Bill Terry Interview 7, January 11, 1996

KIRBY: This is Dave Kirby. I am conducting my seventh interview with Bill Terry. Today's date is January 11, 1996 and we are in HP's offices at 1501 Page Mill Road, Palo Alto. At the end of our last interview, Bill, I mentioned that you were elected a vice president of the company early in the 1972 fiscal year. I'm sure you expected this promotion at some point but it must have been gratifying for you. Is that right?

TERRY: Yes, it was very gratifying. It was an honor. I don't even remember whether I'd expected it or not. Frankly, I was so busy with the problems of the computer business, that was kind of the last thing in the world that came into my mind. It was ... it was quite an honor and it was helpful. You know, when you went out to see customers a lot and you gave them your business card, being a vice president had a certain amount of prestige versus not being a vice president. It also was recognized within the computer business, particularly the Cupertino thing, as a recognition of HP's computer business, that the leader of it was a vice president kind of...

KIRBY: It meant the company had made a commitment.

TERRY: Exactly, that there was a more serious commitment to being in computers.

KIRBY: There was another HP manager named a vice president on the same day as you. Do you remember who it was?

TERRY: Boy, I sure don't, Dave. I would have to really search my memory. Who was it?

KIRBY: It was Ray Demere.

KIRBY: Incidentally, until recent years, HP has had relatively few vice presidents, considering the size and prominence of the company. How do you account for this?

TERRY: Well, I think it's kind of the culture. You know, the lack of titles and lack of offices and lack of, you know, a reasonable lack of politics, you know, it was more important to spend your time and energy getting the job done than going around with a lot of fancy titles. It is a bit of a problem and in fact, I'll tell you one story I just heard the other day. People are always trying to recruit HP managers and one of the many ways they can recruit them, of course, is by making them a vice president in the company they're being recruited to and that has been a bit of an issue, so the number of vice presidents has grown pretty much proportionately with the company, although there is continuous pressure about extending this title into various parts of the company, particularly the marketing arms, where people are in contact with customers all the time. Many companies have a two-tiered system where they have divisional vice presidents and corporate vice presidents. In fact they have divisional presidents but then they have the corporate vice presidents. So they have a kind of a two-tiered systems and Ned Barnholt told me the other day that there has been discussion among Lou Platt and his staff about having such a two-tiered system, greatly expanding the number of titles but having divisional or group. They would have group presidents and group vice presidents but they would be different than corporate vice presidents. And after some discussion, at least for the time being, the current management has rejected that idea.

TERRY: They recently appointed, I believe, two or three more vice presidents and probably just continue along that path a while before we go into a two-tiered system.

KIRBY: Yes, but they have quite a few vice presidents now. I mean, you know, compared to recent years.

TERRY: Yes, it must be in the range of 20, I guess.

KIRBY: Something like that, I think.

TERRY: Yes, which is not unusual. At least my casual looking through annual reports, there are

companies with even a single-tiered system that have 40 vice presidents.

KIRBY: The beginning of calendar 1972 was when Dave Packard returned to Palo Alto after his three years in Washington. Shortly after he returned, Bill Hewlett and other managers made a decision to borrow a substantial amount of money to finance HP's continuing growth. But Dave changed that decision. We haven't yet talked about this, Bill, so I wonder if you could describe what happened?

TERRY: Okay. I was thinking about that coming over here whether I told you the story, at least the story that sticks in my head. But we ... The company had had a policy forever about financing its own growth, and it was one of a number of key self-imposed disciplines, I used to call them, that Bill and Dave adopted. They were written down in the objectives that weren't really sacred but they just kept you on the ball in terms of doing the job today. That there was nothing evil about borrowing money but you shouldn't really lay your problems off on somebody else. You ought to work on your problems. And HP had done that very successfully for a long time, and it was in the 70s that a number of circumstances got going. First of all, the electronic instrument business-I was in the computer part of it-the electronic instrument business was slowing down. I can't remember whether it was a recession or aerospace or something, but it was slowing down and the instrument part of the company had too much inventory. Their receivables were getting a little large also. In the computer part of the company-the instrument part of the company still made a fair amount of money but they just had too much inventory-in the computer part of the company, the mini-computer part of company, didn't make any money; the profits were very small, if positive. Inventory was not an issue but the lack of profits was an issue, and then we started the hand-held calculator thing and it took off so fast that it used probably, I'd guess, $40-60 million is assets just for inventory and receivables. Just overnight we had this huge pile of receivables! So we were running out of cash. The cash-flow was really getting very scrunchy and there was some discussion about the problem and this was with what Bill Hewlett called "The Office of The President"-which I believe was myself and John Young and Ralph Lee and Bill, and I think were the people in that. And there was casual discussion about debt but not a lot. Somewhere along the way, about the same time, I was in Cupertino, Bill Hewlett called me up on the phone and said, "I'd like you to come up (I believe) for lunch and meet some bankers from Switzerland." He said, "You know, the way that computer business is growing and the way you're using up cash, we may have to ... we may be motivated to secure some kind of a different long-term financing arrangement and having some contacts with these Swiss banks would be a good idea." And this is, again, before Dave came back and I kind of gulped hard and thought, "Boy, this is going to be really unusual for the day we're going to borrow money from the Swiss bank!" So I came up and met these bankers and we just had kind of a casual conversation about what we were doing and along about that time, as things got a little crunchier, Dave arrived back on the scene and he kind of walked around the problem and made a number of suggestions to all of us like, "Terry, get the profits up in the computer business!" and "Young, get your damn inventory under control!" and a few things like that but things were really kind of going in the wrong direction and Dave got really on his high horse and figured out that this problem was solvable within the company and, again, kind of turning to his original philosophy that it would be a real mistake to take the pressure off the operating management by just going off and borrowing a bunch of money from a bank and jacking up our cash position or our liquidity. So Dave started going around the company making speeches about this, and these were famous Packard speeches. I don't know if anybody recorded these or not. They would make great listening these days, but he outlined...

KIRBY: There may be one that he gave down, maybe it was in Santa Clara.

TERRY: Could have been. He went around to different sites and he got large groups of people

together, mostly management, but not exclusively and he, as I recall, he didn't have any slides either, Dave. This was kind of before the era of slides and Dave just stood up there and he rattled off the numbers and he described, you know, the problem and where the money was going, the lack of profits in certain parts of the company and sloppy management as he called it in too much inventory in other parts of the company and the field was not immune. He would bring up not collecting the bills from the customers, that we needed to collect the bills and get them to pay the bills before we sold them something else and that was the responsibility of the field sales organization. The most famous one of these speeches that I remember was in Loveland. I think he, we, he went to Colorado Springs and Loveland. I was, again, in the computer business at the time and we probably had the HP Saberliner for about a year. This was very early in the history of HP aviation but Dave decided he was going out to Colorado and deliver this talk and he took along myself and John Young and Ralph Lee, and there might have been some other people but I remember those particularly. So we went, I guess we went to the Springs; I don't remember that so much as Loveland. Dave delivered his speech in Loveland. It must have been the Springs in the morning and Loveland in the afternoon, and Dave delivered his speech in Loveland and he always finished these speeches with a famous Packardism and outlined what needed to be done-we need to get the inventories under control here-and he always finished up by saying "And if you can't do this, I'll damn well find somebody who can!" And that was kind of the end of the speech, and everybody sort of gulped hard but it was really a ... it wasn't so much an ass-chewing as it was a, you know, calling ... rallying the team together around a common problem because I remember when Dave would leave these talks and I'd stick around and some of them, boy! People were really fired up. "Yep! Dave is right. We've just been sloppy. We've got to do something about this and we're not going to lay the problem off on a bank." The Loveland one I remember particularly because we got back in the airplane about 5 o'clock in the evening and flew back here to California and Dave broke out the libations and managed to have about two or three very large size martinis. All the rest of us were having a little few things to drink, too. And Dave sat there and kind of shook his head and said, "Boy, we've just got to solve this problem. Borrowing this money and getting indebted to these banks and paying all this interest is really the wrong thing to do." He stopped at that point and that Saberliner had four seats together and then two in the back. The four of us were sitting there and we were all sitting within about six or seven feet of each other. Dave puts down his glass and he looks at each one of us individually and he says, "Ralph, are you signed up to do this?"

KIRBY: Oh, really? Really, individually?

TERRY: Individually. Ralph says, "Yes, I can do it!" Then he'd say, "Bill, are you?" or "John, are you?" And we said, "Yes!" And Dave says, "All right, that's all I need to know." He said-I think it was a Friday night, I'm sure it was a Friday night-he said, "I'll talk to Bill over the weekend and...

KIRBY: Bill Hewlett?

TERRY: Bill Hewlett, yes, "...and let you know what we're going to do on Monday." And again, that was another example of Dave never really doing anything very serious without checking with Bill.

TERRY: So and I don't think Bill was absolutely in love with borrowing money from banks but Bill, like a good businessman, was kind of looking at the alternatives rather than at the company going out of business.

KIRBY: And I think that was very far along, the borrowing process.

TERRY: I don't remember. You'd have to ask Van.

TERRY: Van would know. My only contact was this casual one with these Swiss bankers.

KIRBY: I think it was quite far along.

TERRY: I think Van had gone farther in talking about terms and size...

KIRBY: And the amount and everything else.

TERRY: ...size and so forth, and again, Van would know. For all I know, there might have been a timetable set up but we didn't ... I didn't hear individually from Dave on Monday but there was a general company announcement that we were going to take on a general campaign to reduce inventory and to do this and do that and improve profits and so forth, and that the borrowing was not going to be part of our general plan, and people went to work on it. At the time, we were about $100M guessing now; Van would know and the records would show. We were about $100 million in short-term debt, short-term borrowing and the philosophy prior to Dave getting involved was we'd convert the short-term borrowings to long-term borrowings and therefore we'd lower the interest rate. And when Dave got in the act, he said, "No, we're not going to do that. We've got a little bit more room on our short-term borrowings, not much, but we're going to go to work on the problem." And in about six months, we went from about $100 million in short-term debt to about having $100 million in the bank. It swung really fast! And that's happened...

KIRBY: A dramatic swing.

TERRY: A dramatic swing! And that's happened before in the company's history, that is, those dramatic swings that it's just if you sit down with a calculator and a balance sheet and P&L, it makes a huge amount of difference when you start really cracking down on our inventories and you collect your money and you get your profits up. All these things are cumulative; they all add up pretty darn fast. And that's exactly what happened. We got some profits up, we got some inventories to stop growing, we got some bills collected and the thing turned itself around but it was a lesson that lasted a long, long time and it's in everybody's minds today. Yes. Moving into '72, you had settled into your new role as head of the data products group and had a management team in place. Who were some of your key managers? I know you wanted to talk a bit about Sharon Jacobson and you also mentioned Chuck Comaso. Right. The advanced products division, when we decided that-or actually, I was told by Bill Hewlett-and he didn't have to tell me real hard because I thought the HP35 was a really interesting challenging thing to do but when we got that started, I think I already told you this story about recruiting Alex Sozenoff from Europe to come over and head it up. Alex had a good marketing background and that looked like a good thing to do. We recruited a manufacturing manager named Ray King and I don't remember where he worked in HP but he had been with HP quite a while and he knew quite a bit about manufacturing. Ralph very much participated in that selection and he was in favor of Ray. Chuck Comaso was the marketing manager. He had a guy named Ron Stevenson working for him who headed up all the order processing, admin, financial functions and there was a lady named Sharon Jacobson who ran the order processing. And Sharon was really a wonderful person. She is still working in Corvallis, I believe, on calculators but she was the person that figured from day one how to process what only took us about a month before we were getting 30,000 orders a month-and this was just totally unheard of in HP! We never got 30,000 orders for anything, including spare parts in a month. So she was the one who took on single-handedly this whole challenge of building up an order processing system, invoicing system, and so forth that could handle very high volumes from a whole variety of bookstores, dealers, individuals, learn how to sell things on credit cards, learn how to take checks and cash in the mail. These are done routinely today but, boy!, this was all new ground for HP. She was also the person that took all the phone calls from the big wheels when they wanted a calculator and these things were in high demand and short supply for at least the first year. So she was the one that would get calls from Bill or Dave or their secretaries about "I need an HP35 calculator. Send it up to my office because I want to give it to President So-and-so or Jimmy So-and-so,

or somebody else, and so she was always doing favors for people. Occasionally somebody would call her and ask for something and she would call me or Alex and say, "Should I or shouldn't I not do this?" But most of the time, she used her good common sense and judgment. I remember one time-and she did a lot of favors for me-I remember one time, she kind of saved me when I got a call from Dave Packard, who said, "I have Milton Friedman"-he must have just recently, about the time he won the Nobel Prize, I believe in economics-'coming in here to visit me and I want to give him"-it was an HP80 in that case, not an HP35-T want to give him a calculator. Bring one up to my office." Now I think Dave said, "Come up yourself and you can meet Milton Friedman." So I got in my car, I got a calculator from Sharon and I got in my car and I drove up here from Cupertino and Dave presented this thing to Freedman and opened it up and it turned it on and it was dead on arrival!

KIRBY: Oh, wow!

TERRY: The batteries weren't charged. So, yes, that was ... oh, wow! So I took it out of Dave's hand or Milton Freedman's hand and went outside and called Sharon and said, "Sharon, I've got a real problem here! This calculator you gave me is dead and I'm standing here outside of Dave Packard's office, mightily embarrassed." And Sharon said, "Stand by; I'll be there in a minute!" So she grabbed a calculator off the production line, jumped in her car, drove up here, handed it to me, I handed it to Packard, it worked, I left, thanked Sharon.

KIRBY: That's marvelous.

TERRY: She was that kind of a person. There are a lot of people like that at HP, that will go out of their way to do something but she was a real hero in the ranks of the advanced products division getting things done.

KIRBY: Well Sozonoff replaced George Newman?

TERRY: No, George Newman replaced Sozonoff. Sozonoff was there first. Sozenoff was there first. Alex really wanted to get back to Europe one of these days and we had big challenges in the Loveland desktop calculator division so I convinced Alex that he ought to go to the Loveland desktop calculator division as the marketing manager, working for Tom Kelly and that opened up the spot for at APD that George went into. That's right. George had been with the other division. He'd been with data systems... Data systems division. ...as manager and then when he left, that opened things up for Ely and Ely came into the data systems division. The other person I want to mention on the APD team was Tom Whitney was an engineer at HP laboratories, and I forget his academic background, but he was a very good engineer and a good leader, a very personable guy. He was if not the leader, he was a key person. I guess he was the leader; he was the one that really got the work done. Barney and Stoft and Bill Hewlett and others were doing a lot but he was the one that kind of got the drawings done and the production and so forth of the HP35, and as that went into production, it must have been me and Bill Hewlett I'm sure helped, and Barney, convinced Tom-and it took a little convincing of Tom-that he ought to leave HP laboratories and get into this brand new operating division, the advanced products division, but he moved to Cupertino in the building we rented across the street and became the first engineering manager of APD and he recruited a team, some of which were from HP labs, some were college hires, a few of them must have come from the instrument part of the company and built the first lab that started working on the subsequent projects, the 45, the follow-on to the scientific, the HP80, the HP01 watch that I'll tell you about in a minute. Tom was really a wonderful guy. He spent quite a bit of time at APD and then after I had left, somewhere along the line, this was probably in the late 70s, mid to late 70s, he left Hewlett Packard and went to Apple and he was ... I think he might have been the chief engineer at Apple. It was hard to say; the place was in a kind of confusion in terms of organization, but he was a very key contributor in Apple along with a guy named John Couch, who left HP data systems and went over to Apple with Tom, and John Couch was the father of the Macintosh operating system. Tom

was at Apple probably, I'd guess, six or eight or ten years. He made a very large amount of money on Apple stock options and decided to leave Apple and just enjoy himself. When he left Apple, he and his wife set up a family foundation and he just spent his time giving away his money wisely-a lot of it here in Silicon Valley-and unfortunately about five years after that, he died fairly suddenly of a relatively young age, early forties, mid-forties. And he was really a wonderful guy to work with and then this taking his wealth at a rather early age and instead of spending it on yachts and Ferraris, he was busily giving it to charity. It was another indication of the kind of person he was.

KIRBY: Yes. Now, you mentioned the watch. While we're talking about it, or thinking about it, do you want to tell that story?

TERRY: Yes, the watch got started within the engineering department of the advanced products division. It was not an HP labs project, and it got started when there was a kind of an interesting discussion about the interaction of calculation and time. There was a discussion about making an electronic stopwatch but that was a really awfully simple-minded kind of thing that nobody was really sure we had much of a contribution, nor how we would sell it. So people kept playing around with this idea of the interaction of time and calculation, and one thing led to another and instead of putting it in a hand-held HP35-style case, this idea of miniaturizing it and being able to wear it on your wrist came along. There was a guy named Ben Helmso, who was an old time mechanical designer at HP and worked in the microwave division, was the key mechanical designer and that was the biggest challenge of the mechanical design, of getting all this stuff into this really small space. We ran a lot of it on a simulator, that is the functions, as you did all these calculators. That is, you programmed the computer to act like a calculator and so you could pretend it was calculator but it was a full-size computer in order to get the application functions down, and it was running on a simulator when I left the computer part of the company. I imagine I probably would have done the same thing as what happened, and that is, nothing ventured, nothing gained. It went into production as the HP01. The product was pretty large. I never did get one. I don't have one today. It was too big for my wrist; somebody wanted to give me one and I just have a fairly small wrist to begin with and it was just too big and too heavy, as it was for most people. You had to be a pretty big person to wear this thing comfortably. The big lesson that we found out and, again, distribution was the big challenge, we took them into our current distribution channel of the HP35 and HP80; that didn't get us very far. And since it was a watch, the natural thing to do was to go look at the jewelry stores and the whole jewelry industry and it took only a few days to figure out that jewelry is not a technology business. Jewelry is a fashion business, and it's a fad business, and it's looks and it's not how well things work. And we got into a few jewelry stores but we didn't sell very many. I'd guess the total sales somebody would know better than I. The HP01 was probably 3-5,000 units. It didn't cost us a helluva lot. We certainly didn't make any money on it. We probably covered the cost of the tooling but it was a lesson, particularly about this fashion versus technology that kind of stuck in our heads, and we didn't do another one. We didn't do an 02 or an 03; we just kind of retreated and said, "Well, that's interesting." And there have been various attempts to make calculator watches. None of them have been very successful. The buttons are very hard to access. The buttons on the HP01 were hard to access. We decided to use a ballpoint pen, that is, the other end of a ballpoint pen to hit the buttons so when you bought the watch, you got this ballpoint pen, so you were supposed carry this pen in your pocket and use it to hit the buttons on the watch. We recognized that the finest ballpoint pen, at least in the US, was made by AT Cross & Co. in somewhere in Connecticut or Rhode Island. We went to AT Cross and said, "We'd like you guys to design a pen for us that has a little tip on it that you can use to program the watch" and they said, "Well, that's a great idea and we'd love to do that but we've got a problem." If you look at an AT Cross pen, it has a very distinctive tapered plastic part on the top of it, a little metal hole in the top of it and that's

patented and AT Cross said, "If we're going to mess around with that, we're going to destroy our patent and all our competitors will all come in the door to copy our famous ballpoint pens, so we really like what you're doing here but we're sorry, we can't do this." So we got somebody else to design us a ballpoint pen with a tip on the end of it. But it didn't go very far but nothing ventured, nothing gained. No, that's right. That's right. Tell me, we were talking about these management people in Cupertino. What about the data systems division at that time? About that time, George came over to APD and there was an opening there and the 3000 was trying to get invented. It was kind of out but not quite, and I've told the story of that, and I think I also told the story about getting some advice from Bill Hewlett about who it was who should replace George. Dick Hackborn was the engineering manager. I can't remember who the marketing manager was-it might have been Jim Treybig or Bill Nilsson was the group marketing manager. But Paul Ely had been in the microwave division for a while and he was getting a little itchy about a change and he had talked to Hewlett about wanting to do something different and so Hewlett pointed me at Ely and ran interference for me with John Young about stealing Ely away from the instrument part of the company but anyway, Paul was in data systems and he was up to his eyebrows with the HP3000 and getting it out onto the market as well as making some decisions about the follow-on to the 2100, the so-called 21MX, which was the first solid state memory version of the 2100 family.

KIRBY: Okay. Who was it who ... How about Mountain View?

TERRY: I still... I didn't go back and figure out who the leader of the Mountain View division was. Ray Smelek was certainly the manufacturing manager but this chart that Karen gave me reminded me of some of the origins of the peripheral business and one that I had skipped, and I didn't remember, really the first one was the International Control Machines Company, acquired by HP in 1964 and I don't know how this came about exactly but this small company, ICM, was run by a real character by the name of Franklin Chang. Franklin Chang had been an engineer at IBM, it might have been San Jose; I'm not sure or the east coast. And he had an idea, he must have worked on card equipment-these are card punches and card readers because a lot of the computer input/output of those days was done with punch cards. IBM was the pioneer of them. He had started this small company to make a card reader-not a punch, a card reader-that was a miniaturized simple, slower speed, card reader that looked like it fit very nicely with a mini-computer. The IBM card readers were these giant machines that could take huge stacks of cards and this was a nice little machine that you could put a stack of several hundred cards in and it would read this. He somehow approached Bill Hewlett because Bill Hewlett got right in the middle of this whole thing and Bill was very impressed with the machine and he was pretty impressed with Franklin Chang and the company was acquired in 1964, long before I got there. I wasn't involved in the acquisition. I was in Colorado Springs at the time but I know somebody who was, and that's George Newman, and George told me the story about after having made the deal with Franklin Chang on what they were going to pay him-and this was several hundred thousand dollars-that's the kind of acquisition this was, George went down temporarily to kind of be Franklin Chang's...

KIRBY: Okay, Bill, we can pick it up now. We were talking about Franklin Chang; go ahead.

TERRY: George went down there to kind of be Franklin Chang's administration/finance manager. This is a small outfit. I believe it was in Mountain View. A lot of Franklin's relatives were working there as I recall. It probably had 10, 20 people. George went down there with an HP set of ledgers and a checkbook and he found an absolute mess. Franklin had a desk full of unpaid invoices and checks and inventory and, you know, it was just a mess. So George spent several weeks writing checks and getting the paperwork organized for Franklin Chang who was not noted to be an expert on details. The machine itself was really pretty good and it was then merged later with a company called DataMec. A guy brought me the press

release; in 1965, this company was acquired. Carl Cottrell, who was the head of the data products must have been involved and others-made a tape drive. This was a vacuum column tape drive, that is the tape was supported on columns, vacuum columns as they're called. It was a large machine; it was about the size of a refrigerator. Again, it was similar to an IBM tape drive but it was of less performance, and it was cheaper, a lot cheaper, and it fit, again, better as a peripheral in a mini-computer than with some of the larger size IBM systems. It was a huge reliability challenge. The ones in the field were always breaking down. You had to keep them clean, you had to keep the blowers in the vacuum system working right. But it meshed with ICM and then formed, those two organizations formed what was later called the Mountain View division. And Franklin didn't stick around too long. He was a real wild man. One of his most famous performances came at an HP management meeting, the annual management meeting, in January in Monterey at the Mark Thomas it was called, and Franklin was on the program. These were the days where the program was pretty much every division manager would stand up and give a report on his division.

TERRY: And, you know, you had 15 minutes to do it and after about 35 minutes, Hewlett was getting a little nervous about Franklin but Franklin was just going on. You may have been there.

KIRBY: Yes, I was there.

TERRY: Do you remember that? Franklin was just...

KIRBY: I can remember him.

TERRY: He was talking a mile a minute, and he was changing...

KIRBY: Absolutely!

TERRY: ... he was changing subjects about every 45 seconds and it was just going on and on and on and on. And, you know, he really had some good ideas but, boy, he was hard to control! He was a little difficult to understand. He talked so fast and he was just an idea guy; he was not an engineer, not really a very good engineer or a very good businessman, so he did not last too long at HP. He went off and has been around here on the Peninsula. He used to call me up every once in a while and want to borrow something from HP or he was always bugging Barney. He called me up not too long ago, well, this is six or eight years ago, and told me he had an idea about a computer that ... I remember this conversation. He called me up and he said "Bill, you know problems with computers are software." I said, "Yes, Franklin, you're right. That's a big problem with computers." Then he said, "I've invented a computer that doesn't use any software! That's how I solved the problem. And I want to talk to somebody at HP labs." And I think I gave him Barney's name or I don't know if Joel was here at the time, but he was still bugging people at HP with some of his ideas. I remember that talk at the management meeting. He just brought down the house inadvertently because he was describing the machine and he was so enthusiastic about it, I think he said something like "So you take this assembled data and you put it into the machine and then you never see it again." And it just brought down the house!

KIRBY: I don't remember that one! It sounds like it. It was sometime after that meeting, that I think it was A1 Bagley started referring to Franklin in terms that today would be a racial slur when he called Franklin "The Chink in Corporate Armor".

TERRY: Oh, that's great! That's right, that's right. Yes, he really was a character. Yes, the card reader stuck around HP for at least 10 years. We made a lot of card readers. We transferred the product from Mountain View to Grenoble in the early days of Grenoble because Grenoble was looking for things to do and it looked like there were family variations on the card reader that needed to be done. We needed kind of a family of card readers instead of just one and Grenoble did that. They made several different versions of these card readers and it's funny how your paths cross. My wife used to work for HP selling HP3000 and she

had one of her accounts here in the Bay Area was Lockheed and she sold Lockheed about 350 of these variations on the Franklin Chang card reader. The Franklin Chang card reader that Lockheed used over here in one of their production operations.

KIRBY: Let's talk a little bit about the group's international operations. Who were your key managers outside the US and where was the activity being done?

TERRY: The biggest key manager that I can remember was Fred Schroeder. Fred Schroeder, for reasons that I'll really have to search my memory about, was one of the start-up managers in HP Germany along with Ray Demere, an American, and Eberhard Knobloch, a German who was the finance guy. Fred was motivated-yes, this happened before I got into computers-he must have been motivated by Carl Cottrell and others that it was time to do something different than run HP Germany. He was in charge of HP Germany, and he moved to Geneva and he was the marketing manager for computers in Europe. In Europe, and that included the desktops as well as the pocket calculator as well as the big computers, the bigger computers. So he was really a key guy and he did a good job at that. It was kind of tough times of getting this started up and building up a computer sales force of both people we hired, people that came from the instrument business. There were really two sales forces: one sold desktop calculators, the other one sold the mini-computers and then the pocket calculators went through various channels of distribution as they did in the United States. He had a quite a crew of people. One of them I certainly will remember was a fellow named Jean-Louie Gasse in France who sold desktop calculators and he was a young, nice looking Frenchman, big head of black hair and he was Mr. Energy. Tom Kelly and I went over there one time to put on some kind of a sales meeting having to do with desktop calculators in France, and Jean-Louie Gasse, the leader, showed up at this meeting totally bald! And Tom Kelly and I looked at him and thought, "Oh, my god, the guy's got cancer, chemotherapy. Isn't this terrible?" And somebody said to Jean-Louie, "Gee, Jean-Louie, what happened to your hair?" And Jean-Louie said, "Well, I've decided to take up competitive swimming and I can swim faster if I shave my head." This was Jean-Louie Gasse! Jean-Louie Gasse left HP and headed up Data General France, did a really bang-up job with that, and then he came to the United States 15 years ago and he was a big wheel in Apple. He was the international VP or something or other and he's still here on the Peninsula. He started another computer company outside of Apple in the last couple of years. A real character! And there were a number of these. There was a guy, Fritz Dickman in Germany, was Schroeder's key European German sales manager. He ... I used to go on customer calls with him, or I went on at least one customer call when he'd go whistling down the autobahn at about 125 mph and scared the hell out of me! But there were a number of these characters, many of them new to the company, that were selling computers in the European theater. Fred did a good job and we got into a lot of really interesting applications. There really wasn't much going on in Asia with computers. I've told the story before about the YoPac 4100. We did very little in Japan although we did sell desktops.

KIRBY: Yes, getting back to Europe, where were products being manufactured?

TERRY: They were being manufactured in the United States and then beginning in Grenoble with some of the peripherals, the card reader, and I believe, yes, we did manufacture computers in Germany. We manufactured the 21MX, I believe, in Germany not the 2100, not the previous family.

TERRY: So it was strictly in Germany and Grenoble were the two key places.

KIRBY: There was no product development activity, was there?

TERRY: No, there was no product development activity and there never really has been, Dave. There's been some software, a fair amount of software development activity in Germany and then in later years, there's been product development on personal computers in Grenoble

and they did some product development on these card readers, expanding the line of card readers.

KIRBY: Were your overseas competitors similar to those in the US or were they different?

TERRY: No, they were pretty much the same. DEC, DEC was very strong in Europe. They'd gotten started quite a while. Data General was strong: OEM sales, cut-throat reputation, pricing. Data General kind of relied on that. And then of course, IBM to the extent we touched up against IBM. Wang was reasonably strong; Wang and the desktop calculator was reasonably strong in Europe but I think we were stronger. We had a better product and we had greater depth because we'd been there longer in the instrument business than Wang, who was just starting in on the desktop calculators.

KIRBY: What about Olivetti?

TERRY: I don't think we ran into them very much. They were more, in my mind, more a customer of peripherals and other things that we could sell them. It took a while for them to really come on, mostly in the PC business but I don't recall them of being much of a competitor. There were some beginnings at that time of ... I guess the Berlin Wall had not gone down but there were some beginnings of stirrings of interest in Central and Eastern Europe. I remember one time, so we would have delegations of either visitors coming through or we would have industrial organizations of these Communist states wanting to do something and I remember one time, we had a guy who arrived here in Palo Alto from Romania and he looked like a real Romanian. He had flaming red hair, talking a mile a minute and he wheedled an interview or a visit with Hewlett so Hewlett took this guy on and I came up and this guy, he kind of had a prepared script about why Hewlett Packard should manufacture computers in Romania. And about the last thing in the world we wanted to do was manufacture computers in Romania when we were struggling for survival. Hewlett was very nice and listened to this guy and told him politely that we didn't want to do that. It was about that time, also, that we were approached. We were approached by a lot of people to either save their bacon or get into some alliance. Grundig is a big German firm, was a big German firm, in a number of electronic activities including computers and consumer electronics and the chairman-owner, president of Grundig arrived here one Saturday I remember. They were kind of trying to maintain some secrecy about talking to HP and I remember, I don't think Dave was here; Bill and I met with them and listened to their story and this was a much larger fish than we could swallow. This thing had all kinds of problems and there was a fair amount of money involved and that was not HP's style-never has been-to take on some large company in trouble and try to turn it around.

KIRBY: Uh-hum. Now, still in Europe, and I guess in Asia, too, were we hiring many people from other computer companies to sell?

TERRY: Yes, yes, particularly to sell. Somehow Univac pops into my mind. Univac must have been having trouble at the time so we got a number of people from Sperry Univac. Some of these people were kind of international vagabonds. They were sort of bouncing around from computer company to computer company, and some of them didn't last too long in HP but yes, we definitely were. Data General was recruiting from us; we did recruit some IBM people but not very many. That was much more difficult to do. It was kind of a younger, smaller company cadre that was attracted. Honeywell was having trouble in the computer business; we hired a number of people from Honeywell. We hired some people from Varian. They were also in the minicomputer business. Perkin & Elmer at one time was in the mini-computer business. There were not very many, except for Olivetti, there were a couple in Germany, one or two in Britain and one or two in France, but there was not much of an indigenous European computer industry at the time, in the mini-computer industry. This was kind of an American innovation, this minicomputer.

KIRBY: I'm trying to remember, was Dick Alberding running the European operations back then?
TERRY: He must have been. He must have been running the European operations. Carl had obviously come out and Dick was there. So, yes, he was in charge. He was in charge of the overall operations in Europe. I'm sure that's the case, because Fred was on his staff. It's been widely reported that Steve Wozniak, co-founder of Apple Computer, once worked for HP.

KIRBY: Did you know him then?
TERRY: No!

KIRBY: And where and when did he work?
TERRY: No, I did not know him. I had heard those stories also and I would occasionally ask one of my old associates, you know, if they knew anything about this and you can ask the same question of people like Dick Hackborn, George Newman, but my perception is that we found out that he did have a job at data systems in Cupertino as a technician on the second shift. We were producing 2100s at the time and we were running a second shift, and that was a little unusual but he was working there. I never met the guy, and only found out about this after the fact. So these stories about, you know, HP looked at this idea and turned it down, I don't know if they're true or not. If he brought the idea to anybody, it would probably have been George Newman or Dick Hackborn, or somebody else that worked in the data systems lab down there but he certainly never brought it to me. And you know, you didn't ask the question, but if he had brought it to me, what would I have done? I probably would have thought not much of it and I probably would have sent him to HP labs, "Go see Paul Stoft or go see somebody like that" because if you can get them kind of interested in this, then, again, it's a great role for the labs to take an idea like this and really kind of wring it out and see what they might think of it and might be able to do with it. I also think, you know, it would have raised, again, this specter of distribution: How in the hell are we going to sell something that costs X amount of money with the target audience is totally different than the one we had currently been selling to and that's a challenge that HP has successfully met but we'd had enough problems with it prior to that, that we were wary. We weren't going to take on something that was going to be sold to a totally new audience like it says in HP's objectives without a real serious consideration about building up that capability in advance.

KIRBY: Now Wozniak went on to pair up with Steve Jobs. Have you gotten to know Steve Jobs at all?
TERRY: No, I only met Steve Jobs once. Apple was on a roll. They had some nice products. I guess the Mac must have come out at that time. And they were making some noises in the market about peripherals for the Apple Macintosh. I believe they had either developed a printer or they were reselling other people's printers, so we could tell just by their posture in the market they were interested in looking at peripherals. We had, with HP labs help, taken a Moseley plotter, a Moseley XY plotter, that normally would respond to analog signals, slowly changing analog signals and it would draw a picture-a curve in many cases-and we had adapted that so you could put in digital information. Like you could instruct the plotter to draw a letter, the letter "A", and the plotter would take the digital information and translate it into analog information and it would plot the letter "A". So we made this plotter so you could print with it, or you could more often annotate graphs. You would draw a graph and then you would put on all the numbers and all the letters and the labeling of the graph with this plotter. And it was really pretty fast. It was fun to watch as this thing went clickety-click along. We had to change the pen system because you were moving so fast but the San Diego division adopted this plotter as a peripheral for desktop calculators and it was really popular because the calculator was used very much in scientific applications and people wanted to draw a picture, a plot, of the formula or the output. So Brian Moore and I decided that we were going to try to sell Apple-Brian Moore was the head of the San Diego division at the time; the fellow

before him, I'll tell you this story-was Dick Moore, an old time engineer from HP Loveland, was the head of the San Diego division at the time. Dick Moore left San Diego, went to the Corvallis division, which is the division that was the successor to APD. APD closed down here in Palo Alto or Cupertino, rather, went to Corvallis; Dick Moore went up there. The job was open in San Diego; Brian Moore had been doing a good job at a company called Delcon here and I asked Brian to go to San Diego. And so I went down there on one day on the PA system and told the employees of the San Diego division that Dick Moore was leaving and Brian Moore was arriving. So we had a Moore for a Moore, just by total accident. But anyway, on with the story. Brian and I made some contacts at Apple and decided that, for better or for worse, we were going to go in and sell this idea to Steve Jobs. That is, we were going to make a plotter-in fact, we may have made a model-I think we did, an evaluation model-of our plotter with the Apple logo on it and we got an appointment to see Steve Jobs and there were about four or five people in the conference room, all very young, who were also interested in the idea down here at Apple Cupertino. Steve Jobs walked in. Nobody in the conference room had ever met Steve Jobs before and this place was only slightly organized, growing fast. Wow! And these were supposed to be key managers. Brian and I kind of looked at each other, and everybody went around and introduced themselves except Jobs. The only thing I remember about that sales call is this guy was totally distracted. He was thinking about something else because he wasn't listening very much or paying a helluva lot of attention to what Brian and I were saying. But we never did sell them any plotters. I think they, probably wisely, decided they didn't really have enough of a scientific application to justify the plotters and the HP desktop machines were really in the scientific arena. So we never did sell Apple any plotters but we did meet Steve Jobs, the famous Steve Jobs. Now, for several years, then Apple enjoyed tremendous success in personal computers and many people wondered at that time why HP didn't get into the PC business.

KIRBY: Why didn't we?

TERRY: I was out of data products at that time but I can speculate reasonably accurately. We were wary about the distribution. You know, selling it to the mass consumer market. We were somewhat wary about the pricing and could we make a good machine for the kind of price that was going on in the marketplace. And I think the biggest answer of all was we were really busy! I mean, we had made all of these commitments to the mini-computer program, the desktop program, the pocket calculator program took off, and we were really strained for people and developing, marketing and systems and getting the profitability up, so the idea of adding yet another challenge on top of all of this, for better or for worse, wasn't really that appealing. It was ... you know, there's a little bit of an HP philosophy about doing a few things well.

TERRY: And don't get yourself spread around too fast in too many businesses too quickly. And I'm sure there was a very big element of that. I think there was also a little bit of a poo-poo, you know, "not invented here" and this is a toy. There was an undercurrent of that among some of the troops, I'm sure, but among the management, it was "Gosh, this looks kind of interesting but, man, we'd better get what we've got going, going better!"

KIRBY: As time went on, it became apparent that the people at Cupertino who staffed our computer activity, were I guess we could say, "Marching to a somewhat different drummer" than the old line HP people.

TERRY: Yes, that was true.

KIRBY: Can you comment on that? Was this a problem or did you encourage it or not?

TERRY: No. No, it was not encouraged and it was a problem, and there was kind of a recognition of difference. I think I told you the story about being scandalized. The traditional part of HP was being scandalized because the Cupertino division had electric pencil sharpeners; that

was thought to be really a scandalous thing as well as carpets and stuff like that. Incidentally, we put our foot down about ... It was all right to have a certain number of differences because things were different. Software development was different. But, for example, benefits, wage and salary matters, they were very much kept in line with all HP requirements. The fundamentals. The fundamentals and we didn't throw a lot of extra money around and we didn't have different kind of bonuses or pay plans for computer sales people than we did for instrument sales people or anybody else. But some of it was based on I think some real differences, particularly software development. You had just a whole different kind of people doing different kind of work and then the rest of it was "We're new; we're renegades. We've got one of the toughest assignments in the company. We're taking on IBM." And there was a little jealousy going on in the other part of the company because of that attitude. And then the other contributor was the other people that came in from outside the company. They had a totally different culture; they came from Honeywell and Univac and Burroughs, and places like that and they behaved differently and acted differently, and dressed differently and they were different!

KIRBY: And I think there was the feeling "You people don't understand the computer business."

TERRY: Very much so and I think, again, some of that was true because even the people that said it didn't understand the development of software and the testing of software, but there was, you know, a resentment. Also the profitability thing used to grate everybody all the time. I mean, I used to come up here to this room and make presentations and the computer business was, you know, at one time-you may have been there-I stood up and made a talk at the general managers meeting and got the data together between the instrument business and the computer business and combined it as an overall computers because instruments were in the data acquisition systems business and announced that we had built a $100 million computer business that was losing money. And it didn't look like it was losing money until you did this combination of the facts of the inter-company pricing eliminations, and that got everybody's attention! But the computer people's attitude was "Look, get the hell out of the way! We're pioneering and the fact that we're not making any money is neither here nor there. Market share is kind of the name of the game." And the instrument people were growing more slowly. They were very profitable. They had loyal customers and they were kind of the heart and soul of the company. Yes. While you were with data products, did you have much contact with other companies like IBM and DEC? I didn't have any contact with DEC. I may have met somebody at a trade show but there was no contact. They were arch-competitors and there may have been a couple of ... let's see I do remember... no, that was in the scope business when I was selling scopes to DEC, I had met some people and made some calls at the famous Woolen Mill at DEC but not in the computer business. And not at IBM except for one occasion and I don't think I told you this story of IBM was in ... IBM is always in some kind of a legal battle. There was a company called Telex in Oklahoma, in Tulsa, Oklahoma, who made IBM compatible peripherals. This was very popular at the time to make IBM compatible something: peripherals, memory, maybe some software but peripherals and memory particularly. And IBM didn't like that; they didn't like these characters copying their products essentially and hooking them up to IBM computers or trying to displace their products at a customer installation. So they had a big lawsuit going on. Well, Telex sued them and they sued Telex, and this was in a federal district court in Tulsa, Oklahoma. The president of IBM, whose name escapes me right now, called Bill Hewlett and said they would like somebody from HP to testify on behalf of IBM about the computer industry. IBM was trying to make the point that this was a huge industry. They were trying to define their market-share differently than Telex defined it. And they were trying to make a point, which they eventually won, having to do with this plug compatible peripheral industry. I don't remember the exact legal points involved. Hewlett told them, "Yes, we can make somebody available." So he called me up and I got together with the IBM attorneys

and we talked about it and I told them that, you know, if they were going to put me in court, I'd tell them what I knew but nothing that I didn't know and they just coached me a lot. They wanted me to talk about HP's computers and the computer industry and I said, yes, I'd do that. So I went back to Tulsa, Oklahoma and they put me on the stand in court and I was on the stand for about two hours, and I simply described how a computer is made. This was all educating; it was a judge, not a jury trial.

TERRY: All educating the court on the computer industry and how does a computer work and IBM was using me and HP, and others, as the beginnings of the mini-computer. This was a dynamic industry and they didn't have total control of it and here's a company like HP and DEC, all of a sudden getting into the computer business. The opposing attorney from Telex starting cross examining me and one of the first things he did-I guess this is a legal tactic is he put in my face the front page of Electronic News that had appeared about six months before with my picture on it that said the HP3000 is in trouble, it's all screwed up.

KIRBY: Oh my!

TERRY: This was when we got the 3000 out a little too early and it didn't work quite as well as it should had and this guy said something to me about "Mr. Terry, is this your picture?" "Yes, it is." "Is this story true?" And I forget what I said except I explained the whole thing to him, you know, that we'd got this thing a little ahead of itself and we were going back to the lab and reinventing the software. I must have been an accident or maybe they coached me; I kept my cool. He didn't bother me in the least! I simply told him the story of what was going on and I forget what he was trying to get me to say but he didn't get very far and so that was the end of that. But that was really my only contact with IBM. Interesting people. We had a dinner after the ... there were a number of both legal people and management people from IBM there.