

## Bill Terry Interview 4, November 27, 1995

KIRBY: This is Dave Kirby and I'm about to conduct another interview with Bill Terry. Today's date is November 27, 1995, and we are in HP's offices at 1501 Page Mill Road, Palo Alto.

KIRBY: Okay, very good. Bill, in 1966, when you were marketing manager at Colorado Springs, HP ... Hewlett Packard Laboratories was created. Its purpose, according to the 1966 annual report, was "to provide the company with a broader base of fundamental research and to support the divisions with a source of advance knowledge on materials, processes and techniques." My question is, how was this viewed out in the divisions? Was it overdue? Or was the timing about right?

TERRY: I think ... my recollection, Dave, it was viewed as a "ho-hum". I don't ... unless I go back and really study what happened, it was just an affirmation what the labs were... what the labs had been doing all the time, and maybe a little bit of restatement of the role in helping the divisions as opposed to just doing esoteric research on their own. And maybe it was a little bit of that push toward division communication and division service, if you will, rather than research. But at least in a place like Colorado Springs, and I think most of the divisions, it was a kind of a "life goes on; nothing is really changed". Barney is running the labs; Barney is the source of a lot of ideas and they got a lot of good people in the labs. There used to be in the divisions some grouching about the corporate surcharge. It's always been there. As I recall, it was 3% or more—3-4%—of revenue that you paid in taxes to Palo Alto. You wrote it on your P&L and the bulk of that money went to support HP labs. It was an internal transfer, if you will. Some people in the divisions would gripe about these taxes and I think most of the more enlightened division managers, me included, took the view that the taxes were the taxes and you weren't going to change them, and the name of the game was to get more than your fair share of the taxes. So the divisions that... who shared this attitude were always out pounding on Barney or people in his HP labs to work on their particular project or help 'em out with their particular technical challenge. There was a propensity, a little bit, in the divisions to use HP labs for firefighting. That happened in the early days of computers. I don't think we did that in the Springs and the labs were good about dividing their time between firefighting—that is, helping you out of a jam you'd gotten yourself into—and just working on plain new ideas.

KIRBY: Talking about the surcharge, it would seem to me that anyone who had worked at corporate before going out to a division would be more sympathetic to the surcharge than somebody who had spent his entire career out there in a division, maybe.

TERRY: Well, they might be more sympathetic but that only lasted about 24 hours! [Laughter] They immediately became, you know, the renegades, particularly the Colorado divisions. They were on the other side of the Rocky Mountains and they were pretty darn ... well, they felt very strongly about their independence.

KIRBY: How did the labs make its technical findings known to the divisions? Was there any kind of a formal way of doing that?

TERRY: No, there wasn't. There was ... there had been tried—this is long before electronic mail—and there had been tried various kinds of newsletters but they just didn't work very well. I don't think the people in the labs were very motivated to do it. So it was strictly by visiting and by word of mouth. And most of the visiting was by division people coming here to Palo Alto, and they were very welcome and they were expected to spend some time in the labs, particularly the engineering people. So anytime one of your key engineering people came to Palo Alto, they dropped by the labs and they visited with the people who might be working on something that they were interested in. The labs also put on about that time, I believe, they started road shows where they took some of their ideas out, just like almost a trade show.

They took their ideas out to the divisions. They would pack up a bunch of prototypes and posters and slides and they would go off to Loveland, spend a day, and spend a day in Colorado Springs, and they'd put on a presentation about what they were doing and why they were doing it and get a lot of comments from the divisions. But it was that kind of traditional HP face-to-face—"tell people what you're doing" visiting kind of thing—that carried the load of communication.

KIRBY: As I recall, the total R&D budget at HP, I seem to recall at about 15% of it, was spent on the HP labs and 85% out in the divisions.

TERRY: Yeah, that's about right. It was, at one time, there was a guideline—1.5% of revenue, which would be about 15% of the total if you spend 10% on R&D—and those kind of guidelines seemed to come down from the mountain on the tablets from Moses. Moses in this case was Bill Hewlett. And it was... there was nothing really very magical about it but as a series of expense ratios within what was only an instrument business at that time, spending 10% on R&D and then of that, spending 15% or 1.5 points of it, on advanced R&D, it just seemed to us ... people used to say, John Young used to say it, "It felt about right." It was nothing magic about it. So that's how the labs budget was managed for a long time until we got into other businesses with different kinds of expense ratios and different kinds of growth rates, and then the labs budget changed. It still grew but as a percentage of revenue, it declined to about, I believe today, it's about 7/10 or 8/10 of a percent.

KIRBY: Okay. When the labs worked on a technology and took it to a certain point and then they turned it over to an appropriate division, did divisions ever get into a squabble about who was gonna do something with it?

TERRY: Yeah, there were some of those. There was very little squabble about...

KIRBY: In your case at the Springs, you had a clear...

TERRY: Right, we had a pretty clear product line charter—oscilloscopes and pulse generators and accessories—and plus the fact that what we were doing only modestly well when we were doing well, and we had this giant competitor, Tektronix, to attack, there were little or no ambitions either in the Springs or out of the Springs to put anything else in there. So we were kinda immune from any turf wars, but there were turf wars! One of them that came along had to do with the first desktop calculator, the 9100. There were people here in Palo Alto in the microwave and particularly the F&T divisions who really thought that they ought to be the ones to take on this what was one of the first trips into computing, and for reasons that I can't really remember—I think a combination of successful track record and some really motivated people—the 9100 was started in Loveland, and that really didn't fit Loveland's product charter at the time at all. They were in audio oscillators and some of the basic products, but they were the ones that were given the 9100 assignment.

TERRY: There were some other turf wars that went on between the Santa Clara division and the microwave division regarding high frequency synthesizers. They were started up in Santa Clara. The product line started to grow and there was a Packard mandate that future development of synthesize signal sources as they were called would be conducted in the microwave division and not in the Santa Clara division. This was a Bruce Wholey/Al Bagley turf war. That one got resolved by Dave. But not too many. It was usually fairly clear in the beginning and many of the projects at HP labs were related to product areas we were already in that... which division was expected to be involved.

KIRBY: The 1966 annual report also had a picture of a new product, an instrumentation computer. Its model number was, I believe, 2116. The report said the computer controls instruments and collects and processes data from them. I have questions about this. Whose idea was the 2116 and which unit within HP was responsible for developing it?

TERRY: Well, it got started ... somebody at the labs—I don't really remember who: I'm sure Barney was involved; John Cage may have been involved—through some contact, found out that there were some people developing such a product at Union Carbide and I don't remember where the Union Carbide unit was—it might have been in Tennessee, Midwest—and Union Carbide had lost interest in this. So through some kind of an arrangement I wasn't privy to, we hired two or three people from Union Carbide who had the idea about the architecture of the first 2116 minicomputer and they went to work at HP labs. Again, it was using HP labs as a breeding ground to at least get this product into some kind of prototype stage or learn more about it. And as the product became somewhat more developed, there was some discussion again about product charters, and assignments and who should take this on. Colorado Springs, as I said, was immensely busy. The 9100 calculator came after the 2116, and so there was a decision made that a new organization would be put together to take this idea and see what they could make out of it. And I'll have to think about ... the leader of the organization was Jack Melchor. It was physically located down here on Page Mill Road in the old building, the old slant saw-toothed building, and it was called.... What was it called? You're gonna help me with a name.

KIRBY: I forget.

TERRY: It'd be on our organization charts back in those days.

KIRBY: Okay. But Melchor was the guy.

TERRY: Right, and this was, this was in Pa ... I'm sorry! It was the Palo Alto Division, PAD.

KIRBY: Just called Palo Alto?

TERRY: Palo Alto Division.

KIRBY: All right.

TERRY: It actually was an out-shoot of Dymec. It was making some of the old Dymec products. The original Dymec products were radar simulators and that business was going away and so Dymec was making some other kinds of digital gadgetry, somewhat similar to the Santa Clara, and they were given this assignment. So they took on the 2116.

KIRBY: Was Kay Magleby involved?

TERRY: Kay Magelby, I believe, was the engineering manager. Jerry Carlson was the finance manager. Frank Wheeler, who had come to us from the United States Navy, was the manufacturing manager. And who was the marketing manager? Marketing was a really big deal job because here we had to find a whole new way to sell these things. I ... it may have been Bill Davidow. He was the marketing manager within the Cupertino division. Bob Grimm was heavily involved with PAD. And a number of people in the labs. There were some people that transferred from HP labs with the product as it went into the Palo Alto division.

KIRBY: Could the 2116 be configured to include oscilloscopes?

TERRY: Not really. It was said to be designed as an instrument controller. I think the people who put it together really had much greater ambitions than controlling instruments. The thing that made it an instrument controller was it had a fairly wide 10 slot back-plane—that's the input/output parent circuit boards that are used to get in and out of the computer. In a standard, you might say, computational computer, you'd only have 2 or 3 of these. Well, the 2116 could support, I don't know, 8, 16—I forget—but a lot of 'em. So you could hook a lot of things up to it and that, by virtue of that, that made it an instrument controller. But everything else about it just made a general purpose computer and there was a lot of pulling and hollering about where is the market and who should we be selling this to? Particularly because the applications for an instrument controller were fairly few and the applications for a general purpose minicomputer were very, very large. Digital Equipment had just started up and the world was beginning to pay attention to what could be done with a minicomputer in a

computational sense. And so there was a lot of, kind of, marketing confusion about who we're trying to sell this thing to. Also at the same time, the way ... the instruments that we had could be controlled by a computer but it was pretty awkward and it was pretty slow. The instruments themselves were never really designed to be run under computer control, so they were adapted and the adaption was awkward, and it wasn't 'til probably 4 or 5 years later that new generations of instruments came on the market that could be better controlled and then probably, well, the record is there and the date that a whole new interface technique called the "Hewlett Packard Interface Bus" was invented that really facilitated the control of instruments by computers. So in those early days, it was pretty awkward. This was an awkward machine to use also. High level languages were just being invented and so you could address this computer, that is, give it instructions in a high level language but it was still pretty crude. It was done through a teletype machine, which was slow and awkward, although it had a printer built into it, and in many cases people who were familiar with the machine would program it in machine language and that was really something to behold, 'cuz it had 16 toggle switches—on/off toggle switches—on the front panel and you'd set these toggle switches for 16 ones and zeroes and then press a button and that would enter that particular word, so if you were a real aficionado, you could run this thing off the toggle switches! I remember watching engineers run it off the toggle switches, compared to running it off high level language or what you can do today. This was really crude!

KIRBY: Okay. Was the 2116 successful in the marketplace?

TERRY: Yeah, I think it was successful. As I recall, it got up to ... it was fairly expensive. It was \$15,000 or so, all loaded up. It was as big as a small size refrigerator, and we sold 50-60 a month of these things in a whole variety of applications, general purpose computations. So, yeah, I think it was successful. At least it felt successful as a start in a business that we didn't know a heckuva lot about but we were learning every day that went by.

KIRBY: That leads to my next question. Was it understood by HP managers that the 2116 was HP's first step in becoming a major player in the computer business or was it viewed as sort of an offbeat product?

TERRY: It was an offbeat product. It was viewed as a toy. You know, real men made instruments, particularly the microwave division, and others in the company just kinda scratched their head and wondered what the heck was going on in what looked like sort of a dead-end toy-like business. DEC had been started. They had a machine called the PDP-8, which was one of the first DEC minicomputers and they had a pretty good lead on HP. So we were not without competition, even on the low end of the so-called minicomputer business. Data General was started not too long after that. So there was some eastern powerhouses that were already making a name for themselves in this business and people were pretty skeptical about where this thing ought to lead us. Also the Dymec division, or PAD renamed, was not very profitable, if profitable at all. They were spending a lot of money on R&D and a fair amount of money on marketing, and so the other divisions would kind of look down their nose about these people who were using up a lot of money instead of contributing a lot of profits.

KIRBY: I'm reminded from this of, I think, a Packard comment to a reporter once that we should've gotten into the computer business earlier than we did, much earlier. Is that...?

TERRY: People may have felt that way or perhaps we, if not getting into it earlier, we should've put greater effort—management effort, people, money, marketing—you know, just a little more power behind our first two or three years in the business. We were pretty tentative. We had our feet in the water and that's where the Barney comment came, or shortly thereafter, about sneaking up on IBM without being noticed. So we were pretty tentative. Now, there were other things that were considered. Dave may have told this story of being interested in Digital Equipment as a potential acquisition. I don't ... Dave certainly didn't ask me about it but Dave

probably talked to some people here and then he went back to see Ken Olsen, who was the founder of Digital Equipment, in Maynard, Massachusetts. And I remember when he came back from that trip, I—it may have been at Christmas time—because this was down in a bar in Palo Alto that Dave showed up. We'd only had company meetings in bars at Christmas time and not any other time.

KIRBY: It was probably the day before Christmas.

TERRY: It might have been. And Dave came back and several of us knew that he'd been back. I don't remember Dave saying that particularly. I can imagine that. I think a lot of there talking to Ken Olsen and wondered how all that went, and Dave kinda gave us a report on what he'd learned and concluded by saying, "I don't think we should try and acquire Digital Equipment." And from the gist of his remarks, what happened was that he and Ken Olsen just didn't get along very well. I only met Ken Olsen once but he was a very different kind of character than Dave Packard, and I don't remember... I don't know that he really wanted to sell his company anyway. But it was one of these kinda personal chemistry things on an initial meeting. I mean, there was no financial analysis or discussion of price or anything like that. It was just a "getting to know you" kind of a meeting and it went and Dave didn't think that that really was a very good idea. So that was taken off the agenda.

KIRBY: When you say Ken Olsen was quite a different sort of a person, sort of in what ways?

TERRY: Oh, he was kind of, oh...

KIRBY: Egotistical?

TERRY: ...Yeah, a little self-centered, a little bombastic, talked a little bit too much. I believe he was an engineer. Well, he was a computer scientist more than an engineer, but it just didn't ... they didn't hit it off very well. Nothing happened. The computer business would've been very different if HP and DEC had gotten together in '65, '66 but it didn't happen.

KIRBY: That would account for DEC eventually had a whole bunch of Unix divisions and stuff, and I think they all reported to Ken Olsen.

TERRY: Yeah. I think...

KIRBY: It was incredible.

TERRY: ...There's a lot of stuff in the literature about how DEC to where they are today, which is not a very good position. But Ken Olsen hung onto the management of that company personally for a long, long time. He also had a very narrow, small dominated board of directors. He did not have a lot of outside people, so it was really clear he was making all the decisions. Now, in some ways, that served DEC very well because he stood on top of the pedestal and said, "We're going to have one compatible architecture." And they canceled a couple of computers that they had on the market, one called the PDP-10, and he said, "We're going to put all our effort behind (what became) the PDP-11 mid-range computer and then the VAX." And the fact that he was really running the place and telling everybody exactly what was going to happen, you know, contributed to DEC'S success 'cuz they put everything behind the VAX and it was a super successful product! But later on, he just didn't build a team. He just couldn't let loose and the changes that needed to be made...

KIRBY: Yeah, it's a double-edged sword, isn't it?

TERRY: Exactly. And he just couldn't let loose and changes didn't get made and he was making all the decisions and they got further and further behind.

KIRBY: Now, moving ahead here chronologically, in 1967 HP's annual report said the company had a sizable increase in its oscilloscope business. Contributing to this increase was a new high frequency oscilloscope. What was that all about?

TERRY: That's the 180. It was... that was the model number. It preceded ... it was about... I

guess I'd call it about the third generation of high frequency scope; the one before that was called the 175. It reasonably successful. But this was all solid state. It was portable, that is, it was relatively small—it weighed about 35 pounds. It was a 50 megahertz scope and different than Tektronix. It had a good sized screen on it; it had an 8 cm x 10 cm screen with other high frequency portable scopes and had a small screen about half that size. It was a plug-in scope; came in rack-mount and desktop styles. And it had a lot of real innovation in it and I've heard, I may have commented on it before, people at Tektronix who were working there years later said they were really shook up. This was certainly HP's best effort in high frequency oscilloscopes.

KIRBY: Okay. While you were at Colorado Springs, did any companies of any substance drop out of the oscilloscope business?

TERRY: Dumont had been struggling for years and they pretty well dropped out. Mostly HP, a little later Tektronix, kind of put the nail in their coffin through the development of low frequency scopes. We had several models—120, 130—low frequency scopes that were considerably better than Dumont's and I don't know the insides of Dumont but they just didn't respond competitively and they hung onto their old stuff, TV's, and eventually they went out of business. So that was one casualty.

KIRBY: On the other hand, did any new companies come into the business?

TERRY: No, they didn't. Oh, there were little ... there was a company called Lumatron, that came along with the sampling scopes, but nobody else really got into the general purpose oscilloscope business. They may have been a helluva lot smarter than Hewlett Packard about the Hewlettism about attacking a fortified hill!

KIRBY: That's right!

TERRY: Nobody else came along! And it was HP ... GenRad had made scopes years before Tektronix, and they had not followed it very vigorously but it was HP and Tektronix and there were some European manufacturers. I don't remember exactly who they were, Rhode-Schwarz may have made a scope at one time. And then in later years, there were some Japanese manufacturers of scopes, but they've never done very well. It's always been an HP-Tektronix battle.

KIRBY: Okay, in 1968, the company began restructuring its corporate organization into groups. The first to be formed was the electronic products group, which quickly became known as EPG, and John Young was named manager.

TERRY: Right!

KIRBY: As a manager whose division was to be included in EPG, were you consulted prior to the move or were you simply told about it later?

TERRY: I'm pretty sure I was told about it. No, I was not consulted. I may have known that there was...

KIRBY: That this was cooking?

TERRY: That this was cooking. I'm sure Ralph Lee probably kept me informed that something like this was cooking and was going to happen, and I didn't have much reaction one way or another about working John versus working for Ralph. You know, I was worried about Colorado Springs division and the sales force and Tektronix, and a bunch of other things, and it was kind of a "ho-hum", at least in Colorado Springs.

KIRBY: Yeah. And the reporting relationship really wasn't that sort of formal, was it?

TERRY: No, it really wasn't.

KIRBY: You told me earlier that Ralph Lee would come out and see you, and I guess then Young would come out occasionally?

TERRY: Well, that's EPG structure. My working for John didn't last very long, so I don't really remember having much of a relationship with John as the boss because other changes came along not too long after that. So I'm sure John did come out and I'm sure we probably wrestled over the budgets or the targets or something or other, but it was mostly Ralph that I remember in Colorado Springs.

KIRBY: You probably went through one division review with Young perhaps.

TERRY: Perhaps. I don't remember that. I ... we might have. In fact, it might've been that famous division review when I, as a visitor, went up to Loveland.

KIRBY: Bill, we were talking about division reviews. You mentioned that division review in Loveland that you went up to.

TERRY: Yeah, when we had division... when there was conference division reviews in Colorado, they were a day and a half or two days in each place with transportation in between by bus usually, and visitors would attend each other's reviews. That is, a few key people from Loveland would sit in on the review on the Springs and vice versa, and we did that so we could get to know what each other's divisions were doing but we also did that to get ideas on techniques of having division reviews. We were always looking for new ideas, whether it was a plant tour or whatever, so we had some people down in Loveland for our division review and then I went to Loveland and sat there for a day and a half to listen to the Loveland review.

KIRBY: While you were at Colorado Springs, I assume you became involved in some community activity. Do you remember what some of these were?

TERRY: Yeah, I got involved in the United Way. I was the campaign whatever they call it, leader, I think for the industrial section on the United Way campaign. I got involved in Junior Achievement. I remember vividly ... I guess I asked Mrs. Packard or Dave, one of the two, if they were interested in making a contribution to Junior Achievement. It may have been that we made a company contribution, and they found out about it and I'll never forget Mrs. Packard sent me—without my asking very much—a check for \$1,000 for Junior Achievement—big deal for Colorado Springs.

KIRBY: Yeah.

TERRY: I got involved with a local bank there; I was on the board of a local bank. That was really interesting. The Air Academy National Bank at the Air Force Academy, so I learned something about banking. And I got involved with WEMA—Western Electronic Manufacturers Association. They had a chapter in Colorado and we had meetings up in Denver and they wanted some representation from the southern part of the state so I got involved in WEMA, and I was on the Colorado Council as it was called for a number of years there.

KIRBY: When you came out here, let's continue with WEMA, you eventually ... didn't you become president one year? Chairman or whatever they called it?

TERRY: Yeah, I was the chairman in 1976 of the ... it was still the Western Electronic Manufacturers Association at the time. The AEA name came in 1978, I believe, two years after I was the chairman.

KIRBY: Okay.

TERRY: So I kinda went through the chairs. I was the chairman of San Francisco Council, and then the guy that was the chairman before me asked me to be the chairman, so I did that for a year and enjoyed that. It was kind of a lot of fun to meet a lot of industry people and that was the year that we decided, or there was a movement afoot by the members, board—the executive director, Ed Ferry—about expanding from the Western states nationally and there was a lot of debate about whether we should do that or not. And I remember, I was the chairman, and I was kinda refereeing the debate and I had my own feelings, and I decided

that maybe I'd go ask the founder. So I made an appointment to see Dave Packard in this office, in fact, and I told him what was going on and I solicited his advice on whether he thought this was a good idea or not. And he told me—I remember—he said, "Well, you know, if you can keep your basic principles in place"—which included a lot of executive involvement and a small staff—he said, "I think it's probably a reasonable thing to do. Electronics is getting to be a big industry and we probably could use a national-based instead of a west coast-based voice." And that influenced me, as you might imagine, 'cuz Dave was well-respected and I respected his ideas. So I went back to my board and I didn't use Packard's name at all. I simply said, "I think if we can keep our principles in place, we probably ought to do this." There was a guy on the board I'll never forget named Wilf Corrigan. He was a famous Silicon Valley character.

TERRY: He's the founder of LSI Logic, ex-Fairchild; he's a British guy and he stood up at a board meeting we had in Palm Springs and made an impassioned speech about why we shouldn't do this, and his main point was that we shouldn't allow in "eastern sludge".

KIRBY: Eastern sludge?

TERRY: That's what he called it: "eastern sludge."

KIRBY: That's what he called it?

TERRY: Yeah. He considered everybody east of the Mississippi to be sort of not good at all, and I think I knew what he meant by different characteristics of people but it wasn't a very good argument. His argument did not carry. I forget. We voted and it wasn't unanimous but it was a majority, a clear majority, of people on the board who wanted to really try and expand the association on a national scale.

KIRBY: Yeah, that's right.

TERRY: But I did have an interesting year as the chairman. We also wrote, I wrote, the first objectives for WEMA because, on the occasion of us expanding nationally, it looked like a good time to re-dust off the "Why are we in business?" principles. So we rewrote the objectives and made a number of changes in them. They still stand today.

KIRBY: Now, back at the Springs, as a division manager, your functional managers ... I'm curious. Did people sort of naturally get involved in community activities or did you, as a manager, have to encourage that?

TERRY: There was more encouraging than natural, and as a division manager, you were the one that usually got the request. Somebody would come along and say, because you were the boss and you were kind of known in the community, they'd come along and say, "You know, we really would like somebody from your company to sit on our hospital board, or humane society, or whatever, and could you make a recommendation of somebody?" And I'd think about who's involved in what. I had an inventory in my desk that I used to keep up about who was involved in what, beside the company, and I'd think about that and look at my inventory and then I'd call this person back, or I'd go talk to somebody and make a marriage, and that was the way it was. But it just needed a little bit of push and a little bit of communication. People were usually generous and flattered when they were asked to participate in something.

KIRBY: Did you include that in a performance evaluation?

TERRY: Yeah, I did. I did it in my own performance evaluations and then later on, in later years, I wrote some guidelines for performance of division managers throughout the company and that was one of the subsections of this was community involvement.

KIRBY: Okay. Yeah, because HP, perhaps more than most companies gets involved.

TERRY: Well, my theory, Dave, always was—and I think it's the correct one—that there's a



correlation between business performance and broad gauge people, and the people who could really do a good job at work were also those individuals who had a pretty balanced family life, had a wide range of interests. They had hobbies; they were in athletics, you know, and they were out in the community. And these broad gauge people were the ones who were the best managers at work.

KIRBY: While you were at Colorado, did your family increase in size? Did you have some children come along?

TERRY: Yeah, let me check. I have to think about that. My first daughter was born when I was in the Army in Oklahoma, and then my second daughter was born in Colorado Springs—Carol—and probably my first son. I think that's correct; yes. So, we went from one to three children.

KIRBY: Okay. And you were still married to Martha.

TERRY: I was married to Martha, right, and then our fourth child, son, I believe was born here in California when I moved back.

KIRBY: All right. Around Christmas of 1968, Dave Packard announced he was leaving HP to serve as Deputy Secretary of Defense in the Nixon Administration.

TERRY: Right.

KIRBY: How did you get the news and was this a complete surprise to you?

TERRY: It certainly... it was a complete surprise. That's for sure! And I don't exactly remember how we got the news. We had a PA system in the plant. I used to use the PA system, sometimes once a month, to give everybody kind of a report on operations. This was, I dunno, we had maybe five, six hundred people in the plant and I don't remember. It may be that we had a telephone hook-up into the PA system and the Hewlett made an announcement or Dave ... I believe Hewlett may have made an announcement over the PA system but the record would have to be checked on that. But it was a surprise. Nobody had really expected this.

KIRBY: I remember, I guess shortly thereafter, Bill gathered key managers for a meeting in Cupertino. Did you attend that meeting or was that, I guess, it was sort of a spur of the moment thing?

TERRY: I don't remember what the occasion of the meeting was. I don't remember...

KIRBY: He was gonna talk about Dave's departure.

TERRY: No, I don't ... I didn't attend that meeting.

KIRBY: You were not there?

TERRY: No, I did not... I was not there when... if memory serves me when he talked about that.

KIRBY: 'Cuz I understand he got quite emotional about it.

TERRY: I don't remember that.

KIRBY: Okay. What were your personal feelings about Dave's departure?

TERRY: Oh, I was a little disappointed. I mean, Dave was so clearly the boss at any given moment and it was not a slight to Bill Hewlett, but it was, you know, here's the major father figure and he isn't gonna be with us and there was, I remember, some questions and concerns about, you know, how long is he going to be gone? And what's gonna happen when he's gonna come back? And things like that but it was a slight amount of apprehension about not having Dave around, 'cuz again, he was such a strong guy.

KIRBY: Yeah. I guess your functional managers felt the same way, didn't they?

TERRY: I think everybody pretty much felt the same way. The farther you went into the organization, there was probably less concern about it, but those who had been there a while and were managers, knew what a role Dave played in the company and were wondering,

you know, is something really gonna change?

KIRBY: And of course, it happened so quickly, that Dave didn't have a chance to get on the phone or talk to individual managers.

TERRY: That's right and that's why Bill made the announcement. I guess that's not only the protocol but that's the way you have to do it in government service: once you've signed up for the job, you're signed up and you don't go back and make a lot of statements.

KIRBY: Yeah, yeah. How did the transition from Dave to Bill affect your reporting relationship? I guess it didn't.

TERRY: It didn't, really. Ralph was the boss and John Young just at the end, when the EPG was formed, but no, life went on and about the only thing that was changed when we'd have a division review, Bill was there and Dave wasn't. Otherwise, it was really working with Ralph and, you know, getting the 180 shipped and some of the things that we were doing at that time.

KIRBY: Yeah. How well did you know Hewlett, vis a vis Packard? I guess you knew him well?

TERRY: I knew him, you know. I knew them well as business associates; I didn't know them very well on a personal or social basis but I knew them equally because of just the day-to-day or week-to-week interaction of what was going on in this business. So there was really no difference there.

KIRBY: Let's pursue Packard at the Pentagon a little bit. You mentioned you had a few calls from him while he was there?

TERRY: I had one call that I'll never forget. Dave was in the Pentagon—I can't remember, not very long, probably six to eight months I would guess—the only news we'd get of him or about him was what we'd read in the newspaper. Mel Laird was the Secretary of Defense and Dave was the Deputy, and every once in a while we'd read something in the paper about Dave Packard doing this or that. Otherwise we knew nothing about what was going on. And one day the phone rang—I tend to remember phone calls!

KIRBY: [Laughs] Especially from him!

TERRY: The phone rang. Well, the voice came on and said, "Bill? This is Margaret Paull." And I said, "Hello, Margaret. How are you?" She says, "I am fine. I'm going to put Mr. Packard on." And I thought, "Holy, moly! What is this all about?!" And Dave came on and said, "Hi, Bill, how are you?" and so forth, and said, "I'm going to be out to Colorado Springs. I'm doing a review of the NORAD Hard Site (or some other big deal, Air Force thing), and I've got dinner available on Wednesday evening, and I wondered if you could get some of the gang together and we could have dinner and talk about old times and what's going on?" And I said, "Sure, Dave! I'm free. I'd be happy to get the gang together." Dave was staying at The Garden of the Gods Club, which was right near the plant, so it was very convenient and easy to find so about eight of us, or so, I think the whole functional staff, trooped up to The Garden of the Gods Club and we had a great dinner with Dave, and drank too much wine and I think we broke up about midnight and Dave was telling us stories about the Pentagon and we were telling him stories about the business and I think he was a little bit lonely for the ... what was going on in the Hewlett-Packard company and we just had a wonderful social evening.

KIRBY: Yeah. I think he was lonely. I was back in Washington once, and I just phoned Margaret to say hello and she said, "Hang on. I'll put Dave on." And he got on and he invited me out to lunch at the Pentagon and, you know, and he wanted to know about things. It was interesting. I think he wanted to respect the idea that he was no be too close to Hewlett-Packard.

TERRY: Oh, yeah, yeah. I know he was.

KIRBY: So we were walking to lunch in the dining room and ran into, I think, a couple of generals in

the hall and I was surprised—I guess I shouldn't have been—because these generals snapped to and were addressing Packard as "sir" and it was kinda fun!

TERRY: Yeah, right! He was always "Dave" to us!

KIRBY: And anyway, that's right, and he introduced me as "a friend from the west coast" rather than anything.

TERRY: Yeah, I know he was very sensitive about that. I don't remember anything specifically but we were selling scopes to the Navy and I know he didn't want to get into that at all in any way, shape or form. And we didn't. We just talked about R&D and ideas and markets and stuff like that. I'll remember the time of year: it was wintertime because there was a little bit of snow on the ground. It didn't snow much in Colorado Springs but one of my associates, after we left the dinner, probably had a few too many glasses of wine and hit a piece of ice going away from The Garden of the Gods Club and totaled his company car!

KIRBY: Oh, no!

TERRY: Wally Klingman.

KIRBY: That meant more excitement!

TERRY: Yeah, right! Well, as I said, that's why it sticks in my mind. I knew it was wintertime.

KIRBY: This leads to my next question. While he was at the Pentagon, Packard was careful not to show any favoritism to HP, for example, in ordering defense contracts and so forth. Can you tell us how this affected our business?

TERRY: No, it didn't affect it in any way. Dave's involvement one way... or I can tell you one story that bears on this, but no, it didn't affect us in any way. We sold our products as catalog products through GSA—General Service Administration—schedules at established prices and just went on. People bought 'em out of the catalog, essentially. And then the other pieces of business we had were very highly regulated, open, competitive bids. So we didn't have any negotiated contracts. We had competitive bids and the guy with the best price got the business, and there was no influencing one way or another. I did happen to be in a General Electric plant in Pennsylvania that had a missile contract. I think it might have been the Navaho missile, which was one of the first missile, air-breathing missiles, or I could be mistaken. But anyway, they had a big defense contract and they were working on this and I was in there with some sales people making a presentation and a voice came on the PA system that said, "Attention, all hands. Here is an important announcement." And the manager of the plant came on the PA system and we all stopped our demonstration, and said their contract had just been canceled by Deputy Secretary of Defense David Packard, and of course, the whole plant went berserk 'cuz they were all going to get laid off!

KIRBY: Oh, boy!

TERRY: And the fact that our panel said "Hewlett-Packard" on it was slightly embarrassing at that point! So we folded up our gear and that was the end of the demonstration.

KIRBY: That's pretty funny! That reminds me. When you were at Colorado Springs, NORAD was right there, wasn't it?

TERRY: Yeah, the NORAD Hard Site. It had been there for some time.

KIRBY: Did you ... I think you were telling me once you got a tour?

TERRY: Yeah, I visited the NORAD...

KIRBY: The tours weren't very frequent, were they?

TERRY: Well, no. This was a highly ... there were no public tours and this was a pretty high security place, so you had a security clearance and...

KIRBY: What did NORAD stand for?

TERRY: North American Air Defense Command. This was the control center built into the side of Cheyenne Mountain, in a giant cave, and inside this giant cave were these 3-story steel buildings, suspended on springs and then this huge computer center. And this is where they're gathering all the information from the radars in Alaska and Greenland, and brought to this point, and then made certain decisions and sent the data in various directions to the SAC, Strategic Air Command. But, yeah, I had a really interesting tour of that place as a kind of a community person and I also was invited by the Air Force as a guest for a week, I believe it was, to go to—I'll have to think of the name of it—it was a spec... this was Air Force public relations. They invited people to go to an air force base in Selma, Alabama for a week—National Security Forum, it was called—and this was Air Force PR. They were trying to make their case and I spent a really interesting 4 or 5 days at this thing, hearing a whole bunch of wonderful presentations. Dean Acheson made a presentation I'll never forget.

KIRBY: Oh, you told me that!

TERRY: I told you about that one. That was really dramatic! And a bunch of ... I don't remember that Curtis LeMay was there, but a bunch of big wheels in the Air Force and in the government about, you know, just informing community leaders about what's going on in the world and the Air Force. But the Air Force had a good PR program. They would invite me to a football game once in a while or a tour of the facilities or so forth. They were ... Air Force were really good citizens of Colorado Springs!

KIRBY: Now, shortly after he became CEO, Hewlett told managers—I forget his exact words—but that he wanted the company to have a more professional management. Among other things, I guess he wanted to put more value on people who had gone to business school, sort of. Do you remember this, and if so, what did you think about it?

TERRY: No, not really. I vaguely remember statements about professional management. I do remember an occasion. Bill was on the Chrysler board, and it would be just about at this time. Bill called us ... I was back here in California, so it would be a little after the Colorado Springs experience. Bill called a group of us—John Young and I, and a couple of others—into his office and well, he was really asking rather than promoting what we thought about a bonus program for managers. The automobile industry—and Chrysler especially, I guess—had, and still has, a propensity to pay very high bonuses and so when the business does well, the key managers make a big amount of money and when it doesn't, they don't do well at all. And so we talked about that for a while. We didn't do much research or send anybody off or establish a task force. We just talked about it in Hewlett's office, and we decided that we really didn't ... or our recommendation to Bill was that we shouldn't do that because of the inter-connectivity of the company at the time. The divisions were very dependent upon each other. We'd had, and continued to have for years, arguments about inter-company pricing. But those arguments kinda ... they went away after a while and we felt that if we put individual bonus schemes into divisions tied to their profits that we would really thwart this cooperation that we had between the divisions. And that included promoting people between divisions, and if we had these bonus schemes, we'd have a bunch of real islands of isolation, and hostility and that we just couldn't see the gain but we could sure see a lot of the pain. So it didn't ... Bill, again, was not promoting this. He was simply asking and we decided not to do this.

KIRBY: And how would you possibly referee something like that?

TERRY: Oh, you'd have a heck of a problem on your hand! It would make the inter-company pricing problem just a gigantic argument if your income was dependent upon it! And when you called me up and wanted to know if you could talk to my engineering manager about getting promoted, I would say, "No way, no how!! Go away!" And so we didn't do that and we still haven't done it today.

KIRBY: Now, over the years, Bill Hewlett has been quite candid in his assessment of his management ability vis a vis Packard. He has said or at least clearly indicated that Dave is a superb leader and a better all-around manager than he is. I assume you agree with this...

TERRY: Well, I don't...

KIRBY: ...and if so, how strongly?

TERRY: I don't agree with it very strongly. People are people. I think Dave ... Dave, just by intellect and personality, is a strong guy. He's a passionate guy. He's a guy will put up with mistakes. I remember bidding on a military contract in Colorado Springs, where we were the low bidder but we left a lot of money on the table, and I felt fairly badly about it, and Dave told me—I recall he put his arm around my shoulder and he said—"Look, don't worry about it. Everybody makes a few mistakes. Just get on with it and make sure you make some money on this thing." That's all. I think maybe Dave is a more charismatic leader than Bill. Bill is a pretty darn good manager, also. Bill is a very intellectual kind of a person. Bill is a very smart person and he understands about management and human psychology. They're both equally good communicators, Dave perhaps a little better than Bill, but they're both pretty dam good at it. But complementary strengths and one thing about Bill and Dave that you've heard before, I think, is that when you get 'em together, there was very little question about Dave being the leader. I mean, he kinda ran the meeting, he sorts pushed the points but he would always, always, bring Bill along with him. He would never do anything without making sure Bill agreed with it. He'd stop and pause a minute and turn to Bill and say, "Bill, do you think we're going in the right direction here?" And many times, Bill would kinda laugh and say, "Pappy, you got the ball!" or something like that. But he was always very, very sensitive about things like that. I saw him do that once in Japan, also. We were having a meeting to try and determine whether we ought to build a building for Yokogawa, our joint venture with HP, and I don't remember that Bill was here on this occasion but Shozo Yokogawa was and Dave was running the meeting and he was going along at 60 miles an hour and it came time to kinda put the lid on the decision and Dave turned to Shozo Yokogawa and said, "Shozo, now, you haven't said much here. I want to make sure that you agree that we're on the right track and so forth." So even though HP had a controlling interest—51%—Dave was very sensitive to the fact that somebody else was also involved, Shozo Yokogawa, and I'll always remember that, 'cuz that was a part of Dave's sensitivity. It would be real easy to just go blasting ahead and saying, "Look, we're going to do this."

KIRBY: Yeah, and I've heard on the HP board, I heard the story once—I forget what the subject was—but Dave went on about a program, speaking very positively about it, and then he asked Van Bronkhorst at the meeting about it and Van thought it was a bad idea, and Dave said, "Well, then, we're not going to do it."

TERRY: I vaguely remember that but I remember meetings where Bill would speak up. Dave was rolling along and Bill would speak up and Bill would essentially say, "Look, I don't think this is right. I think we're going in the wrong direction here." And Bill was not bashful, and Dave would ... Dave would sorta start the beginnings of an argument but go no farther and if it didn't get resolved, there would be no, you know, throwing down the gauntlet. Bill and Dave would come off in their offices and Bill and Dave would talk it out, but not in front of us, and then later on, we'd decide the way we were going.

TERRY: When I was in the computer business, I remember a meeting in the board room, right over here in Palo Alto, and this was the occasion of the siting of the plant in Grenoble—I was involved in this plant in Grenoble. We had plants in Germany and the UK, and France was a big country and a big market, and this ... and we needed expansion room, computer business, and France looked like a good place. So there had been a task force going around looking at sites. I was not part of that task force. But they came to a conclusion that Grenoble

looked like the best place to site a plant, and I went over there—made a couple of trips—and did all the kind of the investigation and came back and we had a meeting in the board room, and I made the case that Grenoble was the best place to build a plant. And people listened politely and asked questions, and I think it was Hewlett that said, "Well, this sounds fine and Terry's gonna be running this plant, and this plant's gonna be part of data products. It's gonna be a computer plant." And Packard interjected and said, "Wait a minute. This is not going to be a computer plant. This is going to be a Hewlett-Packard plant! We're going to make anything there that we think ought to be made! It's not Terry's plant; it's a Hewlett-Packard plant. It's not Terry's computer plant!" So, you know, I kinda listened to all this and shook my head, and the meeting broke up and I got Frank Covier—I happened to walk out. I saw Frank and I said, "Frank, I was a little confused there. Bill said one thing and Dave said another." Frank says...

KIRBY: How did it wind up?

TERRY: Frank says, "In my experience, you probably should be listening to what Dave says." So it wasn't too long after we started the Grenoble plant that we were making something other than computers. And Dave was right: we shouldn't be narrow and insular in our view, particularly at a start-up.

KIRBY: Yeah, yeah. Some HP managers felt there was kind of a noticeable fall off in the leadership of the company while Dave was away in Washington. Would you agree with that?

TERRY: I, in a way, just a kind of a vacuum. I mean, it had nothing to do with Bill or what was going on but here was this kind of charismatic, very visible, sometimes outspoken leader who was always clearly the boss and all of a sudden, he wasn't there! I mean, it was one day he was there, and the next day, he wasn't. So, I think there was kind of a vacuum and I imagine, you know, anything that went wrong, it was an order you lost or almost anything that went wrong, you could probably blame it on the fact that Dave wasn't there. But it was more psychological than it was anything else.

KIRBY: I think ... I'm just kind of musing here about this. I think corporate staff people, I think, may have had this feeling because Dave Packard had an unusual way of knowing what your job was and what the problems were, and when you went in and talked to him, you didn't have to explain a lot.

TERRY: Exactly.