PC Software Workshop: Database and Utilities

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PC Software: Data Base and Utilities Workshop

Conducted by Software History Center—Oral History Project

Abstract: A group of historians and software pioneers recalls the foundations of the database and utilities segment of the PC software industry. In a round-table discussion at the Computer History Museum as part of the PC Software Meeting held on November 19, 2004, they explore the original ideas, the funding, technical challenges, personalities, and evolution of companies with database and utilities products.

Participants:

Name	Affiliation
Ed Bride	Software News
Glenn Bugos	Historian
Tom Byers	Digital Research, Symentec
Matthew Mahoney	Princeton University, historian
Denis Coleman	C&E Software, Symantec
Chris Edmondson	University of Texas
Ed Esber	Personal Software, Ashton-Tate
Burt Grad	IBM, Burton Grad Associates, Inc.
Gary Hendrix	SRI, Symantec
Len Shustek	Computer History Museum
Dag Spicer	Computer History Museum
Brett Walter	Symantec
Jeff Yost	Charles Babbage Institute, historian

Introductions

Ed Bride: Please talk about who you were then, and who you are now, and about things that were on your mind since this whole process started. The period in question here is in 1981;

that's when I became founding editor of *Software News*, which became *Software Magazine,* and I was there until 1991. Since then, I've been doing public relations for software companies.

Tom Byers: I'm currently a professor at Stanford University and I teach entrepreneurship. I graduated from Berkeley in 1981; from 1982 until 1985 I worked at Digital Research, and then at Symantec for a time.

Denis Coleman: I'm president of a biotech startup two days a week, and the rest of the time I do angel investments. I got started in microcomputer software in very late 1979 and did the first spelling-check product on microcomputers, Spellguard; I marketed it in 1980 and 1981 before I sold it to Digital Research. Then, as a consultant, I did a product for Digital Research—Tom Byers marketed it—called Spelling Manager. When Gordon Eubanks left Digital Research, he put in $100,000, I put in that product, and we started C&E Software that later I bought or merged with Symantec, depending on how you look at things. Symantec was the surviving company name, and C&E Software was the surviving stock. I stayed there for five years, until 1988.

Brett Walter: Currently, I'm starting a new company. After having done the venture route for a number of years, I'm going to attempt a bootstrap. I'm here today because of my early work at Symantec Corporation. I was hired by Gary Hendrix in 1982 when Symantec was very young. Ultimately, I worked with Gary and Denis [Coleman] and Tom [Byers] on the creation of Symantec's flagship product, Q&A.

Gary Hendrix: Way back when, after I'd finished graduate school, I went to SRI International and learned about artificial intelligence. I was at SRI for about eight years. When it started looking like artificial intelligence might actually be useful for something, I decided to start a company to do something with it. The name *Symantec* comes from *Symantec Technology*, which was really an artificial intelligence thing at the time—it's evolved into a utility and security company, but that certainly wasn't the way it started out. It was a long route getting to Symantec. Along the way, there was Machine Intelligence Corporation that with a grant from the National Science Foundation—to do natural language work—evolved into a spinout from Machine Intelligence, which was the original Symantec Corporation. After some venture capital rounds, some great demos, and some failed products, we linked up with C&E Software and eventually got the right team of people together, who could actually deliver a product with some of this whiz-bang technology in it. I stayed with Symantec until 1991. I tried to retire to Texas, got "antsy," and got involved in some angel investments and some other companies and various ventures, most of which did not do very well.

Jeff Yost: I'm the associate director of the Charles Babbage Institute. We've been around for about 25 years collecting primary sources and providing access to them in the history of computing software and networking. I'm a historian of science and technology, and focus on the history of computing and software.

Dag Spicer: I'm senior curator here at the Computer History Museum.

Glenn Bugos: I concentrate on the history of technology innovation.

Chris Edmondson: I'm a science professor at the University of Texas at Austin and, this semester, I am a visiting fellow at the University of Southern California, doing Internet history research from a technical perspective. Right now I am looking at the designs of early days of TCP.

Ed Esber: In the mid- to late 1970s, I introduced IBM to Motorola and Intel microprocessors and was commissioned by management to put together their first design course in microprocessors. I was the third shareholder of Personal Software, which became VisiCorp, the publisher of VisiCalc. My job was to market and sell VisiCalc, and we made it a standard at the time. I left VisiCorp in 1983, joined Ashton-Tate in 1984 and ran it as CEO from about 1985 through 1990. Since then, I've done some venture capital work helping turn around companies. Formally, I'm a member of the Angels Forum, which funds startup companies, so I do that—helping the next generation of entrepreneurs build their companies, and I also sit on a number of public, private and charitable boards.

Michael Mahoney: I'm a historian of science and technology, Princeton University. My acquaintance with computers goes back to 1959, when I decided that computers were difficult to work with, not very interesting, and weren't going anywhere. I'm most interested in the development and disciplines of computing: in particular, theoretical computer science.

Len Shustek: I wrote my first computer program in 1963. I've had a career in university teaching and startup companies, but I'm here primarily because I'm chairman of the Computer History Museum's board of trustees and I believe in preserving this information.

Foundations

Bride: There are a couple of questions I think history would like to know. The first one is, what was on your mind when you started? Gary, did you envision a product that would change the way people work? Was it a chance to make money in an interesting industry, or what was on your mind when you really got started?

Hendrix: It was a combination of things. When I started at SRI, artificial intelligence was just a theoretical pursuit and there was no practical application for it at all—it didn't look like there was ever going to be one, really. It was just a research frontier. But over five or six years, some good things began to happen and it began to look like there would be ways to exploit it commercially. So, partly I didn't want somebody else to go out and make a lot of money and fame from taking this technology that I'd been involved with—I wanted to be a part of that, too,

and I think I had much more of a burning desire to do something with the AI technology than other people involved in that area at the time.

At the same time, microcomputers were coming in and people actually had “home brewed” computers and were buying equipment. A few people at SRI were building machines to have in their house, which seemed just ridiculous to me. Their vision was that a lot of folks would begin to have these at home, or people with much smaller companies could afford to buy a computer.

I was concentrating a lot of my effort on getting computers to understand English, so that people in the military, outside of the programmers, could use them. In that era, if you wanted to communicate with a computer, there was a blank screen and, if you were lucky, it had a dot on it to tell you to type something in. The only people who could really interact with them were folks who knew how to express some kind of a formal query or do programming. Computers weren’t accessible by other folks. So, one school of thought was that we could use English to open these computers up to people. You could type a question or tell the computer what you wanted in English and get an answer back from it.

While I was pursuing that, it dawned on me one day that at SRI we were working to make that kind of technology available to the military, which could afford to have the specialists, but the people who really needed the technology were the ones who had these little machines. The question was: how could you get access to these little computers without something like a natural language interface? We never thought of GUIs or smart menu systems—somebody else ultimately came up with that being the winner. So I thought about how we could make this happen and, about the same time, a friend loaned me an Apple II. We tried to see if some of the algorithms that had worked on SRI’s mainframe computers could be boiled down and made to work on the small machines. There was a glimmer of hope that this could happen.

Others at SRI, in different areas of artificial intelligence, all thought that it could be commercialized, so we ended up having a bunch of scientists sitting around my house on Tuesday nights, eating popcorn and drinking beer and trying to think about how we might augment our incomes a little by coming up with some kind of product, then selling the idea to an outfit that would commercialize it. Over time, we recognized that we’d probably have to be the ones who commercialized it in order to transfer the technology. Then my wife became pregnant with our first child, and she drove us out of the house because one of the group’s main ringleaders was Charlie Rosen, the guy who started the artificial intelligence center. He was a chain smoker and she was sure that the smoking would ruin our baby’s health, so we left and moved our Tuesday night meetings over to Charlie’s house where, because he’d started Ridge Vineyards, Charlie also happened to have this great wine cellar. Consequently, fueled with Charlie’s wine, we became much more emboldened: we got ourselves incorporated. Then Charlie reached retirement age at SRI, went off and started Machine Intelligence Corporation, which got the ball rolling on trying to do something with artificial intelligence.

One night, Charlie told us he'd received a flyer from the National Science Foundation about a new program called Small Business Innovative Research Program that had grants for $25,000 for small companies wanting to try some kind of research. He encouraged me to write a proposal about natural language processing to see if we could get a grant. I did it, along with Earl Sacerdoti, and our proposal got funded—that $25,000 was really the beginning of Symantec, because that created a project within Machine Intelligence Corporation. When we later got follow-on funding of $250,000, I left SRI to work for Machine Intelligence Corporation. The project was focused on using natural language to enable people to talk to microcomputers, and that eventually spun out as its own company and evolved into Q&A, which became Symantec's flagship product.

Bride: That's a good foundation for further discussion. I want to go to the other companies, too, and, Tom, you can speak to that—take us back as far as you can.

Byers: Digital Research Inc. was many different things. In 1982, I joined DRI as a product manager. I was a precocious kid and involved in the languages group from the get-go, working for Gordon Eubanks. The languages, and also the GUI, were exciting businesses to be involved in from 1982 to 1985. Digital Research was trying to put together a family of languages—I'm talking compilers, tools, and things like that—like the display manager Denis created. Microsoft was also putting together a family**—t**here were three companies trying to put together product families. The main operating environment was DOS, which was clearly going to be a large market. Nobody had more than 50% market share, but it was a vibrant business. It was way under the radar because it wasn't flashy—it wasn't going to make the buzz meter because there were a lot of other exciting things going on like Lotus and natural language processing.

Coleman: There wasn't such a thing as a reliable compiler then.

Byers: There wasn't, but we were making money at it. Out of Digital Research's $45 million, supposedly, in 1984, a decent chunk of it was from language.

DOS *vs.* CP/M *vs.* the GUIs

Burt Grad: Did DRI push CP/M at that point to the 1985 period, or had they basically accepted that MS/DOS was going to become the dominant operating system?

Byers: There was a group at DRI that I was not associated with—in fact, we were the pirates. That group wasn't going to give up on CP/M, but that wasn't where I played. In my group we were pirates because we created a graphical user interface product that would compete with Microsoft Windows, and IBM TopView—I think that was character based, though.

Coleman: Yes.

Byers: And then VisiCorp's VisiOn. Was that character based?

Esber: No, that was graphics based.

Byers: Okay. So there was Windows, TopView, and VisiOn. Digital Research had the Graphical Environment Manager, or GEM, and we were going to duke it out with Microsoft Windows at Comdex 1984. It was a race: Who was going to bring that Macintosh look and feel to the market? At DRI we were saying we're going to do this first for DOS. I was the product manager, pushing; just doing my job. But it was all a lot of fun. Lee Lorenzen and Don Heiskell deserve all the credit; they created GEM. Anyway, our group was almost an independent software vendor within DRI, trying to make our own decisions. We did the same thing with languages. We reigned in all environments. That was sort of accepted but, because GUI was so important, it really upset DRI's senior management team that we were planning to run this thing on DOS.

Coleman: Well, Gordon Eubanks left Digital Research in 1983 because he wanted to do a better DOS. He saw that CP/M-86 just couldn't compete. There was a big blowup in management, and he left on that account.

Byers: Our product at DRI was very simple—it was just one window, a single-tasking type environment. It was trying to be a low-end version so I thought that was pretty good, but we never won.

Bride: Your perspective, Ed, from that time, dealing with the companies who were changing these platforms must have been interesting. Can you cast any light on that?

Esber: It was clear to me when I saw VisiCalc that a company could be born on it. So if you asked what really attracted me into a company in this period, it was that. Obviously, I worked for IBM before that and a few other companies because, back then, when you were interested in computers, you were called a nerd and that was derogatory. Now it's kind of a celebrated term here in the Valley. So, fast forward to this timeframe: VisiCorp, obviously, was spreading out its product line and had the first office suite of products. At that time, Mitch Kapor was running part of the company, I was running part of the company, and we both reported to Dan Fylstra.

There are some inaccurate myths in the industry, one of which is that one of the reasons Lotus 1-2-3 took off was that VisiCorp didn't bring out VisiCalc for the IBM PC—which was completely false. We had a contract with them; we actually delivered VisiCalc three days before the PC was to ship to IBM. But, getting to the graphical user interface days: We embarked on a project that

took a fair amount of our R&D to build a GUI for the DOS environment, for the IBM PC standard. To some degree, like many pioneers in the Valley where the pioneer is dead on the ground with an arrow in his back, I think our user interface was very good but we were trying to do it on a machine on which, as you'll remember, the memory wasn't much before disk drives started to come out.

The interfaces that came from non-Microsoft players for the PC environment were actually pretty good and ahead of their time; the first couple of versions of Windows, of course, weren't good at all. But Microsoft was good at getting out its message and was able to utilize some of IBM's techniques of fear, uncertainty, and doubt by pre-announcing things. I think what Digital Research was doing and what VisiCorp was doing put the fear of God into Bill [Gates] and Microsoft, about where the industry was going. A whole book could probably be written about all the discussions between companies about various combinations—there was a time when DRI and VisiCorp were going to merge.

Byers: Yes, within a day, because I came to work one day thinking we were merged.

Esber: That discussion occurred in the 1983–1985 time frame.

Bride: 1983.

Grad: Does anybody know why it didn't happen?

Esber: I'll speculate. It might have had something to do with the personalities of Fylstra and [Terry] Opdendyk on our side, Rowley and Gordon on the other side, and Gary. Certainly, in that group of people, there was no shortage of large egos, and putting a combination together like that would upset some of the balances. At VisiCorp, at the time, people were buying stock privately—around 1983 and 1984—for as much as $18 a share. People were anticipating a VisiCorp IPO, and maybe one of the things on the tombstone of VisiCorp might be that they did not take advantage of that and go public at the time.

There was a lot of misleading information, fast forwarding from this time to when I was at Ashton-Tate. I vividly remember a meeting at Comdex in Las Vegas where Bill Gates was looking at us saying, you know, the time is ripe for Presentation Manager and you could sort-of see the grin on Bill's face while saying the words. We knew he didn't mean it and, so, again, another one of those false myths in the industry was that somehow all the companies but Microsoft didn't see the wisdom of supporting Windows. Part of that situation resulted because we were being beat up by IBM and Microsoft to support Presentation Manager. A lot of us had a fair amount of our R&D dollars allocated to that.

Coleman: The bitmap user interface doesn't make sense unless the user has a mouse. None of them had mice so it was very hard to make money selling software on platforms that didn't exist.

Esber: That's true, but we all knew it was coming. The issue was when you made the R&D bets, what bets you made, and when your products were going to come out.

Byers: I've got a little story just to highlight what it was like to compete with Microsoft early on. We had designed GEM to be low-end, very compact, single task, and so on. We thought the perfect thing would be to run down to Boca Raton and get this right back in step with IBM, and show a PC junior, which was struggling, just kicking the Mac 128K's butt. We flew down there with PC-DOS with GEM, with a paint program, with a Word processor—it was brilliant. Faster, smaller footprint, than the Mac, code-wise. So we demo'd the PC Junior in GEM and it was the most amazing demo you would ever believe. We said we can ship this by Comdex and said it's going to resurrect the Junior. So after meeting with them for three hours—just to show you how out of touch we were with that firm from a sales standpoint—this fellow from IBM stands up and says, "Thank you very much. We just cancelled the Junior last night." And we just got up and left. We didn't have any market intelligence at all back then.

Esber: There was a lot of disbelief about the ability to deliver your graphical user interface at that time. There were rumors in the press, quite frankly, that we were really running VisiOn on a VAX. And, of course, Portia Isaacson actually flew out and kind-of looked around behind the scenes at Comdex to make sure there weren't some kind of thick wires hooked up to a VAX.

Byers: That was a rumor. We were so proud of that build, but we were so out of step with market intelligence.

Mahoney: They knew what you were coming to do.

Byers: Yes, they were just being polite, you know? We were so crazy not to know that. We had worked so hard on that thing—we felt this was the game-changer that was going to get DRI back in synch with IBM.

Esber: When you write the history of the DOS versus CP/M decision, you should not ignore the influence of Bill Gates' mother. I've only seen it in one book, but Gates' mother and the CEO of IBM at the time were both co-chairs, or something, of the national United Way campaign, so we all know what our image was of IBM. Burt probably knows the CMC meetings where all the upper levels of management were in there, along with a group from Microsoft, with their scruffy beards and everything else. It's antithetical to think that IBM would make a big bet on this band of people. Not disparaging their competence, not disparaging their code, but you

can just imagine the CEO of IBM at the time saying, “Oh, yeah, that’s Mary’s son, you know; I know Mary from United Way.” So these little things had a big impact on the industry.

Mahoney: Were you there when the decision was made to develop GEM for the Atari 540 platform and the1040?

Byers: Yes. Atari was going to create a Mac-like product, a proprietary operating system. Jack Trammel came in to Atari to do that product; he was going to turn Atari around and create the next Apple. So, after it was pretty clear that we weren’t going to get back in synch with IBM, I guess that was the way to go. The person who deserves all the credit for GEM is Lee Lorenzen from a technical standpoint. That’s around the time, early 1985, that I had the pleasure of jumping on with these folks and helping get into the utilities business. That was my job and they were working on the new product that Gary talked about.

Coleman: A little endnote here about the Atari. We went over and met with them, and I remember seeing what looked like a purple Rolls Royce in the parking lot. When we went into the building, the place was like a garbage dump: everything was in the corridor. And I thought, what the heck were we doing there? While we waited for the person we were meeting with, we’d see elastics or spit balls and paper clips getting fired out of a door across the room and the guy’s secretary would have to duck. It turned out that the person we were going to meet with was the guy who’d been sitting there firing things at his secretary across the room.

Funding Issues and Opportunities

Bride: Let’s talk a little bit about how easy or difficult it was to get money for these companies with these great concepts. Brett, could you talk about that demo?

Walter: Sure. When Gary [Hendrix] started the company [Symantec], he hired a team of PhD researchers. He and that team had put together what I call the demo that launched 1,000 ships. It was a software program they had written in the USC Pascal system on an Apple II. You’d sit down in front of the computer and Gary would demo this program brilliantly. There was a script that we all learned—I was the product manager at the time—and we all had to follow. If we missed by a semicolon, the thing would blow up. But the script essentially was a dialogue that we had with the computer.

> We’d begin the script by typing “Fido is a dog” and pressing the Enter key.
>
> The prompt would come back: “What’s a dog?”
>
> We’d type: “A dog is an animal.”
>
> The computer: “What’s an animal?”

We'd type: "An animal is a thing."

The computer: "Okay."

Then we'd type: "Fifi is a cat."

The computer: "What's a cat?"

We'd type: "A cat is an animal."

The computer: "Okay."

And then we'd type in: "Fido weighs 15 pounds."

The program's response for that had to do with capturing the information that a pound was an attribute of weight or something like that. We'd answer that question, the program would say, "Okay," and we'd say, "Fifi weighs 10 pounds." "Okay."

Then we'd type, "What is the average weight of the animals?" And the program answered "12 and a half pounds" or whatever it was. At that point, people would be reaching for their wallets. The venture capitalists competed to invest in this company; ultimately, a client of Kleiner Perkins did put a lot of money into it.

I think the reason that all those people perceived this program as very exciting was that it gave the impression you could model a database application with a simple declarative English statement in the dialogue. Up until that point, modeling any kind of a database application required significant expertise. The program created the impression that you could do something very meaningful simply in a dialogue with a computer. That demo, plus Gary's credentials, basically illustrated that here was a technology that really worked. Gary was a world-respected leader in natural language processing, and artificial intelligence had just burst onto the scene in the early 1980s, and that was what all the venture capitalists were investing in at that time. Gary and his researchers were looking for a commercial application in 1981 and 1982, and they thought they'd found it with this.

Products, Platforms, Personalities

Bride: Sooner or later, companies often change their product profile, their positioning—both, in the case of Symantec. Let's go back to languages now that we've talked about the platform issue. There were languages, and then Symantec moved from that to the utilities. How did those decisions get made? Talk about the dynamics.

Coleman: These companies take on the personality of their CEO. They all have strong personalities. At Symantec, Gordon came to me and said, "Denis, we've got to get into applications," because he thought they were the big area of growth, not languages. He said,

“These public companies are trading at 15- or 20-to-1 P/Es, and private companies at 5-to-1 P/Es, so we’ve got to get in there and start acquiring, and then we can really get a big company.” But to do that he needed a cash cow and product, which turned out to be Q&A.

Walter: That came two or three years after Symantec started, before it was acquired by C&E, and was the first attempt by Symantec to create a commercial application. Fundamentally, what happened is that the company and the technical team failed to make it work. Can you imagine a computer doing that even today? You can’t. Not yet, that I know of—this was extremely ambitious. And the technical team at the time really wasn’t able to get much beyond the concept stage and the demo stage. As a company, we had failed, really, to deliver the product. At that point, Gordon was out there with Denis working on an acquisition strategy, and we were here with some really neat technology and really bright people. The product that came out was a database—an integrated database and word processor called Q&A; but it had a natural-language front end on the database. And it was very successful in the early 1980s.

Coleman: We were also on the ropes at Symantec. Many times.

Walter: One of the things I’ve learned, and I’ve been involved in raising a lot of venture capital, is that people don’t invest in reality, because reality is ugly and messy and never what you want it to be. They invest in dreams. And Gary’s initial demo captured that beautifully.

Hendrix: The key was trying to get the right people together, and in a frame of mind to cooperate, especially with really advanced technology, like artificial intelligence, and make it run on small machines because they were completely different cultures. There was the PhD culture I grew up with and had been around at SRI, and then there were these scrappy guys like Coleman over here. We didn’t have much respect for each other at the beginning, but, fortunately, because we’d each had trouble with our ventures, there was a meeting of the minds that we needed each other. We managed to find a way to work together, despite the natural tension.

Byers: What’s fascinating was each of the major software companies had a different personality. Lotus was different from VisiCorp, which was different from Microsoft, and it was pretty amazing how we took on these styles.

Bride: In the case of both VisiCorp and Ashton-Tate, it doesn’t seem that there were those kinds of convulsions in the product set.

Esber: Maybe they just weren’t visible.

Bride: Let’s talk about that a little bit.

Esber: I'll also answer the original question about funding. In VisiCorp's case, we raised $540,000 some time in 1980, and a quarter million from Venrock in New York, and a quarter million from Arthur Rock, who funded Apple. Also, Ben Rosen was allowed to invest some personal money, maybe $40,000. In Ashton-Tate's case, they never took venture capital. Hal Ashley and George Tate, both founders, had a collection of several companies, some in software distribution, and that was enough to fund Ashton-Tate in the early days.

In terms of product convulsions: VisiCorp actually started out in game software. It was clear that, once we saw VisiCalc and were going to publish that, we had started shifting quite a bit into the productivity software areas. But you probably don't remember silly things we did like the Vit-a-fact series, like a health series of cassette software and a whole bunch of other diversions that wouldn't sell. Once we got to VisiCalc, we started doing Visi everything. VisiText, VisiPlot, VisiTrend. VisiPlot and VisiTrend came from Mitch Kapor, who was one of the authors. The model in those days was that you were the publisher, the authors were in other companies, and you paid them royalties.

Yost: Like books, more or less.

Esber: Yes, like books. Then we started spreading out our products to other platforms, because it wasn't down to two platforms, almost like it is today.

Coleman: You had a crushing royalty on VisiCalc, didn't you?

Esber: Yes. They started to write the history of Software Arts and VisiCalc and so on at the last Software History Center PC Software meeting [*May 2004 in Needham, Massachusetts*.], and one of the bones of contention was the royalty rate. The royalty rate was 35.7% of anything we sold at retail. On OEM deals, and some of our VisiCalc deals were OEM deals where the computer manufacturer would sell it, the royalty was 50%. It was a rather high royalty to make a company go long-term with that kind of model. In Mitch's case, we ultimately bought out his contract on VisiPlot/VisiTrend and he went off to do Lotus 1-2-3.

We transitioned from games to productivity software to spreading out the productivity software line to spreading it out on platforms, and then taking on a practical user interface. Ashton-Tate was best known for dBase—at that time, both Lotus and Ashton-Tate and some of the other companies were trying to build a sweeter product that would compete with Microsoft. In our case, we did a number of acquisitions. We bought MultiMate to get a word processor; we bought Decision Resources, which got us the graphic products. We had a relationship with Robert Carr who was at Framework—we ultimately bought his company, which was sort-of an integrated spreadsheet and word processor.

Mahoney: What was Friday?

Esber: Friday was a file management product that we sold early in our history and rapidly didn't succeed—we even had a product called Rapid File. Everybody was trying to build a product portfolio with a complete suite and they integrated it. In our case, we also bought a couple of Macintosh products. We had a whole suite of products, but, in general, this industry sometimes is a testament to the fact that the best product doesn't always win. I mean, Full Write was an outstanding word processor, Full Impact was a really good spreadsheet on the Mac, and we had a whole suite of products for that. Our changes were not as contentious, probably, as some of those at other companies; but when we had some issues with dBase, which affected our financials in a big way, we had to make some tradeoffs where we started divesting or shutting down products.

Walter: From the outside looking in, it seemed that, with VisiOn, the company overreached—the hardware was not robust enough, really. I remember VisiOn being very slow.

Esber: While the companies were trying to build real graphical interfaces, the hardware wasn't up to speed at that point, whether it was us or somebody else. We did have the financial resources to do what we did. To make a long story short and overly simplistic, what buried VisiCorp had a lot to do with the management teams and personalities of VisiCorp and Software Arts, and the internecine fight between the two of them while, simultaneously, the dynamics of Mitch being able to build another product in the graphics area.

Development and Technology Issues

Mahoney: To what extent did your companies try to keep track of the pace of development?

Coleman: Well, when we built the thing, the darn software kept getting bigger and bigger, or the artificial intelligence, of course. Basically the PCs had 256K of memory and we just couldn't get it to work on that, so we came up with the idea of selling the hardware board.

Byers: That was my first job there, to sell this 256K memory board. I have it still in my office at Stanford. Generally, it was 99 bucks for 256K, and anybody could just pop open and go in because all the applications really wanted 512K.

Esber: As to your question: We all tried to look into the future. I don't think any of us were supergood at seeing exactly what was coming down the pipe. But all of our software ambitions and what we were trying to do were rapidly eating up memory, wanting disk drives, and so on. You might not remember a product in this industry called a Hard Card—a lot of the PCs at the time had only floppies. They didn't have a hard drive and, if you wanted one, you bought this card so it would fit in the slot and help you add to the capacity. The reality of those software dreams required reality of hardware that wasn't cost-effective yet. It's not that some of

this hardware wasn't there, but it wasn't cost-effective for the size markets that all of our companies had the ambition to conquer.

Walter: Software developers were constantly pushing up against the machine limitations, and the hardware guys never told us what was coming.

Bride: To what extent did the software companies have relationships with IBM, Apple, or any of the others—those are the primarily important companies because they were not just hardware makers, they were platform makers.

Esber: Almost all of us had relationships with them. They shared their future hardware plans with us; but when was the last time you knew a hardware or software project that was delivered on time? And, in some cases, with hardware, it was years late.

Walter: For example, we got a preview of the PC Junior—what good did that do us? And it came out and it was a big flop. Symantec and other companies, too, were constantly chasing the new platform. When the 386 processor came out, Gordon Eubanks insisted we had to have a 386 version of Q&A to take advantage of that processor. We were constantly pushing up against hardware. It's only today, really, when I'm working on a new application that I'm not thinking about hardware.

Esber: Back then, a lot of the early software was not architected very well or written for portability, so all these platforms caused us all lots of issues in terms of deciding how to allocate resources.

Hendrix: You couldn't architect them very well because, to get the efficiency, a lot of the programs had to be in assembly language.

Coleman: Assembly's the lowest common denominator. Even if we wrote the user interface, it would be the same. You always ended up with the lowest common denominator, so you better just pick your platform.

Tools for the Toolmakers

Bride: Today, the tools are very mature. Back then, you wanted to write an application but then you'd start to do it and couldn't, so you ended up writing your own tools. I think a lot of companies died just in their tool development projects. They put enormous amounts of resources into developing the tool so they could then create the applications, which was the end goal, and the tools ended up being extremely expensive.

Hendrix: But if they weren't extremely expensive, they often became products, did they not?

Walter: They were, and Denis created one at Symantec, a tool called Display Manager, which was very effective. We were able to build our applications on it.

Coleman: Well, I started with the spelling checker. There was no compiler, so I used assembly language, which was no problem, and then I said, Well, let's see, where is the multiply instruction? What? You mean I'd have to write that for myself?

Byers: If you look into the utilities a little bit, the utility business was very fragmented until 1985. In 1986 it turned out that we actually got a little business going by building utilities on top of spreadsheets. Lotus 1-2-3 was such a hit—if you look at the history, it had such an installed base that a lot of us were making good money from building utilities for it.

Bride: I remember the Lotus add-on market.

Byers: That was us. I ran a little group there, and then that's how we noticed—well, Norton was doing pretty well doing an undelete for the PC so we did an undelete for the Mac; and then viruses came along, and that led to the rest of it. But we cut our teeth on doing add-ins or utilities for Lotus 1-2-3 because it, in itself, became a platform.

Bride: Did a third-party market develop for Ashton-Tate?

Esber: Oh, certainly. We had people writing compilers for the product. We had people writing dBase rip-offs.

Bride: What about applications?

Esber: I think the key to dBase's success was the fact that it had a language and people could write applications with it. Most file management products were sufficient for the data management needs of most people—individuals, that is. But in the corporations, a lot of applications were written around dBase.

Bride: The computer press loves to try to pigeonhole products and, you know, even at this conference, we ran into the question: do you consider dBase a language or a database management system? I'm glad to know that other people had the same problem.

Esber: A big key to our success was our corporate program and a lot of corporations that wrote applications around dBase.

Walter: By the way, you were talking in the planning session about how to present software in an exhibit. You could have a PC running dBase II with just a dot prompt blinking in the upper left corner, and then next to it put a PC running Windows—that would show that whole spectrum: from the dot prompt of the early 1980s to, in 1986 or whatever, the GUI interface. Tremendous difference in the two.

Coleman: The successful products all had to be programmable because you didn't know what people were going to use it for. Three months after we released Q&A, we got this irritated phone call from a guy who spent $300; he's got 100,000 records and he can't reorganize the database because it occupied more than half of the hard disk space. They did things you'd never imagine they were using it for.

Esber: The spreadsheets had macros. Very early on in VisiCalc, we had to at least record the keystrokes. So we had a macro for that.

Walter: This was a very conscious strategy that we pursued in products. A lot of companies, and we did too, built in macro capabilities. It was part of making your software "sticky" because you knew that, if you gave people these tools to customize the application for themselves, they would use it and then they'd be hooked, right? Then it would be really expensive for them to switch to another product.

Coleman: You really had to please the gurus because the neophytes weren't going to use it unless the gurus could use it. And they wanted the power tools and weren't going to buy the products without the power; so, you pretended it was easy to get and spent a lot of work on it, which wasn't easy.

Esber: Even today in what we deliver, maybe 80% of the product capability isn't used by most people. I think, back in the early days, more of our product was used.

Walter: One of the reasons that 80% isn't used is because people don't need it in the first place. You know, a bunch of developers sitting around dream up the features: "Now, that's cool, let's do that. Everybody's going to want that." That was the beauty of pfs. I had so much respect for Fred Gibbons because he had the discipline to really do the minimum functionality that was necessary. And it's hard— when you have a technical team, they don't want to do that; they want to do something really challenging and so on. So to hold the line and give people the bare essentials, Gibbons was able to build a company based on his discipline to hold the line. He did have generally easy-to-use software, but that also then created his vulnerability. When we came along with Symantec and Q&A, we kept that same ease of use but added industrial-strength functionality, and that blew them away.

Mahoney: Did you have a systematic way for gathering user feedback, letting your users help you design the product?

Coleman: Yes, Brett would come in and say, “All the users want this, Denis, so you better do it.” <laughter>

Hendrix: We got regular reports of anecdotal information from the sales force. We pored over that quite a bit.

Walter: In the beginning, usability testing was the exception. Now everybody says they always do that but, over the years, I really did start doing it—I found you don’t have to test with 100 people to find out whether the darn thing works or not.

Bride: Were you large enough to have annual, or less-frequent, user group meetings where you had a formal structure for previewing forthcoming products and then getting feedback about today’s products?

Walter: We didn’t do that at Symantec because it was just so expensive, and because of the administrative challenge of doing that. You have to sell a product for a pretty good price in order to do that.

Coleman: We all loved the product, we all used the product, and, in some sense, when you’re in that position you can get away without doing a lot of the user studies because you *are* the user.

Competitive Migration

Bride: Talk a little bit about the competitive scene and, in particular, the extent to which companies would steal professionals from each other.

Esber: Most companies in this industry experienced people going to competitors—that really came down to how you feel about ethics and whether those individuals crossed the boundaries. We had people, for instance, like Ron Posner, who left Ashton-Tate, went to Paradox when Paradox was not owned by Borland. We had a couple of employees who started a company called Migent to compete with us and that type of thing. So people did it, and they felt to some degree that it was their right to pursue a career that way.

In the beginning of industries, they tend to be like Wild West towns—even today, people steal people from other companies. In California, it’s very tough to keep your employees from going to competitors. It’s something we all have to live with. If you lived in other states, there are ways

to keep people from going to a competitor but, in the scheme of things, did those people leaving significantly change the industry?

Coleman: Charles Simonyi when he had done the word processor Bravo and Bravo X for Xerox, and he went to Microsoft, that was a lot of technology that otherwise just never could have come to be.

Esber: There are a few cases where employees going to work for competitors had more than a modest impact but, in general, it was something we had to live with.

Walter: There are notable exceptions but I think I agree with Ed that, in general, it was highly overrated in terms of its effectiveness as a competitive tool—to be able to hire a key person. You find people who are stars at one company, put them in another company, and they're miserable failures: it's the same person but a different company.

Esber: The biggest impact was the loose intellectual property rules. We had a big issue with FoxPro versus dBase, or Microsoft versus Apple. It just so happened that Microsoft inserted the right clauses in the contract that allowed them to do that. Nobody judged whether it was right or wrong. A lot of that went on that did have impact on the business, primarily, I think, because the U.S. government and the courts say the industry is on a leading edge and the rules haven't been written; the understanding wasn't there. Sometimes massive PR campaigns overly influence the outcome of rulings and that type of thing. Even today, that happens.

Bride: But there weren't many instances where companies would sue each other over raiding to any of their staff, or bring in IP arguments.

Hendrix: You would threaten to sue, and then, you know, it would slow down.

Walter: It happened at Symantec. It was after my time, but Gordon hired a senior technical guy from Borland and there was a massive battle that ensued.

Coleman: Borland threatened to sue or did sue. And Bill Gates must have been chuckling at them for wasting their resources on that. I think that guy ended up getting fired several years later by Gordon anyway.

Esber: Most of those things turned out to be a waste of time and money, plus the distractions, while the real battles were going on in the marketplace.

Pricing

Yost: Can you talk a little bit about dBase II and the decision on pricing it?

Esber: I actually wasn't at the company when dBase II was launched and priced.

Coleman: But, by coincidence the day that Hal Ashley and George Tate talked with whoever it was that originally did dBase II, I was there selling my spelling checker and I went down to Los Angeles to 10,000 Argyle Avenue, building number 200. It turned out that Argyle Avenue was a seedy place, and building 200 was a seedy apartment building and the suite was a seedy suite. And the guy who had just left ahead of me had had this dBase II, and I'd come up with the idea that there was going to be a sort of two-bag system here. You had a limited version of the thing and you could use that, and if you wanted to upgrade, then you opened the other bag.

Esber: In those days, people tried to price their software based essentially on the value they thought they were imparting and what they could get away with. I don't mean "getting away with" in an illegal sense or anything like that, just that you wanted to price your products as aggressively as you could so that you could continue to develop other products.

Yost: And what the market will bear.

Esber: Then, like now, people were demanding high profit margins from software companies. As the market filled with competition, obviously it was the competitive umbrella that started to have a greater impact on your pricing strategy than the early days, when you weren't a monopoly but you had a unique product. dBase was in the $700 range at one point; just imagine trying to get that for a piece of software today: You can't. Users can now buy substantially more capability for a lot less money.

Had I known you would ask that question, I probably could have done a better job on VisiCalc, had I done some research, because VisiCalc started out, as you know, as a totally unique product and we gradually moved the price up. I can't remember whether the initial price was $79 or $99 but, eventually, we got up near $200 on that, maybe even more. But most of us also had to be cognizant of the price of the software related to the price of the hardware. You've seen a lot of articles recently now about how much money Microsoft gets versus how low the price of the machines are and what kind of limits that places on it.

Walter: Ultimately, pricing has killed the shrink-wrap software business. You can't really run a business selling $20 software.

Esber: Right. And remember, we used to have to give big margins to the distribution channels.

Walter: Yes. You may have noticed how the shelf space for software has been shrinking over the last few years. There's no investment going on in shrink-wrap, it's all on the Web now.

Coleman: As Ed said, the first thing you do is you take a look at your platform. When I came up with my spelling checker, my platform was a word processor. Word processors cost $500. I chose $300, thought I'd give it some discounts. Seemed like there were people who, if the software cost $10, they weren't going to buy it anyway; they would steal it. The honest people, who had legitimate uses, were willing to pay what I considered a fair price.

Esber: We had to leave room for not only the margin and the channel but big companies negotiating big buying discounts and that type of thing. In some cases, the prices were artificially high because of the margins taken between us and the customer.

Coleman: I remember, when a corporation used these things, it wasn't like an individual who was trying the software for free. The real commitment was probably not $700. It's all the time and counting on this thing to work**—***that* was the real cost.

Esber: The revolution I like these days is the fact that, if there's something wrong with your code, you can update it over the Web. We used to have massive pangs of pain when we had to release fixes. First of all, customers had to have registered their software. Second, we had to mail them a floppy or something with the updated code, or even a full set of the code. Online updating, for Windows and other products, is just a godsend these days.

Trade Shows and Marketing

Bride: Talk a little bit about marketing and everybody's favorite thing to hate: Comdex, the trade shows, and whether or not those trade shows and public events like that played an important role in early successes.

Hendrix: We always thought that those were big expenses. Their main use was getting everybody into one place and then we'd try to have a hotel suite and, while people were in town, get them up to the suite to actually make the sales. I don't know that the meetings themselves were that useful.

Bride: Did you do big product launches at them or try to avoid them?

Hendrix: I don't think we ever did a product launch at one of them. It was too expensive.

Walter: At least in the early 1980s, press and reviews, especially product reviews, was much more important than trade shows in marketing programs. When we came out with Q&A, we pretty much were out of money. We didn't have a big marketing budget anymore but some of the principals in the company like Gordon Eubanks and Vern Raburn were in the inner circle and had tremendous press contacts.

Hendrix: Vern was always on the phone with everybody and I think that was a big thing in getting the buzz going. And he gave *Personal Computing* an exclusive on the product. They were the only people allowed to see it at the beginning. He timed that whole thing so we made our official announcement on the day that the magazine came out.

Bride: Around that same time, there was a product called Ovation that was *InfoWorld*'s or *PC World*'s product of the year. And it never shipped, despite being named the product of the year.

Esber: There were lots of reasons for trade shows and industry conferences. A lot of them were single-sphere competitors. If you didn't show up, well, it didn't matter. And also, they were used as a "stake in the ground" to drive development to get a product out, in many cases, or ready for a preview. Comdex was a big deal for most of us in that era. If you weren't there, people started talking about your demise, or what might be wrong, and so on. Those shows weren't as important directly for the end users but they were important indirectly because it was buzz. It was working with the other people in the industry—yet another opportunity to speak to your competitors. A lot of times, the press portrayed all of us in these fights with each other or with acrimony or that kind of thing, but actually most of the CEOs in the business got along reasonably well, even though we were competitive.

Coleman: It was an exciting time to go to Comdex. Now, to go to any sort of trade show, it's oh, gee whiz, do I have to do that?

Esber: And for most of us, who were running these companies, being at these shows meant you were tied up with either customer visits—the best part—or you had press interview after press interview. It was just a busy time and people who had to work the show were exhausted. In the early days of VisiCorp, we just had a three-panel booth, and I was running marketing and sales and I had to work every day, full time. That was exhausting, along with everything else—certainly our people on the floor setting up and everything. But in the dynamics of marketing, being at those shows was important: How you dealt with PR. An important key to Microsoft's success, too, was how adept it was at utilizing the press and getting its message out.

Bride: There was always some IBM or Microsoft event at these big shows involving partners.

Esber: In some of those cases, we got to magnify our presence and message. If IBM had an OS/2 section in their booth and we had OS/2 software, they'd give us a place to display it. If you had your software on several machines, you might be in the hardware business. So each one of us, to the degree we could, took advantage of the marketing opportunities of spreading the perceived ubiquity of our companies and our products.

You asked a question about marketing and, while Burt's in the room, I want to say it would be important for the Computer History Museum to not only recognize the technical pioneers of the business but the marketing and/or non-technical or business pioneers of the business because, in this Valley, we tend emphasize mostly the technical achievements. And we're reinforcing the stereotype of, if you build a product, because you've thought of it, the world will buy it.

Walter: This is a Valley of features but it's all about user experience.

Esber: Right. And getting the message out, the things that Vern did, the things that, you and others did was important. Or else the best product would always win.

Yost: In terms of marketing expenditures, as a percentage, did that change over time?

Esber: As the prices came down, it certainly did. When we were all charging higher prices and had margins that dropped to the bottom line that were pretty high, we were able to do a lot of things. One of the key success stories for dBase in corporations was our corporate programming, how we embraced the corporations, had programs for them, educated them, that type of thing. Today, a lot of companies, except for Microsoft or maybe Intuit or the like, don't have a lot of room to do some of these other things. Now, that's good and bad. That means the third-party industry almost always steps in and fulfills those things, and you pay for it *a la carte,* as opposed to in the higher price of your product.

Coleman: When I just got into the market, there were certainly anomalies. In the first month that I sold the product and took out a junior page in this new magazine, *InfoWorld*, for $400, I collected $20,000 from my post office box that month. That was fun. But a few years later, rarely could you ever do any sort of ad that would just pay for itself.

Esber: That was an extremely fun time in the business. We were building an industry, though we didn't look at it that way. We were excited about our products. And there was a ready market for it if we could convey what our products did. My fondest memories are when I was only one out of 20 or 30 people at VisiCorp and it didn't matter what your title was. If an order came in the door, you stayed late and you taped up the boxes for shipment, for UPS. It was very exciting. Now it's much more nuanced, sophisticated, and a lot of outside agencies are used.

Walter: Another thing is, going back to the dreams thing—it wasn't only investors who had dreams and it wasn't just dreams about money. It seemed like you could do anything, and that's why software's so great. It's so plastic. And back then we didn't know that ultimately it would boil down to word processor and database. Microsoft Office has maybe five applications. But back then we thought maybe there were 100 different kinds of applications that would be equally compelling and useful to people. There were a lot of products back then that are only

remembered today by the people who did them; but at the time they were done, we all thought that they could really be something.

Esber: They even had catalogues in those days. Can you imagine trying to put out a catalogue of software products? And, in the early days, there was a lot of cooperation among what are perceived today to be competitors. At VisiCorp, we used to meet once a week for lunch on North First Street. We had a group we called the Organization of Peripheral Equipment Companies, software companies, and we'd talk about common issues of dealing with Apple and that type of thing. We would have poker or Risk games once a month at various people's places, too, so there was a lot of congeniality in the business, and working with each other, because we were all learning and pioneering a business. Now it's a little bit more competitive.

Trade Groups and Personal Networking

Shustek: Did you ever get involved in any of the trade associations, SPA or ITAA or anything like that? And, also, Esther Dyson's PC Forum, I think, was in this time period, wasn't it?

Hendrix: Esther Dyson was a huge help to us. She liked what we were trying to do and she was a really great voice for promoting our credibility and the pieces that we had produced. Her forums were much smaller and had the people in it that we really wanted to see and interact with, so that was great. You'd meet people that you probably should have known but didn't—industry people.

Walter: Vern [Raburn] for example: He left Microsoft to go to Lotus and, essentially, was competing with Bill Gates; but then he came to Symantec, and when he got married, Bill Gates was his best man. As Gary was saying, Vern was constantly on the phone, plugged into this network of insiders in the industry who were constantly exchanging information. They'd all work with each other at different points in the very early years, and I think that was the glue that held it all together.

Esber: These forums were very important influencers or perceived objective reviewers of what was going on in the business. Some products would get launched there—lots of those types of things happened—but I would also say that there weren't a lot of people back then who really understood this business. We had an opportunity to spend a lot of time with each other at these events where we didn't have to put on our persona as CEO of this or that. Initially, those things did not have tons of press, you know? Certainly Ben Rosen's newsletter, for instance, is given a lot of credit for VisiCalc in the early days. There were also Esther's newsletter, Stewart Alsop's newsletter—they were all important. Some of us received letters; for instance, Stewart wrote to us saying, "Hey, you're not paying attention to this," or, "Look at this, or that." It was the type of environment that you don't have except at the beginning of an industry. Those groups were important. They were also entertaining—entertaining for me and for the audience, I think.

Bride: And instructive for the audience.

Shustek: Some of the trade associations, SPA and ADAPSO/ITAA, were, at that time, I believe, trying to attract the microcomputer software companies. Did you get involved with either of the trade associations at Symantec?

Hendrix: We were involved a bit with the SPA. But I wasn't the only person we had involved with that so I can't remember too much about it except that they had an awards ceremony where we had won something. I think they were also helpful in trying to set up a way to fight piracy. They did us all a big service in that regard and Symantec was supportive of that.

Esber: It was important for most of us to be members of that. They didn't have quite the same impact as the Esther Dyson PC Forums. But they did handle some of the things that weren't the mundane business—lobbying with Washington, fighting copy protection, and so on. Some of us sold products with dongles; by and large, most of the copy protection of this industry got in the way—more in the way of legitimate users than it did in preventing theft.

Shustek: The reason I brought it up is that, in the mainframe software world, the trade association absolutely became the place where people met and got together. It happened differently here with Alsop and these newsletters and PC Forums and so forth. They took on a whole different character. SPA and ADAPSO/ITAA never took on the same kind of thing.

Esber: For a short period of time, until Comdex got to be big, Comdex was that type of place. It started off with 1,200 people and then multiplied.

Bride: Well, you remember NCC, too.

Mahoney: Computer Fairs—how far back do you want to go?

Bride: Computer Fairs tended to be regional whereas Comdex tended to be national and NCC tended to be national.

Walter: But you're describing ADAPSO as a place where people came to cooperate. At Comdex, they were not cooperating.

Shustek: They were selling versus talking to each other.

Walter: I don't think SPA was really on people's radar screen in that way.

Esber: When my calendar was set, I certainly wouldn't want to miss the PC Forums, say, but if ADAPSO had a forum—no offense to them—I didn't make absolutely sure I went. I might have made sure that somebody from my organization did.

The Media Impact

Coleman: You had to make sure you got to know the people in the press. That's what moved product.

Esber: It became very important for editors to go to that. They'd get a look ahead. There was a great thirst for all the products, there really was, in the very early days.

Walter: Getting back to your question on marketing, I think the center pin of any marketing was your relationship with the press. At Symantec, that was when guys would come in from *PC Magazine* and so on, and those were red-letter days. Everything revolved around that.

Shustek: The press wasn't, in my view, terribly significant for the sale of mainframe products to businesses. And yet the press and magazines seemed absolutely vital to sales in the PC industry.

Hendrix: Sure, because we were going after a mass audience. When you're trying to sell stuff at $100 instead of $100,000, you have to do it very differently.

Esber: And they don't believe your ads. They believed the press.

Hendrix: That's right.

Esber: Individuals were making a lot of decisions in the first part of the PC business, right?

Walter: Yes. Another thing is that software is invisible. It's complex, you can't see it all at one time. You only really experience it over a period of time so, for a consumer of software, it's very difficult to assess whether a particular software product is going to meet their needs or not. Consequently, they rely heavily on expert opinion, which is what the press provides. That expert opinion is what—certainly with Q&A, which did extremely well, in terms of reviews—put that product on the map.

Esber: Those reviews were much more important and much more weighted. In those days, if the press didn't like the software, it was a death blow to your product. If they really liked it, you had a chance to be successful.

Coleman: And you'd buy ad space in a magazine when the review came out.

Walter: Particularly when they ran the competitive reviews.

Shustek: Were the individuals making the decisions during this period prior to 1985 or were the businesses making the decisions?

Esber: In the VisiCalc days, most corporations—if you went in and said, I need this $5,000 computer and this $200 piece of software—most bosses would go, "What?!" And, you know, some people bought them on their own.

Walter: Probably another thing to think about is just the fact that having a computer on your desk was cool, right? Maybe not for everybody, but for a lot of people, and even in corporate America, that was a badge of honor if you got the first IBM PC on your desk, or got the first Lisa or the first Macintosh. Computers had a mystique, and they still do, to some degree, but even more so in the early 1980s. So, that was the audience; that was the market: people who really wanted to have their own computer. Then they said, "What am I going to do with the darn thing?" And we came along and said, "Here's what you can do with the darn thing." When they wondered, "How do I know your stuff is good?" We said, "Well, read *InfoWorld*, read *PC Magazine*." The review is what really drove it.

Bride: My first exposure to VisiCalc was when I was working at HP and the annual budget process came up. None of us in marketing had any computers but they had one down in HR. So we could bring our numbers down there. It was a big deal, that VisiCalc—and this was in a computer company, in HP.

Hendrix: Talking about trying to influence the reviewers: We found out that Jerry Parnell was using Q&A to write his articles, so whenever he wanted some kind of feature, you could make darn sure that the new version of Q&A Write was going to have that feature on it. We were, in a big way, catering to this particular person who was going to be writing about us to make sure that he loved the product. A lot of the product was run especially for him.

Walter: That's right. When we were getting ready to launch Q&A, Gordon and I took a trip down to southern California to go to the great man's office: we went to Jerry Parnell's home office; this was a Mecca. It was an absolute must-do on our launch activity: to go sit down with Jerry. It was like visiting the emperor. Jerry, in particular, was very unpredictable, you know, as to what he was going to like or not like. And so, managing those relationships, I know that's how Gordon looked at it. He said, "These are relationships that you have to manage." And it got back to Jerry at one point that he was being managed, and boy was he tweaked about that. It was a big blowout.

Mahoney: He's back in business. He's writing for *PC Forum* now.

Hendrix: Some of those guys had really good advice for us, too. Jim Seymour, in particular, had his column where he told us what he thought but then he also called us up and told us what he thought and had lots of really good ideas.

Esber: Those guys were like information hubs. They knew a lot of things that they couldn't print or couldn't officially tell us. But, they still told us.

Hendrix: I found that, in general, those people were helpful.

Walter: That's what Walt Mossberg does, right? Walt Mossberg is probably the most influential technology columnist now. He makes or breaks you, depending on what he writes in his column. I still think that reviews are the most critical factor in selling software of any kind. Well, I don't know about mainframes; that's not my world.

Acquisitions, Strategy and Impact

Yost: Could you speak briefly about Symantec's acquisition, its strategy and the corporate culture and challenges with integrating?

Hendrix: Integration was a huge, huge problem.

Coleman: Was there any case where the top management wasn't gone? Six months, 12 months, or just effectively gone?

Hendrix: I can't think of one. Not one. They always left, but a lot of the technologists stayed and we tried to fold those in. It turns out that putting companies together is really hard, with one exception: Gary Hendrix. The first of the mergers was with what was then C&E and then the original Symantec Corporation of California. But the big, added mergers came in 1987, when Symantec acquired or merged with, depending on your viewpoint, Breakthrough Software, that did Timeline; with Living Videotext that had ThinkTank; and THINK Technologies of Massachusetts, which had the languages C, Pascal, and Macintosh Pascal, which was the educational version. And around the same time Symantec developed the outliner, GrandView, which was based on ThinkTank. There were three acquisitions that happened very, very quickly. We found out early that what we thought was a pretty simple deal and that nothing was changing was viewed very differently by the people at the other companies—they thought that everything had changed, mostly for the worse. The one thing that we did that helped was to get one of our execs to go to wherever that company was and just live there. So Rob Turner went to Breakthrough and set up shop for awhile. And I had an office at the old Living Videotext offices. I think Tom went to be with THINK. In my case, I had nothing to do with running that piece of the

business. I was just physically sitting over there but I think it made a difference because we didn't seem so much like ogres; and, when people were upset about not being able to order something, you could say, "Well, look, it's not that the rest of the company won't let you order anything, it's that you don't know whom to call in order to get the requisition filled." If we had tried to keep these remote operations going without having an insider who knew the ropes in place there, they would have certainly failed. They were all difficult to get folded in. Mergers are extremely hard to do and even harder to do right, because there are always big cultural differences.