Oral History of Steve Blank, part 1 of 3

Interviewed by:
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Hancock: Today's July 8th, 2019. I'm really honored to welcome you, Steve Blank, to the Computer History Museum to have this first session of your video oral history.

Blank: Thanks for having me.

Hancock: My name's Marguerite Gong Hancock, and on behalf of the museum and Exponential Center, which I lead, we are thrilled to have you. We want to really begin at the beginning and ask, for the record, when and where were you born?

Blank: So I was born November 30th, 1953, in New York City.

Hancock: And if you could tell us, you were raised, I believe, in Brooklyn, you tell us about your family and who they were and the beginning of the story which really--

Blank: I was actually born in Manhattan and Raised in Queens in New York.

Hancock: Okay, thank you.

Blank: My parents were immigrants to the United States, and I only understood their history much later in life, which actually kind of made the point that survivors tell the tale. My mother's mother had gotten pregnant by some itinerant Russian soldier passing through her village who had promised her he was going to send for her from America [just before] he got on a boat [for America] and left. Her cousins in New York would send letters back to my grandmother saying, "He's living with some other woman. He's never going to send for you," and my mother is now born and my grandmother's raising her in a town outside of Vilna, Lithuania, called Eishyshok. So, my grandmother and a cousin finally decide, well, they're going to save up enough money and go to America and find her husband and, darn it, she was going to get him back. So she gathers up her belongings and heads over to the port, and then just as they got to the port my grandmother remembers that she forgot to dig up some gold she had buried or something and her cousin goes, "Well, there's the port. We need to go." My grandmother says, "You get on that boat. There'll be another one," and goes back to her village.

She digs up the gold, and it's August 1914, and World War I starts. For five years they're trapped in Lithuania. Russia surrenders, but then the Russian Civil War starts, and my mother remembers being eight years old, smuggled out in a hay cart with bayonets going past her face as they're sticking it in looking for people being smuggled out. They make it to the United States, and I think this is where a little part of my entrepreneurial gene comes from. The family lore is my grandfather, meets my grandmother at Ellis Island. My mother still remembers getting her first ice cream and what Ellis Island looked like. We went back with her when our baby was born, when Ellis Island opened up and she was able to describe exactly where she was standing.

But the entrepreneurial part is my grandmother gets taken to where he's living and realizes there's another woman there, and the next day my grandfather goes to work. My grandmother doesn't speak a

word of English. She moves my mother and my grandfather out of the house, gets an apartment in New York, and they're now living, together in not a happy marriage. An interesting footnote. is that my mother's village, Eishyshok, is memorialized in [a photo montage in] the [D.C.] Holocaust Museum, and it was a Jewish Ghetto with 900 years of history. When I read the book, "There once was a World, a A 900-Year Chronicle of the Shtetl of Eishyshok[1].

My father was born in what was then the Ukraine and then Poland, kind of in that border area, and he came over in the mid-1930s with his father. He was the oldest of six or seven kids. The traditional immigrant experience was then the father came over with the oldest son, worked, got money, then sent for the rest of the family. He met my mother at a Socialist workers party dance in New York City in 1937, and he falls in love and says, "I want to get married," to his father, who's here in the States. His father says, "What are you, crazy? You don't have money to get married. We have to bring our family over." My father says, "No. We want to do this. It's really important."

[There was one letter my] parents had saved their whole lives. It was in Polish and it wasn't until I was in my thirties or forties that I got it translated. [It was from my father's mother. It seemed that my] father sent a letter to his mother asking her for her advice, asking should he get married now or should he not get married and bring [her and the rest of his family] over now? And of course, his dad wanted them now, and my father wanted to get married. His mother, the letter said in Polish, "Don't worry. We'll have plenty of time." So they got married. Three months later Hitler marched into [Poland and] killed the entire family. My parents lived their entire life with this knowledge that they both killed my father's family by getting married. I didn't understand why it was kind of a crazy household. So, this is, "How did I grow up?" I grew up in something like an outpatient clinic.

Blank: You never knew what was going to happen. My parents got divorced when I was five or six and I went through for the first 20-some-odd years of my life thinking it was my fault, which all kids do when parents get divorced. But even more so, I never understood what was the [unspoken secret that drove the constant turmoil between] my parents. My father, after World War II ended, spent years searching for any signs of survivors of his family, and of course they were all gone. So my upbringing was pretty chaotic. I never knew what was going to happen the next day.

When I was raised by a single mother, sometimes I would get food, sometimes I wouldn't. Sometimes she'd be home, sometimes not. There is a term, latchkey kid[2] [and I was one.] We lived in an apartment and I would take care of myself. So life was pretty dysfunctional just trying live in what I would now say in hindsight in survival mode, maybe PTSD for a kid. So, I don't even remember much of anything before college. Very few friends. In fact, my best friend was the library-- I remember going to the public library in my corner of Queens. I must've read that entire library. So, for me the library and books were kind of a safe haven of certainty. There was a librarian. Things were in order and you could assimilate a lot of data. So that was my home life growing up.

[1] https://www.amazon.com/There-Once-Was-World-Chronicle/dp/0316232394
[2] a child who is at home without adult supervision usually after school until a parent returns from work

Hancock: Did you have siblings or other people in the neighborhood?

Blank: My sister-- I have one sister who is 12 years older than me, so I didn't really meet her until I was 13. I mean, I kind of had vague memories of her, but she left home because it was so crazy. She said I had been blessed by only having one parent, [while] she had to grow up in a house with two crazy people. She ran away from home when she was 16, so I must've been four. So, I didn't meet her until I was an adult, and so it's less so a sister and more somebody I admired.

The interesting connection was her second husband, was a researcher at IBM named Maurice Karnaugh, who invented the Karnaugh map[3], which in the '60s and then later on with logic gates, again became important. In my teens and early twenties, I used to visit his lab at Yorktown Heights, when that was IBM's premiere research center, and that must've implicitly kind of imprinted [the idea that working with] computing [was a career. At the time it was subliminal]and I never thought about it until much later in life that, "Gee, this computer stuff looked like a pretty good gig," because he would just sit in an office …and back then he had a terminal which was an amazing concept at the time.

So that was my home life.

Hancock: And did you have topics as you sought refuge in the library, certain things that were passion--

Blank: You know, I loved science. Yeah.

Hancock: That were early passions for you?

Blank: I loved science. Always liked to read, though I remember early on realizing, I must've been about fourth or fifth grade, that I was partially dyslexic, and I never understood the word until much later in life. I couldn't tell the difference between the letter "S" and "C." People would say, "Well, no, that's not--" and I, "What?" Still until today, I didn't realize that that was a thing, that you could be partially dyslexic …. I just couldn't see what other people saw. So reading was hard, but I managed to power through it. ,

It's only with decades of hindsight [and having raised our own family, that I] realize most kids [had a stable home life] and have social lives, while I was just trying to not get killed at home. In school I always thought of myself as kind of the dumb kid. [I couldn't focus. I never did a days' worth of homework my entire life. No one ever asked to see any.

It wasn't until my senior year in high school that I had an inkling that I might not be as dumb as my grades showed.] In New York City, in high school, every kid took an equivalent of an SAT called the Regents Scholarship Exam, and of course you knew in the rankings where all the smart kids were going to be. My high school had a thousand people in their graduating class, and so when the Regents test results came out, I started looking from the bottom up. I must've been there for about 20 minutes until one of the other kids, like, elbowed me and said, "Boy, what did you do to, like, cheat?" I was number five in the school. I

[3] [Interviewee's note] a method of simplifying Boolean algebra expressions

received a scholarship to the college in New York, but I wanted to go to the furthest place from home I could get to, and I got a scholarship there as well. I thought I was applying to the University of Michigan <laughs> and accidentally applied to Michigan State.

<laughter>

Hancock: Big difference.

Blank: -- you're right. Big difference.

<laughter>

Blank: Even now, but back then even more of a difference, and then they're obviously different schools. I had seen a football game on TV and thought that looked pretty cool and wherever it was. I ended up getting a scholarship to Michigan State University, but it was the furthest thing I could think of from New York City.

Hancock: Before we get to your college years ,I want to ask you about your relationship with school. For kids who are literally just surviving, school is difficult, and yet you were able to test well. What was school like for you in those earlier years before you went to college?

Blank: In New York City high school, the grades were numeric, and a passing grade was 65. So just to give you an idea of where my head was at [at the time]. You took five classes a quarter, and you had to pass all of them to graduate and passing grade was 65. My last year I got four 65s and one 98, and the 98 was in the first computer science class offered in New York City. So, I would say I kind of shut down in most stuff and was able to barely pass, but when I got interested to something I really got interested. I think that's both half PTSD and half Asperger's, which was probably a great combination of what would describe how I processed stuff. Shut down in most. So, I was interested in history, interested in science. Terrible in math. Have no capacity for languages still. But that was my time in high school.

Hancock: Let's talk a minute about your early interest in technical things. You mentioned your early influences and in then this class, this first class. Can you talk about your awareness of computing or about this technology?

Blank: That's really interesting. It's, in hindsight, kind of a major influence, along with my brother-in-law. At the time, New York City had just instituted a programming class in a report writing language called RPG, which was an IBM report formatting language. They had terminals inside of a computer science classroom, at least in this high school I went to in Queens. We would type in the little programs and reports would come out.

But one of my friends' father worked for the New York Daily News, and they had just bought an RCA Spectra 70 computer. So we would sneak in on the weekends and do punch cards on IBM 29. It's

amazing to imagine we had a byte on a card.[4] I mean, it was just like, "Duh," but I learned how to key punch and learned how to run programs there. I think it gave me an above average exposure back then. Probably early. I wouldn't say I was a hacker, but I was curious and, loved to play around, and that was my early exposure to computers. So, RCA Spectra 70s. My brother-in-law was on probably the biggest [IBM] 360 they had at the time at Yorktown, a 360/95 or 92 or something, and-- or maybe it was a 360/65, but it was one of the first time-sharing machines at Yorktown. So yeah, it was kind of fun.

Hancock: So you-- by the way, my husband and I spent a year in Michigan, so am well aware of Michigan State and University of Michigan. <laughs>

Blank: Well, that was a cultural shock.

Hancock: So how was that going from New York to Michigan and Michigan State?

Blank: Yeah. I remember that summer, I don't know what I did at home, but my mother and I were so happy that we were being separated. She drove me to the airport and literally dumped me off. I remember getting to Michigan with one little suitcase and kicking my other bag literally down the street and moving into a dorm, and meeting people from walks of life like. I had grown up in essentially a Jewish ghetto even though it wasn't physically that … it was a suburban area of New York City. But [now I was] meeting people who were truly farmers. Cherry farmer from wherever, and my roommate was from a little town called Standish in Michigan, which had, like, 45 people. He lasted two weeks in the university. So a whole set of culturally diverse people. I remember my first evening in that dorm I met a guy who still affected my entire life, and that was someone named Michael Krzys.

Michael-- I'll just give you the short version. From the day he showed up in college he had a profound belief that he wanted to do public service, and that he was going to dedicate his career to make other people's lives better. People who knew him in high school knew he was the head of the class. He was one of these all-around great guys. Wasn't a jock, but had a magnetic personality, and Michael, for some reason, he and I just kind of clicked.

He grew up in a little town called Adrian, Michigan, which is between Toledo and Ann Arbor, and I got to know all his friends from Adrian, and in fact, one of my first girlfriends was from his town. He was just an amazing guy, and Michael ended up being the best man at my first wedding. When I went into the military, which we'll talk about later, Michael went to law school, graduated, joined Georgia Public Services.

When I came back and I was in Silicon Valley, my second year here I got a phone call from someone who was trying to track me down. Michael had been killed in a head-on accident and his wife and kids who he was taking to camp survived. But he affected my whole life. When I started to get back into public service, you know… Michael had always told me when I was in the military, "National service is great, but there's a higher calling, public service," and so when I retired and started doing service, I think a lot of Michael

[4] [Interviewee's note] to be accurate, 80 bytes per card for character storage, or 120 bytes if binary

Krzys was still in the back of my head. When I became a public official, I would always think about, “What would Michael Krzys do?”

So talk about early influences in my life. You know, we only knew each other maybe intensely for a year or two and kind of casually via letters and before email for couple years after that, but it’s amazing how someone can have that kind of influence in your life. So that was my first year in college. I had a girlfriend at the time who actually became my first wife, and she was working hard. She became an art historian and a professor ultimately at Michigan State, while I couldn’t care less about being in school. I had no idea why I was there. Good Jewish boys went to college and became either accountants or doctors, and I was not interested in either one of them. I was screwing around and doing typical college stuff. In fact, for me, college was the first time I had a social life. And like most kids you kind of explore drugs and sex and whatever-- you know, check, check, check.

But school was the last thing I wanted to do, and I still remember her words to me as, “You know, some of us are working our ass off to be here. Why are you here?” and I’m, “Well...” she said, “Well, why don’t you do something else for a while?” and I remember that was the first time someone gave me permission, that I didn’t have to be my parents’ child anymore. That’s what I remind my students: the day you step out of your parents’ house, you have to make a decision. Are you still your parents’ child, or is this the first day of your life? And that’s when the switch went on for me that said, “This is my life. I don’t know what I’m going to do, but it’s not here.” So, I stuck out my thumb and hitchhiked to Miami, Florida, because Michigan in the winter, that winter was 40 below zero.

<laughter>

Blank: Like, “You got-- below what?” New York City has winter, but I had never, in my short life back then, seen 40 below-- Lansing, Michigan, could’ve been in the middle of Alaska. It’s probably warmer there, and so I thought. “where was the warmest place I knew?” and I knew someone from high school.

Hancock: Were you around 19 at this-- when did you drop?

Blank: I was 17.

Hancock: Seventeen when you--

Blank: I went to college when I was 17, so this might’ve been 17, maybe my 18th birthday-- so it’d just turned 18.

Hancock: Just 18. You dropped out.

Blank: Dropped out. Hitchhiked to Miami.

Hancock: Heading south, all the way to Miami.

Blank: Headed south, and this has been kind of the story of my life is. If you show up a lot, stuff happens. My next to last ride, I still remember, was in a VW bus right out of the '60s. This is 1971, 1971 with some guys who were living in a commune. They said, "Where are you going?" I said, "Oh, I'm going to be staying with my friend in a dorm in University of Miami." And they said, "Well, you never know what happens. Here's our phone number in case. "Phone number? What do I--" so I stuck it in my pocket. When I show up in my quote "friend's" dorm, he says, "Oh, no. You don't want to stay here, do you? I just had to throw out the last person who was here who said they needed a night, who was here for the last month," <uh oh> So I stayed a night and had this phone number in my pocket. I called the number and they said, "Oh, we'll come pick you up," blah, blah, blah. "You can sleep on the couch." They lived at 434 Alcazar in Coral Gables, and it was, like, a bunch of guys and women living together. They were Nichiren Shoshu Buddhists, and there was a little shrine and they were chanting and I was exhausted. Slept on the couch.

The next morning, I remember being slapped on the side of the thigh with one of the guys saying, "Hey, we're going to go to work. You want a job?" and, "Well, sure." I had been working since I was 14. My mother never had any money. We were maybe at the top end of poor or lower end of middle-class. My mother was a bookkeeper. I think she made a hundred ten dollars a week. Never had any money-- I didn't even know what an allowance was. So, I went to work at 14 and lied about my age.

Hancock: What was that first job? When--

Blank: I worked in a dry cleaner's, and so I know how to bag dry cleaning. If anybody ever has that problem, I could do that. But I lied about my age. I told them I was 16, because that's what you needed in New York for a work permit. In fact, when the [military] draft came out, I had to lie and tell them that, "Oh, I had a low lottery number," because like, [they asked] "Why are you still here?" and so I made pocket money. I was used to working paper routes.

But for me it was more about survival, to buy comic books. In fact, have to tell you, I learned how to read both in the library but before that, by reading comic books in the candy store. We didn't have any books in our house. My mother really didn't read except for the Entertainment section in New York Daily News. So, I first learned how to read by reading every comic book on the rack. They kind of got used to me being a fixture in the corner of the candy store and then I discovered the libraries. But anyway, where was I? I'm kind of lost... <laughs>

Hancock: So, you were just saying they whacked you and said, "Let's go to work."

Blank: Oh, on the thigh, and so to work. For me, work was kind of really kind of interesting. So where we're going to go for work? I don't know. We pull up to Miami International Airport. "Well, what are we doing here?" "Well, we work converting cargo planes into transport for racehorses." They basically flew racehorses up and down the East Coast depending on the season. Now they were building stalls inside this cargo plane so the racehorses could be transported back up north for the next season. Some other jobs were, refurbishing planes and whatever, and so I kind of fell in love with airplanes.

But unlike other guys who wanted to be pilots, I was just blown away by, “How did they fly?” What was this radar stuff? Tell me about the instruments, and finally, I bugged one of the guys who was in the repair shops and they gave me manuals to take home and I started reading about this stuff. I said, “How do I learn how to fix this?” And I remember somebody saying, “Kid, if you’re not going to go to college, the only way you could ever learn this stuff is you need to join the Air Force.” and there’s a war on. What are you, out of your mind?” Well, no more than, I don’t know, six, seven months later I joined the Air Force, in the middle of Vietnam.

Hancock: Because of your interest in electronics, or were there other factors that led to that?

Blank: If you would’ve asked me 20 years ago, I would’ve said, “Oh, yeah, it was the working at the airport and [it was the] exposure to airplanes,” which I’d never seen up close before. I had been on an airplane once to meet my sister when I was 13 who lived in Washington. But [today] I’d say something else was going on. Maybe now later in life-- I was always pretty good operating at a different level that I couldn’t articulate. What I realized I needed in my life, which I never had growing up at all, was some type of discipline and framework.

You hear the story a lot about kids who are lost who join the military or some type of structured organization, and it’s not just a Steve story. It is a repeatable pattern, and whether it’s a civilian work program or some kind of program, the ones who instinctually have some kind of neural net running in the back go, “This life isn’t going to end up well unless I get this.” Since I didn’t have a father, and a mother who essentially abandoned me in place, I had no structure in my life, I was looking for some kind of structure. And boy, did I get it, and I got it in a funny way. The military both gave me structure and the ability to focus, but in a war zone it gave me the ability to discover what my real talents were, and that was a real surprise for everybody. [including me]

Hancock: We talked about the change in culture from New York to Michigan, but from a freestyle life, you know, freewheeling lifestyle in a commune to go to the military, that is another dramatic change and how did you make that--

Blank: Yeah, I’m pretty good at context switching.

Hancock: Yeah, how did that happen?

Blank: By the way, one of the other interesting things I did in Miami besides have a great time and drugs and whatever, is there was the Republican National Convention in ’72, riots in the street. It was actually a lot of fun. But the most fun was going up and seeing the Apollo 16 launch. So we hitchhiked up to Cape Kennedy, sat on the beach across the Banana River and I think it was Apollo 16, because it took off, like, noon or one and I know this because we camped on the beach, got up, stood in the water and until the Saturn V took off, and I got probably third-degree sunburns.

<laughter>

Blank: I still have scars. But I have to tell you, there are still people who remember a Saturn V launch. I still remember. It was like watching the Statue of Liberty take off. Even five miles away, or however far it was across the river, this thing looked like a skyscraper. What was very weird is you saw it lift off and [at first] you didn't hear anything, because the time it takes the sound to travel. Instead you would expect a gigantic roar, the first thing I remember is my chest starting to vibrate, and I think it was the infrasonics coming across the water. It was a visceral feeling, and I still remember that experience.

Hancock: You're describing in such detail. You not only have the scars on your back from those third-degree burns, but clearly, it's burned into your memory and why is that?

Blank: As I said, I don't remember anything before going to college, so it probably means I have a lot of room in those neurons for extra space.

<laughter>

Blank: I still remember the down-link frequencies of the telemetry from the Soviet SS-18. Remind me, we'll talk about the Computer History Museum Computer Bowl, which I won twice. I was the MVP twice. So I have this funny capacity for retaining arcane random facts, God knows why.

We were talking about structure. I implicitly understood I needed structure in my life, and there was a war going on. I would've thought, and still think of myself, as kind of liberal, but for some reason there was an overriding thing that I needed something in my life. if I would've been smarter I probably would've figured out what other civilian programs were available, but the military was pretty clear and I'm deathly afraid of the water, so that ruled out the Navy. I was at least smart enough to realize, "Huh, Army. Well, there's only one place you're going after you join the Army, and Marines, there's certainly one place you're going [(Vietnam)]. Air Force? Yeah, planes." I was kind of attracted, and [the] Air Force [had] electronics, and so I visited a recruiter in Jamaica, New York, part of Queens, and got some literature.

I was living with my sister and her husband in Yorktown Heights and painting their house for the summer. But I'd already been talking to recruiter and told my sister I was going camping for a month. I took the aptitude test to get into the Air Force and nailed a couple of things where, again, I was actually pretty good at stuff. Guy looked at my scores and said, "Oh. What would you like to do?" I said, "Well, electronics. I want to work on computers." Thinking I'll work on big mainframes like that RCA Spectra 70 or maybe, if the military has IBM 360s," and the guy checks the box Electronics. He said, "Just tell them you want computers. I already checked the Electronics box. They'll give you whatever you want."

<laughter>

Blank: I think the world of recruiting hasn't changed even in Silicon Valley since then. Because, of course, I wasn't going to get to tell him what I wanted, but at least he managed to put me in an interesting [career] area. So I got to basic training, and again, my sister and brother-in-law think I'm out camping. Meanwhile people are getting letters from parents, and I'm not getting any letters because I didn't tell anybody where I went, because I thought in my head, "Well, maybe I can't hack this." So if I can't hack it,

no one will know where I was. I'll just get discharged or something. I didn't know how it worked, but, like, why tell anybody? I have to tell you, this was again luck. I got to basic training, which was in Lackland Air Force Base in San Antonio, Texas.

Hancock: Can you tell us roughly your age and year, please?

Blank: It's August 8th, 1972, and I'm 18 years old, [in] basic training, and you get off the bus and you're late at night and you flew in from different parts of the country and they assigned you, to your training squadron. You get on a big bus and people get off at different stops depending on what squadron they told you. Right out of the movies. You're on this bus. It's late at night. Bus makes the first stop and first squadron gets off, not ours. I look out the window and like a 6'1" drill sergeant is screaming at the guys who get off, and I'm going, "What did I get into?" Bus goes to the next stop. Next group gets off. There's even a bigger drill sergeant, right out of, like, Apocalypse now or those war movies. "Roar, roar, roar, roar..." in people's face, and I'm going, "Aw, man. I'm going home. I'm going to figure how to get out of here." It's our stop. We get off and I'm like almost wetting my pants- who's [it] going to be? I still remember, a 5'2" sergeant comes up, Sergeant Gonzalez. The sweetest guy you've ever seen. Says, <high-pitched> "Gentleman, can you please get in line?" <laughs> and it was great.

The other thing I remember about basic training is I was just poorly out of shape. I mean, I couldn't even run a mile, and of course you had to do that to pass combat stuff and whatever. You had to run a mile and I managed to get out of it the first time, and the second time there was a make-up thing and I went and four other guys went and there was one African-American guy who was incredibly fast, around the track. You had to go around four times, and I was with the other three kind of like slow guys and I said, "Watch this," and so the guy, like, laps us. Not only laps us, he's a lap and a half ahead of us. As he finishes his lap we're right behind him but a lap and a half behind, I go, "Yes, we're done," and the guy goes, "You only ran three laps." I said, "No, no. You ran five."

<laughter>

Blank: And the drill sergeant had no idea. Said, "Thank you very much," and signed [us] off. That was the first hack I did in the military. So I get out of basic training and you get assigned to what your specialty is, and I thought, "I asked for computers and now we're going to be working on mainframes," and I look and it says, "Electronic warfare." I went, "What on earth is that?" I'm assigned to Keesler Air Force Base in Biloxi, Mississippi which, back then, and I assume maybe now, the Air Force had the world's best vocational training program in the world. It was spectacular. Even in hindsight, it was still spectacular. I think it was about nine months of vocational training, half theory, and then half hands-on practice on some real equipment, and I learned really the basics of electronics. Again, I could've been a great TV repairman by the time I got done.

But also got to run my first large-scale marketing experiment ever, because I was still a little bemused about being in the military. I didn't quite understand why people were yelling at you one day, but now we're in school? And so, the Air Force base for Keesler was kind of this mix between command and control, but also you're in educational things where you can ask any questions but you got to follow

orders, which was a little bizarre. You should understand, there were 10,000 people on this training base at a time, in 30 what were called squadrons, 30 buildings of 300 each, and every Friday the squadron would meet in the courtyard to get final instructions for the weekend, and then like a school, we were dismissed. Go have a great weekend.

But there was always some little lieutenant who maybe just got his bars, 21 or 22 years old, that would stand up and give us our briefing for the weekend. The other thing is every squadron had a bulletin board of things you were supposed to read. You had to read this bulletin board, and mostly it took five pages to say, "No smoking in bed," or something very military-ese. But there were always these official orders, and the other thing to think about is that they would rotate people who had to be what was called the fire warden, but think of that as a manual smoke alarm. Before they had smoke alarms, they had people walking around every room at night to make sure no 19-year-old was smoking in bed catching the building on fire. Seriously. So that would rotate between random people and one night I was the fire warden, but when they made you fire warden, they gave you access to that lieutenant's office, which had a typewriter and [blank stationary printed with] the base letterhead, with the letterhead of the base [commander].

Now, you remember my story about loving libraries? Well, this Air Force base, Keesler, had the world's best technical library, and I would spend spare time there and discovered Scientific American, and Scientific American had a great article about a prank that was pulled on Caltech about 5 or 10 years earlier, and I'll tell you what it was in a second. But I wondered, "Would that prank work on a military base?" And I took that prank, typed it up into military-ese, made 30 copies of it, and got the keys to our bulletin board and snuck out, abandoned my post, which was unbelievably bad, and put this fake order from the base commander in 30 different buildings. This was a Wednesday, and I thought people would read it and laugh and ha, ha, ha, but no one said anything. No one said anything on Wednesday. No one said anything on Thursday. Friday comes by, we're about to have our 300-person meeting and now there's 30 buildings it's going on as well. The lieutenant comes out and said, "Blah, blah, blah, blah, blah, any questions?" and again, no one ever had any questions because we all want to go party for the weekend.

[But just before we were going to be dismissed for the weekend] one guy raises his hand and says, "Sir, got the memo from the base commander about turning off gravity to work under the buildings. Does that mean we-- what about our fish? Will they float to the--" I had typed up a letter that said, "From the Civil Engineering Group, gravity will be turned off this weekend, and here are the tie-down instructions. Please, no footprints on the ceiling," and all of a sudden 10 other people start raising their hand asking questions about, "Well, what if we're driving? What will happen to our car when we get into these gravity discontinuities--" and I'm going, "Are these people stupid? What the--" and then it dawns on me as the lieutenant is going, "Are these people on [drugs]-- are they screwing with my head?" This is going on at 30 other barracks, and so the lieutenant turns to the sergeant and go[es], "What the heck?" and they run out and they get the letter off the bulletin board, and they go, "It's signed by the base commander." I'd signed his name, <laughs> and they go, "What could this be?" So he runs back in to call the base commander, at the same time 30 other people are trying to call the base commander. An hour later we're standing out there. He comes back and says, "The order about the gravity being turned off, that's not

really an order. Dismissed." Now, the punch line is, for years I'd be in different Air Force bases around the country and every once in a while someone would say, "Did you ever hear about when they turned off gravity at Keesler?" and I was smart enough to say, "No, tell me about it," and it always sounded much better when other people told the story. So that was my first large-scale marketing activity.

Hancock: Dangerous man to have in the military. <laughs>

Blank: Other people are getting assigned to Vietnam and Germany. This is after nine months I'm in electronic warfare [school.] [You got to pick the] first place you want to go to, [but instead] they send you to a war zone. So everyone is getting assignments to new bases: Germany, Tan Son Nhut Air Force base in Vietnam. Blank - Homestead Air Force base, Florida. Florida? <laughs> Everybody's going, "You're going to Florida?" I'm thinking, "Wait a minute. I lived in Florida." Homestead was, maybe 20 miles from Miami and Coral Gables. I get there, and to be honest, I was disappointed. I didn't join the Air Force to sit in Miami. So here I am in-processing on this base, and I hadn't even seen an airplane yet, seriously. I hadn't seen an airplane yet, and someone walks in and says, "Hey, we need some volunteers to go to Thailand. Any volunteers?"

And now, the first rule in the military is you never volunteer for anything, and I believe that's a mistake. My whole life has been about - you volunteer for everything. You know, sometimes you end up with the world's shittiest jobs, but every once in a while, you put yourself in a place where no one else wanted to go. So that's been kind of my heuristic --- you stick out your thumb and see where the world will take you rather than you sit back. It depends on how you want to live your life. T

he old guys looked at me like, "Are you out of your mind? people want to come home [from Thailand]." and I go, "No, [I want to go.]," So couple things. One is they [my shop chief] said, "Perhaps you ought to see an airplane before you go," and two is you had to get combat training. I basic [training] you learn how to shoot, but sometimes these bases [in Thailand] were mortared and thought they'd be attacked, so I still remember this. I go out for combat training. [It] was a two-day combat course, and we were screwing around. There was, five of us going overseas, and finally, halfway through the course, the master sergeant throws down his cap and says, "Son, I sure hope the guy shooting at you was screwing around in his class too." I still remember that conversation. I got a marksman's badge later on in the Air Force because of that comment, which, like, brought me down to, that game time was kind of over and--

Hancock: Life depended--

Blank: Well, my life could've depended on it, but it never did. But 24 hours later I was in Thailand and spent a year and a half, did two tours, three Air Force bases, and learned something about myself. I kind of understood when I got out of the Air Force but truly understood later in my career. I found the two things I was actually good at. One, was being able to assimilate large amounts of data in a chaotic situation, and two, was being able to recognize patterns inside those data, probably as fast or faster than most people around me. I got out to the first Air Force base called Korat, and I was assigned to the lowest thing you could do in electronic warfare base, which was work on the flight line, and it's 110 degrees out in Thailand and lugging boxes in.

But when everybody else went home, I started helping the guys who were repairing the equipment. Because I was pretty good at that even in electronics school. I could understand systems pretty rapidly, and this was new stuff, and I wasn't even assigned there. I was working another half shift, and finally I caught the attention, which was another part of my career, is someone noticed me, goes, "What are you doing in here?" "Well, I'm just helping...", and after a week of this, the senior master sergeant who was in charge of the shop-- and back then that shop had 160 people in it for just this one type of electronic equipment. Said, "Come here." And he gave me a pile of broken stuff, and said, "Let's see you fix this stuff," and a couple hours later I did. He said, "Well, you're not on the flight line anymore. You own this shift on that shop," and by a year and a half later I had, 15 people working for me. Quote "working" in the military meant, you like, managed stuff.

That was the first time I had responsibility. Planes wouldn't take off if this stuff didn't work. It was kind of life and death. If it did work, it was supposed to defend the planes from surface to air missiles and other [enemy] aircraft. I was 19 and I finally understood what we were doing. Every once in a while, I'd be called out to the flight line and to help some people troubleshoot something that worked in the shop and didn't work there. And [one day] I noticed all the guys and other crew chiefs from other parts of the base were standing around this empty revetment that planes were parked. Think of them as parking spots with bunkers around them, and it was empty. Why was it empty? Well, the plane didn't come back, and it turned out, and I never understood this until couple decades later, it was the last plane shot down over Southeast Asia. [The] pilot never came home. They found his body decades later, and [standing there that day,] that's when it finally hit me that this wasn't a game and that, not more than a couple hundred miles away, 50,000 people had died with an average age of 21 years old.

While I was in a war zone, I was in probably the easiest part of the Vietnam war, and while I was learning a skill, people were tramping through jungles trying to stay alive. I think I grew up a lot that day and trying to understand that, other people were the tip of the spear. We were just the spear. So, the Air Force was a seminal part of my life. As I see my students go through college, I'm jealous about what they get to learn in such a concentrated form. It took me decades to know what they've learned in a couple years. But I think I got more experience in a shorter period of time in a different part of my life than they ever did. I see that difference when I see students who are even today ex-military. You could tell them a mile away. Different stare, different look, different things are important to them, and when I came home, I had that experience.

In fact, I remember absolutely distinctly when I first came to Silicon Valley, I started doing startups. One of the comments one of my roommates made to me at the time is, "Boy, isn't this the most risky thing you could do? Why are you thinking about joining these companies?" and [what] I had never articulated before that moment and I said, "I'm confused. I just came from a place where risky meant you could die in what you're doing." You know, it's hard to starve to death in United States of America. Our version of risk was much different, and I think that gave me an edge in a very different way, and when I made startups my career, I recognized that you couldn't die.

Hancock: Well, that's great to have that context. Thank you for sharing that really seminal part of your life. Before we jump into your arrival in Silicon Valley, I think there's a little bit of a chapter that we need

to talk about in Ann Arbor with your company there. So let's go back. You've come back from Vietnam. You've returned to--

Blank: So I come back and--

Hancock: --University of Michigan?

Blank: And I actually had a girlfriend who became my wife a little later on and was by then finishing up her PhD in Ann Arbor. I got stationed in a B-52 bomber base in Northern Michigan, in a town called Oscoda, and it was 185 miles door to door from Oscoda to Ann Arbor. During the week I would wear green and fatigues and then Friday night sneak out of the base and drive 185 miles and hang out with my girlfriend and my friend Michael Krzys and in a very different world. I'd be the only one with a crew cut in Ann Arbor in the-- <laughs> in the early '70.s It was actually an interesting experience.

When I got out, went back to school and thought I wanted to be an electrical engineer, it was great. I got college work-study. I got the G.I. Bill and I applied for unemployment insurance. I didn't make as much money for another five years. It was truly great, and in University of Michigan, my first job in work-study was, believe it or not, the universities in the 1950s through Atoms for Peace all got nuclear reactors. Nuclear power was a big thing, and there were nuclear power programs in a good number of our research universities. It used enriched U-235, [almost] weapons-grade U-235, that in the '70s they finally realized wasn't a good idea and tried to get it back, which we did except for Syria and Iran and Iraq. <laughs>

But in any case, the scram system[5] they had from the '50s was a tube-based design which would scram the system, that is shut it down, any time there was a thunderstorm. Because you would get stray cosmic rays or gamma rays or whatever would trigger the detectors. So they wanted to build a transistorized version, and my job at the University of Michigan was to build the scram system for the nuclear reactor out of an approved design from the Nuclear Regulatory Commission. So I did that.

But I always had nightmares whether I wired it incorrectly or not, and I [eventually] quit that job actually. You had to wear a film badge and a pocket dosimeter to get your weekly readings from the film badge and the pocket dosimeter, see if you got any dosage and also to go into the containment dome. There were hand and foot counters you had to put your hands and feet. And of course, I worked mostly in the lab outside the dome. There was ex-Navy nuclear reactor guys who went back to college who were running the reactor. Every week they would print out your radiation results and mine were always 000. And the Navy guys, people told me [later] this was not par for the course, but they used to say whoever got the highest dose would buy the beer, and so...

<laughter>

[5] [Interviewee's note] An automated system of sensors designed to rapidly shut down the reactor by rapidly inserting control rods

Blank: So finally, when my design was done, we tested it a million ways, the NRC checked it, and then they had to install it. The reactor was a pool reactor, that is the water was the moderator and you could actually see the fuel rods and it was incredibly beautiful because the whole thing would glow unearthly blue because of Cherenkov radiation, which wasn't really radiation, was the, I think the electrons exceeding the speed of light in water, and it would give this great glow. The control room was glowing in red. It was like something out of science fiction. So, they drained the pool and they were remotely putting my new sensors in around the pool, and there was a little kind of catwalk over the pool.

Normally the water was the moderator, but safety was kind of a little loosey then. I stood over that catwalk watching them do this as the pool was [partially] drained, and a week later it was my turn to buy the beer. What? I got my annual dose [of radiation] in one day. They said, "Don't do that again." Well, it wasn't like I was going to die, but I had just spent four years around high-power microwaves with electronic warfare jammers and now I was getting irradiated.

Again, not enough to change my life, but something flipped in my head that said, "You know what? Seriously. [Talk] about the things that [change ones] career path," I said, "no high-power electronics or nukes for me. I'm going to go into computers," and that really did change a little about my career. Because nuclear power was a potentially interesting direction back in the '70s, and here I am, building some reactor equipment and thought that was kind of interesting, but then ended up, trying to major in engineering in something a little tamer.

Hancock: So you made that decision. Do you want to talk about the company that you worked with in Ann Arbor?

Blank: Yeah. So I think I spent a year or half a year as an EE in Michigan, and then realized I still had attention deficit disorder. I really couldn't focus, and in fact, I didn't understand the difference between a design engineer and a technician, until some professor verbally smacked me on the side of the head and said, "Son, you want to be a tech; you don't want to be a design engineer," and it finally dawned on me that there was a difference. I had just spent four years being a technician, a repairman, not a designer. I actually enjoyed the repair part because it involved troubleshooting and understanding systems. "Okay," and so I dropped out again, so Michigan State and now Michigan probably have Steve Blank residue from me...

<laughter>

Blank: And I got a job in a company called Interactive Systems in Ann Arbor, which was in hindsight, only decades later did I realize it was my first startup. It had been around seven or eight years. This is probably in 1977. It'd been around eight years, and they were pioneering the use of coax cable to ship data around video coax. They built a pre-Ethernet system to share coax with video and data and their applications were process control systems for industrial plants, because it was the Midwest. Mostly automotive, steel plants, et cetera. I was hired as half of the field service department. It [the company] had all of 40 people, and it was truly a startup. I was just reading in some of the material I got for this

[oral] history, that they'd done all of three and a half million dollars of revenue in their eighth year. I had just joined them.

But it was the most amazing job, and again, and by accident, in the most amazing time of our country. The Midwest of the United States, it's hard to believe now, was the industrial powerhouse of not just the United States but the world, and because we got to install these systems in the middle of automobile plants and steel plants and manufacturing plants. I got to see every one of these plants. I got to fly around and drive around the Midwest, to Oldsmobile in Lansing, and Ford in the Rouge River plant and U.S. Steel, when we still had open-hearth steel plants. Just amazing seeing what the country was producing. Watched them make washing machines in Dayton, Ohio, on an assembly line, and I would work with mostly blue-collar people. I would spend weeks, sometimes a month, at a facility watching them install the coax, climbing up in the steel, and I didn't like the heights, but I would have a spectrum analyzer strapped to my back walking on the steel above these factory floors. Turns out how wasteful the U.S. automotive industry was in the early '70s, every model changeover year, that is, where they would change the models of the cars every year, like iPhones do today, they would bulldoze the floor. I mean, literally.

Hancock: Hm, the entire floor?

Blank: They would rip out the entire line. Anything that you needed to keep permanently was above in the steel, like process control and electronics and, HVAC, but everything else was just removed and then they built an entirely new line. It was just an amazing-- unbelievable to watch. So I learned how to be a field service technician. In fact, that first thing they had you do in this little startup is if you want to be a field service tech, there was this new thing called the computer terminal, and there were portable little ones. Not portable but, like, small ones you could have at home, but it was a kit. It was called the ADM-3. You guys probably have one of these in your in the museum--

Hancock: I think we do.

Blank: And so my job was, "Okay. If you want to be a field service tech, here's the parts. Go build your own." I still remember building my own terminal, at home. Yeah, then you had to bring it in.

Hancock: Bring it in to work. <laughs>

Blank: And I remember going to places like Kenosha, Wisconsin. Theew was an automobile company called AMC. But how I got to Silicon Valley was out of this company, actually. It was February 1978. I was making $14,000 a year as a field service tech, and as I said, most of our work was around the Midwest in this great center of manufacturing, and they said, "Hey, there's a Ford plant in San Jose. Steve, you need to go and help bring up this new system in San Jose," and so they bought me tickets for San Jose, Columbia.

<laughter>

Blank: Remember, this is, hard to believe, before the Internet, before Google Maps. I said, "I don't think so. I think it's--" and they're like, "Isn't this in California?" No one had ever heard of San Jose. We're in Ann Arbor. No one had ever heard of San Jose. So, I remember at lunchtime our secretary back then had to go out and buy a map of the United States and I remember, all of us gathering around and there it was. So, she changed the ticket, and I got tickets for San Jose.

So, me and another field engineer were going to fly out and there was a Ford assembly plant in what's now the Great Mall in Milpitas. But it was a Ford assembly plant and we're going to bring up a process control system. Going to spend a couple weeks, maybe a month or two, out here, to go do that. Now, just for context, Ann Arbor wasn't some backwater town, it was a major research university. But around town, if you looked at the local newspaper, and a newspaper for any of your viewers, was we used to kill dead trees and put ink on them and then that was how we got the news. There was something called the Help Wanted ads, and in Ann Arbor, for electronic technicians or engineers, if you were lucky, there were one or two openings a week, just for context.

We fly out to Silicon Valley. It's a Sunday. We're going to start on Monday in Ford and Milpitas, and back then the company was so cheap you had to share a room with, the engineer I was with and I liked him. His name was Hussan Dakroub from Dearborn, and we get a rent-a-car and turn on the radio. Remember, Ann Arbor, one or two ads a week. Turn on the radio and all of a sudden, as we're driving to our motel in Milpitas, we hear, "Scientists, engineers, Intel is hiring," and we look at each other, and we look in the back seat. I mean, is someone, like, "What?" and, "Did we hear that?" "Was that an ad for engineers-- what?"

It's now Sunday and we check into this motel and I always used to like to read Sunday paper wherever I went. I buy what was then the San Jose Mercury News, Sunday paper. I still remember, right outside the motel, it's big and the thing is thicker than The New York Times. I went, "What could be in here?" and just as we get into our room, Hussan decides to take a shower first. I turn on the local TV, and [turning back to the paper] I still remember first section, five pages of news. Sports, couple pages, Arts, 45 pages of ads for technicians, engineers, scientists, whatever.

It was 1978. Silicon Valley boom time, and I look at this thing and it's just as I'm looking at this newspaper, on the TV comes an ad for Four-Phase Systems. "Four-Phase is Hiring engineering design managers," and I run in and Hussan has, like, just stepped out of the shower. "You got to see this newspaper. Look." Here's where our lives differ. I looked at this and said, "I'm sitting in God's gift to me." While we went to work that next Monday, that Monday afternoon I was answering those ads, and Hussan, who had a family, parents he loved and said, "Well, that's nice, but I'm going back to Michigan." And I went, "Are you out of your mind? Why? What?" And for me the final kicker was that next weekend-- remember I said we were out there for a couple weeks-- we decide to explore the area. I always used to like to explore whatever city I was in. Was always kind of interesting. Why sit in a hotel room? We're sitting on a beach in Monterey. It's February. I can't-- and remember, February in Michigan, cold, but here it is, it's 68 degrees, and someone has a radio on next to us. "Major blizzard is howling through the Midwest."

Hancock: <laughs>

Blank: Then, "Blizzard through the Midwest? Wait a minute. We're from the Midwest." Monday, we call in to work. No one answers. Tuesday, no one answers. We look at the TV, it's one of the biggest blizzards of the last hundred years. I think it was by Wednesday or Thursday we get somebody to answer-- remember, pre-Internet, pre-iPhone. Somebody says, "We cross-country skied in and got in through the second story window."

Two weeks later when I came back to Michigan, I had gotten a job at a startup called ESL. But driving back from on what was called I-94 from Detroit Metro Airport to Ann Arbor, they had bulldozed cars out of the freeway, still sticking out of 10-foot snowbanks at different angles, and I flew back to turn in my resignation and drive across country to my first job in Silicon Valley.

Hancock: What incredible turn of events for you.

Blank: It gets better.

Hancock: Good. So you arrive. It's 1978.

Blank: '78, February.

Hancock: Right. Start of the boom.

Blank: Yeah. So a couple things. Number one, is remember I said I got a job at ESL? So, I had interviewed in a couple companies, found a couple recruiters, actually did an interview at Four-Phase and a couple other companies, and all I had was my military background and worked on a nuclear reactor <laughs>. I was a low-level tech, and found a training department of all things at a military-- in hindsight, a military intelligence company called ESL, and the manager just needed a lab tech for the training department. Not an instructor, just a tech. Sure. They were going to pay me-- remember, I was making $14,000? Forty thousand dollars a year. "Sure," I had no family.

By then I was divorced from first wife. I was out here, "Sure, let's go." So, I drive out from Ann Arbor to California and I'm supposed to start on Monday at 8:00 A.M. and I time this thing, and except Sunday afternoon I'm, like, looking at the map and I'm stuck in a traffic jam in the middle of the Sierra Nevada's. What? I'm looking at a map. Remember, no nav system, no anything. How could this be? It turns out it was Ski Week, and I was stuck in Tahoe traffic having no clue. So, I show up late. I show up to the HR Department, and they go, "Oh, you're Steve Blank. [I think] this isn't starting well. "Yes?" "Well, we've been trying to get ahold of you for the last week." "Well, I've been in my car, driving across country." "Well, we're sorry to tell you that there is no job for you."

[Hancock: Look of astonishment]

Blank: Well, that was my reaction. "What?" "Well, the person who hired you had no authority to do that." "What? I have this letter." "Oh, we fired him." "What?"

Hancock: So now what?

Blank: "What?" "Well, I-- my car - I'm living out of the back. I don't know anybody," I said. "Well, we don't even have an opening for a lab tech. All we have openings for is a training instructor." I said, "Well, I'm a training instructor." And she looked at me. I said, "Oh, yeah. I taught in the military. I know how to teach and I'm happy to apply for that job. She said, "Why don't you talk to the head of the department?" and I remember interviewing with a guy named Roy Van Order, who was the Director of Training for all of ESL.

I only understood this in hindsight, they were in deep trouble. They had built this entire military intelligence gathering system[6] for the U.S. Army. It was one of ESL's specialties, and while the system was getting ready, the training material was nowhere to be done, and they had six weeks to go to deliver a 10-week training class, and the guy listened to me babble. "Oh, I can do this," and finally what I think was the deal closer, I said, "And I'll take the job at my lab technician's salary," and I said, "I'm a body sitting in your office." He said, "You're hired."

So here I got promoted before I ever even got the job. My first job in Silicon Valley was as a training instructor and I had no idea what that meant. I'll concatenate a long, painful story, but here I am developing course material, never developed course material in my life. But I do remember taking courses in the military from what I thought was some of the best vocational training in the world, and I remembered how I liked to learn, so I put together a course on how I would like to be taught. Now, this system was three 40-foot vans full of electronics and six aircraft, direction finding communication intelligence system, and that's when I really realized I could process enormous amounts of data and put together a pretty good course, except--

Hancock: Very complex, right?

Blank: Very complex. Not only complex in terms of system, but complex in terms of some of the technology at the time. Packet switching, compression, et cetera, and a 32-bit computer system the Interdata 8/32, which was the first time I'd seen and actually had to program and understand the interfaces, and had six weeks to do this.

But the other part was delivering the material. I had never stood up in front of anybody. I was okay one-on-one, but I was still looking at my shoes at that point in my life. Making eye contact was 20 years in my future. So they said, "Okay. Let's see you deliver some of this material as practice," and I still remember that moment. The director of training and my manager, Mike [North] somebody, but Roy Van Order and Mike were in the audience and a couple of the other instructors in that group. I had to present, and I remember standing behind that podium holding onto it so hard I still believe there are fingerprints left in a podium somewhere.

[6] [Interviewee's note] https://apps.dtic.mil/dtic/tr/fulltext/u2/a423524.pdf

About a third of the way through I see the director of training do this [puts his head in his hands] and walks out of the room, and if I didn't wet my pants, it was probably because I was even more scared than that, and finally Mike says, "Steve, why don't we stop? I think there's a little more work to be done."

So class starts, and I'm in front of the classroom and holding onto that podium again, and I still remember the first day, one of the students, an Army major who I'm supposedly teaching, took me aside and said, "Steve, you tell great stories. You've obviously been on the other side of this classroom. Why don't you pretend you're the student?" And you know what? I became a great instructor that day. I dumped the podium. I knew my material. I threw the lesson plan on the side. I knew what I had to cover, but just started talking like I was in the room and got the best reviews they've ever had. I mean, we nailed it.

Hancock: Was that-- it was really, literally, you just flipped the switch and you knew instinctively what to do?

Blank: I knew exactly what to do. I thought I had to be some kind of professor, which I still don't know how to do. I just knew how I wanted to learn, and started delivering the material like that, and ended up at ESL going from a training instructor to kind of a test engineer. Got to go out with the system to deploy to South Korea, and then got invited to work on another project for other customers in the middle of God-knows-where Australia for a year.

So I got to go to Korea for a year, got to go to Australia for a year, and it turns out the founder of ESL was a PhD mathematician named Bill Perry. ESL was probably the most underrated company in Silicon Valley history. It was one of the linchpins that connected Fred Terman of Stanford, with Bill Perry and Stanford University. It was part of the secret history of Silicon Valley. It was probably the most important company no one had ever heard of. It was responsible for the first application of computers in military intelligence, probably in the world, certainly in the United States. Bill Perry eventually became the undersecretary of R&D and responsible for what was called the offset strategy, third offset strategy, where we beat the Soviets in the Cold War with semiconductors, software and stealth, and then eventually became a Secretary of Defense and built a spectacular company. I was kind of fortunate to be in one of the places that was probably as important as Fairchild or Apple in its early days. So that was my first startup. My first startup in the Valley.

Hancock: So the role of the military in the Valley has been something that you've taught and taught about in "The Secret History of the Valley[7]." What other lessons or context did you get from that time, whether from the people that you interacted or you had this exposure to lot of confidential developments that you were privy to?

Blank: Yeah. Well, one is over time I realized that the commercial world and the black world, that is the classified world, the Venn diagram was almost nonexistent. The intersection of marketeers and the black world were called spies.

[7] [Interviewee's note] https://steveblank.com/secret-history/

<laughter>

Blank: That is, you really didn't promote what you were working on, and that also meant that, unfortunately, tech transfer, was minimal. We were working on stuff at ESL that the U.S. government could afford to build systems that were unimaginable in the commercial world. I was working on systems that that were building what were called finite impulse response filters, 128 and 256 tap filters, which today you find as chips in an iPhone. Then they were built out of TRW multiplier/dividers that had a mean time between failure, the entire system, was about eight hours. But the military could afford to have tens of thousands of them on racks. So for problems we wanted to solve, these were national efforts sometimes involving hundreds of thousands of people, spacecraft, things under the sea, et cetera.

During the cold war, we built those systems, most of which we still haven't publicly described. The problem is that there was minimum tech transfer and minimum people transfer, because once you got into the black world in the Valley, you very, very rarely left. So remember, Lockheed went from zero in 1956 to about 25,000 people in 1960 or '65. Maybe peaked at 30,000, and they built not only the overt systems, the Polaris and Poseidon and Trident missiles at Lockheed, but they built the first and second generation of intelligence gathering systems. Both photo stuff, Corona and [Gambit and Hexagon], now declassified. and all the electronic intelligence stuff. But very few of those people left those programs, A), because they were just technologically seductive. More advanced technology than anything being done in the commercial world. Once you're in the black world, it's not physically hard to leave, but again, mentally hard to leave if you're an engineer wanting to work on the cutting-edge stuff. That's unfortunate. We didn't do that by design, but we kind of hobbled ourselves. Here I was working on the world's most advanced stuff. I mean, truly the world's most advanced stuff at ESL, and I had a roommate who came in and said, "Look, I got this chip to make this speaker go buzz."

<laughter>

Blank: I remember that moment, going, "You got to be kidding--" "And I'm going to make a company out of it." I think it was my roommate's friend, and most people would laugh hysterically. I'm working on something that has, I mean, it has a hundred thousand people, not just our company but other companies, and he just made a speaker buzz?

But that night I realized I was a cog, in a machine that I wouldn't even show up on an org chart, and this person was starting something, and they were going to be master of their own fate, and that was possible here. That wasn't possible anywhere else in the world, and that was the night I started thinking about, "I want some of that," and while I was having a great career at ESL, something told me without a college degree in a company run by a PhD and some of the best research scientists in the world, at best I might end up as a junior program manager. But I was never going to end up having any influence about what got built or how things got whatever. But these things called startups, there were no rules, and no rules was my middle name. Even by then I was discovering that, and that's when I decided that it was seductive as this was. One of the things I was in the middle of at ESL happened to be one of the most important systems in the Cold War, which I even kind of understood at the time. But I decided to find a different path, and I joined my first commercial startup, which was a microprocessor company.

Hancock: Before we get into Zilog--

Blank: Was that all right? Was that--

Hancock: That was perfect. I did want to ask you one question, of curiosity. I read in a Q&A that you had a notebook that you kept.

Blank: Oh, God.

Hancock: You know, we--

Blank: Yeah, there are two--

Hancock: Curious about that.

Blank: There are two interesting stories about ESL, one very sad, and the other could've been very sad. The one very sad story is I got sent to the site in Australia which back then was a secret, secret site. The story I'm going to tell, and my replacement was my officemate, a guy named William [actually his first name was Richard] Farley[8], and Farley and I were both 20-year-olds, couldn't get a date at the time. We'd spend Friday nights eating dim sum and running tests in some equipment, then out in ESL. He replaced me on the secret, secret site and my life kind of went different.

I finally figured out how to partially make eye contact with women and get dates, but what I didn't realize later, and Farley and I kind of went separate paths and didn't hear much or anything from him, after I left. Then one day I met my next company, Convergent Technologies, and I got a call from somebody from The Associated Press who I'd met at a party. "Did you know William [Richard] Farley?" and it was like urgent, and it didn't <snaps> click at me at the time and, "Whoa," she said, "Got to go." What's going on? And that night trying to drive home to my place in Palo Alto, Highway 101 was closed. So, I had to go home another way, and I didn't even turn on the radio.

The next morning, I go out to my driveway. You hear the phrase "someone's knees buckled" when they saw something. I picked up the newspaper on the driveway and there was a picture of Farley, my old roommate, "Mass Murder at ESL." He never did figure out how to talk to women and obsessed over this woman at ESL, and decided that he was going to show her by killing her and other people in the company. Amassed a set of guns, and this was a secure location. Shot his way through the guards, through what we call an airlock, into the building, shot her, didn't kill her, and killed six other people. This was my officemate.

The problem was is they couldn't put him on public trial, because he said, "If you're going to kill me, try to execute me, I'm going to blow out every secret I know," and given what I knew he knew, let alone other

[8] [Interviewee's note] https://en.wikipedia.org/wiki/Richard_Farley

stuff he might've known since then, that was not a good thing for the country. He's still on death row in San Quentin. That's my bad ESL story.

My funny ESL story is I get to the site in the middle of Australia, the secret, secret, secret site, with lots of government customers. Unlike at ESL, where we were a contractor to these folks, this was a customer site. At ESL you worked in what was called a vault with controlled safes and you couldn't take things out, but here at the site we're in the middle of nowhere, the safes are kind of open. I was working for both teaching operations and maintenance, but you could get bored. There were all these manuals for all the systems on the site, not just ours. There were rows of safes with three drawers each, maybe three feel long. They literally filled up a wall, but they were always unlocked. So I started reading, and I was discovering really interesting things, and I kept a notebook of all the things I was reading, and every time I'd find something new, they all had different classifications, none of which I was cleared for, but they were in the site.

So, I would add different headings on the notebook and I would store notebook back in this unlocked safe. But if you remember-- and I didn't understand it at the time, but now I clearly do-- I'm pretty good at assimilating large amounts of data and seeing patterns. And I started making some pretty interesting leaps about the total state of the U.S. intelligence gathering capacity in 1978 world-wide: space, land, and under the ocean. And I have it in one notebook. About two-thirds of the way [reading] through [all the safes] I got a call from the head of security. Sure, "Steve, do you mind if we have coffee?" And, since we're in the middle of nowhere and I ain't going anywhere. So, I guess he wasn't urgent, but next morning I have coffee. And back then-- it's hard to believe now-- I had very long hair, almost an Afro. My hair was long and curly.

There are a few times in my life I've been really impressed. He opens up a Number 10 envelope-- and people used to have desk blotters-- taps the envelope on the desk blotter, and three long curly hairs come out. And he says, "Do you recognize these?" I said, "Well, I think they look like my hair!" He said, "Yes, that's what we think." He said, "They were found in--" name of manual,… "Have you been reading that manual?" "Oh, yeah! You wouldn't believe what I found!" And the guy looks at me like, "What? What?" "Oh, yeah!" "Have you been reading anything else?" "Oh, I've been reading all the manuals!" And his eyes are getting wider. In hindsight, he's thinking, "What's going on?" And I said, "You wouldn't believe what I discovered! And I've been making all these notes!" And when I said "notes" his face kind of clenched up. He said, "What do you mean you've been making notes?" I said, "Oh, yeah, I've been making all these notes about all these things that are connected." He said, "Well, what did you do with the notes?" I said, "Oh, I put them in the safe where they belong." He said, "What safe?" And I told him where it was, and he said, "Hang on a second." And he ran out-- literally! -- out of his office, came back with my notebook, started reading it, said, "I'm not cleared to read this!" [making motions of quickly shutting a book]. And then he looked at me and said, "You're not cleared to write this!" He said, "You're not going anywhere, are you?" I said, "No." And he said, "Okay, let me know if you're planning to leave anywhere."

I hear nothing about this other than a week later he says, "You know this site is the most secret, secret, secret site? We're not even cleared to have what you just wrote here. So, we had to send it back and I wasn't even cleared to destroy it." We had to send it back to, you know, place whatever. So, I have a

vision of that last scene in the “Raiders of the Lost Ark” of this notebook sitting in some giant warehouse today, where it is so toxic it couldn’t be [touched]. and I thought I was going to get fired when I came back.

And it turns out that what I had put together was actually a great in-process briefing handbook for people coming into this program, because it gave them context of how this fit, except I had to turn down the classification a bit. And, so, when I got my new job [at Zilog], they [ESL] hired me [as a contractor] to write the briefing program for the new people in the system. So, that was my notebook story. Yeah. And one other ESL story about that site that was actually quite sad is-- actually two things. Both of them just kind of messed with my head a bit. One sad and one just strange.

There was some guy I knew kind of casually on the site. It was a fairly small site. And his wife got him a birthday gift—for something he always wanted to do is-- we were in Australia and from New Zealand, they just started the first flights to Antarctica. You wouldn’t land there, but there was a DC-10 that would fly you over the glaciers and it was great. So he was excited. And I remember just casually hearing him talk about this. He was going to do it that weekend. And he doesn’t show up on Monday. The DC-10 flew right into the glacier. And his wife had killed him. And she wasn't on the plane. That stuck with me for a long time. They had to send her home and you can imagine the rest of her life about thinking that she had sent her husband on a flight that ended so disastrously.

And then the other one was-- I still don't know how to process this-- is-- our customers at ESL were three-letter agencies for the U.S. government. And, supposedly, you couldn’t tell your wife or spouse who you worked for; the story was it was the Joint Defense Space Research Facility. And today it’s acknowledged what’s one of the agencies are there. And some of the wives actually knew who their husbands worked for, what they did. And if you were married, you got to live off the facility. And I lived on it, because I was a bachelor. So, you didn’t get to live in town. And, so, the only thing to do was drink and have barbeques at the time--

<laughter>

Blank: And, so, one alcohol-fueled barbeque I’m sitting with a couple of wives. One of the engineers from ESL had a wife that looked like she was right out of a commune. I mean, granny dresses and granny glasses and politics to match, and would always talk about our evil government and whatever and I’m sitting here going, “Well, this is an interesting conversation.” And, again, there was too much alcohol at this dinner and one of the wives said, “Well,” to this other woman, “well, if you believe that, what do you think about your husband working for Agency X?” All of a sudden, you could see the other women go [indicating be quiet]-- -- and the husband’s going [indicating be quiet]-- and the wife, you could just see [thinking], “What? What?”

Hancock: Mm.. mm..

Blank: And, all of a sudden, because she had the reaction of-- the woman who said this-- “Oh, I shouldn’t have said that,” and made the woman she said it to go, “What?” What? And she turned to her husband

and then everything exploded. And the next thing I remember was standing outside their house in the grass looking up at the Southern Cross hearing her scream, “Tell me it’s not true!”

Hancock: Mm..

Blank: And the next morning they were all gone. All gone. All three families gone from the site. And I always wondered what happened to him and her. The good thing is ESL was one of the things that probably kept us out of the war in the Cold War, because we were able to understand the intentions of the Soviet Union in a way that stopped us from doing stupid things. So, it was actually quite good for the country, but if your world view was not oriented that way, that everything the government did was evil, that there weren’t people with good intentions trying to solve some problems, your world came apart. And her world came apart in exactly that moment. I remember watching her face as her entire world view just exploded about the person she was living with, sleeping with, thought she knew, etcetera. All within, like, five or ten seconds. And it was just a pretty amazing experience.

Hancock: So, let me finish this chapter. I wanted to ask was that with your own direct military service and then your work with these-- with ESL, you had this deep involvement with the U.S. military intelligence and everything. Was that easy or hard for you to switch to the commercial world of Silicon Valley and-- you know?

Blank: Yeah, I think what I said before, it’s incredibly seductive. You know more than most people. Not that you’re smarter, but you know more things going around. Part of the code room at ESL was one of the five in the Valley at the time, maybe four. We would get copies of the president’s intelligence brief every day and I would read it.

So, I still remember after I left, when I was there you would read the intelligence brief and then you would read The New York Times, and you would realize, “Oh, this is KGB disinformation. This is our disinformation. Here are the facts.” Then after I left ESL I still remember it was like Superman’s X-ray vision fading. I knew that half the news wasn’t true; I just couldn’t tell anymore which part. And, so, I’ll go back again: That type of work, if you’re a techie is incredibly seductive, but it was that siren call of being able to be master of your own fate. That was more of a deeper call for me.

<break in recording>

Hancock: We’re continuing now with Steve Blank here. We’re just finishing the military chapter with ESL and getting ready to start the story as Zilog.

Blank: So, Zilog was you get your nose under the tent and you keep on moving. So, I interviewed at Zilog with the manager of training and education. So, here I was at ESL. I was training instructor and, great, let’s get another job in tech. And I was teaching fairly complicated systems. Remember, I said the military and the Department of Defense and intelligence community were building stuff unimaginable in the commercial side. So, not that I had anything to do with designing it, but I had to understand this stuff and explain it to other people. By this time, I was a pretty good instructor. “By this time,” meaning all of, like,

two years. But I was a pretty fast learner, got some great reviews, been working also as a test engineer, teaching stuff on-site. And, again, this start-up thing sounded really exciting. And I knew about microprocessors, but never had worked with designing any of them. I started interviewing around.

And there was a company called Zilog, chip start-up, which was started by Federico Faggin, who helped design, I think, the 8008 and 8080 at Intel. He got written out of the history by Andy Grove, started a competitive company -- he was building something called the Z80, which is essentially a better 8080. And the training department needed another instructor and, so, I'm trying to think of who hired me—[Alex] Canaber or Canberra [ph?]-- but, anyway, I got hired by this guy and show up for my job and, shades of my last job, he was fired.

<laughter>

Blank: There's no manager in the training and education department. This time I have a job, but I don't have a boss!

<laughter>

Hancock: Talk about patterns here!

Blank: There's four of us in the room and in this company, at Zilog, training was essentially a sales activity. So, Zilog had salespeople, marketing people, more importantly, field application engineers who were training design engineers how to use microprocessors. And, remember, people were building their own CPUs back then out of discrete components. This notion of using a microprocessor and peripheral chips was a whole new idea. So, they also had field application engineers who were good design engineers who could help people do that. But there were also some requirements for basic training. What is a microprocessor? How does this work? How would I think about using this? That's why the training department was as an arm of sales.

And, so, I get there and within six weeks or two months, no one is running this department. And I'm still kind of like a young kid and I finally go, "Well, screw it!" Like, "I could run this department!" So, I go into the VP of sales. The guy's name was Marty Cohen and Marty had this great Boston accent, which I won't even attempt to emulate, and Marty goes, "What took you so long? I thought it was going to be you."

<laughter>

Blank: Now that was really telling, because I really didn't understand it. But, obviously, he saw something, much like happened later in my career; is people saw things in me I never saw. And he said, "Okay, go run the department." And, basically, I had to teach myself microprocessor design and assembly language coding and ran into something called a word processor called "WordStar."

People were building some pretty amazing stuff out of the Zilog microprocessors. And we did a training course by mail, "How to be a microprocessor design engineer in ten easy lessons" It was a mail order

course. I held training classes, because part of the ESL stuff I learned was data communications. I taught our data communications chips as well. There was one called the SIO and then a very advanced piece of silicon called the SCC. I got pretty familiar with that. I got to fly to Brazil and teach microprocessor design. And, literally, I was probably 20 minutes ahead of the students. I mean, what did I know? I was a tech. But I was living with the stuff, and I was living with the engineers and our field engineers usually could, like, un-screw up anything I told people to design with wrong.

But my favorite Zilog story was, that salespeople were covering the major accounts and one of the major accounts, obviously, even in the late 70s, early 80s, was Apple, building the Apple II. And they were working on the Apple III and the Lisa. And salesmen had that account covered. But one day the salesperson for Apple calls me and said, "Look, some kid in field service wants a prototype of our serial communications chip. I'm too busy. Why don't you call on him? He's just down on Bubb Road. And Zilog not only was in Cupertino, but [so was] it's fab. We still made chips in Silicon Valley at the time. And I used to give tours at the fab. It was actually very, very cool.

I drove to this little kid sitting in this rat's nest of hardware and he was designing some board and I showed him how the SCC worked and gave him some sample designs and we diagramed some stuff out. And, oh, he was so grateful that they sent an engineer down. Little did he know that I was the marketing guy. And by then I had moved into marketing. I'll tell you that story in second. It was three years later I leave Zilog and see the picture of the Mac team; I had sold the SCC to Burrell Smith.

Hancock: Burrell Smith, right!

<laughter>

Blank: And some salesman from Apple was probably retired in Maui on the commissions, because he never even had to call on the account! And there was no second source for the chip and Burrell had fallen in love with it. It was the basis of Appletalk for the next five or six years, was that piece of silicon. The other thing I remember sitting in Zilog-- I still remember this to this day, because they were laughing about it and it was only decades later that I realized what we had done.

Zilog, as I said, made the Z80 and then eventually a 16-bit incompatible chip-- idiocy, but I'll explain that in a second. Back then the idea of having second sources, that is other companies that can make your chip was very important to people who were designing these chips in. What if your company went out of business or something else? So Zilog would sometimes sell licenses, I think, to AMD. AMD was the big partnership at the time. But then this company from this country called Korea came in. And we were laughing. They wanted to license the Z80! And we were laughing-- not we. I mean, my boss was laughing. The head of sales and the head of international sales. It was hysterical, they couldn't believe they were going to pay us five or ten million bucks and I remember the words, "What the hell do they think? They were going to make silicon, haha!" It was Samsung.

Hancock: Mm.

Blank: We were the first company to dump our microprocessor technology to the Koreans and, of course, it's come back to us in spades. Back then it was an inkling of a pattern we should've understood, but I now remind people, disruption never comes with a memo. Right? It doesn't-- you could be standing there and looking at it, which I was at that moment, and did not understand we just crossed the Rubicon for a world-changing event.

I'll give you another example when I lived that. When I went out to the Ford plant in Milpitas in my first job I used to love to get a tour of manufacturing lines. That machinery of building cars out of millions of pieces. This was at the peak of Detroit's arrogance. And I remember going down the line and there was a spot on the line where they dropped the hoods on the cars and as soon as that car was going around to the next line, there was an intermediate step where someone took an Army blanket and had a rubber mallet, pounding one half of the hood in the other side. And then [on] the other side he would run with the blanket wrapped around a two by four and pry up the other side of the hood. And even I at the time understood what's going on! And the plant manager says, "They didn't design these things right and instead of fixing them, they just told us to kind of align them here."

What I didn't realize at the time, I was looking at the end of quality at U.S. automobile plants, because they didn't care. And that's-- from that day on, or that decade on, the Japanese would eat our lunch, because they did care. It was much like watching that moment at Zilog or later moments at MIPS or Convergent when I was actually standing in a place where something had changed that moment, but disruption never comes with a memo. And that's kind of important.

Hancock: That's really important. While we're talking about it, let's follow that through. What are some other moments where you could see literally this sort of inflection point, which at the time you couldn't see, no prescience to see it was going to come, but in retrospect you could see that?

Blank: Well, I remember at MIPS Computers, a couple companies on, John Hennessy, Skip Stritter, John Moussouris and I, we were the entire company, plus or minus some admin support. We're into see Andy Knowles of Prime. Andy Knowles had been the head of the semiconductor group for DEC. He worked for, I think, Gordon [Bell], and now moved to be head of engineering or COO of Prime Computer. And we were pitching him the first MIPS R1000. Back then there weren't even slides. There were overheads and we were putting up architecture, and finally the basic benchmark was a VAX back then, which was a Digital Equipment minicomputer. And it was, "How fast are you to multiples of a VAX?" The slide I made said, "The MIPS R1000: 10x."

And I remember Andy Knowles must have been, I don't know, ten years younger than me [now,] but we thought he was an old guy, literally nodding off in the meeting and, obviously, wasn't nodding off. He was just giving us the body language of "I don't care," until we put up that slide. And I still remember his head snapped back up and said, "Son, if you guys could do that, you've got a deal." And the entire MIPS RISC business started from that one meeting of Knowles going, "This is serious stuff," and then Hennessy, Moussouris, and Stritter delivered.

The other moment I think was-- well, let me put it in context. There's a phrase-- and I used it for the name of a company-- but it actually is pretty important. Something called an epiphany. An epiphany is-- people have described it for thousands of years - and it's a sudden flash of insight. And people have described this, but no one could replicate it, but it does happen enough that people know it is something that happens to human beings. And what I believe it is is you're constantly bringing in data and something in your unconscious snaps together in a pattern that connects with the talking or thinking part of your brain.

And I remember in my life I had three epiphanies. Just three. Each one of them represented an IPO, because the entire future of what was going to happen was laid out in front of me. And one of them was the last company, was Epiphany, when I saw what eventually became the entire CRM industry, which Tom Siebel did a much better job of implementation.

But, at that moment, we saw something that no one else saw, with my partner Ben Wegbreit and I-- Or when this whole Lean Start-up stuff came I was writing my memoirs in Tahoe. I thought after I retired the world needed Steve Blank's memoirs. And I started writing, chapters about each of these stories, except they would have summaries at the end. And I still remember, I was on page 80, my wife and kids were out skiing, and an epiphany just hit me that everything we had been doing was wrong, that we were treating start-ups like they were smaller versions of large companies. And I'd just spent 20 years proving that they weren't, that start-us were something very different. And that large companies were executing known business models. Start-ups were searching for that. And that distinction between search and execution had never been made before. And that-- the whole Lean movement--

Hancock: Yeah. Amazing.

Blank: --started from that one moment, but I wasn't going down that path. I was going through actually a catharsis of summarizing a 20-year career. And it was that data dump in just kind of like, boom, flash of insight-- does that make-- I'm not sure that was your question, but--

Hancock: That was exactly the question. And the third?

Blank: I don't remember. I'll try to think about some of the others.

Hancock: Okay. All right.

Blank: But Zilog was a lot of fun.

Hancock: Just jumping back into Zilog, can you give some context? You started to talk about it, but there were-- you know, who else was on the landscape in the technology, because--

Blank: So, if you really think about it, Zilog was 20 years into the silicon history of Silicon Valley. It started with Shockley Semiconductor and then Fairchild and the traitorous eight, etcetera. By the way, the part about computing history that even Gordon Moore I don't think understands is that Shockley actually knew something that 20-some-odd-year olds didn't. And I never met him and just got to read the biographies,

and I think he [Shockley] was a terrible communicator, but he understood something that the-- he was working on this PNPN[9] device that actually he understood the electronic switch that Bell Labs was trying to build; and what he didn't tell his team was actually the system he had in mind for this device. He just didn't share any of this data. Well, his team actually said, "That's nice, but there's a market over here for silicon devices." And then, of course, Fairchild capitalized on that by just making [silicon] transistors and then inventing-- Hoerni and Moore having a race to invent the planar process. By the way, the most interesting part of the Fairchild story that Jay Last's notebooks talk about was the fact that when they invented the integrated circuit, what do you think the VP of sales of Fairchild said? Any idea?

Hancock: Don't know.

Blank: "Over my dead body."

<laughter>

Blank: And I read that and went, "What?" And it's, in fact, that's a pattern that happens in almost every company where the VP of sales is printing money for an existing market.

Hancock: Mm-hm.

Blank: So, people were grabbing silicon transistors out of his hand. All he had to do is show up with a data sheet and some samples; and, so, his salesforce at Fairchild at the time was an order-taking force. The minute you went to integrated circuits now you had to do consultative selling. This whole sales process required a different sales force and different organization. And, in fact, the order process would have been much smaller and slower. So, from the point of view of the VP of sales of that product line, he was absolutely right.

From the point of view about Fairchild as a company is they blew the IC business much like every company that invents anti-gravity like a new technology is when you invent a new market the first thing you need to do is get your current VP of sales out of that business and create a new channel or a new division or something else. And that just blew my mind. But it made lots of sense, but we didn't have enough sense to understand that distinction. In fact, today, companies still make that mistake. So, for context, Zilog was out of that long history of semiconductor spinouts out of Shockley and then Fairchild.

Intel started in '68. Zilog probably started seven years before [meant to say after] in '75, I think with Federico and some others who were leaving. Sixty-five companies came out of Fairchild in 20 years. So, the Valley was still a semiconductor and defense valley at the time. Almost-- and, in fact, no commercial

[9] [Interviewee's note] four-layer diode intended to be sold to Bell Labs as telephone-line cross-point switch

systems-- there were no personal computers in the late 70s. Apple had just gotten started that year or the year before, I believe, and no electronic design automation tools. I still remember a [Zilog] peripheral chip called the CTC being laid out on a big table in front of us with Rubylith and people cutting the Rubylith with, like, X-Acto knives.

Hancock: By hand.

<laughter>

Blank: They can tell you really that's how you do design! And then reading about, some company called GE was thinking about some division, some electronic design software. In fact, it was Ross Freeman who built the SIO and SCC who went off to, I think, co-found Altera. And my job at Zilog had gone from the training department and into my first marketing job. And I got the marketing job because here I was teaching microprocessor design with all our peripherals and they had an opening in marketing. And the first thing is I didn't know what marketing did. I understood what engineering did, because I was hanging out with them, and I understood what sales did, because I was in the sales department. I would give tours of the fab, so that was manufacturing. But what was the marketing stuff? What do they do? And, given Zilog's history it wasn't clear they actually knew what their role was, but they had an opening. And their opening was what you would expect is "MBA-required," "five to ten years of experience," and blah, blah, blah. And, of course, I had none of that, so I applied for the job.

<laughter>

Blank: And I still remember the classic conversation, "What makes you think you're qualified for this job?" Well, I know every one of our customers and I could teach design with our stuff. And it was a pretty compelling argument. So, they allowed me to become a junior product marketer and I was responsible for all the Z8000-- the 16-bit line - peripherals. So, the SCC, the FIO, some other DMA chips and learned the difference between a feature and a benefit.

But Intel had Bill Davidow. And Bill Davidow was probably one of the best technical marketeers in the time. You got to remember in the 60s and 70s no MBA worth their salt would go to work for Silicon Valley. It was technologists. And, so, technical people actually needed to teach themselves how to be marketeers. Because it was a pretty esoteric business and, remember, you were selling business to business. There was no consumer marketing going on. And Davidow came out of that background and he was really effective.

He did something called the "Crush" campaign. The Crush campaign was how to sell Intel's 8086 against the [Motorola] 68000 and the [Zilog] Z8000, which were all competitive 16-bit microprocessors. Probably the 68000, if I remember was probably the better architecture and then a toss-up between how screwed up the 8086 and Z8000 was. Z8000 might have had better architecture. Again, this was a lack of strategy in the company is that the design engineers decided to build the Z8000 as a clean sheet of paper, completely un-code-compatible with the existing Z80 base, which meant that any customers that had designed in Z80-- well, it was an even choice of whose processor you picked, because there was no code

I could use. Instead of making it a super-set, it was just-- again, it was technologists rather than somebody with some business sense. And, again, it would've been hard to kind of get Shima[10] and the architects to kind of understand that distinction.

I have to tell you one funny story about Zilog is, I mentioned Marty Cohen was from Boston. The head of the systems division, Rolando Esteverena, was Argentinian. Manny Fernandez was Cuban. And, I forget, Federico was Italian. And, so, I was invited into one board meeting to kind of talk about something in training. I never knew what a board meeting was. But I came into that board meeting, I'm sitting on the side of the room for the first ten minutes. And I started to panic, because all of them were speaking, I think, English, but I couldn't understand a word!

<laughter>

Blank: Because it sounded like the United Nations without translation and they all understood each other and it took me about ten minutes to finally get in sync with the accents, but I still remember that moment where, "Are they speaking in English-- what the hell are they saying?!"

<laughter>

Blank: It was actually quite funny. By the way, Zilog, the year I was there had Eric Schmidt, Judy Estrin, Bill Carrico. I mean, just a number of amazing people through that place. It was probably the best engineered and worst business strategy company I've ever worked in,… other than the ones I did. It was just an under-utilized set of resources.

Hancock: Do you want to say more about that? Actually, it was going to be my next question about those key people that were bumping up against and you were working with. Again, you walk into this company with one role, shift to another, but an amazing set of people. Do you want to say more about--

Blank: Yeah, it's very funny. I should just do this as a side bar, and I don't mean to be patronizing, but for some reason I have always been attracted to smart, powerful, and aggressive women, probably in that order with just brain power. I tend to marry them and I tend to like working with them. In fact, what I found out later is that, remember the manager who hired me at Zilog who disappeared? Turned out it was Adele Goldberg's husband. And I got to know Adele at my next company, Convergent, and I was a big fan of Adele-- big fan of Judy Estrin. Later on in my career, one of my mentors was one of the first women VCs, Kathryn Gould. And Kathryn was a huge influence on my life for a couple decades, actually. And she passed on way too early. She was a recruiter, but then one of my board members, then just a friend for the next 15 years or so. In fact, I remember a great Kathryn thing I didn't understand at the time and clearly understand now is I asked her, "They keep offering you all these awards for Best Woman VC in the Valley." She said, "Steve, that's bullshit. I don't want to be known as the Best Woman VC. I want to be known as the best VC."

[10] [Interviewee's note] actually Shima did the logic physical layout but Bernard Peuto was the architect

Hancock: Yeah.

Blank: And nowadays we go, “Well, duh.”

Hancock: They’re here. Yes.

Blank: But that wasn’t clear. The other one, Donna Dubinsky, who we still see as a friend. All those were smart, aggressive, extremely competent women who were operating in a guy’s world and they had to be better than the guys and just operate-- Karen Richardson, our VP of sales, eventually became the CEO of Epiphany. All had those characteristics of not just good, but great. And with a great user interface as well. So, anyway, Judy was there; her soon-to-be husband Bill Carrico. I vaguely remember Eric [Schmidt] there; and our lives would cross again later on. And Ross Freeman, again, who I think started Altera. Lots of other start-ups came from that one company. And, again, it was lack of context. I don’t think they understood the role of the transition of code compatibility, certainly didn’t from 8- to 16-bit or they wouldn’t have made that mistake.

They didn’t understand that marketing wasn’t sales support, which is why marketing worked for sales, I think, at the time. Yes, marketing has to make sales the richest people in the company, but if it wasn’t doing strategy, then it was just sales support and got steamrollered by, again, Davidow at Intel, who was spectacular. Zilog for a while was also in the memory business, and same thing like Intel, it was like, “Why are we in this business when the Japanese have commoditized that business? Why do we have fabs in Silicon Valley?” And they had set up a fab in Nampa in Idaho. So, these things were acquired in hindsight chess moves and this was a company that was playing checkers for business strategy while they had world-class chess players on the technology.

Hancock: I want to just-- that’s such a great summary of sort of what happened to Zilog, what the possibilities were in terms of the technology and then--

Blank: Oh, and there’s another thing I should mention about that--

Hancock: Okay, good. Let’s--

Blank: --which was way above my paygrade at the time. Zilog’s investments, which I only found out later, that is its investors were Exxon. So, Exxon in the late 70s was trying to build a portfolio of technology because one of the first oil crises happened then and they said, “Oh, maybe we should get into some other businesses.” So, they put together a conglomerate internally called Exxon Office Systems. So, they had Qyx and Qwip and Zilog. I don't know if in the history you’ve gone through that. I’m sure on the highest level, Manny and Federico were being pressured by Exxon to fit into some strategy. So, I’m sure if you interview them, it’s really interesting to hear their strategy. That’s not the business strategy I’m telling you about. I’m telling you about the technical product roadmap--

Hancock: Yes.

Blank: --which to me the biggest failure in hindsight was the next chip after the Z80 should have been what they did 20 years later, which was the Z800.

Hancock: The 800, right.

Blank: Which, "Let's take all the code we have and now you can run it in a 16-bit space," rather than re-inventing the whole world about "see how smart we are in building the best architecture," which given, like, unconstrained engineering that's what you get. And that's always a trade-off between "Let's invent the future," with "gee, can we leverage our past?" And that's hard, because, again, it doesn't come with a memo. But Intel got it right. The 8086, 286 and architectural things that wanted to make you gag, you could ostensibly re-use the code, right? You didn't have to learn a completely new architectures. Zilog shot themselves in the-- not the foot, in the head with that.

Hancock: Let's talk about your role in marketing. It was an unusual time that people didn't understand really the technology. As you were saying, you were really into customizing and working with customers in new ways and there were people, Bill Davidow, Regis McKenna, all these people who were kind of framing in new ways what the technologies were and how to use it. Do you want to talk? You brought with you today about some of the materials in your-- you know, what was your approach? What were your techniques, your tactics? And what do you think you contributed in terms of-- in your role as marketing--

<overlapping conversation>

Blank: At Zilog?

Hancock: Yes.

Blank: I think--

Hancock: And what did you learn from that, too?

Blank: Well, at Zilog I was, not only not having an MBA, but not even having a college degree, as I said, I didn't know what marketing was. Somebody had to explain to me the difference between a feature and a benefit. I didn't know what a data sheet was. I think my contribution was not making a fool of myself and being able to describe the products so that the engineers didn't throw up! But somehow, I established a pretty good working relationship with engineering and, again, because I had been teaching [how to] design with this stuff, understood enough about how these components were actually used.

So, I wasn't some MBA coming in, thinking I knew how to market. I actually knew both ends of customer needs implicitly-- I wouldn't have articulated it that way-- and what engineering intent was for the parts. And, so, I was able to kind of figure out how to describe this stuff. Today we would call it "product/market fit". Back then that wasn't even a concept. And, internally, Zilog had a head of marketing communications, Bill somebody. But it had a great PR agency, Janis Ulevich and Bill Orrange – Ulevich and Orrange. Janis

and Bill were world-class folks, just the two of them, they never built on purpose an agency the scale of Regis or anybody else, but they were really efficient.

But I think the company was limited. There really were no senior marketeers who understood what marketing was. It took me much later in my career-- I think two more companies-- to understand at least for me in a technology company, that marketing's job is, number one, to create end-user demand and drive it into our sales channel. That's number one. You know, what I used to tell my people later in my career is, "Marketing's job is to make the VP of Sales the richest person in the company." And if you're not doing that, then everything else doesn't matter. Then number two is to educate the channel why our product is better and faster, etcetera. And number three, help engineering understand customer needs, desires, futures, etcetera. So you have tactical roles, communication roles, but you also had strategic roles with engineering.

And most places it either became marcomm, marketing was really marcomm, well, okay. That's PR and fancy data sheets and maybe we'd go to trade shows, or other places it was sales support, but ultimately, it's all three of those things. It needs to be both tactical and strategic. And in a startup, you need to help engineers discover what product/market fit was, or else you ended up just letting them free run and building things that no one cared about.

That was much further in my future, but I was getting a really good education in Zilog and understanding that. And then Zilog had started to move into the system business, and this was another great startup mistake. We made it again at Convergent and saw lots of companies making it. It's confusing technology with the business. Zilog said, "Hey! we got these now 16-bit processors, and there's a standard operating system called UNIX and we're building development systems, that is systems that allowed engineers to emulate other systems, so we were building kind of computers. Why don't we get into the computer business and sell computers?" And so Zilog started a computer systems business, where Judy Estrin and Bill Carrico, in fact, Bill ran that Division. And I wanted to move into that division, and because of classic company politics, I didn't get the job and decided to leave and join a systems company. But it would be a mistake, I would see other people make is that, "Well, gee, yeah, you're going to sell a couple of boxes because you have computer and an operating system, but people don't buy boxes because you built them. People buy boxes to solve problems. So what problems are you solving and for who and what are the applications and ecosystem that needs to be--?" Way past what most people were thinking, "Hey, we're hardware people, or software people, let's build the boxes and we're now in the computer business." And again, it was a long time before people understood the power of apps, applications and ecosystems and software developers, etcetera. Zilog made that mistake as well, and got themselves into a business they knew nothing about. And I don't mean they didn't build good systems, but understanding how to sell computers and what actually was a pull, rather than push a box or two, was completely different.

Hancock: So help us see the evolution of Zilog. Its growth, its endgame, and then what led you to move on to start Convergent.

Blank: When I was there, Zilog had started with a Z-80, I was there, and they made, just for context, the Z-80 when I got there, I think Z-80A was 2.5[11] There was a Z-80B at 4 megahertz; Z-80C, I think was 6 megahertz, there were hundreds of bugs. And in fact how shoddy the business practices were at the time? I think we had a Z-80B, where it's coming out. We couldn't make enough of the yield, but the fab was terrible,. And we had customers clamoring for them. And so the VP of Sales, I still remember being in this meeting told the Head of Fab, "Ship them failed units." "Well, they'll plug them in and they'll smoke!" "It's okay, then we'll have another two weeks to work the problem." So they shipped bad parts knowingly!

And they were making Z-80s and I came just about [the time of the] the launch of the shipping of the Z-8000. They were also making a chip called the Z-8, which was a microcontroller, lots of I/O. After that, Zilog, never scaled past its early potential. Judy left, Carrico left, Federico left. Manny went on to run Dataquest. Federico had a great career doing some other vision stuff and some other stuff. Eric Schmidt, of course, went back to Berkeley and had a great career at Sun, and then Novell and then obviously Google. And I kind of lost sight of the company. I think it's still around. Isn't it still around?

Hancock: I think this-- they got acquired, right, by TPG, and then went through turnaround, and you know, it sort of had this--

Blank: Yeah, I think, the '70s installed base is, probably still there.

Hancock: Still-- <laughs>

Blank: And then I read decades later, they finally did build a Z-800, which they should have,

Hancock: Decades later.

Blank: Decades later. So this was--

Hancock: When did you decide that you were ready for your next step?

Blank: Well, I think the company let me know I was ready when I didn't get the job in the systems business, and I was interested in computer systems, rather than components. I thought the components were great, and learned a lot. Learned how to design [with] microprocessors, but this idea of an operating system, this thing called UNIX was really an operating system—I said, "What's that? and software," and I had gone back to night school. De Anza College at the time had some great instructors from Hewlett Packard, who were building the HP-3000, and took, what was, I think the operating system was MPE. And took an MPE Operating System Design Class, and a couple other systems classes at night and really got into systems. I was always trying to learn new things. And thought that some systems company

[11] [Interviewee's note] The original Z80 ran with a clock rate of 2.5 MHz, the Z80A at 4MHz, the Z80B at 6MHz

would be interesting and got either recruited or somehow ended up at a company called Convergent Technologies. And my interview at Convergent would shape my career for the next 20 years.

Hancock: Place us in the year? This is early '80s?

Blank: Must have been '82/'83?

Hancock: '82? Mm hm, okay.

Blank: '81? Convergent was-- now we would call it a PC company, personal computer company, but there were no standard operating systems. But they were building desktop personal computers when that was like completely unknown, with a custom operating system. Allen Michels, who was a cofounder was a marketeer from DEC, went to Intel, ran their development systems group, was insane, just a crazy man. But incredibly charismatic, must have been an old guy at the time, in his mid-40s, or early 40s. And then partnered with Ben Wegbreit, who was a Computer Science Professor at Harvard, ran half of the Advanced Systems Division at Xerox/PARC. Bob Garrow, who invented something called the Multibus, and then another cofounder someone named Kal Hubler, who had worked with Alan, I think, at DEC, as a salesman.

So, there's this kind of DEC and Intel crew. Jay Spitzen and some other great architects were there. I was probably employee, I don't know, 50 or 80 at Convergent. But I remember the interview. I interviewed with a bunch of people, including my ostensible boss, a very smart woman named Pauline Alker, who later on would be a great role model, because everything she did, I would, in my career, made sure I did the opposite. And I don't mean there was much malice involved, but Pauline had a tough role of being Asian, a woman, in truly a guy's company out of DEC culture.

And she was dealing with lots of stuff at the time, but I remember interviewing with her boss, who at the time, Ben [Wegbreit] had moved from Head of Engineering to, believe or not, Head of Sales and Marketing. And I remember the interview with Ben like it was yesterday. Back then there were printed resumes. There was no software, and my resume had my career to the time. It was a little interesting. The Air Force, and nuclear reactors, and like broadband coax, and finite impulse response filters, so it was pretty interesting, microprocessor design. Except for education, it just said "Mensa". No, it wasn't blank, it said "Mensa". Mensa back then was some IQ-whatever. I had to put something down. I remember Ben looking at this resume going, in a deep Ben voice, says, "This is the strangest resume I've ever seen! You have no education!" I said, "Yes!" He says, "What does that mean?" "Well, I've never graduated!" Which, all of a sudden, Ben's this-- I don't want to say snob, but he did teach Computer Science at Harvard, I mean Ben was like a genius, and would be for my next 20 years, as both a boss, a peer, and a co-founder together. So I'm a huge fan, and [he was a] big influence! But I still remember <laughs>, and Ben like just went on, "Well, why did you put that down?" I said, "Well, I thought it would get your attention! And obviously it did!" And Ben never cracked a smile, but you could just see-- and of course nowadays this is typical, but it never happened to me until then. He said, "Well, describe this broadband coax." I start talking, and he said, "No, no, no, up at the whiteboard." "Up at the whiteboard?! Okay!" Well, I had just gotten done teaching. So I taught Ben as much as I remembered about broadband coax. This is pre-

internet, and Datapoint and Convergent were building the first local area networks for data also pre-internet. And I had sold the SCC chip, so I could do a pretty job! And then he said, "Well, tell me about ESL," and I had to be careful about the applications, but I could talk about data communications links, and finite impulse response filters. And it was like doing your orals, in hindsight. And like--

Hancock: How long did that take? That--

Blank: Seemed like forever!

Hancock: Is this is in minutes, or--

Blank: Seemed like forever! <laughter> Probably, I don't know, 40 minutes.

Hancock: Long time.

Blank: And Ben didn't say a word. Just, "Uh huh, tell me more." "Tell me more?! Oh, my god!" And especially for ESL, and he would say something like, "Well, where were these signals coming from?" and you couldn't say, "Err, err, I can't tell you!" So anyway, that's it! He doesn't say anything. He said, "Thank you." I leave, and called the recruiter, or a day later, the recruiter goes, "Your ostensible boss didn't want to hire you at all! But Ben Wegbreit thought you were amazing!" I went, "Well, this isn't going to be good," but, "They offered you a job!" I took it in a second.

And Pauline and I always had a tenuous relationship. I didn't understand, as I said, it took me a decade or two to understand the pressure she was under from working directly from a crazy person. Which I would not know until the next company when I reported to Allen Michels, who was truly insane. But I got the job. I was head of Product Marketing for this startup called, or now early-stage company, called Convergent Technologies, who were building what I would say are OEM workstations for other companies. There was companies that were now transitioning into desktop computers who hadn't mastered the art of microprocessor design, that is they had been minicomputer companies, so Prime was a customer, Burroughs was a customer, NCR was a customer, TRW was a customer. All wanting to build these things, but their engineering groups hadn't figured this out. And that was probably my first real education on serious sales, and more importantly, serious marketing. That's when I think I learned at the feet of masters. And I could go through a series of things I learned there, which were incredibly important. Should I--

Hancock: Let's do that. This is a perfect time.

Blank: So probably to me, one of my role models at the time, and we'll talk about Allen Michels in a second and Ben, but was a guy named Rob Van Naarden, who was VP of Sales. Rob had been a Design Engineer at DEC. In fact, he slept in Gordon Bell's living room when he was designing the PDP-6, I guess, and was an early engineer at DEC. Allen took him from DEC into Convergent. But Rob turned out to be a great sales guy, because he understood the tech, but he had this wonderful personality! I'll give you an example.

Here we are, I think it was Burroughs we were going into. Somewhere in Pennsylvania, wherever Burroughs was at the time, who was a computer manufacturer, one of the BUNCH. One of the six competitors to IBM, made minis and mainframes. And Rob is reading the local newspaper, and wherever we are in Pennsylvania. And I knew Rob wasn't a sports fan, but he's reading the sports section! I noticed that, I didn't say anything, and like we go in and I'm there, because I'm the guy from the factory.

And what you find out later on in your career is that the salespeople could be the smartest people on the planet, but a customer never wants to hear it from the salesperson. They have to hear the same exact thing from someone from the factory before they'll believe what the salesperson said-- I was kind of there to repeat what Rob said, because this guy knew everything I knew. But I was, by then, pretty articulate and could explain much like Allen [Michels], maybe, a junior Allen, about explaining how wonderful our stuff was.

And so, this is my first set of meetings ever outside the building. And the meeting's about to start, and I want to jump up and present, and Rob kicks me. Kicks me. And he had said so at breakfast. He said, "Follow my lead," but I was ignoring, and I wanted to start, and he kicks me. And Rob's first words out of his mouth, I still remember this 40 years later, he says, "How about them--" name of the local sports team. I go, "How about them sports team?! What the hell are we talking about sports team?" Then all of a sudden, the room breaks into, "Yeah! How about them!! Yeah!, what a game!" And Rob's going, "Yeah, did you see what so-and-so?" "How the hell did he--? He was reading that at breakfast!" "Okay, now, can we talk about our product?" And Rob turns to the Senior Head of Engineering in the room-- remember, we're trying to sell computers to other computer companies, who couldn't keep up with the technology, they're already defensive we're in their room at all! And Rob goes, "So how's your wife? I heard she was feeling--," "What?! Why are we talking about--,", Well Rob was building a rapport with people in the room, where I just wanted to talk bits and bytes.

Then he said something that I wanted to throw up, he says, "Look, I don't know why we're here. You guys could build better computers than we can in your sleep! You know, if you had the same 40 million dollars we raised," or whatever the number was, "You could do this as well." But since, you don’t, why don't we just say we had the meeting, and like we could leave, you don't need to see our slides." And he goes on like that, "Yeah, yeah, yeah," everybody agrees, "Yeah, we were here when the cavemen were making transistors out of rocks!" And I'm rolling my eyes! And Rob is building rapport, by lowering the resistance in the room so people would listen. Finally, I got to speak! But it took me years to kind of emulate this practice about-- he was-- maybe he was empathetic, but he was certainly emulating empathy.

Now, later on in my career, I used to teach my marketeers an explicit class on how to emulate empathy. I mean, I literally would give them this as a script, who were very smart technical people who did not have that DNA of, "Look people in the eye, kind of try to make some connection, and by lowering that resistance." So that was a Van Naarden thing.

[Allen] Michels, really had some of the best marketing instincts in the business at the time. Convergent went from zero to 400-million bucks in four or five years, IPO’d. But he was, as politely as I can say, a no-rules marketeer. A terror to his board. Selling stock when he shouldn't have sold. I mean, all kinds of stuff.

But we sold computers to people who shouldn't have been buying them, they should have been building them.

There's another lesson I learned. The VP of Sales at the time was a guy named Dick Meise, and Dick was an old sales guy from Honeywell, after Rob. And Meise taught me an important lesson as a marketeer. By this time, I had moved into the UNIX Division, which was building a multiprocessor system called the Megaframe. And I had put together what I was thought was the world's best datasheet. It had 16 pages, it described every possible question you ever wanted to know about this computer. Now remember, this computer was not being sold retail, it was sold to other computer manufacturers, and so there was always a salesman involved. But this datasheet was so perfect, I was about to learn a very expensive lesson.

I get a call, we're now in separate buildings, I get a call from Allen Michels, the President, that said, "Steve, can you come over to the main headquarters?" "Sure! Anything urgent?" "Nah, just come on over, I want to chat with you and Dick." So I drive over and pull over, it was at 2500 Augustine Drive in Santa Clara. And as I pull in the parking lot, I notice people are having some kind of cookout outside in the parking lot, and this is kind of unusual, because didn't look like marshmallows or anything, it was just black smoke coming up. And I go into Allen's office, and he said, "Look out the window!" And I look out and there was that people have some kind of barbecue, except they're not cooking food, they're throwing things, paper, out of boxes! He said, "Those are your datasheets." I went, "What?!" I had just printed up 10,000 of them! And Dick is just smiling, and Allen is smiling-- I said, "But..- but..- b-- it was perfect! It was like engineers said it was--" because I always learned you check with engineering and you translate their needs into what customers want. He said, "Steve, we pay our salespeople a lot of money. What do you think their job is?" I said, "To sell the system." He said, "Well, it's actually to convince people who don't want our stuff about why they should buy it. You've made the world's most perfect datasheet, is that after they get this, they have no more questions, so they don't need our salespeople." He said, "That's a real mistake. And what you really need to do is get their interest, but allow our people to actually figure out what objections they were and use that-- the rest of the questions as an entrée into the company." And so literally my datasheets-- So I got it down to a four-page datasheet later on, but it was a very interesting and expensive [lesson]…

Allen was a classic theatrical marketeer. He used to spray paint things on the walls. I mean, he just gave people bonuses of $20,000, when $20,000 was a lot of money. Just amazing marketeer. But again, no bounds on his behavior. Truly a dysfunctional CEO, but for a while incredibly successful. And I would join his next startup and learn a ton of stuff about what he got right at Convergent and actually got wrong the second time around.

Hancock: Let's put a marker on that to come back to that, while we finish the kind of Convergent story. So, whoo, what should we talk about next for Convergent?

Blank: There's a Convergent story that I don't tell often, and it's a lost in the mist of the time, and we'll still debate whether apocryphal or actually true. If you remember, I always had this kind of mischievous side of running pranks. There was another prank I had pulled in the Air Force, by the way, when I was in

Thailand, I got bored again on night shift, I used to run. And had access to the Administrative Offices. And I thought it would just be great, because I'm sitting around, I could read everybody's personnel records, , why don't I just create a fake paper personnel record for somebody. And back then there was like a Cheech and Chong album. Cheech and Chong was a comedy routine, and they were kind of counterculture comedians. And they made up a character called Ashley P. Roachclip. And I thought wouldn't it be great to have an airman named Ashley P. Roachclip. And so I spent three months making up a fake personnel record for Ashley P., for no other reason other than I was just trying to amuse myself!

Hancock: Three months?

Blank: Yeah, because--

Hancock: This is an elaborate prank.

Blank: Yeah, I mean, I got medical records, I got training records, because every night I'd have about a half-hour, and literally just, he was such a bad airman, I mean, he was like court marshaled. I had to get the paperwork from different parts of the-- so I'd sneak out from friends and different parts of the-- and I would just put it back in the file cabinet. And I didn't think anything of it, other than it was an intellectual puzzle. It was, "Can I make up--?" So anyway, I forget about this thing, and about a month later, I'm on working nightshift, which I used to love! From midnight till 8:00 a.m., because no one would hassle me, I got my own group of guys, it was a 24/7 shift in the middle of the war. And you would do hand-offs and people giving you equipment and then you handing it off next guys. But I'd always sneak out before management would show up, which were the officers. And then one day I heard, "There's an all-hands, all-shifts meeting at 0900." Which meant at 9:00, a.m., and, "By the way, you got to stand out, outside your building." "What's going on?"

I get out of the building, and not only is our shop there, but every other shop in the Avionics Squad is lined up around the flight line, and there's the deputy base commander with a pile of records in front of him. And they announce in a loud voice, and our shop was about 160 people, and there were maybe five or six other shops, maybe not as big, but like 500 or 600 people lined up. [Announcing in loud voice] "You're here--," and he was not happy, because it's going to get hot. "We're here because U.S. Airforce Command Pacific says we're supposed to have 327,912 people in the Pacific Command, and we have 327,913 being reported!" And I went, "What? What?" And I realized that somehow Ashley P. Roachclip got added to-- and they said, [Announcing in loud voice] "We've traced the discrepancy down to this Avionics Squadron! When I call your name, come up and pick up your record!" And they go through all the other shops and then they get to the Electronic Warfare Shop. "Airman Aardvark," "Yes, sir!" "March up!" "Airman Blank!" "Yes!" and I'm up. And they go through 120 people until they go, "Airman Roachclip!" And the minute they say that, a couple other young airmen start snickering, because they've heard the Cheech and Chong album. I'm like moving to the back row going, "Holy shit! I'm going to go to jail! They're going to send me to Viet--, oh! I am in a war zone, where else can they send me?" And I'm thinking, "Jail!?" I mean, "What could happen to me?!" And unlike the gravity thing, this wasn't even on purpose. I wasn't trying-- and so now they call out again, "Airman Roachclip!" and the guy's the base commander is getting pissed! And all the other airmen start laughing hysterically.

And right out of the movies, the Deputy Base Commander puts his face right next to-- I mean, it's getting hot, it's been three hours! Hundreds of names have been called, to the first guy who laughed, and said, [Announcing in loud voice] "Son, what's so funny?!" And just like out of the movies, the poor airman goes, "Sir! Ashley P. Roachclip is a mythical cartoon character, sir! I have the record in our dorm, would you like to hear it, sir?!" And the guy goes, "What?!" And then a couple of other people jump in, and, "Yes! It's really funny, would you hear it--," uh-buh-buh! And he's like trying to process like, "What?!" And he's looking through the record going, "No! This-- no wait a minute, this can't be--," and like all of a sudden, you hear this buzz at the desk, and I'm going, "I'm going to be dead. I'm going to be really dead--,", ten minutes of buzzing, and they decide they've found the fake airman. "You mean there's no Ashley-- dismissed!" And I go, "They're calling in the Investigative Group?" Six days later, the air war over Vietnam ends, and they dismantled the base, and like nothing ever happened. <laughter> But that was the last large-scale prank I did until I had the moonrock at Rocket Science Games 30 years later. So anyway, I'm sorry about the digression, but--

Hancock: That was too good a story to not mention.

Blank: Yeah, that was a good-- that was a _____, and anti-_____ one.

Hancock: We'll make note about the moonrock.

Blank: Right, so sorry, where were we? Convergent.

Hancock: Convergent, we were just finishing--

Blank: Yeah, sorry, is this exhausting? I'm--

Hancock: We're finishing up-- well, I want make-- well, you were starting to talk--

Blank: So Convergent was a real-- and for context, though, Convergent was really a transitional company that, again, missed the strategy. And I remember being there when it happened, getting yelled at about it, and not that I was prescient, but this is before DOS, right? They had built a world-class operating system called CTOS, real-time, like 10x better than DOS. They built a networking system pre-Novell that had, it was essentially client server. It was 10x more robust than Novell. But much like Datapoint, which was a kind of competitive company at the same time, both Convergent and Datapoint, excuse the pun, missed the point. They built closed systems. It's a big idea. They built closed systems. What's ironic is they were both OEMing systems, but didn't understand they should probably have been OEMing subsystems at the same time. If they would have opened their operating system and built external APIs, right? Or if they would have opened their networking architecture, they had something--

Hancock: Yeah, it was a huge platform.

Blank: Huge platforms! But this concept was just foreign. It was, "No, we're selling systems, we're making a lot of money, we're doing great." And again, it's not that anybody was stupid, it's just you see

these patterns in hindsight. The other thing that went on was when DOS came out, we were running a proprietary system, CTOS. And I remember putting out a memo, we were already a public company, to Allen and a couple other of the execs saying, "We need to be running dual operating systems. CTOS and DOS." And because I had, again, always had a good relationship with engineering, we had this small little internal group going on, not a development group, but a lunch group saying, "How hard would it be to port DOS?" And as an experiment, someone had ported one of the kernels and said, "We could do this in like a couple weeks!" So I wrote this memo to Allen that said, Allen Michels, the CEO then, "We're going to miss a huge opportunity," and because we were a public company and Allen was like Allen, he made me pick up every copy of those memos and destroy them. And in hindsight, I should have insisted! But what did I know? I was not a junior marketeer, but I just thought we made a mistake. And in hindsight, we made a huge mistake. But again, we were among everybody else who didn't understand the power of an open system architecture, as crappy as it was, and Gates was a brilliant marketeer who made the right move--

Hancock: That would come later, right?

Blank: Right, much later. So that was Convergent.

Hancock: Two quick questions on this, one was consultative selling, marketing, if you want to say a little bit more about. Is this the time that this sort of crystallized for you? Or--

Blank: Yeah, watching Rob [Van Naarden], Dick Meise, Jack Kay, who would all go off to spectacular careers as CEOs in their own, both understanding they were all from deep technical backgrounds, at least Jack and Rob were. Understand how to understand customer needs, at the same time understanding the political needs of engineers who would always start the meetings sitting with their arms crossed, and like, "Why are you in my building? I hate you already," to getting a conversation going of, "Maybe we could help you," was something I learned when I moved into MIPS later. To be able to deeply understand not only their problem, but remember, you're OEMing, you had to understand their customer's problem. That's the biggest problem in selling through a proxy of someone else. If you didn't understand their customers as well or better than they did, you usually ended up in a problem. And this company was really good at that. Michels instincts were impeccable, and he built a salesforce that was impeccable. Marketing was okay, that was me and some others, and Pauline and others. But really in this company, our salespeople actually were the winners here, and engineering. [Bob] Garrow and Ben [Wegbreit] built a spectacular set of early desktops. And someone named John Huey, and Jay Spitzen, and Greg Walsh, who we did a couple of companies with, were spectacular software engineers, and for hardware, Richard Lowenthal.

It was a great set of hardware and software engineers, [who developed something] way, way past whatever would happen in Microsoft and Novell and other places, for at least a decade. But again, because the business strategy optimized what I called a local maximum rather than a global maximum, zero to $400 million bucks back then was real money. I mean, but they didn't build a lasting company, because they didn't understand it was actually the subsystems that if unbundled would have been even more powerful. And you could have done both. You could have had this OEM business and then decided

that we're actually going to open up the architecture. You know, hindsight is great, and in hindsight, that's what we probably should have done.

Hancock: Hindsight, often 20/20. Ben-- you mentioned that Ben was an important person for you there. And then played these different roles, mentor, collaborator, cofounder, you know, do you want to talk about Ben now?

Blank: Yeah, I should go through-- one of the things I learned as an entrepreneur, and I remind my students, if you're lucky, there are people you take classes from, there are people who could be coaches, but to have mentors in your career are "make and break" things. In the 20th Century, guys didn't say they were being mentored. That was like too touchy feely. Guys were guys, and people smoked cigarettes and drank. But I had a couple mentors in my career that just changed my trajectory. Some of them were overt, some of them were covert. Some were anti-mentors, as you saw everything they did and said, "I'm not going to do that," and like the sins of the fathers on the sons, you sometimes ended up doing the same behavior.

Allen Michels was an implicit mentor that I swore I was never going to have that behavior, and ended up doing that. Pauline, the same thing. Not the world's most perfect boss, but incredibly smart. But for selling, it was Rob Van Naarden. For just intellectual horsepower in my career, it was Ben. and I could never have done what I did without Ben. Another mentor in my life we'll talk about later, who I met at MIPS was Gordon Bell, who-- and Gordon and Ben and probably Rob and Kathryn Gould. All had this funny thing of-- I didn't get it at the time-- spent time with me that I didn't understand why. And now I see it why I mentor certain individuals is that they're smart off the scale, they see things I don't see, and mentorship, implicitly, you think you're being taught? It's actually a two-way street. As you're teaching them things they didn't see, even though you think, "well, what do I know? I don't know anything!" And every one-- I'd be coming up with stuff, 70 percent was like, "No. Steve, we've done that before," but every once in a while they'd go, "Whoa! And they were getting stuff, which I didn't understand at the time, that made them interested in spending time with me," and for Ben it lasted a couple decades. For Gordon, you know, for Gordon, I just saw Gordon Bell about a month ago. He came to my 65th birthday party as well.

Hancock: Happy birthday!

Blank: Thank you. But Gordon ended up, in a very long hindsight, to be almost a father figure for me, because I didn't have a father. He was like a role model, in the way he thought. So, Ben taught me how to think. Gordon taught me what to think about. The partnership between Ben and I was… Ben could figure out how to drive down a road in a way that no one else can. I'd figure out how to drive off-road, and that was why it was a great partnership. But Gordon would teach me what the destination was. And it was just a great set of mentors. And what's funny about mentorship is, of course, you get it in a certain period of your life, maybe late 20s to late 30s, and then one day you wake up and you realize, it's your turn to be a mentor. That you've kind of passed the people who have mentored you. Not that you're smarter, but it's now your turn to give back. And it's almost a bittersweet thing. It's sort of like watching your kids grow up is watching you become that generation of mentorship.

And so same with Kathryn Gould. I mean, she was my investor and my board member, and then eventually just a good friend. And we'd tell war stories, and learn things, and I'd bounce ideas off of her, and she'd bounce deals off of me. Back then, no one would say, "I'm your mentor," and, "You're mentoring me," but in hindsight, I think, if you're lucky, you ought to pay attention when people start paying attention to you, because it is a career changing activity.

Hancock: That's wonderful Steve, you know, I'm sorry that time moves too fast, and we're--

Blank: We're only at Convergent! We might need four days!

Hancock: We're only at Convergent <laughs>! Well, we're up to MIPS now, and I know we have five more minutes with our media team, and I know five minutes is wholly inadequate to even start that story, so--

Blank: Was this all right for the Computer--?

Hancock: It was amazing!

Blank: Is it all right?

Hancock: It's fantastic! It's fantastic! Well, it's really a privilege. So thank you.

Blank: You know, what the hell do I know? But it was one hell of a ride in Silicon Valley. It was-- and I have to tell you, and stop me if I should stop talking--

Hancock: Let's continue, we just have a few minutes. It sounds like Steve's got some reflections here.

Blank: You know, I wish I could tell you it was all strategy. But some of the things I look back and see that I did is, I was fearless because I was too dumb to know it couldn't be done. And as I said, I remember even from the day I came to the Valley this whole notion of, "You can't die here. It's impossible to starve to death here." And the weather was great, "If I had to sleep out on the street--," seriously, I remember thinking that, and going, "Where else in the world?"

It was like drinking from a firehose for decades! And for me, getting data and learning new things… Remember, I wasn't qualified for any job I ever had! Any job! What did I know about microprocessors? I was teaching it six months later. Later, I'm competing with Cray "What did I know about supercomputers?" You know, next month I was teaching a class, and talking about $N^{½}$ and R^{∞} and vector/scalar startup time. I mean, Amdahl's Law -- what did I know? But it forced me to kind of learn.

What did I know about the history of Silicon Valley? In fact, my wife, when I did the "Secret History of Silicon Valley", she said, "Steve, some people would think they'd have to be a qualified historian to actually write the history of the Valley. You don't really care, do you?" I said, "Well, no one else wrote it! Maybe someone else would do a better job!" Turns out a half-a-million downloads later, it is the canonical

history of at least the military side. My point was is that this Valley had this interesting intersection of, "You know what? If you want it? Go take a shot at it." And both the economics made sense at the time; the culture made sense; the people made sense. It still does. But it really was, the 20th Century in the Valley, was one heck of a ride.

Hancock: Thank you so much, Steve!

END OF THE INTERVIEW

