

Bill Terry Interview 1, October 24, 1995

THE EARLY YEARS

KIRBY: This is Dave Kirby and I'm about to interview Bill Terry. Today's date is October 24, 1995 and the interview is being conducted in HP's offices at 1501 Page Mill Road, Palo Alto. Before getting into the body of this interview, Bill, I'd like to ask you some basic questions. Your first name is William and your middle initial is E.—what does that stand for?

TERRY: Edward; it was my father's first name.

KIRBY: Okay. We need some dates: the date of your birth, the date you joined Hewlett Packard, if you can remember, and the date you retired from HP.

TERRY: I was born April 11, 1933 in San Jose, California. I joined HP on October 30, 1957 and I retired on December 1, 1994. I got that right? Yeah, '94 ... or is it '93? I'm getting ... let's see ... '57 ... '93, December '93 is the right date.

KIRBY: Now, can you tell us something about your early years. Where were you born? Where did you grow up? How big was your family? What kind of work your father did, and so forth.

TERRY: I was born in San Jose, California. My father and grandfather were both born in San Francisco. My grandfather was a contractor, built Victorian homes in San Francisco and had a lot of work after the earthquake. My father was young and went through the San Francisco Earthquake and used to tell stories about living in a tent in Golden Gate Park for a year after the San Francisco Earthquake. So I'm a third generation Bay Area person. I was born in San Jose My father was a salesman; he worked for McKesson & Robbins. He sold drugs, pharmaceuticals—traveling salesman—up and down California. We lived in San Jose; we lived in Oakland; we lived in Carmel for a time and then we lived in Fresno and he became the manager of McKesson & Robbins distribution warehouse in Fresno. So I grew up in Fresno mostly; went to grammar school there, went to high school in Fresno. I have a younger brother named Larry. He's two years my junior. He is here in San Jose. He's a lawyer. He used to be a municipal court judge. He's currently a superior court judge in San Jose and just two of us in the family. My father passed away, oh, it's been ten years. My mother is still alive, lives locally in a nursing home and is in reasonably good shape at age 92!

KIRBY: Wow! Are you pretty close to your brother?

TERRY: Reasonably close.

KIRBY: You talk on the phone?

TERRY: Yeah, we talk on the phone and we see each other and we see each other at weddings at this point. He has four kids and we were just down last week for... I think he's got the third one married off now. So it's like a lot of families, we run into each other on holidays and occasions like, uh, like that.

KIRBY: Terry sounds like an Irish name, so I assume your ancestors were Irish.

TERRY: Ah, they certainly were!

KIRBY: On your father's side...

TERRY: On my mother's side, they were. My mother's mother—my grandmother—was from Ireland and my brother has been back to Ireland and done some amount of tracing of the family roots. He's actually met relatives that are still alive in Ireland.

TERRY: My father's parents came from, uh, England originally and he traced them back, we traced them back three or four generations to Boston, so they were probably English immigrants somewhere along the line.

TERRY: So it's English and Irish.

KIRBY: All right. Like me. The Depression didn't affect your father's job, did it?

TERRY: Not too much.

KIRBY: Do you remember?

TERRY: Not too much. I remember that I born in the Depression year, 1933, and he had a pretty stable job because it was a continuous demand for drugs and drugstores and pharmaceuticals and he worked for a fairly stable company, at least at the time McKesson & Robbins was. So I would suspect he didn't get very many salary increases but he was a commissioned salesman and he got in his car and he beat his way up and down California, servicing these drugstores.

TERRY: So, no, we weren't that affected by the Depression.

KIRBY: Where was that company headquartered—back East?

TERRY: No, they were headquartered in San Francisco.

KIRBY: Oh, they were?

TERRY: Yeah. McKesson-Robbins was a predecessor to it, I believe named Coffin-Reddington...and there were some mergers and, and you may have the name Reddington in your files because that's Flora Hewlett's maiden name, I believe, or I believe she was somehow related to the Reddingtons. But there was a, some kind of a conglomeration probably around the turn of the century of drug firms in California and McKesson & Robbins became the surviving firm.

KIRBY: Ah, I assume you were a good student in high school.

TERRY: Um, I, I was a ...

KIRBY: ... valedictorian?

TERRY: I was a tough student. I was kind of a misbehaving student in grammar school and perhaps in high school, maybe not so much, because I did well in the things I liked and the things I didn't like, I didn't do well in at all! So it was... I was kind of a maverick. I do remember in high school and in college being influenced by, um, innovative teachers. Um, a high school teacher that taught history had a way of really getting history interesting and so I got very interested in history and did well in it and the same thing was true in college. A mechanical engineering professor, uh, even though I was an electrical engineering major, was a really innovative teacher and it was fun to be in his classes and I did well in his classes.

KIRBY: That really makes a difference.

TERRY: Yup! But I was ... no, I was not a valedictorian. I, I probably was a B- kind of a student when I got out of high school.

KIRBY: All right. Did you already have an interest in science and technical things like ... did you work on cars or anything?

TERRY: I kind of ... I work with my hands and, and worked ... I didn't own a car. I helped another guy overhaul a Model-A, I remember, and, um, I was not a ham radio operator—never have been—um, but I had a kind of an interest in science in general and physics in particular, ah, which kind of led to electrical engineering and when I went to high school, I went to high school at a school called San Joaquin Memorial—it was a Christian Brothers high school in Fresno. In fact, the school opened when I arrived there. It was the first year that that Christian Brothers school started up in Fresno. Um, my mother and father—my mother, particularly— had an interest in Santa Clara University. She knew something about it and, uh, her brother went to school at Santa Clara. My father was not a college graduate—it

always used to bug him a little bit. Ah, my mother was; she had a, um, a degree from San Jose State and a teacher's credential and she spent a lot of time teaching school. Even after my mother and father were married, my mother taught school in Fresno, grammar school, for years and years and years.

SANTA CLARA UNIVERSITY

TERRY: But it was her interest in Santa Clara and my interest in going to college, which they urged, that headed me off towards Santa Clara University.

KIRBY: Now, in those days, were you, when you got out of high school or turned 18 or whatever it was, was there a military obligation?

TERRY: There wasn't at that time. This would be 1951. There were problems in Korea but they were not such that, as I recall it, that the draft was in effect. You did have to register. So I had to go down and fill out the papers and I got a card that said I was a college student—whatever that classification was—but there was no going in the army. That came later in my career.

KIRBY: So for you, there was no sort of choice of colleges. You had decided to go to Santa Clara pretty much early on.

TERRY: Pretty much so. I was directly influenced by my parents, of course, but I don't even remember making a preliminary tour of the place. We must have done that. I kind of remember arriving on the scene. It, again, was highly recommended by my mother. It was a situation where you lived on campus. That was the way. You boarded on campus, and it was away from home but it was, you know, not that far from home, Fresno to Santa Clara.

KIRBY: Did everybody live on campus?

TERRY: About, 85% of the students lived on campus.

KIRBY: I didn't know that.

TERRY: Yeah, and it's still a very high proportion still today, which, incidentally, I think is a very good thing and I advise people to do, particularly the first couple years of college.

KIRBY: Ah, do you remember what the tuition was in those days?

TERRY: Boy, I don't ... I can almost get to that number, Dave, because I worked in high school, but particularly in college, in the summertime and I worked at whatever job I could get and the money I made went for the college tuition, and it was about... I made probably \$200 a month for three months, about \$600 or \$700 working in the summer and that was about a third of the tuition. So it was around \$2,000 a year. I'm really, I'm really guessing...

KIRBY: \$2,000!

TERRY: My parents paid the rest and I put this money that I earned in school and gave it to my mother and she helped pay the tuition. Now that was room and board plus tuition.

KIRBY: Okay. Ah, what kind of summer jobs did you have?

TERRY: Fruit! In the fruit!

KIRBY: Oh, okay so did Ed Van Bronkhorst.

TERRY: Pick, pick. Picking fruit. Valley boys! Working in the packing houses. Uh, I worked at McKesson-Robbins a couple of summers. My father had long since retired but he knew some people down there and I worked in the warehouse, you know, stacking stuff on shelves. Joined the Teamsters Union, so I could have a summer job! And the other times, I worked in the packing houses. I had a job in loading Fig in Fresno one summer and my job was to take figs as they came out of a big steamer in big lug boxes, stack 'em up five high,

with a little lifter thing and take 'em down to a packing line. And these boxes weighed 90 pounds apiece...

KIRBY: Wow!

TERRY: ... and I weighed probably about 125 pounds! And I did that for about three days until some guy felt sorry for me and he gave me another job. [Laughs] Yeah, yeah, I got a summer job, job once and I, I was supposed to, to operate a jackhammer and that lasted about 15 minutes! [Laughs] It was incredible!

KIRBY: You gave it up or they took you away?

TERRY: Oh, they immediately took me off! It was just awful! But it was kind of, you know, it was the custom of the times. You worked all summer at whatever job you could get for as much money you could get and it all went toward your college education.

KIRBY: Yeah, that's right. Um, do you remember how many students there were at Santa Clara in those days?

TERRY: I'd have to guess, Dave. There were, I know in the EE class, we started with about 30 and graduated at like 10 in electrical engineering, but I don't really remember the total campus at that point. There's about 6,000 there now. I'd guess it was in the range of 600, 700—something like that.

KIRBY: Yeah, and that was before there were women students.

TERRY: This was an all-male school, and it was also a school that played fairly big-time football.

TERRY: They had gone to the Sugar Bowl or something or other and they prided themselves on their football team. Before I, the second year I was at Santa Clara, they dropped football. They were losing a lot of money on it.

KIRBY: That's right. It was the early '50s.

TERRY: Yeah, and that caused a big hoo-rah, not so much among the students—at least us engineering students were so busy, we're not really that concerned—but the alumni were concerned and, uh, after I got out of there in 1955, I don't what it was—in the '60s sometime—they started admitting women, but, no, it was an all-male school.

KIRBY: Okay, ah, and you say you lived on the campus?

TERRY: Lived on the campus.

KIRBY: In a dorm?

TERRY: There were dorms down there. There were four different dorms, uh, organized by, uh, level in the school and I lived in all four of the different dorms in the four years that I spent there, yeah.

KIRBY: Okay, and when you enrolled, you thought you'd get into electrical engineering, so it wasn't something that you thought of after a year.

TERRY: No, no, I enrolled in electrical engineering although at Santa Clara at the time, the courses got more specialized as you went through the school. Freshmen courses, there were math, math and physics were unique to engineering students but otherwise you took philosophy and logic and ethics.

KIRBY: All freshmen took that?

TERRY: All freshmen. English, kinds of courses, and then as you went on, particularly in junior and senior year, you tended to take specialized courses in EE.

KIRBY: I know, uh, I know you've been on an advisory committee to the Engineering School.

TERRY: Yeah.

KIRBY: How would you rate the Engineering School at Santa Clara? Is it among the best, you think?

TERRY: I think it's excellent. I wouldn't say it's among the best. I'd say it's in the top quartile of engineering schools in the United States but that's a pretty big bunch. It has mostly an undergraduate program. The graduate program is an early morning program, an early-bird program, they call it and it attracts working engineers in Santa Clara County who want to get their masters' degrees, but it's a very good engineering school and, Santa Clara has never had a lot of money. They're in pretty good financial shape today but in those days, they didn't have a lot of money for fancy equipment and that plus, you know, the attitudes of the Jesuits and the people that ran the school was that you really emphasize the fundamentals, so, which I think is awfully important for engineering students! So there was a lot of emphasis on math and physics and book learning and there were laboratories to do experiments but, ah, there was no way to get trapped off into a fad. You had to kind of get the fundamentals down all the time.

TERRY: And it's still very much that way.

KIRBY: Were you involved in any extracurricular stuff?

TERRY: Oh, yeah! I got involved in a lot of different things one way or another. I was on the water polo team, which I did not very well at but well enough to stay on the team and got a letter; I got a sweater with a letter and, uh, that was kind of fun! I think I did it 'cuz I like to swim plus, you know, you went on trips with your friends and you'd go up to, I'm not sure we ever played Cal- Berkeley. We'd go to some school up the line, Chico or something, and come home losing 24-1 or something like that!

KIRBY: And I guess Santa Clara's big rival was St. Mary's.

TERRY: Yeah, St. Mary's was the big rival in football but a little bit in basketball. Basketball came on big time when I was going to school there, um, and then they won an NCAA championship, I believe, or at least they went to the finals, ah, in my junior year, 1954. But I participated in sports. Um, for some reason or another, the dean there of the engineering school—George Sullivan was his name—he was the dean for something like 40 years down there; a grand old man!—called me up one day and said he needed some help grading papers. He taught an introductory course in engineering and at the end of the course, you wrote a little dissertation about something or other—I can't remember—and I said, "Sure, I'd be happy to grade these papers." He said, "I'll pay you 25 cents an hour and you keep track of your time" so I did and I would present him with an invoice for \$2.25 for grading these papers! So I did that for a while and then I got onto a, oh, they had a kind of a buddy system where you advise younger students and I think I did that in my junior year. So, and I got involve with the Engineering Society and organized open houses, so, yeah, I seemed to have my finger in a lot of different things beside, besides the schoolwork that was going on.

KIRBY: Did you have any favorite professors? TERRY: Yeah, I mentioned that Dick Pefley who was a professor of mechanical engineering, he was a really innovative kind of a guy that made the subject—thermodynamics, that was the subject—was really interesting and I remember liking him a lot.

KIRBY: Okay. He has since retired.

TERRY: Yes, he's retired now and another guy was a Jesuit priest, Joe Geary. He was one of two identical twins who were both Jesuit priests and he taught a course, I believe, in philosophy that I took and I got so interested in it, I enrolled in an evening course in Greek and so here was I, an engineering student, doing an evening course in Greek because he was such a really innovative guy! I also got interested in another guy—I think his name was Healyho was a business school professor and I got into a course in business law, business law in California, 'cuz I thought it would be interesting and so, maybe it was some of my first urgings beyond EE into other branches beyond direct engineering.

KIRBY: You mentioned they now have sort of a graduate school and it's an early bird. I've never

heard of that. When do they come to school?

TERRY: They, uh, 7:00 to 9:00 am., 6:30 to 8:30 am and it's really good a deal for the University because you've got all these committed resources and buildings and professors, so it's a big money-maker for the school plus they also have an MBA program at Santa Clara, which is an evening program and my wife is an evening program MBA graduate of Santa Clara, and both of those programs attract working professionals—people that are five or more years out of school—and I think that provides a really interesting learning environment 'cuz you're thrown in with people who have a whole range of experiences rather than just going from four year to your fifth year of college, so it really keeps the professors on their toes 'cuz they're teaching things to students that are, you know, in their late 20's, early 30's that have been around a little while. You can't put anything over on 'em!

KIRBY: Yeah, I know that Brad Wentworth in my department got an MBA at Santa Clara.

TERRY: In fact, Santa Clara graduates are the number one at HP and it's because of the evening MBA program. The last time I checked, there were about 500 Santa Clara graduates working at Hewlett Packard. I think number two is Cal-Berkeley, number three is probably Stanford, then it falls to Carnegie Tech, uh, UOP...University of California at San Luis Obispo is a big source of engineers but it's because of the MBA program that alumni here are really at HP are a big proportion.

KIRBY: Now, you mentioned some of these little jobs while you're going to school, I assume in the summer, you worked.

TERRY: I worked in the fruit.

TERRY: I think I worked the fruit every summer. Well, no, I worked the fruit every summer but one. It was the summer of my junior year. Santa Clara University was a California, I think it is Federal—land grant college and that means that the University receives federal funds and if you're a land grant college, at least at that time, you had to offer ROTC and ROTC in land grant colleges—where it's mandatory for the first two years so I was in the reserve officer training corp and every Wednesday afternoon, we'd go out and march and take rifles apart and do things like that, and there was no choice about that. In your, in the last two years of college, you could opt to stay on in the ROTC and be commissioned an officer when you graduated—that was voluntary. They also paid you, I think it was \$21.00 a month and that was poker money most of the time. Uh, and I decided, at that time, the Korean War was on and it was, it looked like, um, getting out of college you were either going to be drafted or if you go in to work for a defense contractor, you might not be drafted but I decided—and I imagine my parents advised me—I decided to stay on with the ROTC. I figured if I was going to go off to war, I'd rather do it as an officer than be drafted. So I stayed on in the ROTC and in my junior year, they had which was the equivalent of basic training. They took a whole bunch of college students and sent them off to an army camp for the summer—Summer Camp it was called and the branch of the arm of the military was the U.S. Army and it was the artillery, so I went off to Ft. Sill, Oklahoma in my junior year, summer with some of my friends from Santa Clara and several hundred—there must've been about a thousand students, maybe, you know, 500 total—at Ft. Sill, Oklahoma for eight, eight or nine weeks. And it was good experience! It was like, basic training. It was you were a college student and you got up and did all kinds of things and ran around in the middle of the night and shot artillery pieces off and stuff like that. That was a good experience! I drove back there with two friends of mine and we toured the southwestern part of the United States. It was a really interesting summer. That summer I didn't work!

KIRBY: Yeah, now, while you were at Santa Clara, were you aware at all of Hewlett Packard?

TERRY: Yeah. I'm pretty sure... we didn't have any HP equipment and if we had any, it was probably locked up behind somebody's cabinet because it was rare. The school didn't have

that much money, and I became most aware—I believe it was in my junior year—that there was some course or as part of the regular curriculum, we would do tours. I remember going to the Westinghouse, Sunnyvale, Joshua-Hendy Ironworks here, watch them make big ships propulsion gears. I think we went to NASA, and going to Hewlett Packard. We came to the old buildings on Page Mill Road and this would've been about 1953 or 4, probably '54, and I remember being impressed with two things. One was electronic frequency counters. HP had either just put one into production or it was working on one that we saw, and I thought that was really innovative, this idea you could read out the frequency digitally instead of the old techniques. And I also remember they were working on, and had been working on some time, the application of electronics to agricultural. This was a sugar beet thinner, the famous Hewlett Sugar Beet Thinner, and it was sitting around the floor of HP and I remember somebody as giving us an explanation of this thing and how it was supposed to work, and I wasn't sure what I thought of about that. I didn't know very much about sugar beets or agricultural but I sure thought that frequency counter was a neat product. And then there was...

KIRBY: That was the one with Nixie tubes?

TERRY: No, no, this was before Nixies...

KIRBY: Oh, it's before 1953

TERRY: ... This is the first 524, the great big old gray one, which is, I think, might be, my memory says it was, it'd just gone into production. It was just getting out on the market then, but it was amazing that you could put a signal in there and you could read the frequency out in these numbers and that was pretty revolutionary for the time. That was my first exposure to HP.

KIRBY: And HP was still interested in the beet thinner. They, they hadn't abandoned that?

TERRY: They had not. They had definitely not abandoned it. It was there, you could see it, and somebody was tinkering with it. It might have been in the latter stages of development headed toward obsolescence but it, it was still there.

KIRBY: While you were at Santa Clara, did you use Fred Terman's textbook or do you remember?

TERRY: No, we did not use Fred Terman... I'm sorry!

KIRBY: It was called Radio Engineering or something.

TERRY: Ah, I'm not... I can't remember, Dave. I've got my old college textbooks at home. I don't know that we did or not. I don't believe we did. We used one by a guy named Skilling, who was a professor at Stanford on electrical fields—I remember that one. I don't know that we used the radio engineering textbook of Terman's.

TERRY: Again, the courses tended to be really the fundamentals. I mean, you worked on transformers. There was no option, in electrical engineering. Other schools, in later years, you could options for them. Today, there's a whole range of them—computer science, semiconductors, communications and so forth. At Santa Clara, it was just plain electrical engineering. You got a kind of a, again, lots of it on the fundamentals, transformers, electrical power transmission, electrical fields, and some vacuum tube theory but frankly, I don't think we went far enough into, into what became modem electronics to probably even put the Terman textbook to work.

KIRBY: From your background, your family and choice of college, I would guess you had a strong, strong religious upbringing.

TERRY: Ah, Catholic? Yes, that's very true. Yep.

KIRBY: How would you describe yourself today? Are you, uh, are you strongly religious or ...?

TERRY: Moderately. I'd put it as moderately religious.

KIRBY: Okay, in the Catholic church.

TERRY: Right, in the Catholic church.

KIRBY: Okay. Do you think religion is helpful to you in your business career?

TERRY: Yeah, I think it has been. Uh, particularly the, um, application toward ethical behavior. And again, the Jesuit... the, the way the curriculum was put together at Santa Clara, you had very little choice the first two years, so you studied religion and philosophy and ethics and logic and those kinds of things, and, yeah, I think that was very helpful.

KIRBY: I know that for many years, uh, you were a member of the Santa Clara Board of Regents, I guess it's called.

TERRY: I still am.

KIRBY: You're still on the Board?

TERRY: I'm still on the Board, yeah.

KIRBY: How, how long have you been on?

TERRY: Oh, gosh! Oh, I'd say ten years.

TERRY: Yeah, I've probably... it's time to get off! [Chuckles] I was the chairman two years ago for a two-year period and they asked me to continue to stay on. Um, I serve a lot of different roles down there, but I'm kind of one of the three or four key people that provide a certain amount of liaison with Silicon Valley people, either for fund raising or equipment or making presentations down there, so they're usually calling me about something they want done with somebody here in Silicon Valley that I know.

KIRBY: Okay, the fact that you serve in that capacity would indicate to me that you had a good experience at the University as a student.

TERRY: Yeah! Yeah, I had a good experience as a student. I en... you know, I had problems along the way but I enjoyed myself. Um, and then I got disconnected from the school and I went off into a business career and, ah, and, uh, when I left—I physically left this area working for HP—but then when I came back here—I can't remember exactly how I got involved—somebody down there gave me a call to help out with something or other and I got reacquainted with the University, and that would be 20 years ago, and through that, got into a whole bunch of different kinds of assignments that I still am working on.

KIRBY: Okay. When you were president of the board, that must have been a time-consumer.

TERRY: No, it wasn't really. Um, there's about 50 people on the Board of Regents. Santa Clara has a three-tiered system. They have a Board of Trustees, which really is resp... kind of like a board of directors—Jesuit priests and lay people—and there's about 15 of those and then they have a Board of Regents, about 50, and they have a Board of Fellows that's about 200+, it's a fund raising organization, and the reasons to a combination of advice and fund raising.

KIRBY: I assume there have been other Santa Clara graduates who became engineers and managers at HP. Can you name a few?

TERRY: There were not that many. Uh, there was a guy named Phil Hand, here, who was a "Mr. Standards". He worked in the lab and he had quite a distinguished career at HP. He ran the standards lab for years. He happened to be a Santa Clara graduate, I can't really remember a lot of other Santa Clara engineering graduates coming to work here but, uh, and then in later years, it's been this big number of MBA's as well as engineers Santa Clara Hewlett Packard recruits pretty rigorously at Santa Clara these days.

KIRBY: During these years, did you have any serious romances with anyone?

TERRY: No. Well, in college, now? Yeah, um, I met a lady named Martha Ross, probably in

Sophomore year at a dance at Lone Mountain in San Francisco. She was going to school in San Francisco and she became my wife, let's see now, it would be shortly after I got out of college.

KIRBY: And she was from this area?

TERRY: She was from Hollister and went to school in San Francisco.

U.S. ARMY, FROM ROTC TO FORT SILL

KIRBY: So when you graduated, being an ROTC, you went right into the Army?

TERRY: When I graduated...graduation, incidentally, at Santa Clara University is always held outdoors, in June—and when I graduated, as I said before, there were 10 or 12 EE graduates. The way that this thing happened was you sat there, you had a full army uniform on, and then you had a black gown over the army uniform, and those people who were not going to be commissioned as officers, of course, under their black gowns, they had on their skivvies because it was as hot as hell sitting in the sun! [Laughter] And we, we officers were sitting there with a full uniform on and, and we had our military hats under our chairs with our mortar boards, so we went up on the stage like all the graduates and got our diploma, and then when we went back to our seat, we took our black gowns off and put on our military hats and we went back up on the stage, and we were all sworn in allegiance to the United States as second lieutenants.

KIRBY: As part of the ceremony?

TERRY: ... as part of the ceremony. Then we were all handed our second lieutenant bars and, we went off, we all went off to the Army. Part of the deal was—and this is why, I guess, is why they paid you \$21.00 a month, you signed up for two years in the Army.

KIRBY: Okay. Tell me about that ceremony. How many were you of ROTC second lieutenants?

TERRY: Oh, I'd, I'd guess maybe there were 30.

KIRBY: That many?

TERRY: Yeah, there were quite a few. There were quite a few people that, uh, I think they felt the same way as I did, that, uh, it looked like the Korean War wasn't going to get over real easy and there was a good chance of being drafted, so you kind of made an educated choice if you wanted to be an officer and, and perhaps do something a little different or you wanted to be a private and run around in the trenches with a rifle.

KIRBY: Do you have any views on the discontinuance of ROTC in colleges? I guess it's, it's now completely ... or is it completely gone?

TERRY: I don't think it's completely gone. It's, it's pretty specialized. I think there is ... No, I'm sure it's still there, both Army, Navy and Air Force, but it's scaled 'way back, which I think it needs to be just in terms of the requirement for officers and probably for military people, but it was a very good experience. I would think back as I worked at HP and wonder, you know, did I make the right decision 'cuz a lot of my friends got out of school, some of 'them got drafted. These are the non-ROTC people. They got out of school, some of them got drafted, others went to work for military contractors and they got exempted from the draft. So I thought, "Gee, maybe I should've done that" and I would've had a, you know, two-year start, head-start on my career, business career, and instead I was off in the Army. But I really think I made the right decision 'cuz I, I learned a heck of a lot in the Army and I did a lot of really interesting things and it was a maturing, broadening experience. At least for me, it was really good!

KIRBY: Ah, how would a company qualify as a military contractor? I'm, I'm interested in this. In

other words, they were deferred?

TERRY: Right, Lockheed was the example here, right here. Lockheed made, this would be 1959, Lockheed was just about to start building Polaris missiles and, these were the biggies: the Lockheed's, the General Electric, the Hughes, the Korean War plus the application of technology to military weapon systems, and then it wasn't too many years—I think it was about 1959—Sputnik went up and the whole Space Age thing started going but it was an era when there was a lot more application of technology to military applications and there were these major contractors: Hughes, Martin...

KIRBY: Do you think HP would've been in that group?

TERRY: They were not. HP had had this philosophy of avoiding that and, they did not make military equipment. They made their standard electronic test equipment. They made some variations on it.

TERRY: I remember seeing some surplus World War II equipment that Santa Clara had which were signal generators that HP had made under Navy contract during the Second World War but at the time I graduated, a lot of the action, demand, for electrical engineers were in military companies...but instead I put on my uniform and went off to the Army!

KIRBY: Okay, let's talk about that. Where did you go?

TERRY: Well, I went to Ft. Sill, Oklahoma, which was the headquarters of the U.S. Artillery, and we were all in the artillery.

KIRBY: You had been there before, of course, for that summer...

TERRY: I'd been there before for the summer camp, and we went to something called the officers basic course, and this was different than the summer experience. The summer experience was like boot camp. This was not boot camp; this was mostly classroom, academics. This, this taught you how to be an artillery officer, how to run an artillery battalion, how to take 137 men and 9 trucks and 6 weapons—Howitzers, big guns—food, ammunition, fuel and get out and get deployed and shoot up the enemy. That went on for about, oh, I'd guess about twelve weeks. It was a pretty long course, and it was... it was interesting! It was a lot of fun. I liked it; I learned a lot. I had an advantage, I think, as an engineer, because there's a lot of math involved in artillery—how to you aim these guns and so forth and I had a conversant with the math or at least, I was a little bit better than the poor English graduates who were from Yale who were in this thing and they were trying to learn how to do geometry and stuff like that, and I did well. It was about 350 in that class, and I missed being number one in the class by a few points because I was bored about disassembling machine guns! [Laughter] That kind of ticked me off. I thought to myself, "Geesh! You should've paid more attention to assembling and disassembling your machine gun!" But I did well because my engineering background, and it was interesting! It was a lot of fun!

KIRBY: Were the non-commissioned officers, the non-coms, were they pretty much regular Army?

TERRY: Yeah, they were regular Army and, of course, they were the backbone.

KIRBY: Did they have a lot of comments about college kids?

TERRY: Not a lot. There were some Marine Corps officers there, also, not a lot. Their job was to take these college kids and in twelve weeks, whip 'em into officers that could go out and take on a fair amount of responsibility, so it was a fairly serious deal and they treated it that way.

KIRBY: So then you stayed at Ft. Sill for the two years?

TERRY: As you went through this course, at the end of the course, you got your first permanent assignment. Again, you made a two-year commitment so if you weren't gonna to re-enlist, it was your next 18 months on where you were gonna be, and the Korean War was on. It was,

I forget how many times MacArthur had gone back in forced them off the Yalu River. But as it turned out, it was in the last 14 months of the Korean War. It was going to wind down. But the Korean War was on and it was pretty obvious that's where the need was and that's where a lot of the assignments were going to be, and I thought, "Well, that's what I've signed up to do, so that's what I'm gonna do." Although the idea of being a forward observer or commanding an artillery battery in Korea in the winter, not only was it dangerous but I'm sure it was damn uncomfortable! So, I thought, "Well, maybe there's something else I can do" and so I went to the school there. It was the Department of Electronics and Communications, it was called, and they taught courses to officers, some to enlisted men, on communications and electronics supplied to the artillery and, I just went over to the school and wandered in and found somebody and I said, "Hey, I'm about to graduate from this officers basic course. I have a degree in electrical engineering"—we had something called your military occupation specialty number, your MLS number. It kind of said what you knew about ... and it was electrical engineering—"... and here's my MLS number and, ah, I just wondered if you needed any instructors in this place?" And this guy came up out of his seat and said, "Boy! Do we need instructors in this place!! How'd you like to be a teacher in this school?" And I said, "Yeah, I think ..."

KIRBY: So he grabbed you and put you on the faculty.

TERRY: Yeah, he grabbed me and put me on the faculty, and you know, you never really knew what was going to happen when one fateful day ... it was like grades in college: you opened up your mailbox and here's this official set of orders, "Terry is ordered to report to such-and-such", so I was assigned to the school there, the Department of Communications and Electronics.

KIRBY: Okay. Now, was your wife, Martha, with you then?

TERRY: She was with me then. We had gotten married probably six months before that and she was there and we lived in a small house outside the base in Ft. Sill, Oklahoma. That's where my first daughter was born, Cathy. I showed up every day. I taught, it was a good school. I remember I applied some of it here at HP. You couldn't stand up in front of a class and teach a course without rehearsing it, so you had to rehearse all your courses in front of your fellow officers, you had to go to classes on how to lecture, how to use graphic aids. I've always remembered that at HP when people put up these slides that you can't see! Oh, yeah, it was a pretty rigorous deal on, you know, this was no big time university but they were really, you know, it was kind of like a trade school. They were really rigorous that they were going to do a good job, so you had to rehearse your courses and you'd get critiqued and then they'd try you out and they'd let you teach some of the simpler parts of some of the introductory courses in electronics and the students were both enlisted people who were learning how to fix radios and there were officers. There were officers, both middle and senior grade officers, who were, who were learning some of the fundamentals of electronics because electronics was getting more and more into the military so they had to know something about it. So I taught different kinds of courses in different areas and then I became both an instructor—we were called instructors— and a, um, laboratory supervisor. This was a lab ... it was not an experimental laboratory; it was a teaching laboratory. It was trouble-shooting of radios. And we had some contractor personnel that were RCA employees, so I had to manage this laboratory and these RCA employees and some enlisted men, and we had to keep the thing organized and we had to put on the classes all the time and I learned a lot. It was... it was hot, it was humid and it was full of bugs in the summertime. And, incidentally, we'd show up for class in the summertime in shorts, khaki shorts, shorts and shirts—military with red scarves, swagger sticks...

KIRBY: Pretty good! Pretty good!

TERRY: It was ... it was the regalia for the instructors in the school!

KIRBY: Ah, Ft. Sill is near what town?

TERRY: Walton, Oklahoma. It's in the southwestern corner in the State of Oklahoma. It's really out in the middle of nowhere, and it was a big base. It must've had 10,000 or so troops and 10,000 acres because it had major firing ranges where you went out with your artillery pieces, non-nuclear, and you shot, pardon me, you did artillery exercises and I did that in the officers basic course but not in my teaching course.

KIRBY: Now you must've had some HP equipment there at your teaching.

TERRY: We did. We did. We had some HP equipment. We had some oscillators, we had some signal generators, this was pre-scopes. We had some Tektronix scopes, and that is what eventually led me to think about HP as a place to work. I had this thing in the back of my head about the electronic counter that I'd seen at college, and then I saw this equipment that we used during, in the Army in this laboratory and I thought it was really neat stuff. It was well-engineered. It always worked. It was simple to use. And I knew it was a company that was located in the Bay Area. TERRY: One of the memories that sticks in my head about my teaching days at the Army, besides being a teacher, um, you had to, ah, always be on call for other curricular duties. That included the ceremonial flag raising and so forth, 'cuz you were a general purpose U.S. Army officer on this post and one of the duties I got called on—it was just a random choice—was the officer of the day. So I had to be the officer of the day for 24 hours and the officer of the day is the person that's responsible for the security and the general management of this huge army post, and so I show up at this place. You know, here's old college graduate Terry shows up and I get the instructions from some non-com and I get a .45 strapped on my hip and I'm told, "You're in charge of this place for 24 hours—and you don't get to sleep! You stay up all night. And the worst possible thing that can happen, lieutenant, is if we have a fire, something burns down. You're in real trouble!" So you spend all day going around, checking all the posts and making sure all the sentries are there and all the firefighting equipment is in place and [chuckles] I'm glad I only had to do that once! [Chuckles again]

KIRBY: I can remember in the Army, being on guard duty when the officer of the day went around and checked on everything.

TERRY: Right, right. Everybody would wake up real fast! [Laughter]

KIRBY: That's right! [Laughter]

INTERVIEWING WITH HP

TERRY: That's great. But I did use some HP equipment in college and I'm getting a little ahead of your questions but, I was about to get out of the Army in October ... let's see, back up a little. It would be August of 1957. That was my two-year hitch. August of '55 right out of school until August of '57. And, I started thinking about a job. I decided, you know ... I'd done a little reading and talking—I must have corresponded with somebody—that I wanted to come back to the Bay Area. That's where I went to school. I had never really lived here as an adult, but given the choice of the Midwest or the East, you know, starting with the San Francisco Bay Area, it seemed like a reasonably interesting thing to do. My wife was from Hollister and it was close to home and there wasn't a lot of electronics industry but HP was here and Lockheed was here and AMPEX was here and there were a handful, and so I made a trip out here—it would probably be in May or June, before I got out of school—with my wife and child.

KIRBY: That was sort of a furlough then?

TERRY: Yeah, it was a whatever they called it, yeah, you had not vacation, furlough, you had three weeks or something like that, and my wife stayed down in Hollister as I recall and I

started going around the peninsula here inquiring about jobs. And I went to AMPEX in Redwood City and they were on strike. AMPEX was on strike a lot and so I left my name with somebody or sent 'em a letter but that's as far as I got with AMPEX 'cuz we had some AMPEX tape recorders in the Army. Um, I went to Lockheed—I don't remember if this is quite the precise order—because I was kind of enamored with the glamour of the aerospace business, all this high tech application, I mean, it was a lot of wild things going on and Lockheed had not gotten the Polaris contract at that time. They were bidding for it and so they took my name and said, "We'll be in touch" and then I went to HP. Now, I walked in the door cold and talked to the receptionist and said, "I'm a college graduate and I'm about to get out of the Army and I'm interested in science and engineering and so forth." And somebody came ... I talked to Harvey Kellogg, I remember, who's an old timer at HP and I talked to Anne Wadell; Ray Wilbur had not, had just about hired, been hired that month and then ...

KIRBY: That's right, I remember he came in '57 but it must've have been right after you.

TERRY: But I think it was Anne or Harvey—I can't remember which—came out in the lobby and talked to me. They were very cordial and they said, "Do you have a master's degree in engineering from Stanford University?" I said, "No, I don't have a master's degree in engineering and I went to Santa Clara, not Stanford." And they said, "Well" in so many polite terms, "well, we really want people with masters' degrees in engineering and we like Stanford to work in the lab." And I said, "Well, okay. You must have other jobs here in manufacturing and marketing where you employ engineers." And they said, "Yes, we do and we'll have some people talk to you about that." And so I started talking to some people in the marketing department. This all happened over a two or three-hour period one afternoon at HP.

TERRY: Again, the people were very cordial. I just walked in off the street. And so I started talking to some people in marketing and I talked to Dick Reynolds and Carl Cottrell. I don't remember if I talked to Carl Mahurin or not, and then later on, I think during that visit, I only talked to a couple of people. I might have talked to Cort or Noel Eldred but I talked to people in marketing. And they had a situation in marketing, Carl Cottrell kind of had a situation of wanting to do more in the way of technical training for HP sales force and manufacturers reps.

TERRY: They had been putting various kinds of seminars for these people but as HP product line grew, they wanted to do more of it. They wanted to have more seminars, more in-depth on more subjects and it was my experience, such as it was, teaching electronics in the Army that Carl said, "Gee, that's ... you've got kind of a neat background to do that kind of work here. How'd you like to kind of do the same sort of work here? Organize courses, put them on, get them organized, get the instructors, get them scheduled and so forth." And I said, "Yeah, I think that would be kind of an interesting way to start." So I got an offer in writing from HP "Come to work in October of '57". I still have my first paycheck at home. It was up at my retirement party. I think it was \$400.00 a month but there was a 32% or so profit-sharing bonus going on at the time.

TERRY: The old profit-sharing was still in effect and it was an attractive salary. My salary in the Army was \$240.00 a month or something like that, and it looked kind of an innovative place and I didn't have any other offers, and I said, "Okay!" About two weeks after I said okay, Lockheed started sending me telegrams and that was really an ego trip!

KIRBY: Oh, boy!!

TERRY: Getting a telegram!

KIRBY: That's right! Yes...

TERRY: "Dear Lt. Terry, we need engineers! You're qualified! Why don't you come to work for Lockheed?" And I think it was \$500.00 a month more and looked at this and I thought, "Gee, that's kind of interesting!" and for some reason or another.

KIRBY: You got this at Ft. Sill? You went back?

TERRY: Yeah, I went back. I got 'em at Ft. Sill.

TERRY: I had a home address as Ft. Sill and I don't know if it was a matter of integrity or just plain luck, I said, "No, thank you! [chuckles] I've already made a commitment to somebody else and, thanks for your interest" and so forth and so on.

KIRBY: Was the offer from HP, did it follow quite quickly after your visit?

TERRY: Yep. Yeah, it did. Yeah, within a week.

KIRBY: Oh, really?

TERRY: Yeah.

KIRBY: Okay.

TERRY: Within a week, and it was—I don't think I have it anymore—but it was real simple, you know, it was two paragraphs.

KIRBY: From whom, do you know?

TERRY: I believe it was from Noel.

KIRBY: Okay, but you hadn't met Noel Eldred when you were ...

TERRY: I don't remember if I met him on that recruiting trip or not, or on that interview trip. I don't remember that specifically.

KIRBY: Okay. Ah, and, ah, by that time you had the daughter, Cathy.

TERRY: The daughter, Cathy. She was born in Oklahoma.

TERRY: Went through one tornado there, where we got really ... we didn't have a tornado shelter in our house so we picked ourselves up and our daughter and we went out to the post. We lived right next to the post and the building I taught in was a big heavy steel and concrete building, so we huddled down in the first floor of this concrete building and watched these tornadoes go through. [Laughter]

KIRBY: That's great! Ah, so, so, ah, what was your first job at HP and who was your boss?

TERRY: I'm almost positive it was Carl Cottrell and it was taking over the seminar program that was already going on, the reps came in once a year for a major meeting and that was a whole bunch of different things: quota setting, dinner, but it was mostly, ah, new product training.

KIRBY: So it went over a few days then?

TERRY: It went over, yeah, it went over three days. It might have occupied the whole week but I think there was three days of official training going on and it was, I think, I think before I arrived it, it was mostly lectures and then as I arrived, and the product lines got bigger and broader, it got to be a combination of lab and lecture. So I was doing things like I did in the Army. I was organizing these courses—we're going to have a two-hour course on how to make measurements with this new volt meter and we're going, we're going to set up some experiments and we're going to write a little laboratory manual and we're going to ... and the reps would come in and sit at benches and they'd go through this laboratory material and they'd learn how to make measurements and ... or they'd make demos to each other or something or other and I wrote the material and I got the courses organized and the schedules laid out and I, I worked for Carl. And I did that for about a year, I guess.

KIRBY: During that time, did you have any contact with Packard or Hewlett?

TERRY: No. No, I might have met them over coffee.

KIRBY: You might meet them...

TERRY: ... because the coffee pot—the way the building was laid out—this was the old Page Mill Road building, marketing department was right in the front...

KIRBY: The old Page Mill Road, you mean the saw-toothed building?

TERRY: The saw-toothed building, not, not the redwood building, right, the saw-toothed building.

TERRY: The marketing department was in front in case the customers walked in the door and on the south side and they, that was marketing, and then on the other side was accounting/finance and Bill and Dave, and the coffee pot, uh, was kind of in between. So the morning coffee pot communication, you'd see Bill and Dave there and Ed Porter and most of the marketing department.

KIRBY: So, but you really got to know Noel Eldred?

TERRY: Yes, I got to know Noel well and Cort.

TERRY: In pecking order, Noel was the boss. He was the ... I think he was the vice president at the time. I don't know...

KIRBY: I would think so, yes.

TERRY: I don't know if those titles came later or not, but he was the boss. And Cort was the sales manager...

KIRBY: Cort Van Rensselaer.

TERRY: And Carl worked for Cort, and I worked for Carl and people like Dick Reynolds, Tom Perkins, came along; later, Bob Akin, a number of names of people that worked in those early marketing department days.

KIRBY: Now, weren't you trained a little bit when you first came to work? Didn't they put newcomers ...?

TERRY: Ah!! Yeah! I, I forgot about that! Um, yeah, I said I went to work for Carl Cottrell and, and he was my boss but the first six months on the job, and I showed up the end of October. I moved out here from Ft. Sill; we bought a small house in Mountain View. I had sold my wonderful MG sports car because we couldn't get our child in it in Oklahoma and I bought a Chevrolet out here. Um, I never forget the first day I came to work. We only had one car, so my wife drove me to work and the car crapped out about halfway to work.

KIRBY: Honestly? On your first day?

TERRY: On my first day on the job. Boy, was I upset! The, uh, the vacuum hose that ran the windshield wiper came off and, of course, when it comes off the engine won't run! And I figured out what was wrong but I was about 20 minutes late, and I was really embarrassed the first day on the job and I forget, I think I went to see Carl and he put his hand on my shoulder and said, "Well, don't worry about it. Don't let it happen too often." [Laughter] Oh, anyway, the ritual that had been going on before I got there was you spent six months on a training program. I forget what... I think we just called it training ... new employee training program, and it was "new professional employee training program"—marketing, engineering, and manufacturing—and it was a rotational training program. It was laid out in advance; um, you had a schedule for six months, by week, on what you were going to be doing and who you were going to be reporting to. So, you know, week 1 you went out to a certain production line and you, uh, in your, you know, your casual clothes and you reported to somebody like Ray Demere, who was in charge of one of the sections within manufacturing and Ray would say, "You're going to be here a week, Bill. Your job is going to be to work on this line and here's Scott who's running the line and he'll tell you what to do." So you

worked all over the plant, mostly in manufacturing, um, and you did everything! You worked in the die-cast shop—that was most unpleasant working in the Quonset Hut in the summertime; it was hot as heck! And dirty, and dusty. I remember a guy that ran a sanding machine, sanding castings—his name was "The Professor"—he was a black guy with gold-rim glasses. He was called "The Professor"...

TERRY: He'd spent his entire career at HP sanding castings! [Laughter] And a guy named Sam McLaughlin that ran the wave guide shop, and Dick Armes, Swede Wilde...

KIRBY: Oh, the old ...

TERRY: I can remember showing up in the, in the machine shop, and it was either Dick or Swede or both who'd say, "Who the hell are you?! We don't need any engineers in here! Rowrr, rowrr, rowrr. Oh, go over and clean this machine. Sweep the floors." Anyway, you worked all over the plant. It was a great experience. I, ah, I might have bridled a little bit at some of the things but, you know, it was only a week at a time so you could take a week at it and, ah, um, you worked in tests and you worked in assembly and you did everything, and you really got a feeling ... you met a lot of people that you would, whose help you would need later on, I might add in marketing. Um, you had a real feel of what the heck was going on in the plant.

KIRBY: Did they continue that program for some time?

TERRY: They continued it after, I would guess, about two or three years after I had gotten into it, Dave, and one of the last guys that was in it, his name was Gene Warrington, he worked for me...

KIRBY: Oh, I remember Gene Warrington.

TERRY: ... and Gene was in that program and one day, I think down in the lower plant, he was working in the sheet metal shop and he made the mistake of feeding a piece of sheet metal into a shearer from the back side; you never do that...

KIRBY: Oh...

TERRY: ...and he cut off the end of his thumb in this shearer. Not, not badly, just kind of nicked the end of his thumb off and about that time, Porter put down his foot and said we're not having green engineers in the plant.