opera company there. And so when we came back out here in '62, we right away started attending the opera. And John Bryan, this guy that introduced me to Boole & Babbage eventually said, "Why don't you come on the board?" I said, "Oh, no." So I didn't. He said, "Look, we're going to ask you one more time." <laughs> So I did go on the board and after sitting on a lot of committees and meeting a lot of people, I became chairman of the board in, I think it's 1999.

And so then, of course, 9/11 came along and people just didn't come into the city, so we had a very tough financial situation. And Carl Mills, an outstanding guy, was president then. Bill Godwin was president when I started, but Carl Mills took it over. Carl and I had to meet with groups of employees and say, "Stick with it. We'll figure out a way to stay alive." But people were worried about everybody losing their jobs because there just--

**Hancock:** That's a real fear.

**Johnson:** So we called on Art Rock and others to drop in some money. I dropped in some and everybody did. We kept it alive, but I think it was a close call. But in terms of time spent, I think that serving on the board, serving on the finance and executive committees, I still do that, even though I haven't been president since 2009 or something? Not that long. Yeah, I think 2009. But a great guy called John Gunn is now the chairman. He's done a good job. He lives in Palo Alto also.

But I would say that probably in terms of time, outside of work, I put in more time on the opera than any other single thing. But the opera is a very satisfying art form. It takes human situations and magnifies them. You don't actively consider it, "Oh, yeah, I'm taking a lesson," but you're seeing people under stress behave a certain way. Of course, they're actors, but they do such a great job. And the music is usually beautiful. So I like opera and I'll continue going.

**Hancock:** Favorite composer? Favorite opera?

**Johnson:** Well, I like the popular operas. I have always liked *La bohème* a lot, although I've seen it many, many times. But I have sort of descended on Wagner and *The Ring* and *Tristan and Isolde*. I like Wagner's depth and I like the drama, so I think he's terrific. Puccini and Verdi, I like almost any of their operas. But a favorite, I'd say if you had to pin me down as a favorite, I think The Ring cycle taken together would be my favorite.

**Hancock:** Well, that's significant work, to hear that all together. When was the last time you heard the whole cycle? <laughs>

**Johnson:** Well, I mean, he was a difficult man, and not a nice guy by any means. And very anti-Semitic, I might add. But he was one of the strongest talents and he wrote those words, too.

**Hancock:** Yeah. Prejudice.

**Johnson:** So he wrote words and music for his operas. Even Israel's begun accepting and having concerts by him and I don't blame them for not having done that for years, but in terms of just the music and the drama and the effect on you of it. And I haven't detected in the work any kind of religious prejudice. But I think I have to say in terms of his work, not his life, but his work and his creations, I think Wagner would stand out. He's one of those guys, like Shakespeare and others, who just leap out from the norm.

**Hancock:** We've talked about your professional world, your community service. Would you like to make any comments for your oral history about your family?

**Hancock:** Well, I have a terrific family. Cathie and I, as I mentioned earlier, we started going out when I was in business school. And when I went in the Air Force, I didn't see her much, but she came out with her parents to visit. And, so I said, "Why don't you come to Sacramento? You can stay with some friends of mine."

<laughter>

**Johnson:** It's hard to believe that those were the days. It's only not that long ago, by the way.

**Hancock:** Those were the days.

**Johnson:** But anyway, she stayed with some friends of ours called Vatises. And then, and so I said, "Why don't you enroll at Cal?" She was out of school already then. So, Cathie enrolls in Cal for I think one or two terms. And of course, I managed to find my way from Sacramento to Berkeley.

**Hancock:** <laughs> Pretty often.

**Johnson:** All the time. Without going into all the detail, like any other romance we did get engaged at that point, and then we were married just when I was getting out of the Air Force. And it's sort of interesting. I learned something about the military-- they didn't have terminal leave in those days. If you had leave coming, you couldn't leave and then take it and then not come back. So I went to see the sergeant, master sergeant, who ran that office and he said, "Oh, no, sir, you have to be back here on the day you're getting out." But I said, "I'm getting married on June 11th." And this is, you're talking about June, I think it was 21st was when my anniversary of getting out would be. So he said, "By the way, you owe us for volleyball."

<laughter>

**Johnson:** He thought it was within his rights. So then because I, me and other guys probably would, I knew the General walked to his house for lunch every day from his office. So, I managed to be on the sidewalk. <laughs>

**Hancock:** Just managed to be there.

**Hancock:** When he arrived at home, and I said, "General Heffley, I need to talk to you about something." He said, "Is it something that could wait till after lunch?" I said, "Yes, sir." He said, "Be in my office at 1:30." I said, "Yes, sir." So, I went and explained that I was getting married on June 11th. June 15th I was getting out, and I had a new job starting June 21st. This would be boring, except it's an interesting outcome. So I said, "Well, I'd like to get transferred to this base near New York, so that I can not only get married, I can go to that base and get discharged on the 15th." It isn't discharge, going off of activity duty.

It's not the same as for an officer you go off active duty. "And I'd like to be transferred there." So he had heard enough of me so he pushed a button and said, some guy called Major Grant. He said, "Major Grant, would you take care of Lieutenant Johnson?"

<laughter>

**Johnson:** And he just made a decision that he didn't want to fool with it, but he knew that if Major Grant worked out something. So, I think I'll shorten this down, except that, he said, "Well, I'll tell you what. When you leave here on June--" I was starting my leave I think it was around June 5<sup>th</sup>, and then I had 10 days leave or something. He said, "Sign all these papers now as of that date and all you have to do is call me on June 15th and tell me you're alive."

**Hancock:** <laughs>

**Johnson:** "So then we'll process you out." I kept my active duty card, by the way, which he probably should have taken. We got married and we were driving through Canada on June-- So I called up Major Grant and said, "I'm alive, sir." He said, "Welcome." I said, "Well, I can't tell you how much it helped me." Oh, I know. The General had said to him, "Do we have any rules, Major Grant, that says a man has to drive 3000 miles on his honeymoon?"

<laughter>

**Johnson:** And so Major Grant says, "Well, no, sir." So, he said, "Take care of him." So, he did take care of me and so I got out completely legally and didn't have to drive to Sacramento.

**Hancock:** And had quite a honeymoon.

**Johnson:** But the reason I told that story is--

**Hancock:** Quite a honeymoon.

**Johnson:** I had a nice honeymoon in Canada. But it shows you that any organization, even the military, can kind of do things that help people. And I've had a great affection not only for those guys, but for the Air Force ever since because they took care of me when the time came.

**Hancock:** They sure did. Well, we were talking about your family. And would you like to add anything else besides your wonderful 65-year romance--

**Johnson:** Well, of course I married a wonderful woman.

**Hancock:** With Cathie.

**Johnson:** And we had babies. I won't go into every place of every birth, but we had babies. And married in '54. They were born in '55, '56, '58 and '62. The one son got a Ph.D. in chemistry and has his own company in the East Bay. My daughter is a very accomplished composer and singer, so she has a musical career going and she travels around the country composing and singing folk music. She's coming out with her second record.

**Hancock:** Wonderful.

**Johnson:** My older son, he did a few things for a career, but I put them all in Amgen when they were kids.

<laughter>

**Johnson:** So they've had the choice of what they do.

**Hancock:** That's lucky for them.

**Johnson:** But the thing I really like about our kids, there isn't any of them are not good people. You know what I mean? Honest and decent people, and they get along, which is very important. But we're proud of them because-- you have to knock on wood-- but so far, and I believe they will continue to be good, decent people, good citizens and not get in trouble. And the grandchildren are starting to come along. We had one just graduate from Stanford in computer science. Sort of interesting. He decided to take a month off. He'd worked hard. So his month is about up and he's working on a job, I think. But when you're a computer science major, some of the jobs come to you. <laughs>

**Hancock:** That's true.

**Johnson:** And then they have a really nice girl who's-- They were all born in Olympic years '96, no sign of Olympics. [ph?] 2004, the older girl is now 15, obviously. Really nice young lady and she's one of those student body presidents, organize-a-play kind of people. And then her little sister is four years younger, and she's going to be the scholar. She just likes to understand things. And then a little kid named Marty who's four. He's just a normal grammar school kid. He's fun and right now is all wrapped up in a soccer team, so he thinks about that all the time.

**Hancock:** <laughs>

**Johnson:** But the answer is four kids, five grandchildren, one adopted, and we have fun with them.

**Hancock:** That's wonderful. We started today's session-- and thank you so much-- Pitch, talking about you when you were about that age, your birth. And here you are now with generations of your grandchildren and they're young. I'd like to ask you, just as we close, a few questions as you look back at

your life and think about that your history will be here as part of the Museum for generations to come. And as you think about your children and grandchildren and not only--

**Johnson:** If anybody ever listens to this conversation--

**Hancock:** Yes, they will.

**Johnson:** <laughs>

**Hancock:** They will. We use these things for education, curriculum. We use them for exhibits. We use them for content to inspire the next generation. What advice would you give if you had to distill it into one word? What advice would you give to an aspiring entrepreneur?

**Johnson:** Well, I'll use a fancy word: perspicacity.

<laughter>

**Hancock:** Okay.

**Johnson:** But I think you sort of assume they're bright. He or she has an idea for a market and all those things, but times get tough. Maybe these kids that get tons of money don't have some tough times, but practically every startup will go through some kind of a crisis. And you have to say, "I'm going to make this happen. I'm not going to give up. I'm going to do it." I think that quality, if it's missing, they don't make it sometimes, which they could have otherwise. So I think I posted something down the hall that was similar to that, didn't I?

**Hancock:** You did. Persistence I think is what you said before.

**Johnson:** Persistence. I think perspicacity may not be the right word; I think persistence is probably a better word. But that's the one quality that all these people that we mentioned, famous guys and infamous guys, they stuck with it in tough times.

**Hancock:** In your own life we've talked about the high points, of which there have been so many. But as you think about them, everybody faces dark times. Can you share a time when you had a dark moment and how you persisted?

**Johnson:** By far the greatest was when my brother was in the Navy and he was killed in an airplane accident. So thousands of families have faced death of someone, but it was just a shock. The effect on my parents was just unbelievable. My mother couldn't cry. I said, "Mom, you've got to cry." <laughs> So I would say this is by far the lowest spot so far in my life. My parents died later, but they were, you know, it was a normal life. I've regretted it, but it was nothing like the shock that we had. And Bill Edwards, who is a very close friend of mine and a venture capitalist, I might add, who is so good because he had lost a brother in World War II. So he put my mom in touch with his mom and they talked, I guess, a lot. People

like that coming to help you when you need it means so much. But I don't have anything that compares. I've had business failures. Not too much, though. Oh, yes, a high school girlfriend pissed me off when we were freshmen, but that was just as well.

<laughter>

**Johnson:** Because I wouldn't have probably been with Cathie. My high school girlfriend was a fine girl. Died on her birthday about 8 years ago, her 80th birthday. But that was really nothing. That was just normal kid stuff. I shouldn't have mentioned that in the same breath of the tragedies people have from losing people. I've had bad deals, but they have never bothered me that much. It's just part of the business. And I've just had a very even life and Cathie's sort of slowing down, her memory is, so that's tough at the moment.

**Hancock:** Yes.

**Johnson:** But we're dealing with it and Cathie's dealing with it. But it's certainly no tragedy, it's just sort of a sad time, that's all.

**Hancock:** Yes. As you think about all the many people who look up to you, who were some of the people, and as you kind of summarize your life, that you admire or that have been most influential for you?

**Johnson:** Well, like most guys, my dad was a super example. A fine athlete, a wonderful coach, a father who you could talk to about stuff. And my mother was that way too. They're both super-duper. But also, my father-in-law, a very successful executive. And he was someone who was a shining example of a guy came from nowhere in a little town in Texas and worked his way to the top of a big company, a great American story. But he showed me you can do this. He and I were close, although he died young, he died in 1962 when he was 67. So he got to know all my kids except my guy who was born in '62.

Let me just think a minute. I think Fred Terman as a young guy was so inspiring and reinforcing, and I think you have to give Fred Terman pretty strong credit. I had a physics teacher in high school who taught me the magic of enjoying understanding phenomena. His name was Hank Martin and he was a tough guy. He'd close the door, if he had an exam he'd close the door at 8:00. If you didn't get in there-- Yes, it was 8:00 in those days. I can't believe they got us up that early.

**Hancock:** <laughs>

**Johnson:** One moving thing there, a chemistry teacher, Mr. Youngerman lost a son during World War II and we read about it in the paper. He came to class on Monday morning. I couldn't believe he was there. But he just said, "Many of you know I lost my son and he wants me to be here." That was a tough one, but it was inspiring that he knew how to carry on. Let me think of-- I had a wonderful mother-in-law, but you know, I didn't have talks with her. I think that pretty well covers it.



One thing we didn't talk about that we probably don't have much time for, but as a result of having got involved with the Rockefellers, I was invited to go to Cuba a long time ago and I wanted to fly my own plane. I got permission from Cuba in about 10 minutes, but from the United States to be able to fly there, that took a special doing. So we did, Cathie and I did fly there and I gave a talk. This is not a particularly good closing thing. I should have included it earlier.

**Hancock:** That's okay, let's talk about that. I actually had a note that we wanted to talk about your love of flying, too.

**Johnson:** Oh, yeah. It's been a major factor in my life, but.

**Hancock:** So we have to put that in. <laughs>

**Johnson:** Anyway, we flew into there and I gave a talk. Pete Alito attended the talk. There was about 60-some military, some business and science and almost certainly some intelligence people. But so I gave my talk and we visited another part of Cuba. But after I got a call, we were staying in some nice house that had been stolen from a sugar baron.

**Hancock:** <laughs>

**Johnson:** But I got a call that said, "The Comandante would like to see you." Well, I didn't expect it. And so of course I said, "Well, yes. What time?" He said, "10:00." And it's at night. Well, Cathie has a hard time staying awake past 9:00. But they sent a car for us and we went over there. He was in his office and we got by the guards and all that stuff. So he spent half an hour or more talking about socialism and how they built this communist country and all that stuff. And I said at the end of his, I would call it a diatribe but that wouldn't be fair.

But, "You know, we visited some of your fine labs. And there's enough good science there that the world could use some of it. I've been involved in starting companies. I think you have the basis for some companies. And if the workers had some stock and the management had some stock, you could probably raise money and start companies." He said, "Mr. Johnson, if we did that, some people would have more money than others." And I said, "Well, Mr. President--" I didn't call him Mr. Comandante, I called him Mr. President, "If some people have more money than others, but everybody lived better because of it, wouldn't you call that--" He just said he'd been describing social justice. "Wouldn't that be for--" He said, "Mr. Johnson, I know those arguments."

<laughter>

**Johnson:** And then for once in my life, I closed my mouth because he said, "I understand you flew your old plane." I said, "Yes, sir." He said, "I've always wanted to be a pilot." I didn't say, "Well, Mr. President, if you'd give the order you'd be a pilot in 12 weeks."

<laughter>

**Johnson:** But somehow, I held my breath. And I went again. I was invited back and I went again, and it was not so complicated getting permission this time. It didn't involve a visit with him, but it was exciting for me, who doesn't usually meet with heads of countries, to visit with him.

**Hancock:** And in Cuba, of all countries, too. <laughs>

**Johnson:** I came, and I was giving a little talk at Hoover in a small room, and they announced it and then they filled up the auditorium. <laughs> I gave this big talk about it, and I didn't realize but some people at Hoover had been anxious that we open up to him more, we influence him more toward capitalism by letting him visit and let Americans visit. They had a lot of private cafes there, but you had to work at it yourself.

**Hancock:** Well, that's an amazing story.

**Johnson:** The other visits with Bill Draper on that trip to Europe were either heads of countries or something. But I think of this one more than any other.

**Hancock:** What about your love of flying and being a pilot?

**Johnson:** Yeah. Well, my dad asked me what I'd like for a 12th birthday present and I said I'd like to fly. I'd like to go on an airplane. So we did that. Or maybe it was my 11<sup>th</sup>, you know, one of those birthdays. And so I was terribly excited about it.

**Hancock:** Do you remember, what kind of plane you flew and where you went?

**Johnson:** It was a Boeing 247D, which was something like a DC3 but not a DC3. And then we came out to Stanford. I mean, my dad did and I didn't. Palo Alto Airport had moved from Stanford Stadium to where it is now, if you know where it is.

**Hancock:** Yes. I grew up in Palo Alto too.

**Johnson:** Huh?

**Hancock:** I don't know if you know that. I grew up in Palo Alto too.

**Johnson:** Oh, you did.

**Hancock:** So.

**Johnson:** Well, that was before your time it was by the stadium. And before my time, too. Then when I got out of the Air Force, I was up in planes and I didn't have the eyes to take Air Force training, but I just was terribly interested in it. So as soon as we got married, I started taking flying lessons using my GI bill for that.

**Hancock:** <laughs>

**Johnson:** Because I didn't want to go to any more schools, and by using my GI bill for commercial flying lessons, it worked for that. Then I just rented planes, I borrowed planes and then finally, I bought a plane called a Duke.

**Hancock:** A Duke.

**Johnson:** Duke. And no, before I had a Duke, I had some other plane. I can't remember all the types it was, but it was a piston engine plane. And what had happened is Laurance Rockefeller's son had bought it and flown it around the world. I just heard that he wanted to sell it, so I offered him a certain number of shares of Coherent Radiation.

**Hancock:** <laughs>

**Johnson:** And he took them, so I got an airplane. So, then I owned a plane. Then I had a series of airplanes over the years and accumulated about 6,800 hours of flying time. Flew everywhere in the world except Antarctica pretty much. And one time, we flew over the Arctic, flew over the North Pole. But when I got to be 85 in 2000 and-- When was that?

**Hancock:** '13? Is that six years ago?

**Johnson:** Oh, well, well 85 and 28 is-- They started talking about my not flying but they finally pulled my insurance and said they wouldn't insure me at my age anymore to fly a jet airplane. By then I had a jet. And so I just had to quit flying. Harvard Business School had sent me a list of people who wanted to be in venture capital. So I wrote them back and said, "You got anybody there who's a pilot who wants to be a--?" So, this guy's with me now, but he spends most of his time on business matters and then he flies. We have a guy running the airplane and a full-time pilot, but we also have this guy. But I had to interview his girlfriend, so I went back, because I had to pass her test as well.

**Hancock:** <laughs> What was your final flight that you were at the pilot controls?

**Johnson:** Well, that was a good question. It was from San Jose to Hayden, Utah.

**Hancock:** Hayden, Utah.

**Johnson:** That was near the place we'd go fishing. So, then I turned the plane over to the guys and they flew it back. We stayed up there a couple weeks and they came and got me. So, I was already questioning whether I was insured or not. But I didn't want to fly without insurance and that's sort of that. Legally, I could have flown by keeping up my physical and taking the training, which I was passing every year. So, I was a little surprised, but I sort of understand it, though. So I've regretted that, not flying has been a big deal.

There's something any pilot will tell you. There's something any pilot will tell you, something satisfying about a takeoff and a landing. And our jet was, we'd fly three or four hours or sometimes five hours just sitting there. But it's absorbing. It's like there's something about it. It's like fly fishing. You don't think about much else when you're fly fishing, and I don't. We spent about 60 years going to this place in Colorado, the same place every year.

**Hancock:** Beautiful. Two more topics that are really important. Let's talk about your Behavioral Research Labs.

**Johnson:** Well, a guy named Allen Calvin who was a professor of psychology and started Behavioral Research Labs. It was a programming company, but before there were computers. So it was just page after page of studying, of learning by examples. If there had been computers, it would been computerized. And we did discuss, he did later start the Palo Alto University. But the beginning of that and my involvement with him was his company, Behavioral Research Laboratories, which was the first sort of program learning I ever heard of.

And Jim Hobart took over Coherent Radiation. It was a company that made lasers and used them for medical purposes. It was quite a good company and Jim guided it. And there was a fellow named Gene Watson that was involved in the beginning. I don't know quite why-- Well, Gene Watson was gone before I got involved. But Gene had a lot to do with the founding of it. Jim took it over and ran it for a long time.

And it was important because there's two things it did that affect you every day. If you have any surgery on your eye or in your internal [??] that you need to do things, it has a laser do that. But also, when you take something at the grocery store and check it out, that reader was invented by Coherent. And we had big fights with the retail clerks union who thought we were spoiling their lives, but it was just a normal advancement. And the head of the retail clerks union there was called Catherine Johnson, but not my wife.

<laughter>

**Johnson:** But I think both Coherent Radiation, as eventually brought to the fore by Jim Hobart, [ph?] and Behavioral Research Labs were very important young companies pioneering in their field.

**Hancock:** I'm glad we added that. Thank you. Seeing your phone reminded me of something else I forgot to ask you, which was, you're so facile with using your iPhone or your computer all the time. Do you remember the first computer that you saw or that you used?

**Johnson:** That I saw? Not that I used?

**Hancock:** Either one, saw or used.

**Hancock:** Well, I took a course. I knew about computers and I saw these card readers and that. But the first time I really got involved in computers and programming was a course I took, I don't remember the

name of the course, Computer Something 101. And so we learned to program and learned how to reprogram, use programs. I took that in 1964 because it didn't exist when I was in school 14 years earlier.

**Hancock:** So, what kind of computer were you using? Do you remember?

**Johnson:** Yeah. I remember the program was called ALGOL and COBOL. And I don't know what we ran them on. I don't remember. They were Stanford's computers, yeah.

**Hancock:** That's fine. Well, thank you. That's a nice bookend to seeing you there with your phone. Well, I have one last question about your life and one about the Museum, and then we'll let you go. The one about your life is, how do you measure your life as you look back at it?

**Johnson:** First of all, I'm very happy with my marriage and family, which is, you know, it's most of your happiness. You got a tough marriage or bad kids, it's hard. And I didn't have either one, I had just fine kids and a super-duper wife. In terms of what did I do for the society, I feel good about the fact I played a role in the development of venture capital. It wasn't a key role, but it was one of the important roles I think.

**Hancock:** Yeah.

**Johnson:** And that gives me satisfaction. I could have done something else and I could have had a corporate career but I'm glad I didn't. Because I generated some capital, I've been able to give some money to organizations that I think are worth it. But how would I measure my life? I guess I could have done more for others than I did, because I was working hard for building companies and in a way, I was serving myself. But in a way, I was helping people build companies, so you could-- it's a complicated-- But I think I'd be a good, strong B-plus, how's that?

<laughter>

**Hancock:** You're a hard grader, Pitch. But thank you for the many ways that you've made a difference, and one of them is here at the Museum. You've been a participant at so many programs. You've spoken from the stage and you've also been a financial supporter. As you envision what the Computer History Museum can do to help society, what are your hopes for this institution?

**Johnson:** Well, something it is doing, but you've got to continue to emphasize is getting students in here, getting people to bring their classes, telling them what this is, what the history of computers is. Kids tend to accept what's there, and they have almost no concept what's behind them. So I think not only getting them in here to study history, but to talk about what's going on in computer science right now. Some of them will get interested and some of them won't, but they all need to know what's going on so you don't look back only. You can look back, but you look back and then you see what's going on and then you can talk about the future. Because I don't know where artificial intelligence is going or what 5G is. Kids have a little trouble understanding that, but they need to know it's going on now and it's going to be influencing their lives for decades to come. But I'd say keep building your collections but emphasize education.

**Hancock:** It's a great vision that the Museum has embarked on, so, Pitch, it's a great honor to add your story officially to our collection.

**Johnson:** Well, it's a great pleasure to talk about myself for a couple of hours.

<laughter>

**Hancock:** Thanks so much, Pitch. I hope you've had as much fun as I have. Thank you.

**Johnson:** Thank you. I enjoyed being here.

END OF THE INTERVIEW